An analysis of the nexus between social cohesion and inclusive development

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Abstract

Since the 1980s, remarkable economic development has taken place almost world-wide. Economic growth in developing countries has lifted millions of people out of poverty and has reduced global inequality. More recently, the concern has been to make growth more inclusive. Since the global financial crisis, economic growth has slowed and there has been an increase in within country inequality. Skills-biased growth has created social tensions, and has facilitated the rise of populist leaders. To examine this challenge more closely, the World Economic Forum has published an Inclusive Development Index (IDI). The IDI focuses on economic indicators of inclusivity, such as income, employment, productivity, health and inequalities of wealth. This misses the social aspects of inclusiveness. In response, this dissertation sets out to determine the relationship between the IDI and social cohesion for a cross section of countries. The social cohesion measure was built using responses to the World Values Survey. A simple OLS regression model was used to examine the determinants of social cohesion, finding, among other things, a positive relationship with inclusive development.

Keywords

Social cohesion, inclusive development, government effectiveness, rule of law, control of corruption, ethnic fractionalisation, cultural diversity, correlation, diagnostic tests

Dedication

To my mother, siblings, grandmother, I hope this will make up for all the time I spent away from you. It was worth it. To my late grandfather (Isaac Mosiane), Friend (Bakang Nokane) and girlfriend (Resolofetse Sebego), the promise has been fulfilled and may you continue to rest in peace

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I also note that the errors, omissions and any shortcomings that might be witnessed in this study are my responsibility and not to be associated with any of the above-mentioned individuals or institutions. ***Ke leboga ka pula.***

List of acronyms

Term	Description
ABS	Australian Bureau of Statistics
ANS	Adjusted Net Savings
BRICS	Brazil, Russia, India, China and South Africa
CFA	Component Factor Analysis
CO2	Carbon Dioxide
CPI	Consumer Price index
CSO'S	Civil Society Organisations
EBRD	European Bank for Reconciliation Development
EFA	Explanatory Factor Analysis
EKC	Environmental Kuznets Curve
GDP	Gross Domestic Product
HDI	Human Development Index
IDI	Inclusive Development Index
KIPPRA	Kenya Institute for Public Policy Research and analysis
KSCI	Kenyan Social Cohesion Index
OECD	Organisation for Economic Cooperation and Development
PCA	Principal component analysis
SA	South Africa
SCI	Social Cohesion Index
SCORE	Social Cohesion and Reconciliation
STATSSA	Statistics South Africa
UNECA	United Nations Economic Commission for Africa
WB	World Bank
WEF	World Economic Forum
WGI	Wold- wide Governance Indicators
WVS	World Values Survey

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1. Chapter 1: Introduction

1.1. Background

The fundamental need for both emerging and developed nations is to ensure that their economic structures, such as the production of output, trade, creation of employment and distribution of income, across different sectors of the economy, are designed in a way that ensures effective social and economic inclusion. World Economic Forum (2016) highlights on its global agenda that the greatest challenge facing the global economy is not just economic growth, but it is also increasing growth in a way that is more inclusive than it was in the past. The World Economic Forum (WEF) (2017) Inclusive Development Index (IDI) Report further highlights that emerging markets often find it difficult to counter slow economic growth and that efforts towards accelerating economic activity by the global economy are necessary to assist developing nations in accelerating growth. The acceleration of economic growth must be coupled with inclusive development initiatives, so that the benefits of growth can reach every member of a society. The World Bank (2012: 24), highlights that Civil Society Organisations (CSO's) should lay a role in facilitating the relationship between the society and the state.

There are several countries that have successfully implemented their inclusive development initiatives, such as the joint efforts by the government of Brazil and its CSO's in the formulation of public policies on food security. Initiatives such as these have led to major improvements in the living conditions of the deprived, as engagements between the government and civil society have proven to be important in the development of Brazil's food and nutritional security policies (Chmieleska & Souza, 2011:10). According to Oxfam International (2012), the CSOs in India have long pushed for the implementation of community-based monitoring and planning processes as a part of the national standards system. Another country in Africa, Kenya, adopted a new constitution in 2010, which seeks to address the issues of gender exclusion experienced by women in ensuring that they fully participate in all aspects of growth and development in Kenya (NGEC, 2016:37). These examples show that growth should include access to institutions, justice and ability to own

property. Furthermore, collaboration between civil societies/ Special Interest Groups (SIG's) and government is essential in assisting government in realising their development objectives by ensuring that there is the transparency and accountability necessary to enhance development outcomes. The issues arising from economic exclusion must not be a continental or regional issue; the global economy must step up and come up with ways as to how the nations can work together to come up with solutions.

A report published by World Economic Forum (WEF) on the Inclusive Development Index (IDI) of 2018 highlights that, recently, there has been slow progress in improvements in living standards and increasing inequality in emerging economies. This has the effect of leading to the divergence of political attitudes/ideas and erosion of social cohesion within and among countries. The issue of slow progress in improving the living standards and the widening inequality, particularly in emerging economies, has compelled the WEF to formulate and build a consensus around a framework that would encompass a sustainable model of growth and development. The model is structured to promote better living standards for all and to be inclusive in nature. Their key output is the inclusive development index.

The WEF IDI Report (2018), on the Inclusive Development Index highlights the efforts by the WEF in accelerating economic progress through a new economic policy framework and monitoring national key performance indicators (i.e. growth and development, inclusion, intergenerational equity and sustainability). The WEF's policy framework concludes that the aim of the national economic performance standards is broad-based and sustained growth in living standards, which is a concept that involves a wide range of issues such as wage and non-wage issues, economic opportunity for all, security and quality of life. The WEF Report (2018) further highlights that the income redistribution efforts in emerging economies are in fact found to be severely underperforming or relatively underdeveloped and that the development of the above-mentioned framework also seeks to address this issue. This is supplemented by the figures provided on United Nations (UN) data (2018) for World Bank GINI index estimates, which shows the Gini index for developing nations, such as SA to be 0.63, Namibia 0.61, Botswana 0.61, among the list of developing nations.

The continuing trend of inequality in emerging economies has been seen to be the main driver of economic and social ills ranging from low consumption to social and political unrest, which has also been damaging and harmful to their future economic prospects. WEF (2016), publication on global agenda further states that economic growth must provide broad-based improvements in living standards and also notes that currently there is not much of a concrete policy guidance as to how this goal can be achieved. Another important issue that is often left out by governments is that of a need to recognise socio-economic inequality, such that it can be prioritised and measured in order to sustain public confidence in the capacity of technological advancement and international economic integration to support better living standards for all.

WEF IDI Report (2017:1), highlight that the global economy has recently found itself to be at a crossroad due to slowing global growth (3.1% forecasted for 2018 from 3.3% in 2017) compared to that of the post-World War II era standards, and it is continuing to decelerate. After generating the majority of global growth in the aftermath of the financial crisis, BRICS countries and other emerging market economies are experiencing a serious slowdown. Lastly, some developing economies such as Kenya and Nigeria have battled to spread the benefits of rapid growth (Kenya, 5% per annum growth; Ethiopia 8.5%, based on 2017 estimates) and industrialisation to meet the rising social expectations (employment opportunities, lower poverty, and improved healthcare) (WEF IDI Report (2017:1).

Socio-economic inclusion has been a burning issue to both emerging and developed economies and failure to address it can lead to domestic uncertainty such as corruption and crime, and even social unrest. Samans *et al.* (2015:3), emphasises that the main objective of benchmarking inclusive growth and development is to provide an understanding on how economic policy has an influence on socioeconomic inclusion. There is a need for a well-structured policy that can address the need for a more inclusive growth and development model that would retain and build on positive lessons of the past regarding the allocative efficiency of the markets and the need for macroeconomic stability (WEF IDI Report (2017:13).

Social cohesion is essential for economic growth and inclusive development because it brings along with it a natural ability for collaboration that can produce and foster

change in a country. According to Easterly, Ritzen and Woolcock (2006: 103), a country's social cohesion is essential for generating the trust needed to implement policy reforms in a country. This is mainly because the inclusiveness of a country's communities and institutions can greatly contribute to building social cohesion, because citizens have to trust that the short-term losses arising from the implementation of the policy reforms, through social cohesion, can be addressed significantly by means of long-term gains.

The link between social cohesion, economic growth and inclusive development remains an important aspect for policymakers across the globe. According to Foa, (2011: 3-4), the economic costs to be accrued by an absence of social cohesion are high due to existing inequalities rampant among different communities. Furthermore, inclusive development is a great challenge, especially in emerging economies that are experiencing low economic growth rates, low household income, and poor health facilities such as in Libya, Somalia, the Ukraine, Venezuela and South Sudan. A lack of social cohesion poses a threat to the success of the implementation of inclusive development in emerging economies, such that the social participation and the mindset of people are already affected by the issues of inequality, high and persistent poverty, lack of access to education and restrictions to participate in the country's economic activities. South Africa as an emerging economy has in excess of 51% of its population living in poverty in headcount measure, as alluded to in Statistics South Africa's (STATSSA) report (2015). The report used the upper bound poverty line of R992 per person per month on 2015 prices. Furthermore, the report states that the main drivers of the high poverty rates are associated with both international and domestic factors, such as low and weak economic growth in South Africa a decline in real income growth, lower investment levels, growth in informal settlements and rising unemployment rates (STATSSA, 2015)

South Africa is currently going through a period that is characterised by a lack of trust in the government by its citizens and this is as a result of, *inter alia*, corruption scandals, and lack of service delivery and high levels of youth unemployment. The level of trust plays a major role in the current and future developmental progress of the economy and failure by South African policies to adequately address the issues surrounding economic exclusion and rising inequalities. The rising inequality and economic exclusion has a potential of exacerbating the prevailing lack of trust and

further hinder the country's developmental objectives. Gumede (2011:88), highlights that the state capacity and organisation in terms of delivering in economic growth and governance issues are arguably the primary constraints to South Africa becoming a fully-fledged developmental state. Luyt (2008:1), highlights that good governance might not alone be sufficient to eradicate poverty as an important social concern, but good governance does complement the human rights approach in alleviating poverty, which is necessary for social cohesion.

Pervais and Chaudhary (2015: 369), define the concept of social cohesion to be a sense of togetherness in society. Numerous studies (Easterly *et al*. 2006; Fearon, 2003), view social economic inequalities and ethnic fractionalisation and also cultural diversities as the primary causes of a lack of social cohesion. A lack of social cohesion in a society can hinder economic growth and result in socio-political instability, a decline in institutional quality as well as a lack of human capital creation. Ritzen (2001: 1), further highlights that the concept of social cohesion in most developing nations can be seen to be driven by prolonged improvements in measures of equality and inclusiveness. Social cohesion can also be enhanced through trust among members of society, confidence in the state, cooperation between the civil society and the state where it used to be lacking. Accountability, transparency and flexibility in public institutions can also improve social cohesion among members of society.

It is also important to understand how other nations view the concept of social cohesion and how it affects their economic and social well-being. The concept of social cohesion in South Africa has been treated as that of which is in tandem with nation building. Palmary (2015: 63), suggests that the concept of social cohesion internationally is mainly connected to the state as it is viewed as a contemplation of how society feels about their government. In summary, Palmary (2015:64), highlights that social cohesion and nation building can complement each other to serve as a strong response to the challenges of economic exclusion experienced in the past. The concept of social cohesion seems to be related to inclusiveness, as they both have an effect on growth, and the relationship seems to vary between the developing and emerging economies.

1.2. Problem statement

To turn economic growth into inclusive development requires social cohesion. The policy reforms necessary to improve the equity and sustainability of growth will have short-term costs, but greater social cohesion will help citizens bear such costs in expectation of long-run benefits. This dissertation will examine the relationship between inclusive development and social cohesion.

1.3. Objectives

The general objective of this study is to empirically determine the relationship between inclusive development and social cohesion. To achieve this, a number of specific objectives need to be achieved:

- A review of the literatures of inclusive development and social cohesion and explaining how social cohesion produces institutions that promote inclusive development; Explaining the World Economic Forum's Inclusive Development Index, its components and calculation;
- Constructing a measure of social cohesion from variables in the World Values Survey; and
- To estimate a regression model of the relationship between social cohesion and inclusive development for a cross-section of countries.

1.4. Method

This study will follow a quantitative research approach. The main aim of choosing this approach for this study is to determine the empirical relationship between social cohesion and inclusive development in a cross-section of countries. The study will test the relationship between the two concepts for 42 countries for both emerging and advanced economies.

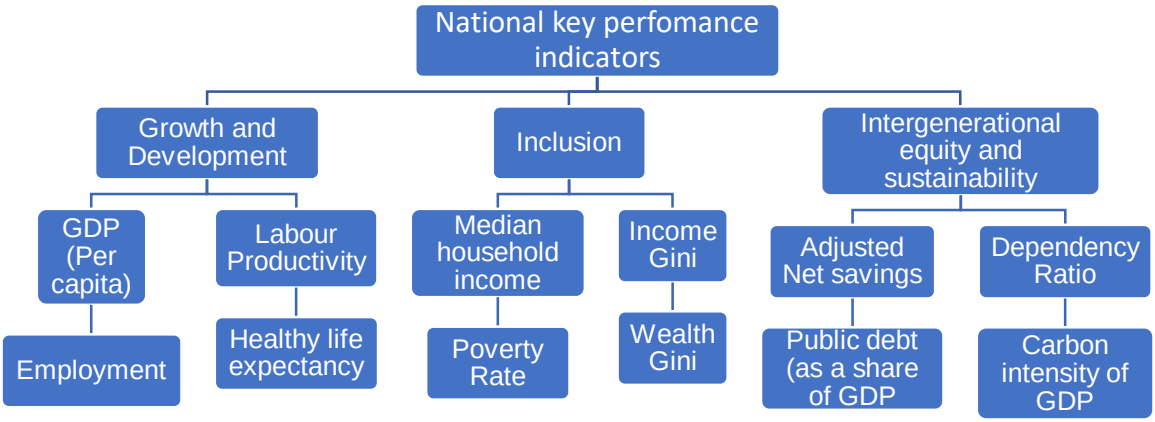
1.4.1. Data sources

The data to be used in this study are from the World Economic Forum's Inclusive Development Index (IDI) and the World Values Survey. The WEF IDI Report (2018: 2) on the IDI report states that the IDI provides an annual assessment of countries' economic performance that measures how countries perform on 11 dimensions of economic progress in addition to gross domestic products (GDP). The WEF IDI Report (2017: 1-13) emphasise that IDI has three (3) national performance indicators, namely growth and development, inclusion, and lastly, intergenerational equity and sustainability of natural and financial resources. It is important to note that, in the first pillar of measuring inclusive growth and development, both variables do not share the same definition, even though they are used under the same pillar on the WEF Inclusive Development Index. Growth generally means an increase in the real *per capita* income of citizens, whereas the definition of development expands its focus from income alone, and reaches out to issues of well-being, in particular education and health. The last pillar comprises intergenerational equity and sustainability, which incorporate four measures of intertemporal equity and sustainability for the reason that growth gains in living standards are not socially inclusive if they are generated in a manner that unduly and unsustainably burden the younger and future generations.

The IDI is a project of the WEF's system initiative on the future of economic progress. The IDI also aims to inform and enable sustained and inclusive economic progress through deepened public-private cooperation through thought leadership and analysis, concrete cooperation and strategic dialogue, including accelerating social impact through cooperative action (WEF IDI Report (2017:18-19).

The WEF compiles the IDI for 29 advanced economies and 79 emerging economies, making a combined total of 108 economies. The figure below presents the elements of the IDI. National key performance indicators are shown in Figure 1.1.

Figure 1.1: National key performance indicators



Source: World Economic Forum IDI report 2017

The other key source of data to measure social cohesion is the World Values Survey (WVS). The survey has a range of questions about people's perceptions of life. This is available for 90 countries and wave six of the survey spans for the period of 2010 to 2014. This survey provides data on socio-cultural and political change, worldwide. The WVS consists of national samples from over 90 countries using a common questionnaire with variables on belief, economic development, democratisation, religion, gender equality, social capital and subjective well-being. A measure of social cohesion will be constructed and used in the analysis. The details of the construction of an index of social cohesion will be explained in Chapter 3.

1.4.2. Model estimation

This study aims to estimate the relationship between inclusive development and social cohesion, for a cross-section of 42 countries, while controlling for other predictors of inclusive development. The regression model for this study is estimated as follows:

$$IDI = \beta_0 + \beta_1 SCI + B_2 DV + \beta_3 Cntrls + e^t \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots equation(1)$$

Where: SCI= Social Cohesion Index

: IDI= Inclusive Development Index

: DV= Dummy Variable for developed and developing economies

: β_0 = Constant

: $Cntrls$ = Control Variables

: e^t= Error term

This effect is given by β_1. The error term ϵ_i contains those factors that might have been left out in the model, which might have an effect on the overall regression model.

The analysis of this study will have two parts. The first part is to build a measure of social cohesion. The study will use the indicators on the WVS database to compute an index of social cohesion. The scaled responses will be classified into binary responses indicating more or less social cohesion. This study will then calculate the average responses (cohesive, non-cohesive) per country and then move on to calculate the average scores across measures.

The second part of the analysis is to estimate and test the regression model outlined above. The other control variables are measures of institutions, or the quality of governance and include standard measures of the rule of law, control of corruption etc. The estimation of the model is explained in detail in Chapter 4.

1.5. Outline of the study

- Chapter 1: Introduction – this chapter gave a background about inclusive development and social cohesion. The challenges that countries often face in achieving inclusiveness and greater cohesion for growth and promotion of institutions have been discussed. Most importantly this chapter explains the aim of the dissertation and explains the method to be applied in achieving the aim of the dissertation.
- Chapter 2: Literature review- in this chapter various studies are reviewed to ensure that the objective and the problem statement have a basis. The study

also reviews the literature on various method applied by other studies to achieve the similar objective that are outlined in 1.3.

- Chapter 3: Description of WEF-IDI and World Values Survey Data – this chapter describes WEF- IDI measures and indices, how WVS obtains its data which will be used to construct an index of social cohesion for this study and lastly other social cohesion measures and indices.
- Chapter 4: Empirical analysis – in this chapter, an index of social cohesion is finalised. The index will be used as an explanatory variable for variation in IDI. The regression model will be estimated and tested and the results interpreted.
- Chapter 5: Conclusion – the final chapter sums up the analysis of the findings in chapter 4 and highlights whether they address the objectives of the study as well as the problem statement.

2. Chapter 2: Literature review

2.1. Introduction

This chapter attempts to review literature on social cohesion and inclusive development for both emerging markets and advanced economies. Social cohesion remains an important phenomenon in addressing socio-economic challenges, particularly for emerging market economies. In an effort to provide an insight into the links between social cohesion and inclusive development it is crucial to examine the existing theoretical and empirical literature, in order to understand the relationship thereof.

The examination of the literature will also assist in explaining a view that social cohesion can effect institutions that stimulate inclusive development. Among others factors, this chapter explore dimensions, measures and components of social cohesion. Furthermore, the chapter also discusses the theoretical and empirical linkages between social cohesion, economic inclusion and inclusive development.

2.2. An overview of social cohesion

Lack of social cohesion can be damaging in a country, in a sense that it can be linked, *inter alia*, to social conflicts, corruption and crime. A lack of social cohesion is closely linked to what Acemoglu and Robinson (2008: 3-4) refer to as extractive institutions, and it is associated with unequal growth outcomes. On the other hand, inclusive development addresses challenges related to the exclusions experienced by all segments of society from participating in and benefiting from their country's economic activities. According Pouw and Gupta (2017), and Sachs (2004), inclusive development ensures equal access to opportunities, direct democracy and equitable distribution of services (i.e. health, education and infrastructure) with a view of enabling participation by all segments of society.

Chan, To and Chan (2006: 279-280), believe that a good definition of social cohesion should, just like any other concept in the social sciences, be judged in terms of good

criteria, namely minimal in scope and close to ordinary usage. In addition, the above-mentioned criteria are not linked to any particular school of thought or social science methodology, but instead they are some of the basic principles embodied in virtually all scientific research. The minimal in-scope criteria of social cohesion are only about what constitutes the concept and only define the essential components of the concept and not the conditions, or any other related principles that may promote it. Lastly, the minimalist approach opposes how the other literature views social cohesion, where the term is defined with references to other concepts and values such as how much the concept excludes as opposed to its inclusiveness. Green, Janmaat and Han (2009:19), follows the same argument where they suggest that using a minimal definition of social cohesion, that highlights the nature of social cohesion, excluding the potential causes/ real life forms or effects of social cohesion, is essential. A close to ordinary usage criterion, on the other hand, deals with the instructive importance of noting that social cohesion, unlike other esoteric science constructs, is very much a figurative term that most people will have at least a rough idea of its meaning (Chan et al (2006:280). Therefore, a good definition of social cohesion should not be too distant from its ordinary meaning.

Social cohesion is characterised by a general situation regarding the relationships between members of the society and it is portrayed by a conventional set of attitudes and norms that include trust, a sense of belonging, willingness to participate and help, as well as societies' behavioural manifestations (Chan *et al*. 2006: 290). It is important to note that members of the society, as mentioned in the above definition, are not necessarily restricted to individuals, but also various groups, organisations and institutions that make up a society hence there is a classification between horizontal and vertical interactions of social cohesion. Chan and Chan (2006: 639), highlights that the concept of vertical interactions in the definition of social cohesion refers to the relationships between individuals and groups in the society, while the horizontal interactions refer to trust the citizen have in political institutions such that they can participate in some political decisions e.g. voting. The primary focus of the above definition is on the state of cohesiveness of the society as a whole, even though social cohesion can be measured in terms of individual and group-level data in practice (Chan *et al.* 2006: 290).

Other researchers also have their own definition of social cohesion, which is similar to the above definition. Larsen (2013: 3), defines social cohesion as a belief held by citizens of a society that they belong together and share a moral community, which allows them to trust each other. Mulunga and Yazdanifard (2014: 16), argue that social cohesion is characterised by a relationship that holds society together or maintains their stability. Other studies have been conducted to provide insight into how social cohesion can relate to other aspects of well-being.

Giardello (2014: 80), formulated a generative theory of social cohesion and civic integration with the aim of showing a relationship between social cohesion and civic dissolution. The significance of studying the relationship between social cohesion and civic dissolution was to analyse whether the relationship is able to describe the behaviour of local communities and neighbourhoods. The argument, in this instance, is that civic dissolution includes the clash of values as well as tolerance and contribution by members of a particular community. The study further states that, as the concept of social cohesion spreads around the community, it serves as a response in terms of interpretation and policies to issues emerging in social, cultural and political spheres.

There are instances in the delineations of political economic reality where the existing policies of social protection are unable to sustain the intricate social frameworks of new ethnic conflicts caused by migration and other global processes. Lastly, the study concludes that social cohesion may be used by policymakers as a response to the negative effects arising from structural changes in an effort to keep social bonds for the community intact.

2.3. Dimensions of social cohesion

When dealing with the characteristics of social cohesion, it is important to classify the two levels of analysing the concept of social cohesion. The first level is about the study of macro-structural dimensions, which take into account factors closely linked to the crisis of welfare experienced in many countries, the escalation of inequality and lastly the evolution of the labour market in a manner that is uncertain (Giardello, 2014:82). A report published by Alexandre, Alys, Ghazia, Michelle and Kanishka (2012: 7), on

societal dynamics and fragility outlines this structural dimension by focusing on ways in which various factors at the macro-social level may produce fragility. The report defines fragility as a problem not only of state capacity, but also of dysfunctional relationships across groups in society, including the relationship of different groups within the state, which may result in social exclusion.

Furthermore, Atkinson and Hills, (1998: 13-14), highlights that there are three components of social exclusion (relativity, agency and dynamics) that normally arise when the concept is being discussed. Relativity explains that people may be prohibited to associate with a certain society. Agency clarifies that people may make a choice of not participating in the community or they can be barred from participating by institutions, e.g. banks, government, insurance. Dynamics explain that people's future prospects play a role in their social participation as the assessment of degree of social exclusion goes beyond current status. These components on social exclusion may result to fragility, which arises from a dysfunctional relationship within a society and causes an impediment to social cohesion prospects.

Alexandre *et al*. (2012: 7), conceptualise fragility as a dynamic continuum, along which societies can experience extreme state failure and violent conflict at one end, and a more cohesive society moving up the continuum. The key driver of fragility is identified in the report as the significance of the perception of unfairness in the treatment of social groups (rather than inequality). According to Chan *et al.* 2006 (cited by Berger-Schmitt, 2000:8), the societal goal of this dimension is to reduce regional disparities and social exclusion by fostering equal opportunities between genders, different social strata and groups.

The second level relates to the micro-dimensions of social cohesion. It is essential to note that the analysis of the macro-structural dimensions of social cohesion seems to disregard the analysis of phenomena related to social disorganisation in a community or neighbourhood, the crisis of social ties and more especially the difficulty of activating the generative social and civic process (Giardello, 2014: 82).

The micro-dimensions' views, on the other hand, do not exclude that of macro-dimensions given that the two dimensions complement each other. The micro-dimension of social cohesion can be linked to social capital because it consists of primary and secondary relationships that prevail within a local community. According

to Berger-Schmitt (2000: 5-6), the concept of social capital covers topics such as the density and quality of relationships and interactions between individuals or groups, their mutual feelings of commitment and trust due to common values and norms, a sense of belonging and solidarity that are supposed to be fundamentals of the internal social coherence of the society.

According to United Nation Economic Commission for Africa (UNECA) (2016: 3) report on social cohesion in eastern Africa outlines that the concept of social cohesion may have three main components: social relations, connectedness and focus on the common good. Social relations deal with networks that exist between individuals and groups within society, which can be used to measure this component. Other considered aspects of social relations are trust in others and acceptance of diversity. Connectedness deals with the positive ties that exist between individuals, their country and its institutions. Identification with shared values, trust and perceptions of fairness are important in this regard. Civic participation levels, the extent of solidarity, helpfulness of people in the society and the respect for rules among other variables can be possible measures of social cohesion.

2.4. Measures of social cohesion

According to the Organisation for Economic Co-operation and Development (OECD, 2011 :55), the traditional and subjective measurements of social cohesion are as follows:

- *Income inequality:* The OECD publication considers income inequality as being essential to measuring and monitoring the evolution of social cohesion together with deprivation measures such as the poverty gap;
- *Unemployment:* This measurement depends on the participation of members in the productive economy where the unemployment rate serves as monitoring broad indicator of levels of life satisfaction and the risk of civil tension;
- *The measures of well-being (objective and subjective well-being):* These measures are gauges of cohesive society's inclusiveness and equality (life expectancy at birth and literacy rates etc.) and for supporting wider, full participation in civil society and political life;

- *Measures of social capital:* These measures generally include group memberships and interpersonal trust. Mulunga and Yazdanifard (2014: 17-18), suggest that social capital has a range of social policy functions that relate to bridging, bonding or linking relationships. Furthermore, social capital is also described as a flow of individual investments. Groups are characterised as being cohesive when they possess group-level structural conditions that produce positive membership and attitudes; lastly, social capital entails individuals' sacrifices in terms of time, effort and consumption made in an effort to promote cooperation with others.

Easterly *et al*. (2006: 106-107), classify measures of social cohesion in two categories (direct and indirect measures). The direct measures of social cohesion are measures of trust (interpersonal trust and institutional trust) and membership rates of social organisations and civic participation. The indirect measures of social cohesion can be pursued using structural factors (class and ethnic inequality), which can have an effect in undermining the capability of various groups to work together. Income distribution measures and ethnic heterogeneity are the indirect measures.

2.5. Types of discourse around social cohesion

2.5.1. The liberal discourse

According to Green *et al*. (2009: 21), the liberal discourse places more emphasis on an active civil society, particularly at the local level. In this instance, the role of the central state is played down along with its institutional roles for providing the necessary welfare and social protection for promoting equality through redistribution. Furthermore, an active civil society with greater civic participation can develop trust through interactions between individuals and groups.

2.5.2. The republican discourse

The republican discourse puts more emphasis on the state rather than on civil society. According to this theory, the state promotes social cohesion through its institutions for welfare, social protection and redistribution. The state, in this instance, disseminates information through public education, a common identity and broad set of shared values that emphasises belonging to and active participation in, a political community at the national rather than local level. Finally, the state also plays a supervisory role in relation to key institutions in civil society that are seen to intermediate conflicts, such as professional and employer institutions (Green *et al.* 2009: 22).

2.5.3. The social democratic discourse

Green *et al*. (2009:22), suggest that the social democratic discourse and the republican discourse are linked in most of its essentials, except that in this instance the emphasis on equality is greater. The republican discourse and the social democratic discourse both place their emphasis on the role of the state and its sanctioned active civil society groups. The active society group might include the trade association of the employer and the employee organisations in providing the institutional foundation of social cohesion. In this discourse, social partnership plays a pivotal role in conflict resolution through representative civil society organisations

2.5.4. The academic discourse on social cohesion

Chan *at al.* (2006: 275), explain that social cohesion can often be explained in terms of broader questions of social integration, stability and disintegration. There are possibilities of normative conflicts (ethnic conflicts) in modern society's experiences, which can be mediated by institutional arrangements.

2.5.5. The policy discourse on social cohesion

This discourse explains that for social cohesion to produce economic outcomes, it should cover a broader set of elements, starting from income distribution, employment, access to basic services (education, healthcare), housing and civic participation (Chan *et al*. 2006:277).

2.6. Social cohesion as a matter for economic outcomes

According to Cilingir (2016: 1), social growth through active cooperation between various groups in the society e.g. Religious, Ethnic groups, reduces transaction costs in economic exchange, such as information accumulation, communication and contractual practices. The performance in economic activities depends on the level of trust and collaboration among different groups of identity that can sometimes be low because of higher costs of economic exchange. The second point to note is that social cohesion improves mutual relationships among individuals where their demand for public goods is consistent with the supply of those goods. The subsequent accessibility of public goods will have a positive effect on the national income, thereby boosting economic growth.

Foa (2011:4), highlights that the narrative of linking social cohesion to economic growth is that a lack of social cohesion can impede economic growth through capital dis-accumulation. Long-run economic growth is characterised by a sustained capital accumulation, and, in turn, it is driven by the productivity of the factors of production such as land, labour, enterprise and capital in the long run. Capital dis-accumulation can be a result of intergroup violence in the form of destruction of physical infrastructure and the loss of human capital. Social cohesion plays a role in economic outcomes, where its absence may lead to allocative inefficiency as a result of poor social institutions, e.g. group based intolerance/discrimination or exclusion.

Foa (2011), conducted a study on the economic rationale for social cohesion based on cross-country evidence. The paper evaluated the economic returns of social cohesion by examining the relationship between social cohesion and other features of economic development. The study employed various institutional measures involving over 200 indicators from various data sources. The data used in this study included

survey data on intergroup discrimination, the rate of occurrence of newspaper reported cases such as the intergroup riots and the expert assessment ratings of ethnic and religious groups. Cilingir (2006:3), names the intergroup discrimination based on ethnic religious groups as horizontal inequalities which can have dire consequences to social cohesion.

A modified index of social cohesion was developed by Foa (2011: 7), to assist when analysing the data for this study. The index formulated was based on the collection of data sourced from the International Shareholders Services (ISS) website. Supplementary proprietary data donated by the Gallup World Poll was also used in the study in order to complement the data from ISS. Measures of reflective social cohesion were chosen as indicators and they comprised patterns of intergroup discrimination as well as that of intergroup violence. For the purpose of the study, an unobserved approach was considered to combine the indicators because every group of indicators symbolise some latent values of fundamental occurrence in each society containing varying scales with a variety of samples and also varying degrees of measurement errors.

The results showed that there is a relationship between GDP *per capita* and the social cohesion index. The analysis of the results highlighted that *per capita* GDP and social cohesion have a strong and positive relationship due to the fact that healthy social institutions are the result of the progression of sustained economic development. Lastly, long-run economic growth is outcome dependent upon the prior existence of social infrastructure (norms, cultural expectations and precedents) that accumulate over the course of a country's history and contribute to sustain capital accumulation (Foa, 2011).

Pervais and Chaudhary (2015), conducted a study on social cohesion and economic growth based on empirical analysis. The focus of the study was to empirically investigate the effect of social cohesion on economic growth by using panel data for a cross section of countries for the period of 1990 to 2010. Two different indices were used in the study, namely inter-group cohesion and membership of clubs; and lastly, voluntary associations as proxies for social cohesion. In order to study the relationship between social cohesion and economic growth, the study applied a panel data framework.

The study highlights that the advantage of using a panel data framework over a cross-country regression is that it can also address the heterogeneity across the cross sectional units and it can also address the endogeneity problem due to omitted variable bias.

Real GDP *per capita growth rate* was used as a dependent variable in testing the methodology. The results showed that intergroup cohesion has a positive effect on economic growth. This positive relationship was an indication of cooperation among different identity-based groups that prove to be helpful in reducing the possibility of conflicts among groups. The variable of memberships of clubs and voluntary associations was found to be negatively associated with economic growth.

This negative relationship points towards the phenomenon of negative externalities generated by the bonding social capital. The bonding social capital describes the connections within a society that can be associated with similar demographic values, attitudes, and lastly, the availability of information and resources. The bonding social capital can have damaging effects on the economy through free riding and rent seeking caused by the exclusion of some groups that can slow down the pace of economic growth through inefficient allocation of resources (Pervais & Chaudhary, 2015).

2.7. Social cohesion, institutions and economic outcomes

A study by Easterly *et al*. (2006), investigated the limitations to policy reforms in developing nations by critically evaluating the strength and direction of the relationship between social structures, political institutions and economic policies. In the measure of social cohesion, the paper followed two approaches, namely the direct and indirect measures. The study proposed that the key development outcomes are more likely to be associated with countries governed by effective public institutions and, in turn, they are more likely to be found in socially cohesive societies. This hypothesis was tested for a sample of 82 countries, from 1960-1996, using a cross-country regression.

The empirical results of the abovementioned study present that building social cohesion through the formulation of quality institutions that are focused on achieving

a common goal of dealing with economic and other divisions in the society has been an important task for countries struggling with economic development. The results also highlight that good institutions are sometimes limited due to ethnic divisions that hinder the development of social cohesion that is necessary for the development of those institutions. In addition, ethnic divisions make it difficult to develop the social cohesion necessary to build good institutions.

Lastly, societies with lower inequality and more linguistic homogeneity have more social cohesion and better institutions. The study concluded that linguistic homogeneity can be used as a measure of how much groups of nationals have developed a common identity. In a case where a common identity lacks in a society, politicians often take advantage of exploiting the ethnic differences present at the time to build up their power base.

Acemoglu and Robinson (2008), contribute to how institutions matter for economic outcomes in one of their studies on the link between institutions on economic growth and development. The main argument of the study was that the determining factor of transformations in prosperity across countries is the transformation in economic institutions. The study highlights on the literature a possibility of a cross-country differences in the way the economic and political lives are structured, as well as a strong correlation between institutions and economic performance. Cilingir (2006:8), also adds that absence of institutions may also have an effect on social conflicts and violence which can subject countries to economic crisis.

Acemoglu and Robinson (2008), also argue that this type of correlation does not mean that the countries with underperforming economic institutions are poor because of their institutions. When modelling the institutions for the study, the authors considered the relationship between three institutional characteristics, namely economic institutions, political power and political institutions. Economic institutions have an effect on investment inflows, especially in human resources, technology and production capacity. Furthermore, economic institutions are determined through a collective choice of the society.

Conflict of interest can arise because not all groups will prefer the same set of economic institutions and political power might be a remedy of such conflicts. The findings of the study highlighted that institutional variations are the main determinants

of cross-country variations in income per capita. The differences in institutions across countries primarily reflect the outcome of different choices. Based on robust patterns in the cross-sectional data, a conclusion was drawn that in the case of Africa, promoting democracy and accountability can lead to better economic policies and institutions.

Anderson and Hachem (2009), applied a dominance-based analysis of causality and multivariate welfare to analyse the relationship between institutions and economic outcomes. In a case of dynamic relationships, a positive relationship between institutions and economic outcomes was readily established and causality was found to be contentious. The study emphasises that, on a theoretical basis, causality can run in both directions. Investment incentives encourage economic activity because those incentives are provided by better institutional policies, such as property rights, political freedom, government accountability, etc.

The study also considered a sample of 84 developed and developing countries over the period of 1960 to 2000 and collected data on institutional quality and economic outcomes at five-year intervals. Economic outcomes were measured using the data on GDP *per capita* from the World Bank Development Indicators. When the growth institutions nexus was tested using causality dominance approach, the result presented that the interactions between institutions and economic growth is paramount. The results also highlight that institutions cause economic outcomes largely in the way economic outcomes cause institutions, particularly when India and China were excluded from the analysis.

2.8. Economic inclusion and development

Bettcher and Mihaylova (2015: 1), define economic inclusion as the equality of opportunity for all members of society where all individuals of all social backgrounds and social strata have opportunities to participate in the economic activities of their country, be it as employees, entrepreneurs, consumers or citizens. Every citizen of a country should have an opportunity to participate in the economy and reap the benefits of their participation. The WEF (2017: 8), on the definition of inclusive growth, argue that the definition should be based on a wide range of output growth realised

throughout all economic sectors and sustained over the decades, which is able to offer employment to the country's working age population, improve their living standards and combat poverty.

George, McGahan and Prabhu (2012), conducted a study of innovation for inclusive growth. The study views inclusive growth as the most favourable result of attempts by the state to improve the lives of individuals from disenfranchised parts of society. The study highlights that its focus on inclusive growth is based on the core principle that the organisations can, and do engage in social innovative activities to connect disenfranchised communities with opportunities that foster social and economic growth. In order to stimulate innovation that enhances the opportunities to better the lives of the largest but poorest socio-economic group, the study interchangeably used the terms economic innovation and innovation for inclusive growth. The study followed a qualitative research approach in an effort to test, validate and extend established theories. The study found that the principles of innovation and growth in developed markets are equally relevant to emerging markets, even if there are essential empirical differences between emerging and advanced economy markets that have methodological consequences. The primary difference in emerging market context, which posed a challenge to the study, was the lack of robust, quantitative data on large panels of firms to understand entrepreneurship, corporate strategy, and business models. The study through the consideration of Pareto optimality assumption that areas of entrepreneurship and strategy often import as a construct for guiding theory found that, Inclusive growth is an activity that can bridge the gap between growth and inequality where the poor will become enfranchised as customers, employers, employees and community members Despite the methodological challenges that emerging markets posed to this study.

Other studies that investigated innovation for inclusive growth, such as Ansari, Munir and Gregg (2012:833), and Bradley, McMullen, Artz and Simiyu (2012:710), found that basic conditions of innovation depend in practice on local needs and resources that likely vary considerably as innovation in developing nation may differ from that of developed economies. Finally, inclusive growth has the potential to change business practice and public policy to improve the lives and livelihoods and particularly to improve the well-being of the poor (George *et al*. 2012).

Kanbur and Rauniyar (2010: 4), define inclusive development by firstly outlining the distinction between growth and development, and lastly by dealing with the importance of the term 'inclusive'. Development deals with the facets/components of well-being other than income, whereas the term inclusive deals with the allotment of well-being in society. Mohr and Associates (2015:410), define economic growth as the growth in the yearly rate of total production or income per capita. The Human Development Index (HDI) can be used to measure development. The study highlights that the developers of HDI involved clear evaluation of the country's performance from GDP to other facets of human well-being (Education and health). Lastly, Kanbur and Rauniyar (2010: 5) emphasise that inclusiveness is measured by the extent of poverty for a given level of average income and the inclusiveness of changes in income and growth is measured by the change in poverty.

The Commission on Growth and Development Report (2008:29), highlights that institutions are important in conveying information and ensuring that informational gaps in the society and the market is bridged. Furthermore, it is also essential to mention that institutions and their capabilities in developing nations may not be fully invented to address social protections, equity and inclusiveness. This often make it difficult for policy makers as they may not know how the society and the market will respond to a policy which is deemed as providing an answer to a certain economic or social issue.

2.8.1. Policy ingredients for inclusive growth

Ali and Zhuang (2007: 12), identify policy ingredients for inclusive growth as follows:

- *High and sustainable growth:* This element is the key to creating productive and decent employment opportunities as the strategy for igniting and sustaining growth. Economic growth differs among developing nations, depending on their current levels of income and extreme poverty. If a country does not adapt and change structures accordingly the economic growth can negatively affect developmental objectives of a country

- *Social Inclusion:* Social inclusion can be promoted through public intervention in three areas. Firstly, by investing in education, health and other social services to expand human capabilities, especially that of the disadvantaged. Secondly, by promoting good policy and sound institutions to advance social and economic justice. Lastly, by forming social safety nets to prevent extreme deprivation. Good Policies and Strong institution can assist in combating corruption. Samans *et al.* (2015:7), emphasize that corruption has a negative effect on economic growth and social inclusion due to its corrosive nature. Personal initiative, entrepreneurship & investment and job creation are the least affected by corruption.

2.9. Economic growth, inclusion and development

Economic growth is beneficial if it improves the quality of life of the citizens. Economic prosperity involves more than just increasing and distributing wealth, because human well-being includes social, cultural, ethical and spiritual dimensions. Furthermore, the economic prosperity is also important, as it is a fundamental element to the quality of life of the citizens of a country (Lopez-Carlos, 2015). Economic growth brings in a structural transformation of the economy. The economy transforms from rural workforce to an urban one, or from agriculture to manufacturing. Middle-income countries can struggle to maintain their growth momentum due to wages that tend to rise during the process of structural transformation.

When wages rise, labour intensive industries in the middle-income countries will gradually be lost or diminished in due course. The growth strategies that served the economy well at lower income levels cease to apply at higher income levels (Commission on Growth and Development, 2008:9). Economic growth should be integrated with innovation with a higher consideration of physical and human capital.

Economic growth is in reality expected to trigger economic development and to improve the welfare of the citizens of a country. It then becomes problematic if the increase in growth is not deemed inclusive such that it is associated with higher levels

of income inequality or where growth fails to address the issues of income disparities between the rich and the poor.

Akpoillih and Farayabi (2012), conducted a study on economic growth and inequality in Nigeria, by measuring its magnitudes and challenges from 1960 to 2010. The study emphasises that Nigeria is endowed with wealth and, over the last decade, the economy has recorded a rising growth in its GDP with the endowment of crude oil being a major contributor. The paper also notes that the increase in growth during that period has not translated into accelerated employment, reduction in poverty or a decline in inequality for the citizens of Nigeria. The paper examined the occurrences of growth-inequality nexus by employing a trend analysis to examine the extent and the challenges of the prevailing inequality scope in Nigeria. Poverty in Nigeria was found to be partly a feature of high inequality that establishes itself in highly unequal income distribution with differing access to basic infrastructure, education and employment opportunities. The results of the trend analysis in Nigeria have suggested that increasing the well-being of the majority of citizens in Nigeria can be enhanced by reducing the prevailing level of inequality in Nigeria.

Vijaykumar (2012), in his attempt to examine the emerging challenges in achieving inclusive development and growth in India, highlights that the pursuit towards balancing the outcome of economic growth is a challenge. The frequent challenges encountered by most emerging economies include maintaining the acceleration of economic growth without compromising human development and sustainability. According to Vijaykumar (2012: 33), the rising economic growth rate in India has raised new developmental challenges, which include, among others:

- *Improving the delivery of core services,* where this challenge persists because, as income rises, citizens tend to demand better delivery of core public services such as water and power supply, education, sanitation and public health.
- *Maintaining rapid growth while making growth more inclusive,* with growing inequality between urban and rural areas, skilled and low skilled workers, the primary medium-term policy challenge for India is not to raise growth from 8 to 10%, but to sustain rapid growth while spreading its benefits more widely.

The Commission on Growth and Development Report (2008: 9) highlights that it is every country's aim to pursue a high-growth strategy in order to reach their

competitiveness targets and improve living standards of the people. In order for those countries to achieve the desired levels of growth, they are sometimes faced with global challenges that their predecessors did not face and that they must overcome. The global challenges include global warming, the falling price of manufactured goods, rising relative prices of commodities, higher population growth rates, and increasing poverty rates.

Lopez-Carlos (2015), highlights that the most sustainable path towards ending extreme poverty and promoting shared prosperity is through creating an inclusive society that allows everyone, including traditionally marginalised groups such as ethnic, religious and other minorities, the same opportunity to participate in and benefit from the economy. It is mainly the role of the government to have in place policies, which allow for an inclusive participation of all citizens in a country. Economic growth generally serves as a basis for development as it can open doors for better infrastructure and other services. It is also critical to note that higher economic growth can also have an effect on the environmental conditions of a country. As the economy grows, firms expand and that expansion, if not monitored by strict environmental legislations, can cause deterioration in the environment through depletion of resources such as air, water and soil destruction of the ecosystems.

Kuhuthu (2006), conducted a study on economic growth and environmental degradation within a global context. The aim of the study was to analyse the relationship between growth and environmental degradation with a particular reference on carbon emissions and deforestation. GDP *per capita* was included as a variable to assess the level of development in a cross-country analysis. The study emphasises the use of GDP *per capita* as the most common approach to evaluate the magnitude of growth and development of a country. This evaluation is necessary to compare results achieved by different countries through different policies.

The study further emphasises that this approach seems to be limited in scope, since economic growth tends to ignore the damages caused by pollution and the depletion of natural resources that are characterised as the side effects of a process of growth. Environmental degradation affects economic development of a country in terms of pollution. The study applied panel data to cater for complicated behavioural patterns on the economic scale and technological progress by combining cross-country and

time series data. The data used in the analysis referred to a sample of 84 countries at various levels of development that covered the period of 1960 to 2000. The results of the study suggested that, over a considerable period, there has been a general increase in both GDP levels and carbon emissions. In the case of forest covers, the overall significance of the estimated model was negligible, implying that economic growth does not necessarily reduce deforestation because of its cumulative effects and because of its irreversible effect on the ecosystem.

Africa, as a developing continent, has over the years followed a growth-oriented approach (economic growth approach) to development, whereby maximising the level of GDP was considered extremely imperative. The maximising of GDP in Africa has to a certain degree come at a cost (i.e. inequality, environmental pollution, carbon dioxide emissions) in the developmental progress of the continent. Adu and Denkyirah (2017) studied economic growth and environmental pollution in West Africa by testing the Environmental Kuznets Curve (EKC) hypothesis. The EKC hypothesis states that the environmental damage first increases with income then declines in the long run (Stern, Common and Barbier, 1996). The study employed panel data analysis using secondary annual country data for the period 1970 to 2013.

The sampling criteria of the above mentioned study yielded a balanced dataset of seven West African countries with lower to middle income status (Ghana, Nigeria, Cote d'Ivoire, Togo, Benin, Burkina Faso and Gambia). The results of the study showed that economic growth, in the short term, increased carbon dioxide emissions and carbon waste significantly. Economic growth, on the other hand, did not significantly decrease environmental pollution. The results suggested that even at higher income levels, environmental pollution did not decrease significantly. This insignificant relationship between economic growth and environmental pollution in the long run indicated the non-existence of EKC in West Africa (Adu and Denkyirah (2017).

Alam (2014), conducted a study on the relationship between economic growth (GDP *per capita*) and CO_2 (carbon dioxide) emissions on the Bangladesh experience. The paper examined the relationship between economic growth (GDP) and CO_2 emissions based on the Environmental Kuznets Curve (EKC). The EKC is the systematic relationship between economic growth and environmental quality (Alam, 2014). The

study highlights that CO_2 emissions are a major contributor to global warming and the emissions have grown in the past centuries due to human activities. As the country experiences development, the use of fossil fuel consumption (coal, oil and gas) increases with demand, as they are the main sources of electricity generation. Manufacturing activities, transport and the increase in consumption for goods and services are linked to economic growth. The study applied the World Development Indicators of 2013 and World Bank data to examine the trends and patterns of CO_2 emissions according to GDP per capita for the year 1972 to 2010 for Bangladesh. The study concluded that EKC does not hold in Bangladesh for the period specified. Results showed that CO_2 emissions increase as GDP contribution of industry and services was expansively rising. This was mainly due to manufacturing and industrial processes that emitted fossil fuel combustion as well as services indirectly with electricity generated with fossil fuels.

2.10. Social cohesion and inclusive development

Social cohesion as a concept of togetherness plays a role in motivating the citizens of a country in their willingness to participate in the development of their country. It is also important for the citizens of a country to have a level of trust in the government that their policy implementation will be of great benefit. The republican discourse, mentioned above, elaborates on the importance of the state's role and its institutions in promoting social equality and distribution.

The concept of inclusive development, if properly addressed, contributes and enhances the element of trust by all segments of society, as citizens know that they will have an equitable share in participating in the economic life of their country, regardless of their race, gender or social background. Economic growth is at the centre stage of social cohesion and inclusive development such that it would seem to be difficult for both concepts to thrive with extremely low or negative growth. Inclusive development aims to combine the social aspects with economic growth through political approaches considered by the government.

Social cohesion can influence institutions that promote inclusive development, as economic institutions are determined through a collective choice of the society. Society

will find it difficult to make a collective choice if there are no proper social relations among them, a sense of connectedness and lastly if they cannot focus on the common goal. Easterly *et al*. (2006), argue that the strength of institutions may be, in part, determined by social cohesion and propose that the key development outcomes are most likely associated with countries that are socially cohesive and therefore governed by effective public institutions.

To test the relationship between Inclusive development and social cohesion, a concrete measure/ index of social cohesion has to be developed for the variables of social cohesion chosen for this study.

2.11. Conclusion

The literature provides some detailed arguments about the effects of social cohesion in society. The ideal situation would be to have a cohesive society with an inclusive economy coupled with a moderate economic growth rate. The literature also provides an idea that economic growth does not always bring desired outcomes as it is sometimes associated with environmental externalities. The literature review of this study focused on all the positive and negative elements of the two concepts (social cohesion and inclusive development) with economic growth being at the epicentre. The literature also provides evidence that social cohesion and inclusive development do relate, but the relationship seems to go both ways in some instances. George *et al*. (2010: 9), state, in their literature, that the idea of inclusive growth and development emanates from Non- governmental organisations engaging in initiatives to foster social and economic growth. Cilingir (2006: 1), on the other hand, argues that the performance of economic activities depends on the level of trust and collaboration between different groups and such a collaboration can lead to higher economic outcomes. The literature gathered provides this study with direction as this study will attempt in its analysis to test the direction of the relationship between inclusive development and social cohesion. The next chapter sets out to describe the data that will be used to test the relationship. The compilation of the WEF's Inclusive Development Index is explained. The measures of social cohesion available in the

World Values Survey are also discussed. This sets the scene for the calculation of the social cohesion index and the empirical analysis in Chapter 4.

3. Chapter 3: Description of WEF- IDI and World Values Survey Data

3.1. Introduction

The WEF Inclusive Development Index (IDI) summary Report (2018:1) highlights that GDP is regarded as a standard measure of national economic performance as it serves as a means to measure the success of broad-based progress in the standard of living. The importance of GDP statistics strengthens the attention that the state as well as investors pay to macro-economic and financial stability policies of a country as they have an important influence on the overall level of economic activity and its performance. The report also states that economic growth is a necessity for every economy, but it is also not a sufficient measure of national economic performance. The WEF developed an alternative/complementary metric that can measure the level of and improvement in shared economic progress. The Inclusive Development Index developed by the WEF focuses more closely on the criteria by which people can evaluate their country. The IDI comprises 12 indicators/components that are combined to form a metric that measures inclusive national economic performance.

The previous chapter explained that social cohesion is an important phenomenon in addressing socio-economic challenges, particularly for emerging market economies. The policy reforms necessary to improve the equity and sustainability of growth will have short-term costs, but greater social cohesion will help citizens bear such costs in expectation of long-run benefits. Measuring social cohesion is more of a challenge.

This chapter will describe the data that will be used to test the relationship between inclusive development and social cohesion. The compilation of the WEF's Inclusive Development Index will be explained in section 3.2. In section 3.3 a brief description of IDI rankings will be given for a number of developed and developing economies. The measures of social cohesion and exiting indices will be discussed in section 3.4. The specific measures available in the World Values Survey will be explained in section 3.5. Section 3.6 concludes.

3.2. Components of the Inclusive Development Index

The Inclusive Development Index measures the national economic performance while focusing strongly on median living standards and the inclusivity of growth. The WEF compiles the IDI for 103 economies comprising 29 advanced economies and 74 emerging economies. The IDI has three pillars (growth and development, inclusion and intergenerational equity and sustainability), where each of the pillars has four indicators representing the best available cross-country measures of sustained and broad-based living standards.

3.2.1. Growth and development

This pillar describes the four fundamental metrics of economic growth and development.

- Economic growth as measured by GDP per capita

WEF IDI report (2018:24), uses GDP at purchaser's price for the compilation of the IDI. The report outlines that the GDP at purchaser's price is "the sum of the sum of gross value added by all resident producers in the economy plus any product taxes minus any subsidies not included in the value of the products".

- Employment / Unemployment

According to Bryne and Strobl (2004: 1), unemployment can be used as a measure of economic well-being in general. Employment rate is calculated using a ratio of people currently employed to the working age population (WEF IDI report: 2018:24). For an individual to be classified as unemployed, he/she should be without work, actively seeking employment and currently available for work. The formula for unemployment is expressed as follows:

$$Unemployment\ rate = \frac{Number\ of\ unemployed}{Total\ labour\ force} \ldots\ldots\ldots\ldots\ldots Equation(2)$$

- Labour productivity

According to Freeman (2008), it is crucial to measure labour productivity, as it explains how increased labour productivity can stimulate economic growth and development. Labour productivity is a percentage of a volume of output to a measure of input use (WEF IDI report: 2018:24). The volume of measure of output represents the goods and services produced by the country's workforce and it can be measured by GDP. The measure of input use, on the other hand, reflects the commitment by the workforce in terms of time, effort and skills contributed in production. Labour productivity can be measured by the sum of hours worked by all employees and by the head count of employment. Labour productivity can be used to boost the growth, competitiveness and living standards of the economy. Samans *et al*. (2015:25) denotes the formula for measuring labour productivity as follows:

$$Labour\ productivity = \frac{Volume\ measure\ of\ output}{Measure\ of\ input\ use} \ldots\ldots\ldots\ldots\ldots Equation(3)$$

- Healthy life expectancy

WEF IDI report (2018:24), define healthy life expectancy as the aggregate number of years an individual can expect to live in full health by considering years lived in less than full health due to ailments or injuries. Healthy life expectancy is mostly calculated by using David Sullivan's (1971) as cited by (Jagger, Cox, Le Roy, 2007:2). The Sullivan method of calculating the healthy lifecycle reflects the number of years remaining, which an individual expects to live healthy at a certain age. The data used for this method is obtained from cross-sectional surveys with age-specific proportions as well as age-specific mortality information (Jagger *et al*. 2007). The IDI uses a five-year trend on the change on healthy life expectancy between 2011 and 2016.

3.2.2. Inclusion

This pillar deals with the four important measures of social exclusion and they are presented below.

- Median household income

Guzman (2018:1), explains that the household's median income is based on the distribution of income of all households in the economy including households with no

income. The median income point separates the distribution of income in two halves, where one half will comprise income above the median income point and the other half below the point. The WEF IDI report (2018:25), used the data from nationally-representative household surveys, conducted by national statistical offices and by private agencies, which was obtained from World Bank Group Departments and government statistical offices. The authors of the IDI Report have converted the data from monthly to daily median income.

- Income Gini

Mohr and associates (2015), highlight that the Gini coefficient is one of the measures of inequality. The Gini coefficient measures the distribution of income and it ranges between zero and one. In order to compute the Gini index, the researcher has to multiply the Gini coefficient by 100. In an economy where the income is distributed evenly, the Gini coefficient will equate to zero. The closer the coefficient is to one, it shows that there is perfect inequality distribution of income in an economy. On the other hand, the wealth Gini focuses on the measures of economic distribution of ownership of assets rather than on income distribution. The WEF IDI report (2018:24) highlights that higher Gini coefficients show a greater inequality in the distribution of wealth, where 1 signals complete inequality and 0 signals complete equality in an economy.

- Poverty rate

The WEF IDI report (2018:24), explains that the relative income poverty rate for advanced economies is explained as half of the respective median income. Coudel, Hentschel and Wodon (2002:33), emphasise that income poverty rate measures the ratio of people of a certain age group living with income below the poverty line. Furthermore, there are two common ways of determining the poverty lines (relative and absolute poverty lines). Furthermore, the relative poverty lines are explained in accordance with the aggregate income distribution or consumption of a given country. Lastly, countries in most instances set their poverty lines at a given percentage of their mean income or consumption. Absolute poverty lines used by the WEF in compiling the IDI can be explained in terms of monetary measures where the focus is on the estimates of the costs of basic food prices. Basic food needs comprise the nutritional basket deemed necessary for minimal health with a provision of non-food needs. The

WEF IDI report (2018:24) explains that income poverty rates for emerging economies are the ratio of the population living on less than $3.20/ day at 2011 international prices

- Wealth Gini

The last measure of this pillar (3.2.2) measures the disparities in the distribution in wealth where a higher Gini coefficient with results in greater inequality (WEF IDI report (2018:24).

3.2.3. Intergenerational equity and sustainability

This pillar also has four measures that signify that growth and benefits in living standards are not socially-inclusive if they are provided in a manner that excessively and unsustainably burdens the country's younger and future generations.

- Adjusted gross national savings

Adjusted net savings (ANS), as introduced by the World Bank in 1992, include in its measure a calculation of various elements such as natural resources depletion, environmental degradation/pollution and the addition of human capital formation (Pardi, Salleh, & Nawi, 2015). The ANS provides a relative indicator of how efficient and sustainable the country's investment policies are. Bolt, Matte and Clemens (2002), and Pardi *et al*. (2015) compute the formula for calculating ANS as follows:

$$ANS = \frac{GNS - Dn + CSE - \sum Rni - C}{GNI} \dots\dots\dots\dots\dots\dots\dots Equation\ (4)$$

Where:

ANS = Adjusted net savings rate
GNS= Gross national savings
D_n= Depreciation of produced capital
CSE= Current (non-fixed capital) expenditure on education

R_{ni}= Rent from depletion of natural capital $_i$

C= Damages from carbon dioxide emissions

GNI= Gross national income at market prices

Bolt *et al*. (2002: 5), highlight that the subtraction of consumption of fixed capital depicts the substitution capital used in the production process, while the addition of current expenditure on education represents an investment of the portion of the state's total expenditure on education directed towards fixed capital such as school infrastructure. The measurement of rent from the definition of natural resources represents a difference of market value of extracted materials and aggregate extraction costs.

- Dependency

Loichinger *et al*. (2014:5), highlight that individual economic features and the population age structures determine the degree of economic dependency. The age structure of the population can best be described by the demographic dependency ratio. The young age dependency ratio includes the total number of persons under the age of 20 to the number of persons aged 20 to 64. The old-age dependency ratio, on the other hand, includes the sum of individuals aged 65 and above to the individual's aged 20 to 64. The demographic dependency ratio is then equal to the sum of the young age dependency and old age dependency ratio.

- Carbon intensity of GDP

WEF IDI report (2018:25), explain that carbon intensity measures the ratio of carbon that the economies emit from every dollar of GDP they produce. Baumert, Herzog and Pershing (2005:26), describe carbon intensity as being dependent on two variables (energy intensity and fuel mix). The energy intensity refers to the amount of energy used per unit of GDP. In a case where the economy depends on heavy industrial production, there will be a higher energy intensity than an economy where the service sector is dominant. The fuel mix is the carbon volume of energy consumed in a country. Baumert *et al*. (2005:26), computed the formula of carbon intensity of GDP as follows:

$$CO2\ of\ GDP = \ Energy\ intensity\ X\ Fuel\ Mix \ldots\ldots\ldots\ldots\ldots\ldots (Equation\ 4)$$

- Public debt

Holtfrerich *et al*. (2016:18), define public debt as a financial debt accrued by the state through lending and issuance of treasury bills, bonds and other related instruments. In a situation where the government revenue is not sufficient to cover the current spending, the government may opt to borrow to finance the expenditure. The purpose of borrowing is to stabilise the macro-economy where they pay down the debt when the economy is heading towards overheating. The government can also borrow money if it is faced with a short-term drop in revenues or a short-term rise in spending to respond to a shock/disaster. The net new debt is the difference between non-credit revenues and regular expenditure. Holtfrerich *et al*. (2016:18) highlight that the ratio of net new debt to GDP is referred to as the deficit ratio.

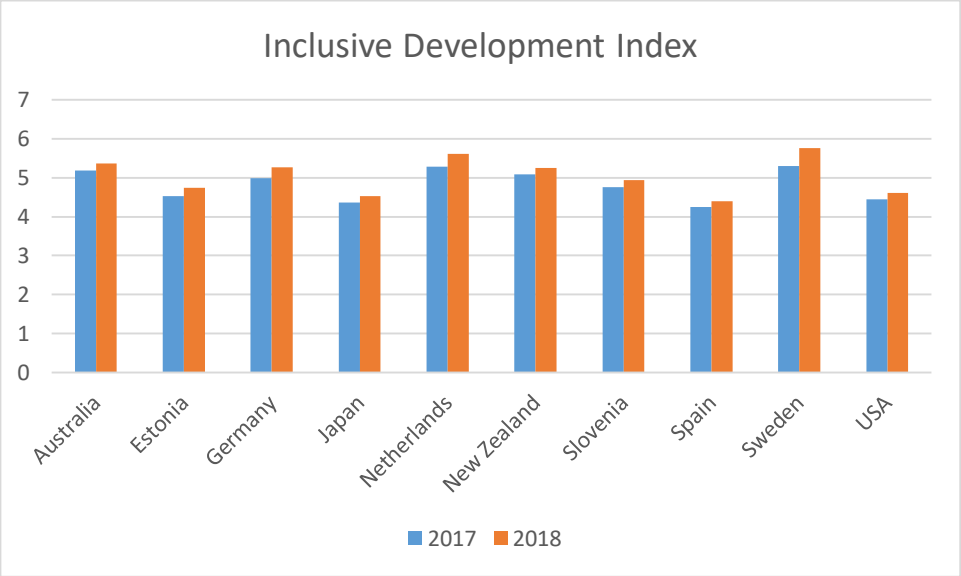
In summary, measures of Inclusive Development Index include three pillars namely, growth and development, inclusion and intergenerational equity and sustainability. Growth and development is measured by GDP, labour productivity, employment and healthy life expectancy. Samans *et al*. (23:3), highlights that an important measure pf inclusiveness in society's growth prospects is the degree to which it improves the living standard of people. Inclusion is measured by median household income, poverty rate, wealth Gini and income Gini. Lastly, we have intergenerational equity and sustainability which is measure by adjusted net savings, public debt as a share of GDP, the dependency ratio and carbon intensity of GDP.

3.3. The data patterns for IDI

WEF IDI Report (2017:3), explain that the benchmarking framework of the IDI includes two types of data, i.e. the quantitative data collected from international organisations and other respected sources and the other class of data obtained from the WEF's executive opinion survey. The questions posed on the survey were scaled from one to seven; where one represents the worst case and seven represents the best. In a case where outliers were observed in quantitative data, the WEF method introduced data thresholds to minimise bias in the distribution. In order to align quantitative data with survey results, indicators were converted to a 1-7 scale.

To give the reader some notion of the IDI data that will be used in the analysis later on, the following two graphs present the IDI scores for a number of advanced and developing economies in 2017 and in 2018.

Figure 2: IDI for advanced economies, 2017 and 2018

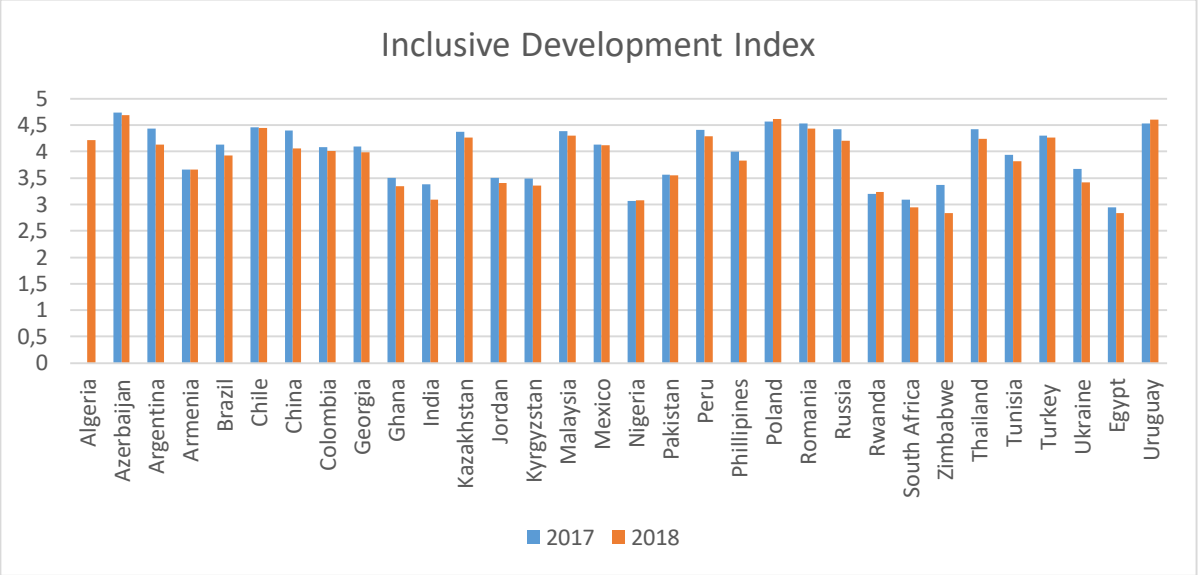


Source: WEF IDI report 2017 and 2018

The above figure shows the IDI scores of ten advanced economies for 2017 and 2018. Over the two years the IDI shows that most of the countries have improved their index scores from 2017 to 2018. Sweden has improved from 5.3 (2017) to 5.76 (2018), the Netherlands from 5.28 to 5.61, and the USA's IDI increased with a small margin of 0.16 from the 2017 IDI score.

The IDI scores for the selected emerging economies depict a different story where nine of the countries showed lower IDI scores for 2018. The figure below depicts the changes in the IDI among a number of emerging economies for 2017 and 2018.

Figure 3: IDI for emerging economies, 2017 and 2018



Source: WEF IDI report 2017 and 2018

The graphical representation in Figure 2 shows that Poland is the only country from the group to have improved its IDI score from 4.57 (2017) to 4.61 (2018). Azerbaijan and Poland remain the only two countries to have their IDI scores above the average score of 4.5 from 2017 to 2018. The BRICS countries also have not performed well in the IDI score, where Brazil dropped its score from 4.13 (2017) to 3.93 (2018), Russia (4.42 to 4.2), India (3.8 to 3.09), China (4.4 to 4.2) and South Africa has scored the lowest (2.94) in the 2018 rankings. The figure above shows that many of the emerging economies are struggling to make their economies more inclusive.

3.4. Description of measures of social cohesion

The data for the variables measuring social cohesion will be obtained from the World Values Survey (WVS) database. The WVS is an organisation that studies changing values of the society and also their impact on social and political life. The WVS conducts surveys that are important and provide the information regarding the aspects of social change. The aspect of social change includes, among others, the values, beliefs and motivations of ordinary citizens. The countries participating in surveys are emerging and developed nations with all their major cultural regions included.

The WVS uses a questionnaire to measure the changing/dynamic values of religion, gender roles, work motivations, democracy, good governance, social capital, political participation, tolerance of other groups, environmental protection and subjective well-being. This study will make use of survey data for wave 6 conducted from 2010 to 2014 where 60 countries participated with 86 274 respondents. According to Inglehart (2017), the information obtained from surveys demonstrates that people's beliefs play an important role in economic development, the emergence and success of democratic institutions, the rise of equality and the degree to which societies have effective government. The WVS has data on various indicators of social and political life. This study will develop an index to measure social cohesion for 42 countries, using measures outlined in the OECD Report (2011:55), publication of social cohesion as a guideline. The measures include views on income inequality, societal level of cohesiveness where unemployment is being used as a measure for the degree of life satisfactions and the risks of civil tensions, the measures of well-being and measures of social capital. The index will be developed for a cross-section of countries with emerging and advanced economies. The index will use a scale of 1 to 7 where one represents the lowest and seven represents the highest. There are other indexes developed by other nations and scholars to measure social cohesion. Those indices are discussed below and they will be used as a guideline to develop an index for social cohesion for this study using the indicators outlined above.

3.4.1. Social cohesion measures and indices

3.4.1.1. Scanlon-Monash index

Markus (2014:4), explains that the Scanlon-Monash index of social cohesion shows how Australia is measured over time according to five key elements of social cohesion:

- Belonging: This indicator focuses on how Australian citizens view their way of life and culture and the importance of maintaining it and sense of belonging.
- Worth: It measures people's level of fulfilment and happiness with their current financial status as compared to that of the previous years.

- Social justice and equity: It measures people's trust in the state, policies and reforms to challenges experienced by the citizens with low incomes, income inequality and the people's views on economic opportunity available in the Australian economy.
- Participation: This indicator focuses on people's participation in the political life of their country through participation in protest, signing petitions, and contact with members of parliament.
- Acceptance and rejection, legitimacy: This measures the rejection resulting from reported cases of discrimination, people's views on immigrants or minority groups in Australia and the people's hope about the future.

Markus (2014:4), explains that the survey data obtained for the Scanlon Monash index is weighted to adjust for the chance of being sampled in the survey and channel the respondent's profile in line with the Australian Bureau of Statistics (ABS) demographic indicators.

3.4.1.2. Social cohesion and reconciliation (SCORE) index

Burns, Lefko- Everett and Njozela (2018:4), explain that the SCORE index measures social cohesion and reconciliation, which it deems as important conditions, required for peace in any society. The SCORE index uses open-ended survey questions conducted through face-to-face interviews. The indicators used for measurement are the people's perception on corruption; trust in state institutions, feelings represented by institutions and inclusiveness in decision-making processes, human security and civic life satisfaction.

The United Nations Development Programme (UNDP) (2015:13) report outlines that the first step in calculating the SCORE index was to test the internal reliability/consistency of indicators for social cohesion and for reconciliation using Cronbach's alpha with the value that can vary from zero to one. If the value obtained is closer to one, then there is a higher internal consistency where, in principle, the values between 0.7 and 0.8 were considered to be acceptable. Once the desired internal consistency was achieved, a two-way Explanatory Factor Analysis (EFA) was performed for social cohesion and reconciliation. The components that constituted

each dimension were included when performing the EFA, showing that a single construct is measured rather than multiple constructs. The last stage was to complete a Confirmatory Factor Analysis (CFA). The programme used was instructed to load certain items on a specific indicator and which indicators to load onto which dimensions. After the finalisation of the model, the loadings were then used to estimate the scores for social cohesion and reconciliation. The scores ranged from 0 to 10.

3.4.1.3. Kenyan social cohesion index

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) (2014), established the Kenyan Social Cohesion Index (KSCI) in 2013. The KSCI was based on a nationally representative public opinion survey. Naituli and Nasimiyu (2018: 37) outline the indicators for measuring social cohesion in Kenya as follows:

- Prosperity focuses on the ability of the state to ensure the well-being of society,
- Equity deals with the equality and access to economic opportunities, participation, solidarity and decision-making,
- Peace is the absence of protest in the society; crime-free environment,
- Diversity deals with the degree of social bonds in Kenya, e.g. cultural bonds and values,
- Diversity, and
- Trust measures the extent to which people trust each other in a society.

Naituli and Nasimiyu (2018), further explain that the statistical method used for calculating the KSCI was the Principal Component Analysis (PCA) technique. The PCA technique identified a latent variable from a pool of possible variables that might define social cohesion. The PCA also tested the variance and covariance matrix of factors underlying the phenomenon of social cohesion. Lastly, the data was weighted for each variable and summed to arrive at an index for each dimension, which was aggregated to arrive at KSCI.

3.5. Measures of social cohesion and survey questions

It is crucial to first look at the contents of the questionnaire in relation to the variables for measuring social cohesion for this study. The WVS conducts a survey by asking

the respondents to place their views on a scale of one to ten on various issues. For the possible measure of social cohesion, the contents of the questionnaires are discussed briefly below in line with the indicators of WVS.

3.5.1. Economic measures

For this indicator, respondents were required to respond to two statements on both sides of the questionnaire. The question on the left side of the questionnaire was whether “incomes should be made more equal” and on the right side was whether “we need larger income differences as an incentive for individual effort”. A measure of 1 meant that the respondent completely agreed with a statement on the left and 10 meant he/she completely agrees with the statement on the right.

3.5.2. Societal level of cohesiveness

- Social justice and equity: In this indicator, the people’s views and feelings about how they evaluate their national policy, play an important role. The WVS asks the respondents about their confidence in the government.
- Acceptance and rejection: This measure deals with how people feel about the minority groups in their society, immigrants and newcomers. This study chose an indicator from the WVS questionnaire that asks an individual about whether he/she would like to have immigrants/foreigners as neighbours, or not.

3.5.3. Measures of wellbeing

- Worth: The indicators chosen from the WVS for this measure are satisfaction with one’s life, and satisfaction with financial situation in the household.
- Health: The WVS asks in the questionnaire the respondent about his/her state of health.

3.5.4. Measures of social capital

- Participation: People's willingness to give back to society in terms of voluntary work; being a part of a political organisation or any cooperative involvement does assist in nation building. The indicator chosen on the WVS for this measure is people's membership of political organisations and whether a person is an active/inactive member of a humanitarian or charity organisation.
- Interpersonal trust: the WVS questionnaire would ask a respondent whether in his/her own view people can be trusted or whether one needs to be careful in dealing with people.

The index of social cohesion will be calculated using the measures and indicators outlined above. Each indicator has a specific code on the WVS database and the table below provides the summary of measures and how they are presented in the WVS database. The table below shows measures, indicators and their description and codes in the WVS survey.

Table 3.1: Summary of social cohesion metrics

Measure	Indicators	WVS codes and description
1. Economic measure	• Inequality	• V96: Income inequality
2. Societal level of cohesiveness	• Social justice & equity • Acceptance and rejection	• V115: Confidence: the government (in your nation's capital) • V39: Would not like to have as neighbours: immigrants/ Foreign workers
3. Measures of well-being	• Worth • Health	• V23 Satisfaction with your life • V11: State of health (subjective)
4. Measures of social capital	• Participation • Interpersonal trust	• V29: Active/inactive memberships: political party • V32 Active/inactive humanitarian or charitable organisation • Most people can be trusted

The measures provided in Table 3.1 will be used to develop an index of social cohesion. The success of developing a social cohesion index (SCI) will enable the study to test its relationship with the IDI. The empirical analysis presented in the next chapter will provide a clear outline of the computation of the SCI and also how it is tested with the IDI.

In summary the study uses the data from the WVS to measure social cohesion. A measure of social cohesion will be achieved through developing an index of social cohesion. The study also highlighted some of the social cohesion measures and indices (Scanlon- Monash index, SCORE index and Kenyan social cohesion Index) which will guide the methodology of developing an index for this study.

3.6. Conclusion

The main aim of this chapter is to describe the different measures that will be used to test the relationship between inclusive development and social cohesion. The national key performance indicators / measures of IDI were discussed in detail. The study also discussed how the WVS obtains its data and the question asked to respondents during survey. The measures of social cohesion, indicators, as well as the data from the respondents will be used for the empirical analysis for the study in the next chapter.

4. Chapter 4: Empirical analysis

4.1. Introduction

Chapter 2 explained that social cohesion is important if policymakers want to address socio-economic challenges. The policy reforms necessary to improve the equity and sustainability of growth will have short-term costs, but greater social cohesion will help citizens bear such costs in expectation of long-run benefits. Chapter 3 argued that measuring social cohesion is more of a challenge and described the data sources that will be used to test the relationship between inclusive development and social cohesion. The focus was on the WEF's Inclusive Development Index and measures of social cohesion from the WVS.

This chapter presents the empirical analysis of the dissertation. The first step is to compile a social cohesion index using the WVS data and this is explained in section 4.2. The indicators of social cohesion were identified in the previous chapter and can be referred to in Appendix A1. This construction of an aggregate measure of social cohesion using a method similar to that of Burns *et al*. (2018). Then section 4.3 presents the empirical analysis and the use of this social cohesion index in a regression model of inclusive development. Different models are estimated and the results interpreted in this section. Section 4.4 shows the diagnostic tests of the regression models. The conclusions are presented in section 4.5.

4.2. Calculating a social cohesion index for a cross-section of countries

The first step in constructing an index is to filter the data using Microsoft Excel in order to filter only the indicators (6) and countries (42) that are relevant for this study. The 42 countries are a mix of advanced and emerging economies from a convenience sample determined by data availability. The WVS surveys countries in waves over multiple years. The 42 countries included in this analysis has data available form wave 6 conducted from 2010 to 2014. It is the most up to date values data that can be used alongside the more recent IDI data. The first step in the construction of the index is to

assign new consecutive country codes, replacing the country codes used in the WVS. Table 4.1 below shows that the countries are numbered 1 through 42 along with the number of responses to the WVS per country. It is notable that respondents in India make up a large share of the observations (Appendix 1).

The next step is to account for the different scales used in the WVS questionnaire items. The issue is that the numbering of different responses do not measure in the same direction across different items. An example is the state of health indicator, where its scale ranges from one to four, with one representing very good health and four representing poor health. On the other hand, the life satisfaction indicator has a scale of one to ten, where one represents a “not satisfied” outcome and ten means “completely satisfied”. Therefore, where necessary, scales are reversed to ensure that “positive” outcomes, which are likely to be associated with social cohesion (as per Chapter 3), are all measured in the same direction.

To standardise the different measures, the scaled responses are reclassified into simple binary measures per respondent (Appendix 3).

- For state of health, the rating scale is from one to four, where one and two represent very good and good health, while three and four represent fair and poor health. This then recoded into two categories of one and zero where one represents fair to very good health and zero represents poor health.
- For the life satisfaction measure, respondents who answered from five to ten are assigned one (satisfied) and respondents who answered from one to four are assigned zero (not satisfied).
- The third indicator from the WVS measures respondents’ views of whether “people can be trusted”. Those respondents who answered one for trust in the WVS are again assigned a one, indicating trust. Those who responded with a two in the WVS, i.e. no trust, are now assigned a zero.
- For the WVS item that asked whether respondents are members of a political party, respondents who answered zero and one (not a member, or an inactive member) are now assigned a zero (inactive membership) and those who responded by selecting a two on the WVS scale, are given a one (active membership).

- The fifth WVS indicator is about the respondent's membership of a charity organisation, or humanitarian organisation. Similar to the above, respondents who answered zero and one (not a member, or an inactive member) are now assigned a zero (inactive membership) and those who responded by selecting a two on the WVS scale, are given a one (active membership).
- The WVS also asked respondents about people that they would like to have as neighbours, specifically immigrants. Respondents who mentioned that they would not like to have immigrants as neighbours were recorded with a one in the WVS data and this is now recoded to zero. Those that did not mention it are coded as one.
- The WVS also asked respondents whether they think that income should be distributed more equally. Those who answered on the scale from five to ten are now recoded as one, favouring equality. Those who answered from one to four are recoded as zero.
- The last indicator measured whether respondents have confidence in the government. The respondents who answered with one or two are recoded as one (confidence), and those who chose three and four are recoded as zero (no confidence).

Appendix 2 attached shows the indicators and their codes as presented on the WVS survey questionnaire.

Chapter 3 explained that the eight measures of social cohesion can be grouped as four factors, or constructs of social cohesion. The next step is to calculate a value for each of the constructs using the simple average of the percentage of respondents that gave responses categorised above as "more social cohesion". Again, this is done at a country level. The result is expressed as a value between 0 and 1 (Appendix 3).

- Equality: In an effort to calculate the index of social cohesion for this study, the average of the income equality/inequality indicator is used for this construct. The proportion of respondents who favoured a more equal distribution of income is the single measure that is used.
- Societal level of cohesiveness: This construct takes the average of individuals who have confidence in their government to deal with social issues as well as the measure of how people feel about the presence of immigrants or foreign workers in their surroundings.

- Wellbeing: The average of the proportion of respondents who are more satisfied with life and the proportion of those who are in good health are used to measure this construct.
- Social capital: The study considers the average of people's participation in their country's politics, society's involvement in humanitarian and charity organisations and lastly the level of trust the society has.

Appendix (3) presents a table for all the indicators used to measure social cohesion for this study in each country and how they were re-scaled.

Finally, to calculate a summary social cohesion index score per country, the simple average of the scores per construct are calculated. The results of the social cohesion index (SCI) will range from zero to one (refer to Appendix 4), where a value closer to one represents strong cohesion and a value closer to zero is explained as weak cohesion for a particular country.

Appendix 5, shows the social cohesion index for the cross section of countries examined in this study. The SCI shows that Sweden (0.67) and New Zealand (0.66) are the countries with higher scores of SCI of the advanced economies. The SCI, as mentioned above, ranges between zero and one, where the average SCI score is expected to range around 0.5. Countries from the advanced economies that have scored above average include Slovenia (0.53), and Japan (0.55). From the list of advanced economies chosen for this study, Estonia (0.49) scored the lowest in SCI. Argentina, (0.87), Malaysia (0.66), China (0.65), and Uruguay (0.64) are amongst countries on the list of emerging economies to have scored above the average score of SCI. The SCI results also show that Ukraine has the lowest SCI score (0.47) amongst the emerging economies. Most of the SCI scores for the countries are centred on the average score (0.5), where Argentina is the only country that has managed to get a score close to one. The SCI scores presented in Appendix 5 above will be analysed along with the IDI index presented in Chapter 3 in order to examine the relationship between the two variables.

4.3. Estimation technique

The study aims to estimate a simple regression model (using E-views 7), to analyse the relationship between inclusive development and social cohesion. Inclusive development is estimated as a function of social cohesion and a number of control variables. This study estimates the model as follows:

$$IDI = C + \beta_1 SCI + \beta_2 DV + \beta_3 COC + \beta_4 CD + \beta_5 EF + \beta_6 GE + \beta_7 ROL + e^t \ldots\ldots Equation(4.1)$$

Where:

IDI= Inclusive Development Index

C= Constant

SCI= Social Cohesion Index

DV = Dummy Variable (where 0= developed economy and 1= developing economy)

COC= Control of corruption

CD= Cultural diversity

EF= Ethnic fractionalisation

GE= Government effectiveness

ROL= Rule of law

E^t= Error term

The controls are variables that are frequently used as predictors / determinants of institutions (see Easterly *et al*. 2006), and as such are used as country-level factors that can influence inclusive development. The data for the government quality / effectiveness indicators (COC, GE, ROL) used in the above regression equation is obtained from the World Bank data site. The World Bank through the Worldwide Governance Indicators (WGI) project reports on the overall and complete governance indicators for more than 200 countries over the period of 1996 to 2017.

The WGI compiles information from different data sources on views and experiences of citizens, entrepreneurs, private institutions and non-government organisations globally, on various aspects of governance. According to the World Bank-WGI (2018),

the WGI relies on four different types of data, which includes surveys of household and firms (Afro Barometer Surveys, Gallup World-poll), commercial business information providers (Economist Intelligent Unit, Global Insight and Political Risk Services), non-government organisations (Global Integrity, Freedom House, Reporters Without Borders) and public sector organisations (CPI assessments of World Bank, the European Bank for Reconstruction and Development (EBRD) transition report, French Ministry of Finance Institutional Profile database).

The first step the World Bank uses in the aggregation methodology of the WGI includes the assignment of data from individual sources to the aggregate indicators. The second step involves the rescaling of the individual data sources to range from zero to one. A higher value resulting from the rescaling corresponds with better outcomes, while the lower values closer to zero represent the worst outcomes. The World Bank-WGI Report (2018) methodology then uses the unobserved component model (UCM) to construct a weighted average for all the indicators. The UCM develops an aggregate measure of governance in units of a standard normal distribution consisting of a mean zero with a standard deviation of one that runs from approximately -2.5 to 2.5, where higher values correspond with better outcomes (World Bank-WGI Report, 2018).

This study will only use three indicators from the WGI, namely rule of law, control of corruption and government effectiveness. Furthermore, the study will concentrate on the data for the aggregate indicators presented in their standard normal units ranging from -2.5 to 2.5. The higher positive figures will mean that there is a better rule of law, better control of corruption and more government effectiveness.

The data for cultural diversity and ethnic fractionalisation were collected from the Ethnic and Cultural Diversity Index (2016). The index of cultural diversity is skewed towards linguistic variations among members of a society where the similarity between languages is measured with 1 depicting an index of population speaking two or more languages, and 0 showing that the population speaks only one language. A higher positive score will represent more diversity. According to Fearon (2003:201), ethnic fractionalisation deals with the ability of people to identify each other based on common language, ancestry, social, cultural and national experiences and a lower score closer to zero will mean a perfectly homogeneous society and a figure closer to one will represent a more fractionalised society. Table 4.4 summarises the indicators,

as well as the expected relationship between the independent / control variables in the regression model and the dependent variable (IDI) (refer to Appendix 5).

Table: 4.1: Control variables and their description

Variable	Indicator	Expected relationship with IDI
Government effectiveness	• Quality of public services • Quality of civil services & resilience to political pressure • Quality of policy formulation and implementation • Credibility of government policies	The study expects a positive relationship where a score closer to 2.5 will represent better outcomes of government effectiveness
Rule of law	• Measuring the extent to which agents trust and adhere to rules that governs the society • Quality of contract enforcement, the police, courts and the possibility of crime and violence	The study expects a positive relationship between the two variables. Larger WGI score represents greater respect for rule of law in the society
Control of corruption	• Measures the extent to which public power is used for private gain • Petty and greater forms of corruption and state capture by elites and private interests	A positive score represent better control of corruption therefore the study expect a positive relationship between the two variables
Ethnic fractionalisation	• Measures the degree to which people are able to identify each other in a society	An index number closer to one shows high fractionalisation and the study expects a negative relationship with IDI
Cultural diversity	• Measures similarities between language in the population	An index value closer to one represents language diversities in a population, and therefore a positive relationship with IDI is expected

Source: Author *(The scores of the variables are presented in appendix 5)*

Table 4.1 shows how the control variables were measured and the expected outcomes/relationship with the dependent variable presented in equation 4.1.

The next step of the analysis is to test whether the independent variables have a relationship with each other and the strength of the relationship if it exists. The study performs a hypothesis test to check the significance of the correlation coefficient on the independent variables. According to Sedgwick (2012:1), a Pearson correlation coefficient is represented by r, and the population from which the sample is drawn is represented by P, the coefficient is measured on the scale and can take a value from -1 through 0 to +1. The study tests for correlation to verify the possibility of multicollinearity in the regression model. Table 4.5 presents the correlation results performed using EViews 10.

Table 4.2: Pearson correlation

Covariance Analysis: Ordinary
Date: 05/06/19 Time: 21:02
Sample: 1 42
Included observations: 42

Correlation	IDI	SCI	ROL	GE	EF	COC	CD
IDI	1.000000						
SCI	0.204980	1.000000					
ROL	0.680302	0.054605	1.000000				
GE	0.692185	0.065825	0.950062	1.000000			
EF	-0.471811	-0.027796	-0.320853	-0.312999	1.000000		
COC	0.611914	-0.039711	0.923138	0.881197	-0.347748	1.000000	
CD	-0.276852	-0.117302	-0.184273	-0.110290	0.748667	-0.252032	1.000000

Source: Author's own calculations

It is clear that there are strong correlations between Rule of law (ROL), and Government effectiveness (GE), and Control of corruption (COC). There is also a strong correlation between Government effectiveness (GE), and Control of corruption (COC). If these variables are used together in a single regression model, it may be the cause of multicollinearity.

For this study seven regression models were estimated in order to analyse the relationship between SCI and IDI with the inclusion of different control variables. The correlation results also assist in selecting the combinations of variables for different regression models applicable to this study. The summarised coefficient results for the estimated regression models are presented in Table 4.3

Table 4.3: Regression results

Dependent variable (IDI)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C	3.38 (0.0018)*[1]	3.76 (0.0003)*	3.71 (0.0008)*	2.85 (0.0084) *	3.25 (0.0027)	3.16 (0.0025)*	3.09 (0.0023)*
SCI	2.81 (0.0989) ***	2.69 (0.0907)***	2.52 (0.1344)	2.97 (0.0854)***	2.84 (0.0718)***	2.20 (0.1544)	2.25 (0.1368)
Dummy Variable	-1.32 (0.0000) *	-1.12 (0.0001)*	-1.26 (0.0000) *		-0.69 (0.0874)***	-0.28 (0.5213)	-0.22 (0.6112)
EF		-1.19 (0.0126)**[2]			-1.06 (0.0257)**	-1.07 (0.0201)**	-1.05 (0.0213)
EF* Dummy				-2.36 (0.0000)*			
CD			-0.79 (0.1485)	0.81 (0.2408)			
COC					0.25 (0.1702)	-0.04 0.8555	
GE						0.61 0.0584***[3]	0.44 (0.2945)
ROL							0.14 (0.7104)
R- Squared	0.4239	0.5121	0.4551	0.4379	0.5366	0.5811	0.5823
Adj R-Squared	0.3945	0.4736	0.4122	0.3936	0.4865	0.5229	0.5243

Probability values are shown in brackets and coefficients above

[1] * Represents 1% level of significance
[2] ** Represents 5% level of significance
[3] ***Represents 10% level of significance

The table 4.3 summarises the results of the estimation of seven different specifications of the regression model represented by equation 4.1. The study sets the alpha level at 0.1 where the study accepts up to 10% chance of rejecting the null hypothesis when it is actually true.

Model 1 runs a regression between IDI and SCI with the addition of a dummy variable where a value of one indicates a developing country and zero represents a developed country (Appendix 5). The coefficient values in Table 4.3 shows that SCI has a positive relationship with IDI, and the probability statistics show SCI to be statistically significant at the 10 percent level (Appendix 6A, Model 1). The results also show that the dummy variable has a negative relationship with IDI and that it is statistically significant. It indicates that there is a difference between developed and developing economies that have lower levels of IDI. The R-squared shows that 42.4 percent of the variation in IDI can be explained by SCI and this allows the study to add more variables in the next model to further test and analyse the relationship.

Model 2 adds EF to the independent variables used in model 1, and the results for model 2 still show SCI as having a positive relationship with IDI, and still statistically significant at the 10 percent level (Appendix 6B). The coefficient for EF shows that it has a negative relationship with IDI, and statistically significant at the 10 percent level. The addition of the second independent variable in model two also shows an improvement in the R- squared. The results show that 51.2 percent of the variation in IDI can be explained by the independent variables.

Model 3 substitutes ethic fractionalisation (EF) for cultural diversity (CD) to further test the relationship between the social cohesion and inclusive development. The values for the coefficients show that both SCI and CD have a positive relationship with SCI, but that both independent variables are statistically insignificant. The coefficient for the dummy variable shows an existence of a negative relationship with IDI and it is also strongly statistically significant. The R-squared for model 3 shows a drop in the fit of the model. In this variation 45.5 percent of the variation in IDI can be explained by SCI, dummy variable and CD in this model.

Model 4 adds an interaction variable (EF*DV) in the regression model to further examine the results from model 3. The coefficients presented in table 4.3 shows an existence of a positive relationship between SCI and IDI and that SCI is statistically

significant at the 10 percent level. The multiplicative dummy variable shows an existence of a negative relationship with IDI and also it is strongly statistically significant at the 10 percent level. The result can be interpreted to mean that ethnic fractionalisation is more detrimental to inclusive development in developing economies than in developed economies. The R- squared shows that 43.8 percent of the variation in IDI can be explained by the independent variables.

Model 5 represents a run of the regression model with four independent variables (SCI, DV, EF and COC). The coefficient value for SCI in Table 4.3 shows an existence of a positive relationship with IDI and also that it is statistically significant at 10 percent. EF and DV both have a negative relationship with IDI and they are both statistically significant at different probability levels (EF at 5 percent and DV at 10 percent). The coefficient results in Model 5 also shows that COC has a positive relationship with IDI and the results shows that it is not statistically significant.

Model 6 uses the four independent variables in model 5 with GE as an added independent variable to the regression equation. The coefficient results show SCI as still having a positive relationship with IDI but in this case the probability results shows that it is not statistically significant. The coefficient results also shows EF as having a negative relationship with IDI and the regression results also show the variables as being strongly significant at 5%. The coefficient results further shows that COC has a negative relationship with IDI and that the probability depicts that it is not statistically significant. The coefficient for ROL show an existence of a positive relationship with IDI and the probability results shows that it is statistically significant at the 10 percent level. The R- squares shows that 58.1 percent of the variation in IDI can be explained by the independent variables. Given the correlation table above, this model has to be tested for multicollinearity.

The last model (7) uses five independent variables (SCI, DV, EF, ROL, GE). The probability results show that only one variable is statistically significant in the model with a negative relationship to IDI as shown by the coefficient value. Given the correlation table above, this model has to be tested for multicollinearity.

This study estimated seven models to analysing the relationship between IDI and SCI with some additional control variables. Before the summing up the results of the control variables, it is crucial to explain the results of the main independent variable (SCI).

The coefficient shows that social cohesion (SCI) has a positive relationship with inclusive development (IDI) when the regression was ran in seven models. The probability results show that SCI is statistically significant at the 10 percent level in four models (model1, model 2, model 4 and model 5) out of seven. Of the control variables, greater ethnic-fractionalisation (EF) showed a negative relationship with inclusive development in all models it was used and the results shows that this relationship is statistically significant at the 5 percent level. The relationships of the other control variables (COC, GE and ROL) also matches the expected relationships outlined in table 4.1. Control of corruption, government effectiveness and rule of law were positively related to inclusive development in different versions of the model.

The study, through the use of the regression modelling, has managed to establish the existence of a positive relationship between IDI and constructed SCI. It is also crucial to perform diagnostic tests to assist in validating the results of the models. The study performed a heteroscedasticity test (white test) and Ramsey's RESET test and the results are reported in the following sub-section.

4.4. Diagnostic test analysis

4.4.1. Heteroskedasticity

According to Williams (2015:5), the White test estimates the overall test for heteroscedasticity in the error distribution by regressing the squared residuals on all different regressors, cross-products, and squares of regressor. Klein, Buchner, and Schmermelleh- Engel (2016:568), define heteroscedasticity as a situation whereby errors in a linear model are not independently and identically distributed, and also whether the errors are forecasted to have different variances. This study will test for heteroscedasticity (white test) for model 5 using Eviews10, where the null hypothesis assumes that there is no heteroscedasticity. The results of the test are presented in Table 4.4.

Table 4.4: White test results

Model1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
0.5841	0.7175	0.5788	0.8331	0.8473	0.9110	0.8853

Table 4.4 provides the Chi- square probability results for the White test conducted to check existence of heteroscedasticity for all seven models. Based on the probability results, the study cannot reject the null hypothesis that there is no heteroscedasticity in all the regression models presented. The results also permit the study to conclude that the variance of the residual is constant in all models The study further concludes that the model chosen for measuring the relationship between social cohesion and inclusive development can be relied upon based on the heteroscedasticity results presented above (refer to Appendix 7A- 8G).

4.4.2. Ramsey RESET test

According to Shakur and Mantalos (2004:370), the Ramset RESET test is regarded as a general misspecification test where its focus is on detecting omitted variables and inappropriate functional form.

Table: 4.5. Ramsey RESET test Model

Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
0.8037	0.7319	0.8159	0.4117	0.4869	0.6509	0.6379

Table 4.5 shows the F statics probability results of the Ramsey reset tests conducted in all seven models of the study. The Ramsey RESET test for this study is conducted under the null hypothesis of no misspecification in the model. Rao (1971:37) highlights that the presence of misspecification can be as a result of irrelevant variable in the model or because of an omission of a variable specified by the truth. This study

assumes that the test statistic for all models are exactly F-distributed. The results of the Ramsey RESET test shown in Appendix A8 and summarised above, informs the study. One cannot reject the null hypothesis of no misspecification in the model. The study therefore concludes that all the seven models do not suffer from omitted variable bias or misspecification of functional form (Refer 8A to 8G).

4.5. Conclusion

The study has successfully compiled an index of social cohesion (SCI) and applied a simple OLS regression model to test the relationship between inclusive development and social cohesion. The study used seven models to test the relationship between IDI and SCI including different combinations of control variables. A positive relationship was established between IDI and SCI as depicted by the coefficient values in table 4.3. The results also show that between IDI and ethnic fractionalisation there exists a negative relationship It seems that for this sample of countries, greater cultural diversity's relationship with IDI varies even though it is statistically insignificant. There is also a positive relationship between IDI and better control of corruption, as one would expect, and a positive (and insignificant) relationship with government efficiency. The diagnostic tests performed for this study prove that the model does not have heteroscedasticity and is correctly specified. The reliability of the model and the analysis of the regression results presented above enable the study to draw conclusions and make recommendations presented in Chapter 5.

5. Chapter 5: Conclusion and recommendations

In Chapter 1 it was argued that economic growth is a necessary, but not sufficient condition for ensuring economic development. In recent years, growth has fuelled inequality. In response, the concept of inclusive development became the focus, of for example, the World Economic Forum. They developed an Inclusive Development Index the extent to which the citizens of a country can sustainably participate in and benefit from economic activities. The concept of inclusive development and the indicators used in the IDI were discussed in chapters 2 and 3.

Chapter 2 also explained that to ensure inclusive development requires good policies and institutions: The policy reforms necessary to improve the equity and sustainability of growth will have short-term costs; and this requires social cohesion. A lack of social cohesion is often associated with social conflicts and extractive institutions. The concept of social cohesion and indicators used to measure it were discussed in chapters 2 and 3.

Thus the objective of this study was to explore the relationship between social cohesion and inclusive development. Since an index for social cohesion for a cross-section of countries was not readily available, the study compiled its own index of social cohesion using data from the World Values Survey. The study used the IDI from the WEF, which was readily available to measure inclusive development. The study used a simple OLS regression model to test the relationship between the two variables.

The results showed a positive and significant relationship between inclusive development and social cohesion in a cross section of countries. The use of a dummy variable showed that there is a difference in the levels of inclusive development between developed and developing economies. It was found that ethnic-fractionalisation is negatively associated with inclusive development and that it is more detrimental to inclusive development in developing economies. Control of corruption, government effectiveness and the rule of law were all positively associated with inclusive development in different versions of the model. White's test for heteroscedasticity and Ramsey's test for misspecification showed that the basic assumptions for the regression model holds.

The conclusion is that there exists a nexus between inclusive development and social cohesion. The institutions literature often focuses on the proxy measures for good governance or inclusive institutions, but this study has shown that it is worthwhile to drill a level deeper and consider the social fabric on which the “rule of the game” are built.

The recommendation for further work is to focus on specific countries that have, over time, experienced changes in their social fabric and their institutions. The aim would be to determine whether changes in social cohesion leads or follows economic inclusivity.

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Appendices

Appendix 1

WVS CODES	New Codes	Country	Friquency	Percent	Cumulative friquency
12	1	Algeria	1 200	1,78	1,78
31	2	Azerbaija	1 002	1,49	3,27
32	3	Argentina	1 030	1,53	4,79
36	4	Australia	1 477	2,19	6,99
51	5	Armenia	1 100	1,63	8,62
76	6	Brazil	1 486	2,20	10,82
152	7	Chile	1 000	1,48	12,31
156	8	China	2 300	3,41	15,72
170	9	Colombia	1 512	2,24	17,96
233	10	Estonia	1 533	2,27	20,23
268	11	Georgia	1 202	1,78	22,02
276	12	Germany	2 046	3,04	25,05
288	13	Ghana	1 552	2,30	27,35
356	14	India	5 659	8,39	35,75
392	15	Japan	2 443	3,62	39,37
398	16	Kazakhstan	1 500	2,23	41,60
400	17	Jordan	1 200	1,78	43,38
417	18	Kyrgyzstan	1 500	2,23	45,60
458	19	Malaysia	1 300	1,93	47,53
484	20	Mexico	2 000	2,97	50,50
528	21	Netherlands	1 902	2,82	53,32
554	22	New Zealand	841	1,25	54,57
566	23	Nigeria	1 759	2,61	57,18
586	24	Pakistan	1 200	1,78	58,96
604	25	Peru	1 210	1,79	60,75
608	26	Philippines	1 200	1,78	62,53
616	27	Poland	966	1,43	63,97
642	28	Romania	1 503	2,23	66,20
643	29	Russian Federation	2 500	3,71	69,90
646	30	Rwanda	1 527	2,27	72,17
705	31	Slovenia	1 069	1,59	73,76
710	32	South Africa	3 531	5,24	78,99
716	33	Zimbabwe	1 500	2,23	81,22
724	34	Spain	1 189	1,76	82,98
752	35	Sweden	1 206	1,79	84,77
764	36	Thailand	1 200	1,78	86,55
788	37	Tunisia	1 205	1,79	88,34
792	38	Turkey	1 605	2,38	90,72
804	39	Ukraine	1 500	2,23	92,95
818	40	Egypt	1 523	2,26	95,21
840	41	USA	2 232	3,31	98,52
858	42	Uruguay	1 000	1,48	100,00
		Total	67 410	100,00	

Appendix 2

Measure	Indicators	WVS codes and description
1. Economic measure	• Inequality	• V96: Income inequality
2. Societal level of cohesiveness	• Social justice & equity • Acceptance and rejection	• V115: Confidence: the government (in your nation's capital) • V39: Would not like to have as neighbours: immigrants/ Foreign workers
3. Measures of well being	• Worth	• V23 Satisfaction with your life • V11: State of health (subjective)
4. Measures of social capital	• Participation • Interpersonal trust	V29: Active/ inactive memberships: political party V32 Active/ inactive of humanitarian or charitable organisation • Most people can be trusted

Appendix 3

World Values Survey questions		
Measures of well-being		
All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?	10	Proportion of people who answered five to ten (Satisfied:1: cohesion)
	9	
	8	
	7	
	6	
	5	
	4	Proportion of people who answered one to four (Not satisfied:0: no cohesion)
	3	
	2	
	1	
All in all, how would you describe your state of health these days? Would you say it is	4	Proportion of people who answered three and four (poor health: 0: no cohesion)
	3	
	2	proportion of people who answered one and two (good health: 1: cohesion)
	1	
Measure of social capital		
Now I am going to read off a list of voluntary organisations. For each organisation, could you tell me whether you are an active member, an inactive member or not a member of that type of organisation?	2	Proportion on people who answered 2 (Active:1: cohesion)
	1	Proportion of people who answered 1 (inactive member) and 0 (don't belong) :0: no cohesion
	0	
Now I am going to read off a list of voluntary organisations. For each organisation, could you tell me whether you are an active member, an inactive member or not a member of that type of organisation?	2	Proportion on people who answered 2 (active:1: cohesion)
	1	Proportion of people who answered 1 (inactive member) and 0 (don't belong) :0: no cohesion
	0	
Generally speaking, would you say that most people can be trusted or that you	1	Proportion of people who answered 1 (trust: 1:Cohesion)

need to be very careful in dealing with people?	2	Proportion of people who answered 2 (no trust: 0: no cohesion)
Societal level of cohesiveness		
On this list are various groups of people. Could you please mention any that you would not like to have as neighbours?	2	A proportion of people who answered 2 (not mentioned:1: cohesion)
	1	A proportion of people who answered 1 (mentioned: 0: no cohesion)
I am going to name a number of organisations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?	1	A proportion of people who answered one (satisfied:1:cohesion)
	2	
	3	
	4	A proportion of people who answered two (not satisfied: 0: no cohesion)
Economic Measure		
Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.	10	Proportion of people who answered 5 to 10 (equality:1:cohesion)
	9	
	8	
	7	
	6	
	5	
	4	Proportion of people who answered 1 to 4 (inequality:0: no cohesion)
	3	
	2	
	1	

Appendix 4

ALGERIA				
Measure	Cohesion	No cohesion	Total	SCI
State of health	1291	1305	2596	0,50
Satisfaction with life	6719	628	7347	0,91
Trust	206	1886	2092	0,10
Political Party	24	25	49	0,49
Membership of charity or humanitarian organisation	54	41	95	0,57
Immigrants/ foreign workers as neighbours	1728	336	2064	0,84
income should be made more equal	6645	598	7243	0,92
confidence in Government	647	2190	2837	0,23
			Overall SCI	0,57

Appendix 5

	Countries	SCI	IDI	EF	CD	ROL	GE	COC	DV
1	Algeria	0,57	4,22	0,32	0,24	-0,86	-0,6	-0,61	1
2	Azerbaijan	0,62	4,69	0,19	0,19	-0,25	-0,16	-0,88	1
3	Argentina	0,87	4,13	0,23	0	-0,25	-0,16	-0,26	1
4	Australia	0,62	5,36	0,15	0,15	1,68	1,54	1,8	0
5	Armenia	0,53	3,66	0,13	0,12	-0,16	-0,1	-0,56	1
6	Brazil	0,64	3,93	0,55	0,02	-0,28	-0,29	-0,53	1
7	Chile	0,54	4,44	0,45	0,17	1,01	0,85	1,04	1
8	China	0,65	4,09	0,15	0,15	-0,26	0,42	-0,27	1
9	Colombia	0,62	4,01	0,67	0,02	-0,36	-0,07	-0,37	1
10	Estonia	0,49	4,74	0,51	0,49	1,28	1,12	1,24	0
11	Georgia	0,48	3,99	0,49	0,4	0,33	0,57	0,74	1
12	Germany	0,59	5,27	0,1	0,09	1,61	1,72	1,84	0
13	Ghana	0,63	3,34	0,85	0,39	0,13	-0,11	0,23	1
14	India	0,56	3,09	0,81	0,67	0	0,09	-0,24	1
15	Japan	0,55	4,53	0,01	0,01	1,57	1,62	1,52	0
16	Kazakhstan	0,61	4,26	0,66	0,62	-0,41	0,01	-0,82	1
17	Jordan	0,56	3,4	0,51	0,05	0,26	0,12	0,26	1
18	Kyrgyzstan	0,63	3,36	0,68	0,62	-0,41	0,17	-1,05	1
19	Malaysia	0,66	4,3	0,6	0,56	0,41	0,84	0,03	1
20	Mexico	0,63	4,12	0,54	0,43	-0,57	-0,03	-0,93	1
21	Netherlands	0,6	5,61	0,08	0,07	1,83	1,85	1,87	0
22	New Zealan	0,66	5,25	0,36	0,36	1,92	1,77	2,24	0
23	Nigeria	0,6	3,08	0,8	0,66	-0,87	-0,96	-1,02	1
24	Pakistan	0,6	3,55	0,53	0,29	-1,29	-0,58	-0,78	1
25	Peru	0,56	4,29	0,64	0,51	-0,5	-0,13	-0,5	1
26	Philippines	0,62	3,83	0,16	0,12	-0,41	-0,06	-0,48	1
27	Poland	0,59	4,61	0,05	0,04	0,47	0,63	0,73	1
28	Romania	0,56	4,43	0,3	0,27	0,39	-0,17	-0,03	1
29	Russian Fed	0,5	4,2	0,33	0,31	-0,79	0,08	-0,89	1
30	Rwanda	0,59	3,24	0,18	0	0,13	0,26	0,63	1
31	Slovenia	0,53	4,93	0,23	0,17	1,02	1,17	0,81	0
32	South Africa	0,56	2,94	0,88	0,53	-0,01	0,28	-0,01	1
33	Zimbabwe	0,6	2,84	0,37	0,14	-1,38	-1,19	-1,27	1
34	Spain	0,58	4,4	0,5	0,26	1,01	1,03	0,49	0
35	Sweden	0,67	5,76	0,19	0,19	1,94	1,84	2,14	0
36	Thailand	0,61	4,24	0,43	0,43	0,04	0,38	-0,39	1
37	Tunisia	0,57	3,82	0,04	0,03	0,07	-0,07	-0,11	1
38	Turkey	0,61	4,26	0,3	0,3	-0,25	0,07	-0,19	1
39	Ukraine	0,47	3,42	0,42	0,26	-0,71	-0,46	0,78	1
40	Egypt	0,5	2,84	0,16	0	-0,53	-0,62	-0,54	1
41	USA	0,64	4,6	0,49	0,27	1,64	1,55	1,38	0
42	Uruguay	0,64	4,46	0,22	0	0,59	0,42	0,29	1

Appendix 6A (Regression Model 1)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:11
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.379051	1.010874	3.342703	0.0018
SCI	2.809357	1.661600	1.690754	0.0989
DV	-1.315664	0.258706	-5.085552	0.0000

R-squared	0.423995	Mean dependent var	4.042857
Adjusted R-squared	0.394456	S.D. dependent var	0.917665
S.E. of regression	0.714097	Akaike info criterion	2.233152
Sum squared resid	19.88742	Schwarz criterion	2.357271
Log likelihood	-43.89620	Hannan-Quinn criter.	2.278647
F-statistic	14.35385	Durbin-Watson stat	1.606443
Prob(F-statistic)	0.000021		

Appendix 6B (Regression Model2)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:15
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.761618	0.953750	3.944031	0.0003
SCI	2.690209	1.549886	1.735746	0.0907
DV	-1.120109	0.252495	-4.436168	0.0001
EF	-1.190504	0.454424	-2.619806	0.0126

R-squared	0.512114	Mean dependent var	4.042857
Adjusted R-squared	0.473597	S.D. dependent var	0.917665
S.E. of regression	0.665799	Akaike info criterion	2.114735
Sum squared resid	16.84497	Schwarz criterion	2.280228
Log likelihood	-40.40944	Hannan-Quinn criter.	2.175395
F-statistic	13.29570	Durbin-Watson stat	1.811036
Prob(F-statistic)	0.000004		

Appendix 6C (Regression Model 3)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:20
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.714483	1.021622	3.635870	0.0008
SCI	2.521538	1.648713	1.529398	0.1344
DV	-1.266941	0.257027	-4.929214	0.0000
CD	-0.799783	0.542304	-1.474788	0.1485

R-squared	0.455178	Mean dependent var	4.042857
Adjusted R-squared	0.412166	S.D. dependent var	0.917665
S.E. of regression	0.703577	Akaike info criterion	2.225112
Sum squared resid	18.81076	Schwarz criterion	2.390605
Log likelihood	-42.72736	Hannan-Quinn criter.	2.285772
F-statistic	10.58254	Durbin-Watson stat	1.697312
Prob(F-statistic)	0.000034		

Appendix 6D (Regression Model 4)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:24
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.847181	1.024486	2.779132	0.0084
SCI	2.965244	1.678695	1.766398	0.0854
EF*DV	-2.368370	0.500505	-4.731958	0.0000
CD	0.816861	0.685543	1.191554	0.2408

R-squared	0.437986	Mean dependent var	4.042857
Adjusted R-squared	0.393616	S.D. dependent var	0.917665
S.E. of regression	0.714591	Akaike info criterion	2.256181
Sum squared resid	19.40435	Schwarz criterion	2.421673
Log likelihood	-43.37980	Hannan-Quinn criter.	2.316841
F-statistic	9.871324	Durbin-Watson stat	1.871326
Prob(F-statistic)	0.000060		

Appendix 6E (Regression Model 5)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:30
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.251836	1.009994	3.219660	0.0027
SCI	2.844129	1.534680	1.853239	0.0718
DV	-0.692529	0.394472	-1.755585	0.0874
EF	-1.064360	0.457777	-2.325062	0.0257
COC	0.251440	0.179738	1.398926	0.1702

R-squared	0.536623	Mean dependent var	4.042857
Adjusted R-squared	0.486528	S.D. dependent var	0.917665
S.E. of regression	0.657571	Akaike info criterion	2.110814
Sum squared resid	15.99876	Schwarz criterion	2.317680
Log likelihood	-39.32710	Hannan-Quinn criter.	2.186638
F-statistic	10.71215	Durbin-Watson stat	1.934405
Prob(F-statistic)	0.000007		

Appendix 6G (Regression Model 6)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:33
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.161865	0.974638	3.244145	0.0025
SCI	2.203874	1.515124	1.454584	0.1544
DV	-0.281453	0.434506	-0.647755	0.5213
EF	-1.073577	0.441284	-2.432846	0.0201
COC	-0.042049	0.229246	-0.183425	0.8555
GE	0.606165	0.310063	1.954973	0.0584

R-squared	0.581096	Mean dependent var	4.042857
Adjusted R-squared	0.522915	S.D. dependent var	0.917665

S.E. of regression	0.633844	Akaike info criterion	2.057535
Sum squared resid	14.46328	Schwarz criterion	2.305773
Log likelihood	-37.20823	Hannan-Quinn criter.	2.148524
F-statistic	9.987701	Durbin-Watson stat	1.971700
Prob(F-statistic)	0.000005		

Appendix 6G (Regression Model 7)

Dependent Variable: IDI
Method: Least Squares
Date: 04/06/19 Time: 11:36
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.099687	0.945773	3.277411	0.0023
SCI	2.258057	1.484013	1.521588	0.1368
DV	-0.225212	0.439140	-0.512848	0.6112
EF	-1.050268	0.436186	-2.407843	0.0213
GE	0.440901	0.414431	1.063870	0.2945
ROL	0.136029	0.363462	0.374261	0.7104

R-squared	0.582329	Mean dependent var	4.042857
Adjusted R-squared	0.524320	S.D. dependent var	0.917665
S.E. of regression	0.632910	Akaike info criterion	2.054585
Sum squared resid	14.42069	Schwarz criterion	2.302824
Log likelihood	-37.14629	Hannan-Quinn criter.	2.145575
F-statistic	10.03847	Durbin-Watson stat	2.034654
Prob(F-statistic)	0.000004		

Appendix 7A

Heteroscedasticity test for Model 1

Heteroskedasticity Test: White

F-statistic	0.512323	Prob. F(2,39)	0.6031
Obs*R-squared	1.075215	Prob. Chi-Square(2)	0.5841
Scaled explained SS	4.191553	Prob. Chi-Square(2)	0.1230

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 10:37
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.736038	1.045671	0.703891	0.4857
SCI^2	-1.646595	2.646120	-0.622268	0.5374
DV^2	0.425148	0.528446	0.804525	0.4260

R-squared	0.025600	Mean dependent var	0.473510
Adjusted R-squared	-0.024369	S.D. dependent var	1.441124
S.E. of regression	1.458578	Akaike info criterion	3.661550
Sum squared resid	82.97049	Schwarz criterion	3.785669
Log likelihood	-73.89254	Hannan-Quinn criter.	3.707044
F-statistic	0.512323	Durbin-Watson stat	2.163927
Prob(F-statistic)	0.603078		

Appendix 7B

Heteroscedasticity test Model 2

Heteroskedasticity Test: White

F-statistic	0.420438	Prob. F(3,38)	0.7394
Obs*R-squared	1.349297	Prob. Chi-Square(3)	0.7175
Scaled explained SS	5.027206	Prob. Chi-Square(3)	0.1698

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 10:44
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.537623	0.907277	0.592568	0.5570
SCI^2	-1.326520	2.273040	-0.583588	0.5629
DV^2	0.331965	0.472485	0.702595	0.4866
EF^2	0.402926	0.960583	0.419460	0.6772

R-squared	0.032126	Mean dependent var	0.401071
Adjusted R-squared	-0.044285	S.D. dependent var	1.224740
S.E. of regression	1.251565	Akaike info criterion	3.377059
Sum squared resid	59.52372	Schwarz criterion	3.542551
Log likelihood	-66.91823	Hannan-Quinn criter.	3.437718
F-statistic	0.420438	Durbin-Watson stat	2.160552
Prob(F-statistic)	0.739383		

Appendix 7C

Heteroscedasticity tests for Model 3

Heteroskedasticity Test: White

F-statistic	0.420438	Prob. F(3,38)	0.7394
Obs*R-squared	1.349297	Prob. Chi-Square(3)	0.7175
Scaled explained SS	5.027206	Prob. Chi-Square(3)	0.1698

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 10:44
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.537623	0.907277	0.592568	0.5570
SCI^2	-1.326520	2.273040	-0.583588	0.5629
DV^2	0.331965	0.472485	0.702595	0.4866
EF^2	0.402926	0.960583	0.419460	0.6772

R-squared	0.032126	Mean dependent var	0.401071
Adjusted R-squared	-0.044285	S.D. dependent var	1.224740
S.E. of regression	1.251565	Akaike info criterion	3.377059
Sum squared resid	59.52372	Schwarz criterion	3.542551
Log likelihood	-66.91823	Hannan-Quinn criter.	3.437718
F-statistic	0.420438	Durbin-Watson stat	2.160552
Prob(F-statistic)	0.739383		

Appendix 7D

Heteroscedastidity test for Model 4

Heteroskedasticity Test: White

F-statistic	0.267363	Prob. F(3,38)	0.8485
Obs*R-squared	0.868194	Prob. Chi-Square(3)	0.8331
Scaled explained SS	2.544313	Prob. Chi-Square(3)	0.4673

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 11:22
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.547080	0.893810	0.612076	0.5441
SCI^2	-0.777639	2.340228	-0.332292	0.7415
EF*DV^2	0.598023	0.950634	0.629078	0.5331
CD^2	-0.022117	2.020994	-0.010944	0.9913

R-squared	0.020671	Mean dependent var	0.462008
Adjusted R-squared	-0.056644	S.D. dependent var	1.251239
S.E. of regression	1.286188	Akaike info criterion	3.431636
Sum squared resid	62.86265	Schwarz criterion	3.597128
Log likelihood	-68.06435	Hannan-Quinn criter.	3.492295
F-statistic	0.267363	Durbin-Watson stat	2.114608
Prob(F-statistic)	0.848497		

Appendix 7E

Heteroscedasticity test for Model 5

Heteroskedasticity Test: White

F-statistic	0.314721	Prob. F(4,37)	0.8663
Obs*R-squared	1.381982	Prob. Chi-Square(4)	0.8473
Scaled explained SS	5.110769	Prob. Chi-Square(4)	0.2761

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 11:11
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.427980	1.028047	0.416304	0.6796
SCI^2	-1.177292	2.266947	-0.519329	0.6066
DV^2	0.359866	0.695746	0.517237	0.6081
EF^2	0.424874	0.950745	0.446885	0.6576
COC^2	0.011242	0.238104	0.047216	0.9626

R-squared	0.032904	Mean dependent var	0.380923
Adjusted R-squared	-0.071647	S.D. dependent var	1.190212
S.E. of regression	1.232112	Akaike info criterion	3.366680
Sum squared resid	56.16968	Schwarz criterion	3.573545
Log likelihood	-65.70027	Hannan-Quinn criter.	3.442504
F-statistic	0.314721	Durbin-Watson stat	2.137881
Prob(F-statistic)	0.866299		

Appendix 7F

Heteroscedasticity test for Model 6

Heteroskedasticity Test: White

F-statistic	0.270013	Prob. F(5,36)	0.9265
Obs*R-squared	1.518143	Prob. Chi-Square(5)	0.9110
Scaled explained SS	6.706821	Prob. Chi-Square(5)	0.2434

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 11:17
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.831728	1.271503	0.654130	0.5172
SCI^2	-1.276299	2.333939	-0.546843	0.5879
DV^2	-0.076858	1.025818	-0.074923	0.9407
EF^2	0.534602	0.979044	0.546045	0.5884
COC^2	0.118474	0.412450	0.287245	0.7756
GE^2	-0.267868	0.677523	-0.395364	0.6949

R-squared	0.036146	Mean dependent var	0.344364
Adjusted R-squared	-0.097722	S.D. dependent var	1.208687
S.E. of regression	1.266369	Akaike info criterion	3.441748
Sum squared resid	57.73284	Schwarz criterion	3.689986
Log likelihood	-66.27671	Hannan-Quinn criter.	3.532737
F-statistic	0.270013	Durbin-Watson stat	2.113781
Prob(F-statistic)	0.926536		

Appendix 7G

Heteroscedasticity test for Model 7

Heteroskedasticity Test: White

F-statistic	0.309027	Prob. F(5,36)	0.9043
Obs*R-squared	1.728473	Prob. Chi-Square(5)	0.8853
Scaled explained SS	7.387950	Prob. Chi-Square(5)	0.1933

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/08/19 Time: 11:18
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.763882	1.217713	0.627309	0.5344
SCI^2	-1.208375	2.280670	-0.529833	0.5995
DV^2	-0.039362	0.968834	-0.040629	0.9678
EF^2	0.515801	0.957723	0.538570	0.5935
GE^2	-0.423544	0.754557	-0.561314	0.5781
ROL^2	0.289726	0.612835	0.472763	0.6392

R-squared	0.041154	Mean dependent var	0.343350
Adjusted R-squared	-0.092019	S.D. dependent var	1.185392
S.E. of regression	1.238731	Akaike info criterion	3.397615
Sum squared resid	55.24034	Schwarz criterion	3.645854
Log likelihood	-65.34992	Hannan-Quinn criter.	3.488604
F-statistic	0.309027	Durbin-Watson stat	2.200363
Prob(F-statistic)	0.904288		

Appendix 8A

RAMSEY RESET test for Model 1

Ramsey RESET Test
Equation: UNTITLED
Specification: IDI C SCI DV
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.250293	38	0.8037
F-statistic	0.062647	(1, 38)	0.8037
Likelihood ratio	0.069184	1	0.7925

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.032732	1	0.032732
Restricted SSR	19.88742	39	0.509934
Unrestricted SSR	19.85469	38	0.522492

LR test summary:

	Value
Restricted LogL	-43.89620
Unrestricted LogL	-43.86160

Unrestricted Test Equation:
Dependent Variable: IDI
Method: Least Squares
Date: 04/09/19 Time: 10:31
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.473295	7.682550	0.191772	0.8489
SCI	-0.839758	14.67607	-0.057220	0.9547
DV	0.526200	7.363490	0.071461	0.9434
FITTED^2	0.159748	0.638242	0.250293	0.8037

R-squared	0.424943	Mean dependent var	4.042857
Adjusted R-squared	0.379543	S.D. dependent var	0.917665
S.E. of regression	0.722836	Akaike info criterion	2.279124
Sum squared resid	19.85469	Schwarz criterion	2.444616
Log likelihood	-43.86160	Hannan-Quinn criter.	2.339783
F-statistic	9.360123	Durbin-Watson stat	1.606970

Prob(F-statistic)	0.000092

Appendix 8B

RAMSEY RESET test for Model 2

Ramsey RESET Test
Equation: UNTITLED
Specification: IDI C SCI DV EF
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.345184	37	0.7319
F-statistic	0.119152	(1, 37)	0.7319
Likelihood ratio	0.135036	1	0.7133

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.054072	1	0.054072
Restricted SSR	16.84497	38	0.443289
Unrestricted SSR	16.79089	37	0.453808

LR test summary:

	Value
Restricted LogL	-40.40944
Unrestricted LogL	-40.34193

Unrestricted Test Equation:
Dependent Variable: IDI
Method: Least Squares
Date: 04/09/19 Time: 10:33
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.528025	5.207491	1.061553	0.2953
SCI	5.391854	7.982246	0.675481	0.5036
DV	-2.320461	3.486805	-0.665498	0.5099
EF	-2.313946	3.286940	-0.703982	0.4859
FITTED^2	-0.120440	0.348915	-0.345184	0.7319

R-squared	0.513680	Mean dependent var	4.042857
Adjusted R-squared	0.461105	S.D. dependent var	0.917665
S.E. of regression	0.673653	Akaike info criterion	2.159139
Sum squared resid	16.79089	Schwarz criterion	2.366005
Log likelihood	-40.34193	Hannan-Quinn criter.	2.234964

F-statistic	9.770413	Durbin-Watson stat	1.820528
Prob(F-statistic)	0.000017		

Appendix 8C

RAMSEY RESET test for Model 3

Ramsey RESET Test

Equation: UNTITLED

Specification: IDI C SCI DV CD

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.234544	37	0.8159
F-statistic	0.055011	(1, 37)	0.8159
Likelihood ratio	0.062398	1	0.8027

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.027926	1	0.027926
Restricted SSR	18.81076	38	0.495020
Unrestricted SSR	18.78283	37	0.507644

LR test summary:

	Value
Restricted LogL	-42.72736
Unrestricted LogL	-42.69616

Unrestricted Test Equation:

Dependent Variable: IDI

Method: Least Squares

Date: 04/09/19 Time: 10:36

Sample: 1 42

Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.601307	8.110907	0.690589	0.4941
SCI	5.263150	11.80777	0.445736	0.6584
DV	-2.728260	6.235909	-0.437508	0.6643
CD	-1.612341	3.507679	-0.459660	0.6484
FITTED^2	-0.131253	0.559609	-0.234544	0.8159

R-squared	0.455987	Mean dependent var	4.042857
Adjusted R-squared	0.397175	S.D. dependent var	0.917665
S.E. of regression	0.712491	Akaike info criterion	2.271246
Sum squared resid	18.78283	Schwarz criterion	2.478111
Log likelihood	-42.69616	Hannan-Quinn criter.	2.347070

F-statistic	7.753280	Durbin-Watson stat	1.702074
Prob(F-statistic)	0.000121		

Appendix 8D

RAMSEY RESET test for Model 4

Ramsey RESET Test
Equation: UNTITLED
Specification: IDI C SCI EF*DV CD
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.830281	37	0.4117
F-statistic	0.689367	(1, 37)	0.4117
Likelihood ratio	0.775324	1	0.3786

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.354920	1	0.354920
Restricted SSR	19.40435	38	0.510641
Unrestricted SSR	19.04943	37	0.514850

LR test summary:

	Value
Restricted LogL	-43.37980
Unrestricted LogL	-42.99214

Unrestricted Test Equation:
Dependent Variable: IDI
Method: Least Squares
Date: 04/09/19 Time: 10:42
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.120731	2.319902	0.483094	0.6319
SCI	-4.180928	8.770433	-0.476707	0.6364
EF*DV	3.003943	6.489962	0.462860	0.6462
CD	-1.139403	2.454643	-0.464183	0.6452
FITTED^2	0.282184	0.339866	0.830281	0.4117

R-squared	0.448266	Mean dependent var	4.042857
Adjusted R-squared	0.388619	S.D. dependent var	0.917665
S.E. of regression	0.717530	Akaike info criterion	2.285340
Sum squared resid	19.04943	Schwarz criterion	2.492205

Log likelihood	-42.99214	Hannan-Quinn criter.	2.361164
F-statistic	7.515314	Durbin-Watson stat	1.857296
Prob(F-statistic)	0.000155		

Appendix 8E

RAMSEY RESET test for Model 5

Ramsey RESET Test
Equation: EQ05
Specification: IDI C SCI DV EF COC
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.702461	36	0.4869
F-statistic	0.493452	(1, 36)	0.4869
Likelihood ratio	0.571784	1	0.4496

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.216330	1	0.216330
Restricted SSR	15.99876	37	0.432399
Unrestricted SSR	15.78243	36	0.438401

LR test summary:

	Value
Restricted LogL	-39.32710
Unrestricted LogL	-39.04120

Unrestricted Test Equation:
Dependent Variable: IDI
Method: Least Squares
Date: 04/09/19 Time: 10:44
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.286541	3.069881	1.722067	0.0936
SCI	7.974437	7.465026	1.068240	0.2925
DV	-1.997960	1.900341	-1.051369	0.3001
EF	-2.798974	2.511991	-1.114245	0.2726
COC	0.707013	0.673318	1.050044	0.3007
FITTED^2	-0.207962	0.296048	-0.702461	0.4869

R-squared	0.542889	Mean dependent var	4.042857
Adjusted R-squared	0.479401	S.D. dependent var	0.917665
S.E. of regression	0.662119	Akaike info criterion	2.144819

Sum squared resid	15.78243	Schwarz criterion	2.393058
Log likelihood	-39.04120	Hannan-Quinn criter.	2.235808
F-statistic	8.551088	Durbin-Watson stat	1.960301
Prob(F-statistic)	0.000021		

Appendix 8F

RAMSEY RESET test for Model 6

Ramsey RESET Test
Equation: EQ06
Specification: IDI C SCI DV EF COC GE
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.456443	35	0.6509
F-statistic	0.208340	(1, 35)	0.6509
Likelihood ratio	0.249267	1	0.6176

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.085584	1	0.085584
Restricted SSR	14.46328	36	0.401758
Unrestricted SSR	14.37769	35	0.410791

LR test summary:

	Value
Restricted LogL	-37.20823
Unrestricted LogL	-37.08359

Unrestricted Test Equation:
Dependent Variable: IDI
Method: Least Squares
Date: 04/09/19 Time: 10:45
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.295550	2.672122	1.607543	0.1169
SCI	4.447342	5.148354	0.863838	0.3936
DV	-0.668521	0.955069	-0.699971	0.4886
EF	-2.061942	2.210862	-0.932642	0.3574
COC	-0.037412	0.232032	-0.161235	0.8728
GE	1.118437	1.165286	0.959797	0.3437
FITTED^2	-0.116874	0.256054	-0.456443	0.6509

R-squared	0.583575	Mean dependent var	4.042857
Adjusted R-squared	0.512187	S.D. dependent var	0.917665
S.E. of regression	0.640930	Akaike info criterion	2.099219

Sum squared resid	14.37769	Schwarz criterion	2.388830
Log likelihood	-37.08359	Hannan-Quinn criter.	2.205373
F-statistic	8.174779	Durbin-Watson stat	1.981106
Prob(F-statistic)	0.000015		

Appendix 8G

RAMSEY RESET test for Model 7

Ramsey RESET Test
Equation: EQ07
Specification: IDI C SCI DV EF GE ROL
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.475906	35	0.6371
F-statistic	0.226487	(1, 35)	0.6371
Likelihood ratio	0.270909	1	0.6027

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.092717	1	0.092717
Restricted SSR	14.42069	36	0.400575
Unrestricted SSR	14.32797	35	0.409371

LR test summary:

	Value
Restricted LogL	-37.14629
Unrestricted LogL	-37.01084

Unrestricted Test Equation:
Dependent Variable: IDI
Method: Least Squares
Date: 04/11/19 Time: 10:52
Sample: 1 42
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.168074	2.440070	1.708178	0.0965
SCI	4.434101	4.812244	0.921421	0.3631
DV	-0.561103	0.833799	-0.672948	0.5054
EF	-1.996376	2.036327	-0.980381	0.3336
GE	0.825606	0.910481	0.906780	0.3707
ROL	0.258640	0.448756	0.576350	0.5681
FITTED^2	-0.112731	0.236877	-0.475906	0.6371

R-squared	0.585015	Mean dependent var	4.042857
Adjusted R-squared	0.513874	S.D. dependent var	0.917665

S.E. of regression	0.639821	Akaike info criterion	2.095754
Sum squared resid	14.32797	Schwarz criterion	2.385366
Log likelihood	-37.01084	Hannan-Quinn criter.	2.201908
F-statistic	8.223393	Durbin-Watson stat	2.036383
Prob(F-statistic)	0.000014		