DOES GOVERNMENT AND INSTITUTION QUALITY MATTER TO SUSTAINABLE DEVELOPMENT GOALS?

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Abstract: The world needs to be more resolute to meet its pledge to achieve the United Nations Sustainable Development Goals by 2030, yet three issues remain. Firstly, the representation of sustainable development is often not the SDG. Secondly, the determinants of sustainable development are not conclusive. Thirdly, there are incongruent relationships within components of institutional quality, thus casting scepticism on the validity of the aggregated relationship. This paper aims to analyse factors affecting the achievement of the Sustainable Development Goals Index (SDGI) through a novel attempt based on the recomposed institutional quality. In high-income countries, the most important determinants of sustainable development come from higher capital investment, higher government fiscal expansion, and upholding democracy. In middle-income countries, government effectiveness is the most important determinant of sustainable development. In low-income countries, government plays a vital role through fiscal expenditure and good institutional quality but provided the sustainable development level is high—anomalies results in control of corruption, government ineffectiveness, and voice and accountability prompt for attention.

Keywords: SDG 2030, institution quality, recomposed WGI, quantile regression, corruption.

Introduction

Sustainable development is not a completely new issue, only that the world needs to be more resolute in striving for it now. Decades ago, the economy was content with aggregate output or income growth. Later, it is not enough as welfare issues are considered in policy-making. In 2000, United Nations had its Millennium Development Goals (MDG), followed by the Sustainable Development Goals (SDG) in 2015. 17 goals in SDG regarding growth, inclusiveness, industrialisation, strong institution, and social welfare are adopted by all members and are to be achieved by 2030. However, three issues need attention. Firstly, the conceptualisation and proxy for sustainable development are often not the SDG but a variety of partial and subjective representations. For example, environmental aspects like pollution are among the most popular but not holistic representations of sustainable development. The SDG Index is currently the only official index from the United Nations to proxy their SDG level of achievement. The SDG Index (SDGI) is created by Sustainable Development Solutions Network and Bertelsmann Stiftung, who are the founders and administrators of SDGI. The SDGI score implies the average percentage of achievement toward all 17 targets of the Sustainable Development Goals (SDG). Based on Lafortune *et al*. (2018) methodology paper, its score ranged from 100 (best) to 0 (worst). A score of "100" represent 100% achievement of all SDGs, while a score of 65 represents 65% achievement of all SDGs. The SDGI is the most quantitative, internationally harmonised, and comparable indicator to track the achievement of the SDG among its members. Its methodological construction is well documented in Lafortune *et al*. (2018) for research and policy implications.

Very few literature studies on the SDG Index. Perhaps it is a new index with limited years of data starting in 2016 covering 162 nations. The lack of research on such an important indicator for sustainable development represents an important research gap. Among the few related literatures on SDG Index, Guijarro and Poyatos (2018) designed a new composite index based on the SDG Index; Jabbari *et al.* (2019) focus on carbon budget allocation within the SDG Index; Nhemachena *et al.* (2018) concentrated on agriculture aspect for Southern Africa; and Har *et al*. (2019) discussed literature mapping and issue within Sustainable City (Goal-11) aspect.

Secondly, what are the determinants of the SDG Index? The SDG Index and rankings seem to point to high income as an important determinant towards achieving sustainable development. Eradicating poverty, the ability to provide sufficient basic needs and infrastructures, decent work, and sustainable industrialisation in SDG is closely linked to high income. Nevertheless, Singapore surprisingly ranked 66th, lower-ranked than other relatively lower-income Asian countries like Thailand (40th), Uzbekistan (52nd), Vietnam (54th), Iran (58th), and United Arab Emirates (65th). United States' ranking (35th) is also surprisingly lower than the likes of Estonia (10th), Slovenia (12th), Hungary (25th) and Chile (31st) (Sachsw *et al.,* 2019). Perhaps other determinants, especially the direct role of government in the economy and institution quality, facilitate achieving sustainable development and, therefore, higher SDG Index ranking score.

Thirdly, sustainable development needs the active participation of various stakeholders, including the government as a policy maker to ensure high institutional quality. Institutional quality does not depend on the government alone. It needs the collective efforts of the government, lawmakers, enforcers, and community to uphold the rule of law, political stability, freedom of speech, transparency, and fairness. Every member of society has a role to play. The government also can impact the achievement of SDG through its direct government expenditure and sustainable debts. The private sector's capital investment can be made in sustainable ways or not. Jointly, the government, the institution, and the private sectors play important roles. Unfortunately, empirical research on the impact of institutional quality on achieving the SDG is scarce. The World Governance Indicators (WGI), comprising six equally weightage components, is among the common proxy for institutional quality. Theoretically, the higher the WGI, the higher the SDG Index, but the possibility of incongruent relationships within its components cast scepticism on the validity of the aggregated relationship.

This paper is motivated to solve each of these three issues as follows. Firstly, the paper uses the official United Nations SDG Index as a proxy for sustainable development. In terms of contribution, this is the first research to use the official and internationally standardised SDG Index to represent Sustainable Development Goals. The findings give a specific implication to the achievement of the United Nation's targets of SDG rather than a partial and non-SDG representation of sustainable development as in past literature.

Secondly, this paper analyses the determinants of the achievement of the United Nations SDG through three specific research objectives. The first objective is to analyse the role of passive government (Classic school) in achieving sustainable development. The second objective is to analyse the role of active government (Keynesian school) in achieving sustainable development. Meanwhile, the third objective is to analyse the role of institutional quality in achieving sustainable development. This paper hopes to contribute to systematically analysing the determinants of the SDG Index through three important schools of thought: The Classic school, the Keynesian school, and the Institutional school of thought.

Thirdly, regarding the issues of possible anomalies (incongruent) among components for institutional quality, the fourth objective of this paper aims to analyse the relationship between

the decomposed/recomposed institution quality and sustainable development. The findings can validate the existence of incongruent relationships between individual components of institutional quality (WGI). The findings highlight possible anomalies (incongruent) among components for institutional quality. In addition, this paper also contributes to introducing a novel method to recompose institution quality considering incongruent relationships. The methodology of recomposing the WGI into "WGIplus" and "WGIminus" is a novel approach to solving incongruent relationships and improving the analysis of institutional quality.

Conceptualisation of Sustainable Development

The conceptualisation of sustainable development is ambiguous and misrepresenting, hence justifying this research to use the United Nation's official, holistic, and internationally standardised Sustainable Development Goal (SDG) Index as a proxy for sustainable development. Sustainable development often misleadingly links to the environment. For some examples of past literature, co-existence and inter-dependent between growth and preservation of the environment are considered fundamental and proxy for sustainable development (Brown, 2009; Weale, 2009). Sustainable development is associated with natural assets like forests and sea (Laksamana & Selvaratnam, 2016), carbon dioxide/hydrocarbon emissions (Sek & Har, 2011; Motalo *et al*., 2018), environmental accounting (Hussain *et al.*, 2016) and clean production (Bera & Sadowska, 2018) as well as associating its spillover effect to various aspects of economic and politic (Norhana & Noreha, 2021). A survey on whether natural assets have an essential role to respondents is taken as the measurement for environmental sustainability in Laksamana and Selvaratnam (2016). Sek and Har (2011) use panel-based seemingly unrelated regression analysis on the ADF test (SURADF) to determine carbon dioxide emission convergence in Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand from

1971 to 2006 and associate convergence with sustainability. Motalo *et al*. (2018) research only focus on the quality of hydrocarbon gas despite linking it to the perseverance of the environment and sustainability. Dietz and Neumayer (2009) underlined that sustainable development engages fairness, both inter and intra mankind generations, expandable to fairness between mankind, flora, and fauna world.

Hussain *et al.* (2016) analyse past literature from 1970 until 2016 on environmental taxes, valuation, and pollution costs as indicators of achieving sustainable development. Bera and Sadowska (2018) use a literature review, observation, and case study to evaluate sustainable production in Poland. The research covers five issues with 18 indicators but mostly on resource consumption patterns, pollution, and access to basic needs. None of the literature comes close to the holistic comprehension of sustainable development as in SDG. Nonetheless, Seng *et al*. (2021) compared the conceptual framework of SDG 2030 with its practical application, focusing on Malaysian smart urbanisation. They conclude that strong political will is needed to balance the dominant influence of business capitalism. The institutional economics school of thought believes institutions are fundamental to long-term economic performance and therefore sustainable development. For example, property rights need to be assigned and protected by law as in the Coarse Theorem to enable sustainable development. Tenzing *et al.* (2017) studied the direct impact of property rights on the sustainable development of grazing nationalisation of rangelands in Bhutan. Fang *et al.* (2019) used the term "sustainable development" but are studying sustainable China's outbound investments and intellectual property rights, not sustainable development in the context of SDG. Good governance and transparency are also linked to sustainable development (Sachs & Schmidt-Traub, 2017; Hansson *et al.,* 2019; Rasoolimanesha *et al.*, 2019).

Sustainable energy, environment, and governance are popular research nexuses linked

to sustainable development in various prevalent research areas such as "energy democracy" (Burke & Stephens, 2017; Veelen & Horst, 2018; Ramirez, 2021) and "environmental justice" (Menton *et al*., 2020). The SDG also impact the business in their operational organisation, thus motivating research works such as Tulder (2018) and Yadav (2021). However, literature on the "Sustainable Development Goals Index (SDGI)" itself is scarce and different from the literature on sustainable development or Sustainable Development Goals-related themes. The SDGI is newly minted, thus there are limited reports, write-ups, and descriptive analyses on SDGI. Publications on the framework of the SDGI are done by Sustainable Development Solutions Network and Bertelsmann Stiftung, who are the founders and administrators of SDGI. Examples are Kroll (2015) and Sachs *et al.* (2017). Many pieces of literature have keywords of "sustainable development index" but are not related to the United Nations' Sustainable Development Goals (SDG) Index. Perhaps, they take their definition of "sustainable development" when referring to the sustainable development index and/or attempted to develop their index on sustainable development. An example is Hickel (2020), who modified the Human Development Index (HDI) into the "Sustainable Development Index" by adding the element of carbon emission and material footprint.

Other similar research on sustainable or sustainability indexes which are not the SDG Index is applied to construction (Kwatra *et al.,* 2020), mining (Amirshenava & Osanloo, 2019; Ataei & Masir, 2020) and urbanisation/geographical analysis (Araripe-Silva *et al*., 2018; Chen *et al*., 2019). Some literature merely combines and/or compares a variety of indexes from the perspective of sustainable development (Morse, 2014 & Suganthi, 2019), which are not the same as using the official United Nations' Sustainable Development Goals (SDG) Index. Literature on "institution" and "governance" is also aplenty. They range from exploring the concept and institutional school of thought (North, 1991; Weiss, 2000; Kaufmann *et al*., 2011) to linking to socio-economic issues

like investment (Owusu *et al.,* 2017), the Fourth Industrial Revolution (Kovacs, 2018), innovation (Law & Lee, 2016) and role of religion to sustainable development (Sadowski, 2017). However, literature on institutional quality and Sustainable Development Goals is scarce and only loosely linked, such as Hansson *et al.* (2019) and Mion *et al.* (2019). These motivate this paper to research a direct relationship between institutional quality and achieving Sustainable Development Goals. Based on relevant theories and literature, this paper is based on the theoretical and conceptual framework in Table 1.

Methodology

This paper examines the effects of institutional quality on achieving the United Nations' Sustainable Development Goal (SDG) over four years, from 2016 to 2019. The SDG achievement is quantified in the official and newly minted "SDG Index" (SDGI). The study period is short due to the SDGI only starting in 2016 and attempting to avoid the possible shock of the COVID-19 pandemic from 2020 onwards. The World Bank's Worldwide Governance Indicator (WGI) represents institutional quality. WGI is an index of an equally weighted average of the six dimensions of governance, which are "Voice and Accountability (VA)", "Political Stability and Absence of Violence/Terrorism (PS)", "Government Effectiveness (GE)", "Regulatory Quality (RQ)", "Rule of Law (ROL)" and "Control of Corruption (COC)". Roles of institution quality are analysed based on its aggregate proxy (WGI) in Model 2, its individual (decomposed WGI) components in Model 3, and/or the recomposed WGI based on the institutional quality relationship with sustainable development in Model 4. The basic Model 1 consists of selected macroeconomic factors without a proxy for institutional quality. The research framework is shown in Figure 1.

Each of the six WGI components is regressed to SDG Index and their respective relationship (positive and negative) is grouped and recomposed as "WGI-plus" (for positive

Table 1: Theoretical and conceptual framework

Theory (Conceptual)	Variable	Expected Relationship
Classic school (automatic market adjustment towards efficiency and sustainability)	Growth	+
Classic school (automatic market adjustment efficiency and sustainability)	GFCF	+
Keynesian (a constraint on fiscal policy)	Debt	-
Keynesian (government-led growth)	G_Share	+
Institutional economics (provide good economic, social and political system)	WGI	+
▪ Voice and accountability	VA	+
▪ Political stability and absence of violence	PS	+
▪ Government effectiveness	GE	+
▪ Regulatory quality	RQ	+
▪ Rule of law	ROL	+
▪ Control of corruption	COC	+

Note: GFCF = Gross Fixed Capital Formation, G_Share = Government's expenditures share and WGI = Worldwide Governance Indicators
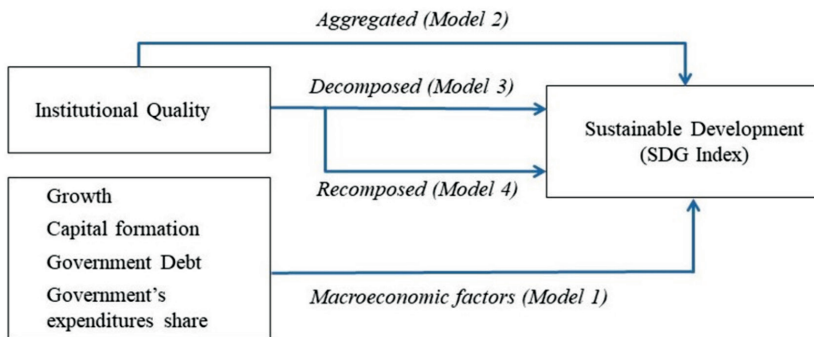

Figure 1: Research framework

relationship) and "WGI-minus" (for negative relationship). This paper believes that not all the six components of WGI will move in tandem with the relationship with the SDG Index. A total of 112 countries were selected based on data availability (see Appendix). Those countries are further divided into high-income (36 countries), middle-income (61 countries), and low-income (15 countries) based on World Bank's classification. Gross Domestic Product (GDP) Growth, Gross Fixed Fapital Formation (GFCF), central government debt (G_Debt, as a percentage of GDP), and government expenditure share (G_Share) are chosen as control determinants. All data are sourced from World Bank's World Development Indicators database, except central government debt sourced from International Monetary Fund (IMF) database. This paper utilised the advantages of quantile regression with bootstrap replications to analyse different relationships nexus in different levels of achievement of the targets in the United Nations' SDGs. The possibility of having residuals not normally distributed and data clustering in different quantiles added reasons to choose this method.

Scatter plots and the Shapiro-Wilk test are used to observe data clustering and test the normality of residuals, respectively. The equations for quantile regression are as follows:

$$\text{SDGI}_{i,t} (\tau|X_{i,t}) = \alpha_i + \alpha_{1,\tau} \text{ IQ}_{i,t} + \alpha_{2,\tau} \text{ Growth}_{i,t}$$
$$+ \alpha_{3,\tau} \text{ GFCF}_{i,t} + \alpha_{4,\tau} \text{ G\_Debt}_{i,t} + \alpha_{5,\tau} \text{ G\_Share}_{i,t}$$
$$+ \beta_i$$

……………… Equation 1

In quantile regression, the $\alpha(\tau)$ represents the coefficient at the individual quantile τ level and β_i is the unobserved individual effects. SDGI represents sustainable development, which is proxy by the Sustainable Development Goal Index. IQ represents institutional quality and proxies by WGI. "Growth" refers to real Gross Domestic Product (GDP) growth. GFCF and G_Debt variables are in natural logarithm form, and other variables are maintained in their original form. G_Share are ratio, SDGI is in index form, and growth is in percentage. The higher value for SDGI and WGI represent a higher level of sustainable development and better institutional quality. This paper decomposes the WGI, regresses each of its components against sustainable development (SDGI), determines the coefficient of each component (positive, negative or not significant) and then re-composes the WGI into "wgiminus" and "wgiplus" of negative and positive coefficients, respectively.

Results

Scatter plots of the United Nations Sustainable Development Goals Index (SDGI) (on the Y-axis) against the independent variable (X-axis), including every component of WGI, are shown in Figure 2. Graphically, the independent variables have a positive relationship with SDGI except for the government debt, growth, and gross fixed capital formation, which relationships with SDGI are negative. The negative slopes for growth and gross fixed capital formation are surprising due to the common expectation that higher growth and capital formation should be favourable to achieving sustainable

development targets. Clustering patterns are not obvious, yet scatter points are relatively more saturated in higher SDGI quantiles, giving partial justification for using the quantile regression method. The scatter plots also reveal that the higher development status tends to have a higher range of SDGI. Shapiro-Wilk W test results as in Table 2 show normality is rejected for all variables. This further justifies the use of quantile regression to analyse their relationship. Descriptive statistics in Table 3 reveal that higher-income countries have a relatively higher average level of sustainable development and institutional quality than lower-income countries. The lowest-level income group has the highest average growth rate, while the highest-income group has the highest government expenditure share. These differences in descriptive statistics imply the need to segregate the regression analysis by income grouping as applied in this paper.

Figure 3 and Figure 4 illustrate the results of the relationship between independent variables and sustainable development in graphical format. Figure 3 presents the results for all countries and high-income countries, while Figure 4 is for middle-income and low-income countries. There are four models of analysis. Model 1 is the control model without the determinant of institutional quality (WGI). Model 2 is the model with all selected determinants including institutional quality (the aggregated average value of WGI). In Model 3, all six components of the WGI are regressed individually (decomposed the WGI) against sustainable development (SDGI) to determine their relationship. Model 4 is the result of recomposed institutional quality based on findings in Model 3. Results for all countries are not consistent with those for other income groups, probably due to the differences in Table 3. Hence, the subsequent analysis will focus on the three groups of countries based on different income levels. In high-income countries, institutional quality has a positive relationship with the sustainable development level (Model 2), but its importance is reduced towards a higher level (quantile) of sustainable development. The government's expenditures share also
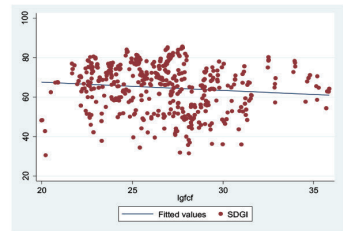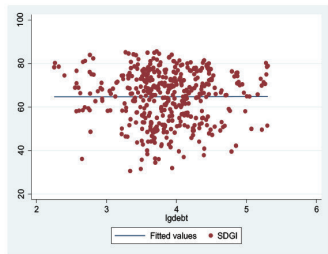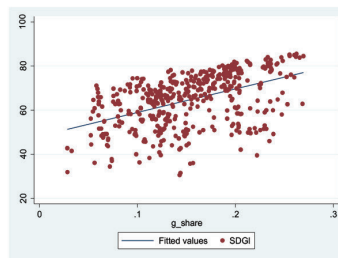
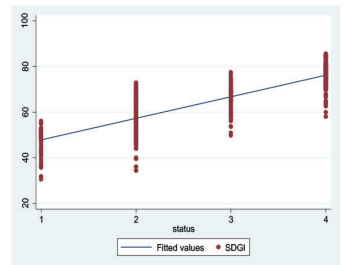WGI (Aggregate)
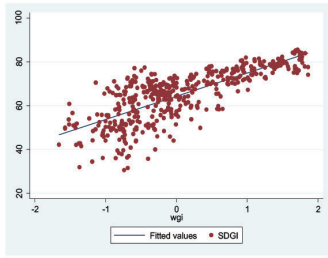
GDP Growth
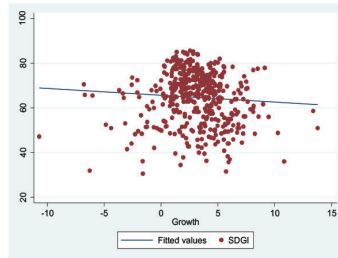
Gross Fixed Capital Formation (GFCF)

Government Debt (G_Debt)
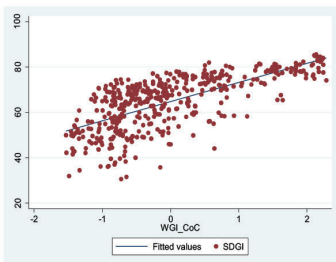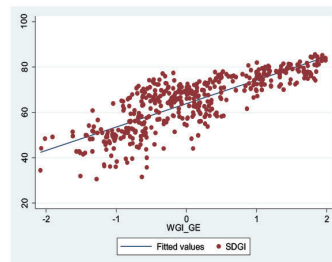
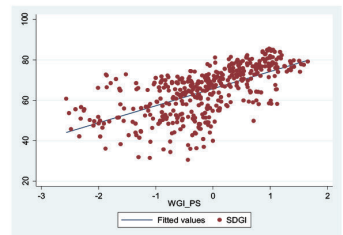Government Expenditure share (G_Share)

Status

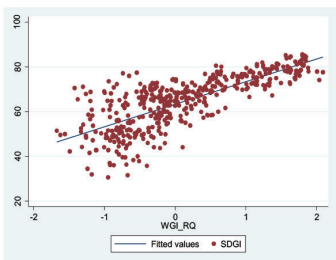Control of Corruption (COC)

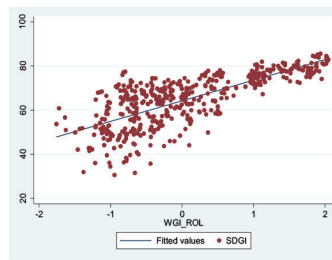Government Effectiveness (GE)

Political Stability and Absence of Violence/Terrorism (PS)

Regulatory Quality (RQ)

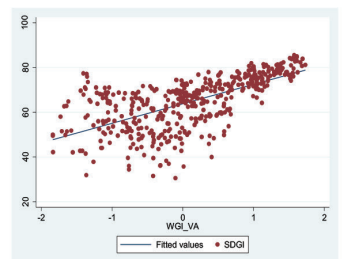Rule of Law (ROL)

Voice and Accountability (VA)

Figure 2: Scatter plot of SDGI and its determinants

Table 2: Shapiro-Wilk W test for normality

Variable	All Countries	High-income	Middle-income	Low-income
sdgi (z-value)	0.9655 (5.627)***	0.9576 (3.533)***	0.9525 (4.953)***	0.9216 (3.125)***
wgi	0.9571 (6.147)***	0.9655 (3.062)***	0.9910 (1.103)	0.9261 (2.997)***
growth	0.9618 (5.868)***	0.9539 (3.723)***	0.9594 (4.589)***	0.9374 (2.639)***
lgfcf	0.9784 (4.507)***	0.9360 (4.462)***	0.9692 (3.949)***	0.8912 (3.832)***
lgdebt	0.9871 (3.267)***	0.9821 (1.581)*	0.9869 (1.969)**	0.8818 (4.010)***
g_share	0.9877 (3.161)***	0.9731 (2.500)***	0.9802 (2.918)***	0.9606 (1.643)*
Observation	448	144	244	60

Note: *, ** and *** indicate significant at 10%, 5% and 1% level, respectively. sdgi is the Sustainable Development Goals Index, wgi is aggregated WGI index from all its six components, lgfcf is Gross Fixed Capital Formation in natural logarithm form, lgdebt is the government's debt in natural logarithm form and g_share is the government's expenditure share

Table 3: Descriptive statistics

Variables	All Countries	High-income	Middle-income	Low-income
Number of countries	112	36	61	15
SDGI				
- Minimum	30.4900	58.0300	34.400	30.4900
- Average	64.7089	76.1681	62.3633	46.7458
- Maximum	85.6000	85.6000	77.4000	56.1000
WGI				
- Minimum	-1.6601	-0.2560	-1.5239	-1.6601
- Average	0.0414	1.0644	-0.3552	-0.8013
- Maximum	1.8620	1.8620	0.6522	0.0239
Growth				
- Minimum	-10.7021	-0.8252	-10.7021	-6.2555
- Minimum	3.0672	2.7882	2.9631	4.1598
- Average	13.7874	9.1294	13.7874	10.8206
- Maximum				
lgfcf				
- Minimum	19.9902	21.6731	20.5061	19.9902
- Average	26.7391	26.0360	27.0918	26.9925
- Maximum	35.8546	33.9889	35.8546	31.0942
lgdebt				
- Minimum	2.2514	2.2514	2.5512	3.3384
- Average	3.8722	3.9313	3.8115	3.9774
- Maximum	5.3052	5.3052	5.1618	5.3002
g_share				
- Minimum	0.0284	0.1334	0.0525	0.0284
- Average	0.1537	0.2008	0.1310	0.1331
- Maximum	0.2695	0.2695	0.2348	0.2389

WGI - COC				
- Minimum	-1.5315	-0.1383	-1.4397	-1.5315
- Average	-0.0014	1.1158	-0.4717	-0.7704
- Maximum	2.2839	2.2839	1.6468	0.6441
WGI - GE				
- Minimum	-2.0785	0.1866	-2.0785	-1.6219
- Average	0.0822	1.1812	-0.3106	-0.9578
- Maximum	1.9842	1.9842	1.0753	0.2669
WGI - PS				
- Minimum	-2.5648	-0.9020	-2.5648	-2.3372
- Average	-0.1259	0.6833	-0.4200	-0.8720
- Maximum	1.6559	1.6559	1.1233	0.1186
WGI - RQ				
- Minimum	-1.6738	-0.0758	-1.4231	-1.6738
- Average	0.1394	1.2163	-0.2841	-0.7226
- Maximum	2.0886	2.0886	0.7118	0.1463
WGI - ROL				
- Minimum	-1.7588	0.0839	-1.7588	-1.4962
- Average	0.0484	1.1945	-0.4204	-0.7957
- Maximum	2.0451	2.0451	0.6275	0.1286
WGI - VA				
- Minimum	-1.8379	-1.7275	-1.4438	-1.8379
- Average	0.1054	0.9951	-0.2242	-0.6893
- Maximum	1.7336	1.7336	1.1417	0.0652

has a positive relationship with sustainable development from the middle-quantile onwards and its impact is increasing towards a higher level of sustainable development. Gross fixed capital formation is significantly positive at quantiles 30th to 60th without institutional quality but becomes insignificant (except quantile 70th) with institutional quality in Model 2. Growth and government debt have no significant relationship with sustainable development. Comparing Model 1 and Model 2, results are consistent except for gross fixed capital formation, which turns from a positive relationship in Model 1 to insignificant in Model 2.

In middle-income countries, the relationship between institutional quality and sustainable development mirror results in high-income countries, which is positive but reduces its impacts when the sustainable development level gets higher. The government's expenditure share, growth, and gross fixed capital formation are insignificant. The inclusion of institutional

quality changes the government's debt from no significant relationship in Model 1 to negative at a lower level (quantile) of sustainable development in Model 2.

In low-income countries, institutional quality only has a positive relationship with sustainable development at higher levels (above the 60th quantile) of sustainable development. Other determinants are insignificant, except the government's expenditure share is significantly positive between the 60th quantile to 80th quantile level of sustainable development. Incongruent relationships between sustainable development and the individual component of the institutional quality are glaring as shown in Model 3 (decomposed WGI).

In high-income countries, control of Corruption (COC) and Government Effectiveness (GE) negatively affect sustainable development at the lower level. Rule of Law (ROL) is significantly positive at the sustainable development level below the 50th quantile, while Voice and Accountability (VA)
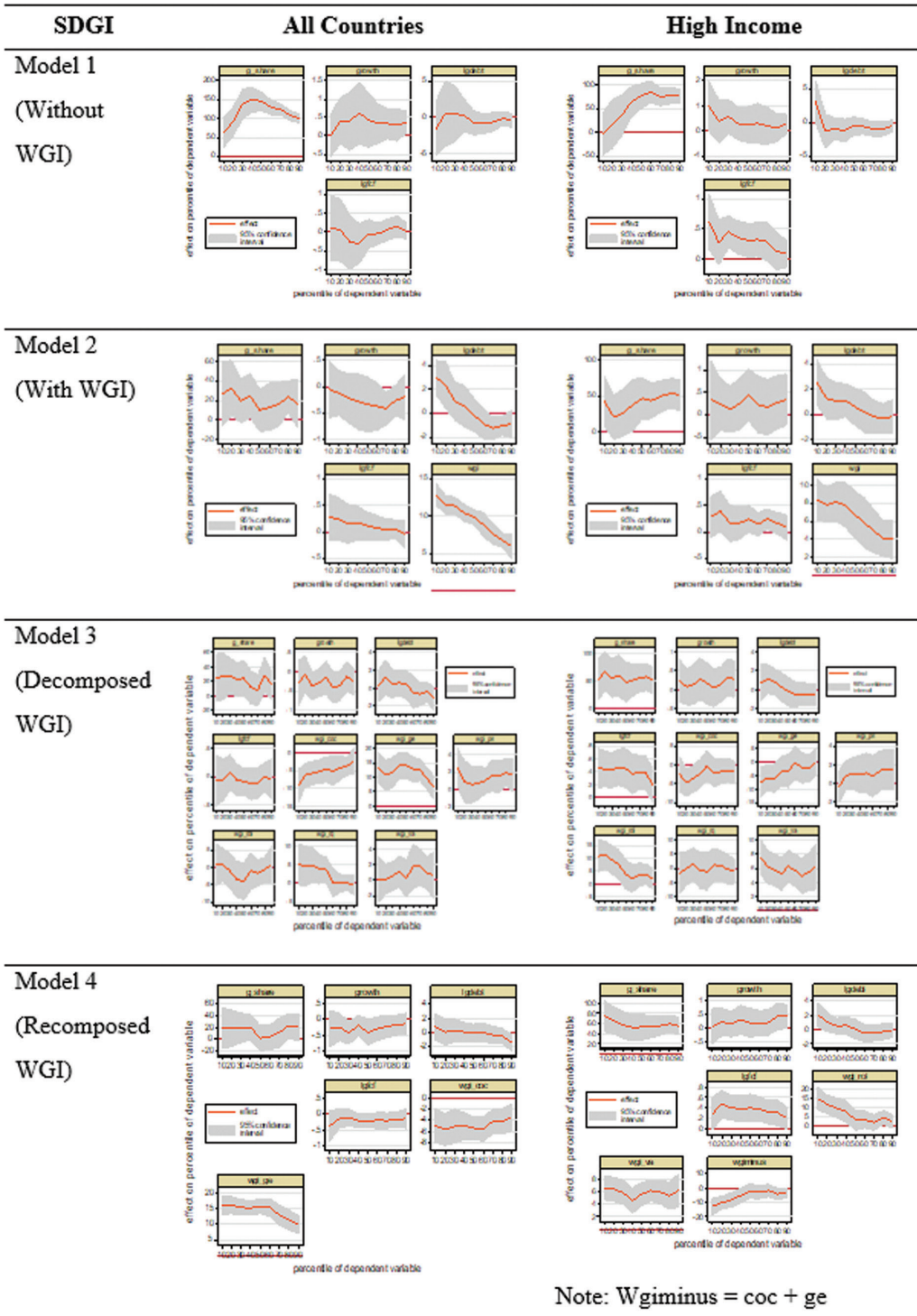
Figure 3: Quantile regression results for all countries and high-income countries
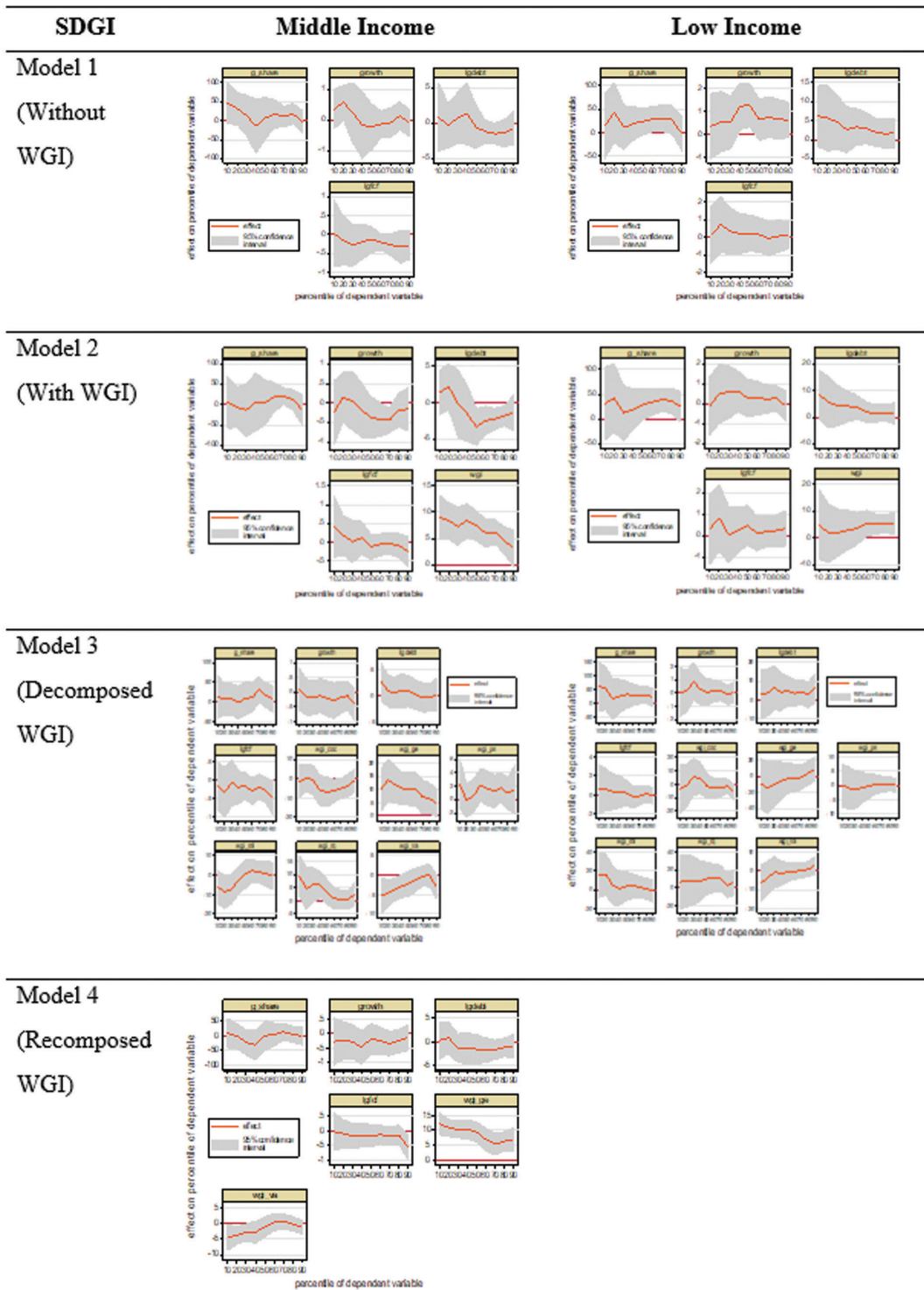
Figure 4: Quantile regression results for middle-income countries and low-income countries

have a positive relationship with sustainable development at all levels. Other components of WGI have no significant relationship with sustainable development. Thus, COC and GE are recomposed as "Wgiminus" as they negatively affect sustainable development at similar quantiles. In Model 4 for high-income countries, the aggregated WGI is replaced with "Wgiminus", ROL and VA while other components of WGI that are not significant are omitted.

In high-income countries, results of the recomposed WGI as in Model 4 reveal three differences as compared to results in Model 2. Firstly, the positive relationship between the government's expenditure share with sustainable development has been extended to all levels of sustainable development. Secondly, gross fixed capital formation has changed from insignificant to significant positive except for the 10th and 90th quantiles, which partially mirror results from Model 1 (without the aggregated WGI). Thirdly, the impact of institutional quality is refined into three components. Interestingly, at the early level of sustainable development, ROL has a positive relationship with sustainable development, while the aggregated index of COC and GE (labelled as "Wgiminus") has a negative relationship. These opposite relationships with sustainable development will cancel out each other in Model 2 of aggregated WGI index, thus distorting the findings. VA has a positive relationship with sustainable development at all levels. In middle-income countries, only GE and VA components of institutional quality have significant but opposite relationships with sustainable development. In Model 3 for middle-income countries, GE has a positive relationship with sustainable development for almost all levels abide for its impact is declining towards a higher level of sustainable development. In contrast, VA has a negative relationship with sustainable development but is limited to lower levels only. Regulatory Quality (RQ) is significant and positive at only two separate quantiles, thus, not considered in Model 4. COC, PS, and ROL are not significant. Hence, GE and VA are regressed separately in Model 4, but all

other not significant components of intuitional quality are omitted. Results in Model 4 mirrored results in Model 1 without the institutional quality, where all determinants are insignificant except the GE and VA. GE has a positive relationship with sustainable development at all levels, but its impact is relatively lower at higher levels of sustainable level of development. Meanwhile, VA is significantly negative at the early level (up to quantile 30th) of sustainable development. In low-income countries, none of the individual components of institutional quality is significant. Thus, Model 2 which used aggregated WGI is applied for the interpretation and discussion of findings.

Discussion

In high-income countries, the results reveal three unorthodox scenarios. Firstly, higher government expenditure share and gross fixed capital investment help achieve United Nations' Sustainable Development Goals (SDG). The former determinant is usually a proxy for the Keynesian school of thought, while the latter represents the opposing Classic school of thought. Although growth is not significant, the findings can imply that the free market and the government's active role in the economy through its fiscal spending can be valid. Nevertheless, the findings are surprising given that high-income countries tend to advocate a laissez-faire economy over a government-led growth strategy. Secondly, results show corruption and government ineffectiveness act as "helping hand" to promote sustainable development at lower levels of sustainable development. The institutional school of thought advocates that lower corruption, higher governmental efficiency, and the stricter rule of law represent higher institution quality, which will promote sustainable development, especially SDG-16. This result does not advocate using corruption and government inefficiency to achieve SDG targets but calls for a critical review of economic fundamentals to unearth the possible reasons for such results. There could be two possible reasons for the failure of a higher control of corruption

and a more effective government to enhance sustainable development. The first corruption is made easier by a less efficient government and has its "good side" too (Nas *et al.,* 1986). The second is the problem of perceptions being shaped by knowledge/power play, as theorised by Foucault (2019). His theory implies that the knowledge/power structures can mislead the perception of the actual level and society's acceptance of corruption. Thirdly, it is puzzling that the impact of the rule of law is rapidly decreasing from positive to not significant when sustainable development levels increase. The ineffectiveness of the rule of law in promoting a higher level of sustainable development is an interesting qualitative research gap to explore in the future. When a country has achieved a high level of sustainable development, the economic and institutional system can function automatically with a minimum number of rules and regulations. It is akin to a highly ethical person does not need laws to restrict them from cheating, therefore the excessive rule of law is redundant.

A positive relationship between voice and accountability with sustainable development implies that a higher level of democracy and freedom of speech are important to sustainable development. Interpreting the results in Model 4 collectively implies that the rule of law in high-income countries may neutralise the negative impact of corruption and government ineffectiveness when the sustainable development level is relatively low in high-income countries. The impact outcomes are that higher capital investment, higher government fiscal expansion, and upholding democracy can increase sustainable development in high-income countries. High-income, middle-income, and low-income countries have contrasting findings. Findings indicate two major concerns in middle-income countries. Firstly, achieving sustainable development has no linkage with economic fundamentals, namely market efficiency (growth and gross fixed capital investment) and fiscal policy (government expenditure share and government debt). Sustainable development is supposed to be a holistic concept of economic

progress; thus, the insignificant findings indicate the possible unknown problem to policies and efforts to achieve sustainable development targets. Nonetheless, if the aggregated institutional quality is considered as in Model 2, higher government debt adversely affects the progress towards sustainable development but only at a higher level.

Negative findings for Voice and accountability (VA) at the lower level of sustainable development also prompt concern about the role of electoral process participation, freedom of speech and association, and freedom of media, the three main components of VA. It could be that these freedoms are compromised to achieve sustainable development. These findings are not new from a historical perspective. In the 1500s in Europe, where the Mercantilist schools were dominant, a strong government with low freedom for the citizens facilitated the expansion of the economy and empire (Brue & Grant, 2013). Other influential Western and Oriental philosophers and philosophies propagating lesser voices and accountability for stability and growth are Plato, Socialism, Legalism and Confucianism. Similarly, Seng *et al*. (2021) are concerned that the environmental aspect is being sidelined for economic interest within a democratic system. Collectively, the most impact determinant of sustainable development in middle-income countries is government effectiveness (GE) only, which again triggers concern. There should be more than one catalyst to achieve sustainable development, thus findings indicate many symptoms of the pseudo-economy in middle-income countries, which are beyond quantitative data.

In low-income countries, results highlighted the important role of the government through fiscal expenditure and good institutional quality but provided sustainable development level reaches the 60th quantile or higher. Low-income countries may have various pressing economic, political, and social problems, such as poverty, inequality, unemployment, social unrest, and political struggle. Therefore, low-income countries can have different cosmovision, enabling them to have different SDG approaches

(Tuck *et al.*, 2014; Ramirez, 2021). A high-quality institution should be the foundation for sustainable development irrespective of income level. A strong institution including justice and peace made the SDG-16 further highlight its importance. United Nations (2022) underlines ongoing concerns on global issues of corruption, homicide, forced displacement, global conflicts, and violence against women in their SDG Report 2022. In the institutional school of thought, the quality of government and governance are crucial. Thus, all countries need to develop stronger institutions to achieve Goal 16 in specific and overall Sustainable Development Goals.

Conclusion

The world has less than a decade to meet its pledge to achieve the United Nation's Sustainable Development Goals (SDG). While time is running out, three issues regarding striving towards sustainable development remain. Firstly, the conceptualisation and proxy for sustainable development are often not the SDG but a variety of partial and subjective representations. Secondly, what are the determinants of the SDG Index? Thirdly, institutions play important roles in achieving the SDG, but the possibility of incongruent relationships within components of institutional quality casts scepticism on the validity of the aggregated relationship. This paper contributed to answering those issues by using the official and holistic Sustainable Development Goals Index (SDGI) and analyses the possible determinants of SDGI based on the role of government within the Classic school, Keynesian, and institutional economic schools of thought. In addition, the findings reveal anomalies and incongruent relationships between individual components of institutional quality (WGI) and introduce a novel approach to decomposed-and-then-recomposed the WGI based on their relationships with sustainable development.

In high-income countries, the most important determinants of sustainable development come from higher capital investment, higher government fiscal expansion, and upholding democracy. Nonetheless, corruption and government ineffectiveness act as a "helping hand" at a lower level of sustainable development prompts called for a critical review of economic fundamentals to unearth the possible reason for such results in high-income countries. High-income, middle-income, and low-income countries have contrasting findings. In middle-income countries, the most important determinant of sustainable development is government effectiveness (GE) only. All macroeconomic variables have no relationship with sustainable development, which is supposed to be a holistic concept of economic progress. The adverse impact of Voice and Accountability (VA) at the lower level of sustainable development also prompts concern about oppressing policies in middle-income countries. In low-income countries, government plays an important role through fiscal expenditure and good institutional quality but provided the sustainable development level is high. Low-income countries have different problems, thus should have a different cosmovision and develop stronger institutions to achieve the Sustainable Development Goals.

The analysis in this paper is based on the overall achievement of the Sustainable Development Goals (SDG), proxy by the SDGI. We acknowledge that the SDGs are heterogeneous; thus, each goal may not share similar relationship outcomes. However, it will be over complicated to run the analysis as it needs to take an additional seventeen models to analyse each of the seventeen goals separately. In addition, the main target for each country is to try to achieve all the goals, not select of few only. Hence, we leave these matters as limitations and suggestions for future research.

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