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CAUSES AND CONSEQUENCES OF INCOME INEQUALITY AND THE ROLE OF INSTITUTIONAL QUALITY

GOH LIM THYE

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CAUSES AND CONSEQUENCES OF INCOME INEQUALITY AND THE ROLE OF INSTITUTIONAL QUALITY

By

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CAUSES AND CONSEQUENCES OF INCOME INEQUALITY AND THE ROLE OF INSTITUTIONAL QUALITY

BY

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July 2016

Chair: Associate Professor Law Siong Hook, PhD
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This thesis consists of five chapters aiming to empirically examine the causes and consequences of income inequality with and role of institutional quality. The first objective of this research is to investigate the effect of trade liberalisation on income inequality. Whereas, the second objective of this research seeks to explain the impact of income inequality on mental health and the third objective of this research seeks to explain the impact of income inequality on crime rates.

There are two main issues motivating the first research objective of this thesis. The first, the Stolper–Samuelson theorem (1941), which argues that trade liberalisation is positively associated with income inequality, and secondly the finding of Chong and Calderon (2000), which suggests institutional quality is a significant determinant of income inequality. Alternatively, the second research objective of this thesis is motivated by four main observations beginning with the significant increases in mental illness and mental health expenditures observed worldwide (Global Burden of Diseases Study, 2010). Secondly, the World Health Organisation (WHO) (2012) suggested that the external stressors that individuals deal with in everyday life, are significantly correlated with mental illness. Thirdly, the theoretical argument of income inequality hypothesis. Lastly, the suggestion of Chong and Calderon (2000) that institutional quality is a significant determinant of income inequality. The final objective of this thesis is motivated by three main observations. Firstly, the theoretical explanation of General Strain Theory (1992) on the feeling of disadvantages and unfairness, leads the poor to seek compensation and satisfaction by all means. Secondly, the influence of institutional quality on income inequality, Chong and Calderon (2000). Lastly, the reliability of future crime rate statistics is at stake (New York Times, Oct 2013).

To achieve the objectives, the sample countries are being divided into three groups, namely full sample, developed and developing countries. Utilising panel system generalised method of moment (GMM) on five yearly data covering the period from 1984 to 2012 and 1989 to 2012. The empirical results of these indicate that trade liberalisation has a positive impact on income inequality. Whereas, income inequality has a positive impact on mental illness and crime rate. In addition, this thesis has also found evidence that institutional quality is associated with lower level of income inequality, mental illness and crime rate.

Lastly, this thesis also provides new evidence that sheds light on the role of institutional quality as a factor influencing the impact trade liberalisation on income inequality and income inequality against mental illness and crime rate respectively. Where, the empirical results obtained demonstrate that the impact of trade liberalisation on income inequality and income inequality against mental illness and crime rate are conditional by the presence of institutional quality.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

SEBAB DAN AKIBAT PENDAPATAN YANG TIDAK SEIMBANGAN DAN PERANAN YANG DIMAINKAN OLEH KUALITI INSITUTIS

Oleh

GOH LIM THYE

Julai 2016

Pengerusi: Profesor Madya Law Siong Hook, PhD
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Tesis ini mengandungi lima bab yang bertujuan untuk mengkaji secara empirik atas sebab dan akibat ketidaksamaan pendapatan, dan peranan yang dimainkan oleh kualiti institusi. Objektif pertama kajian ini adalah untuk mengkaji kesan liberalisasi perdagangan ke atas ketidaksamaan pendapatan. Manakala , objektif kedua kajian ini bertujuan untuk menjelaskan kesan ketidaksamaan pendapatan ke atas kesihatan mental dan objektif ketiga bertujuan untuk menjelaskan kesan ketidaksamaan pendapatan ke atas kadar jenayah .

Terdapat dua isu utama yang memotivasi pembentukan objektif kajian pertama tesis ini. Yang pertama, teorem Stolper-Samuelson (1941), yang berpendapat bahawa liberalisasi perdagangan mempunyai hubungan positif dengan ketidaksamaan pendapatan. Kedua, pendapat Chong dan Calderon (2000), yang menunjukkan kualiti institusi merupakan penentu penting kepada ketidaksamaan pendapatan. Selain daripada itu, objektif kajian kedua tesis ini adalah didorong oleh empat pemerhatian utama. Pertama, peningkatan yang ketara dalam penyakit mental dan perbelanjaan kesihatan mental yang diperhatikan di seluruh dunia (Beban Global Penyakit Kajian, 2010). Kedua, Pertubuhan Kesihatan Sedunia (WHO) (2012) mencadangkan bahawa tekanan luaran yang individu hadapi dalam kehidupan seharian, mempunyai kesan yang nyata ke atas penyakit mental. Ketiga, hujah teori ketidaksamaan pendapatan hipotesis. Akhir sekali, cadangan Chong dan Calderon (2000) bahawa kualiti institusi merupakan penentu penting ke atas pengagihan pendapatan yang tidak seimbang. Manakala, objektif akhir tesis ini adalah didorong oleh tiga pemerhatian utama. Pertama, penjelasan Teori Bebanan Am (1992) berkenaan perasaan kelemahan dan ketidakadilan, yang mengakibatkan golongan miskin bertindak balas dengan setiap cara yang mungkin untuk mendapatkan pampasan dan kepuasan. Kedua, pengaruh kualiti institusi keatas ketidaksamaan pendapatan yang dicadangkan oleh Chong dan Calderon (2000). Akhir sekali, persoalan mengenai kebolehpercayaan statistik kadar jenayah yang dilaporkan pada masa depan (New York Times, Okt 2013).

Untuk mencapai objektif tersebut, sampel negara-negara yang diperolehi telah dibahagikan kepada tiga kumpulan, iaitu sampel penuh, negara maju dan negara yang sedang membangun. Dengan mengaplikasikan sistem panel kaedah umum (GMM) ke atas data purata lima tahun yang merangkumi tempoh dari 1984 hingga 2012 dan 1989 hingga 2012. Hasil kajian ini menunjukkan bahawa liberalisasi perdagangan mempunyai kesan positif ke atas pengagihan ketidaksamaan pendapatan. Manakala, ketidaksamaan pendapatan pula mempunyai kesan positif ke atas penyakit mental dan kadar jenayah. Di

samping itu, kajian thesis ini telah menemui bukti bahawa kualiti institusi berhubungkait dengan tahap ketidaksamaan pendapatan, penyakit mental dan kadar jenayah yang lebih rendah.

Akhir sekali, laporan ini juga memberikan bukti baru yang menerangkan peranan kualiti institusi sebagai faktor yang mempengaruhi impak liberalisasi perdagangan keatas ketidaksamaan pendapatan, ketidaksamaan pendapatan terhadap penyakit mental dan kadar jenayah. Keputusan empirikal yang diperolehi menunjukkan bahawa kesan liberalisasi perdagangan ke atas ketidaksamaan pendapatan dan ketidaksamaan pendapatan terhadap penyakit mental dan kadar jenayah adalah bersyarat dengan kehadiran kualiti institusi.

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I certify that a Thesis Examination Committee has met on 29 July 2016 to conduct the final examination of Goh Lim Thye on his thesis entitled Causes and Consequences of Income Inequality and The Role of Institutional Quality in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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Declaration by graduate student

I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- this thesis has not been submitted previously or concurrently for any other degree at any other institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
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Signature: _____ Date: _____

Name and Matric No.: Goh Lim Thye (GS 32434)

Declaration by Members of Supervisory Committee

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

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CHAPTER ONE

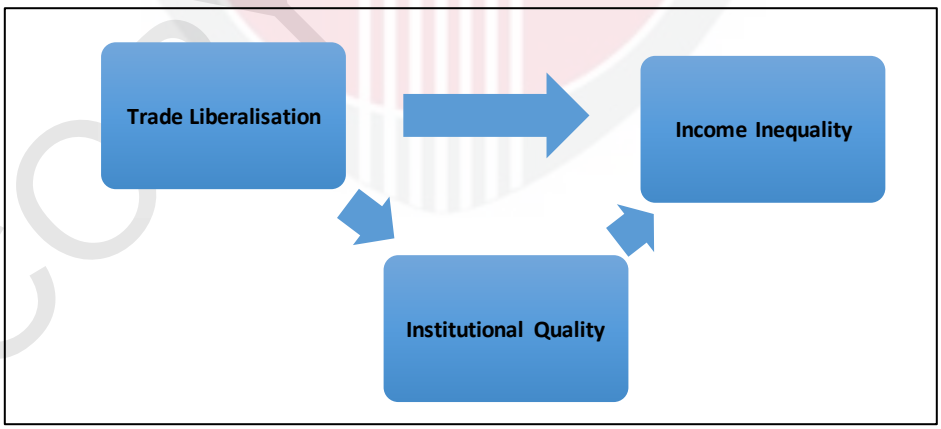
INTRODUCTION

1.1 An Overview

This thesis intends to address three socio economic questions. Firstly, does trade liberalisation promotes income inequality? Secondly, does income inequality contribute to the acceleration of international mental illness? Lastly, can income inequality lead to the incidence of crime in both developed and developing countries?

Two main issues motivate the first research objective of this research. Firstly, the Stolper–Samuelson theorem (1941) argues that even though trade liberalisation is expected to increase trade activities it could also widen the wages disparity between skilled and unskilled labor, which eventually will lead to inequality in income distribution. Secondly, Chong and Calderon (2000) and Chong and Gradstein (2007) suggest that institutional quality is positively associated with income inequality for poorer countries and negatively associated with income inequality of the richer countries. This can be explained by the fact that policy decisions are generally made by those holding political power (Bourguignon and Verdier, 1997). Citizens of developed countries with more democratic power and competitive politics will share the gains of growth through democratisation. Meanwhile, poor countries where political power is controlled by a minority of elites will be trapped in inequality, regardless of further development of the institutional quality. Thus, this research aims to provide some empirical analysis on the role of institutional quality in the relationship between trade liberalisation and income inequality (Figure 1.0)

Figure 1.1 – A Conceptual Model for the First Objective

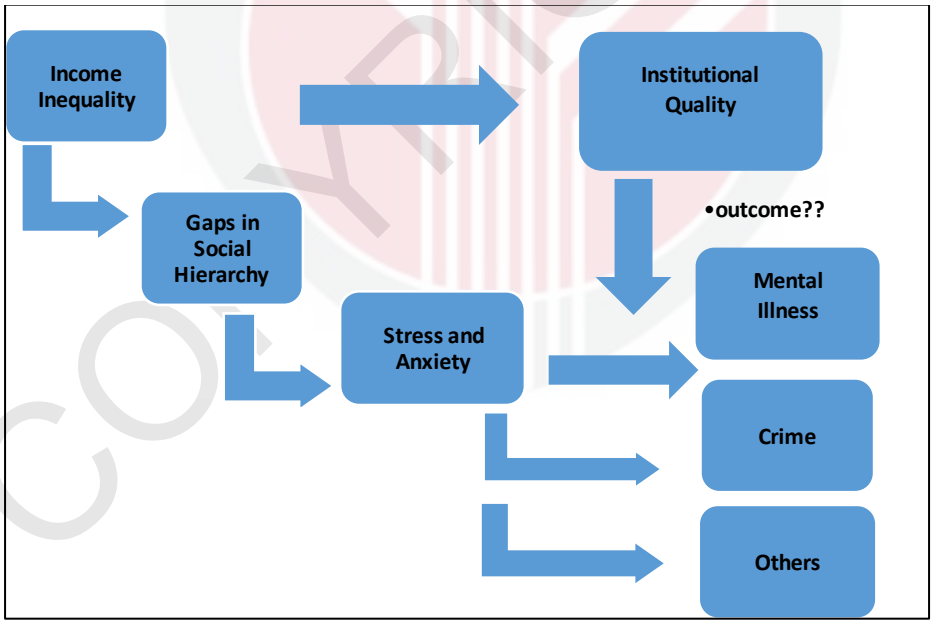


The second research objective is motivated by four main observations. Firstly, the scenario of significant increases in mental illness and mental health expenditures worldwide (Global Burden of Diseases Study, 2010). Secondly, World Health Organisation (WHO) (2012) suggested that environmental factors which are the external

stressors that individuals deal with in everyday life, are significantly correlated with mental illness. Thirdly, the theoretical argument of income inequality hypothesis, which points out that there is an aggregate relation between the average health and the level of income inequality, could be observed, as the relationship between the two is concave. Lastly, the influence of institutional quality on income inequality as suggested by Chong and Calderon (2000) and Chong and Gradstein (2007). Using dynamic panel data analysis and interactive model this research seeks to explain the connection between income inequality and mental illness.

The third research objective is motivated by three observations. Firstly, the explanation of General Strain Theory (Agnew, 1992) on the feeling of disadvantage and unfairness, which leads the poor to seek compensation and satisfaction by all means, includes committing crimes (Fajnzylber, Lederman and Loayza, 2001). Secondly, the influence of institutional quality on income inequality as suggested by Chong and Calderon (2000) and Chong and Gradstein (2007). Lastly, the fact that some of the developing countries has stopped submitting crime statistics to the United Nations, or changed the way they present their crime statistics, which focus on index crimes[1] rather than giving a detailed accounting (Fuller, 2013) which put the reliability of the future crime index data in doubt. Using dynamic panel data analysis and interactive modelling this research seeks to addresses the connection between income inequality and crime rate.

Figure 1.2 – A Conceptual Model for Second and Third Objective



[1] Index crimes are the eight that the FBI uses to produce its annual crime index. These are: wilful homicide, forcible rape, robbery, burglary, aggravated assault, larceny, motor vehicle theft and arson.

1.2 Income Inequality

Income inequality has been seen as the biggest global socioeconomics risk in the coming decade. Oxfam International (Jan 2014) reported that the 85 richest people on earth today have the same amount of wealth (USD 1.7 trillions) as the bottom half of the global population which consists of approximately 3.5 billion people. Hence it is not surprising that Global Risks (2012 and 2013)[2] reports have both identified that severe income inequality as the most worrying issue in the global economy. Furthermore, for the third straight year, income disparity is one of the main issues discussed at the World Economic Forum, 2014, which was held in Davos, Switzerland. The widening income inequality creates social unrest, as wealth and power are increasingly concentrated in the hands of a few, leaving the rest to fight for the remains. Moreover, the richest 1 percent of the world's population has been reported to own 46 percent of the total world's wealth or USD 110 trillion. In other words, the wealth of the top 1 percent is approximately 65 times that of the total wealth of the bottom half of the population. The forum also highlighted that income disparity raising the risk of social unrest on a global scale and could stoke tensions in the society (Global Risks, 2014)[3].

In South East Asia, the index of income inequality for Malaysia (Gini index of 0.431) was among the highest in comparison to its neighbouring countries such as Thailand (Gini Index of 0.40) and Indonesia (Gini Index of 0.37) as at end of year 2012[4]. Although the latest household income survey in Malaysia revealed that the average income of Malaysia has recorded an increase of 7.2 percent per annum, the gaps between income level of the ethnic groups, urban and rural areas remain significant. The urban-rural income gap has widened by 5.6 percent by 2012 as compared to year 2009 (Malaysia Household Income Survey (Department of Statistics), 2012). However the problem of income inequality is not only confined to developing countries but also in some developed countries too. For instance, in the United States of America, the percentage of income held by the richest 1 percent has grown approximately 150 percent from 1980 to 2012[5]. This has prompted President Barack Obama's recent acknowledgment of the issue where he indicated that the expanding gap between rich and poor is more taxing than the budget deficit (Puzzanghera, 2014)[6]. Moreover, the surveys by Global Agenda (2013) shows that the world wants to know more about income disparity and are dissatisfied by the level of coverage by the world media on the issue of income disparity.

1.3 Trade Liberalisation and Income Inequality

The argument regarding trade liberalisation as a significant determinant of income distribution dates back to the theory of comparative advantage (Ricardian Model, 1817). The theory encourages countries to concentrate on what they can produce best, then by

[2]The World Economic Forum's Global Risks 2012 and 2013 report which developed from an annual survey of over 1,000 experts from industry, government, academia and civil society who were asked to review a landscape of 50 global risks.

[3] Global Risks 2014, Ninth Edition is published by the World Economic Forum

[4]News reported in Malaysian Press, The Star on 3rd of August 2013, statement addressed by Second Finance Minister of Malaysia on issue of income inequality.

[5] News reported by Seattle Times, 21st January 2014

[6] News reported by Los Angeles Times, dated 17th January 2014

trading these products for products that other countries best produce. Hence, countries will specialise in the production of goods that they are relatively more efficient at producing whilst importing goods that they have no efficiency in producing, thus gaining from trade. However the limitation of Ricardian model is quite obvious as labor is assumed as the main production factor, thus every individual will not be better off as a result of international trade if there is more than one factor in play. This was argued by Heckhscher Ohlin's Model (1919) of two production factors, namely capital and labor, it is not necessarily true that each individual will gain from trade liberalisation. Hence, the critical argument of Ricardian Model became questionable as it indicated gain from trade should lead to the increase of individual welfare. To address this problem, one should look into the theoretical argument of Stolper–Samuelson theorem (1941). The theorem emphasised the fact that even though trade liberalisation is expected to promote economic growth, it could also widen the wage disparity between skilled and unskilled labor, which eventually will lead to inequality in income distribution.

The United Nations development programme report (UNDP) (1999) report that the top fifth of the world's people in the riches countries enjoy 82 percent of the exporting trade and 68 percent of foreign direct investment, which signified economic integration but say nothing about economy advancement of the developing countries. UNCTAD's trade and development report (1999) also highlighted that trade liberalisation often leads to trade deficit due to rapid increased in import compared to exports. The adjustment of export is inelastic as compared to import as export required long-term adjustment whereby an improvement in infrastructure, human capital investment, research and development investment and enterprise capacity is required in order to boost export activities.

Institutional quality is considered as important determinant of income inequality (Chong and Calderon, 2000). Better institutional quality is often linked to an increase in efficiency, where good institutional quality is the common characteristic shared by countries, which experience sustainable growth and economic stability. The character of good institutional quality should include effective government with commitment to economic development, well-functioning parliament, good quality of contract enforcement and investor protection (Santiso, 2001). Adelman, Morris, Fetini and Hardy (2013) found that institutional quality is the most important characteristic which distinguishes the successful countries from the less successful. Moreover, classical theory stressed that, it is the interaction of resources, technology and comparative advantage with institutional conditions and institutional change which determines the development pattern of an economy. This signifies the importance of good institutional quality. Therefore, institutional quality has become an important variable to explain trade liberalisation and income inequality.

1.4 Income inequality and Mental Health

According to WHO (World Health Organisation, 2010), most countries have experienced a drastic increase in reported mental illness cases. Statistically more than 450 million people across the globe suffered from mental illness today and by 2030, it is forecasted that depression will be the second highest disease burden in middle income countries (WHO, 2010). In Malaysia, 13 percent of adults and 20 percent of children suffer from

psychological disorders in year 2010 (National Health and Morbidity Survey (NHMS), 2011). The economic implications of increasing mental illness are significant. It is said to cost approximately Canadian dollars 50 billion a year in Canada, which represents 2.8 percent of Canadian GDP and in Australia a total sum of AS $4.10 billion is allocated for mental health spending yearly (Australian Institute of Health and Welfare (AIHW), 2014). Meanwhile, the findings of many researchers have acknowledged that an individual's income is a powerful determinant of individual health, and the relation between individual income and health status is concave. This implies that each additional dollar of income raises individual health by a decreasing amount (Kawachi and Kennedy, 1997; Subramanian and Kawachi, 2003; Ram, 2005). The concave relation between income and health has important implications for the aggregate-level relation between income distribution and average health achievement, as noted by Rodgers (1979).
Regarding the potential effect of income inequality on health, the most common argument comes from the income inequality hypothesis. The income inequality hypothesis (also known as the Wilkinson hypothesis) suggests that health depends on the degree of income inequality in society (Wilkinson, 1996). That is, for any given average level of income, the more equally distributed the income is, the higher will be the average standard of health. The income-inequality hypothesis has been supported by international literature showing a strong correlation between income inequality and health (Rodgers, 1979; Lynch, 2000; Wilkinson and Pickett, 2008; Torre and Myrskyla, 2011; Maio et al., 2009). Therefore, implying that income inequality should be an important element to explain the mental health level across countries.

Moreover, Modernisation Theory, developed by Durkheim (1895) argues that the process of modernisation and development disrupts the social organisation and encourages masses of people to leave their rural communities and move into the urban conglomerates (Neumayer, 2003). Urbanisation in this context is often leads to multiple social consequences as many immigrants from rural areas end up with facing high inflation, unemployment, poverty and mental stress. As a result, modernisation leads to income inequality which produces psychological stress and leads to deteriorating health and higher mortality over time. The theory, thus, suggests that there is a strong link between urbanisation, inflation, unemployment and mental health.

Santiso et al. (2014) highlighted that good institutional quality arose from the concern about improving government delivery capacity and strengthening government accountability to citizens. Thus, better institutional quality leads to higher performance of social institutions and improves efficiency. North (1991), conceptualised institutional quality as the human devised constraints that structure political, economic and social interaction. Hence, better institutional quality providing the incentive structure of an economy, shaping the direction of economic changes toward growth, stagnation or decline. Since the realisation that institutional quality is a potential determinant of growth, researchers have started to relate institutional quality to the efficiency of social institutions (Wang, 2013). Amporfu et al. (2013) argues that better institutional quality promotes job satisfaction hence has a positive effect on attitude of health workers and increases the efficiency of health workers which is beneficial to the patient. This implies that institutional quality could be an important variable to explain mental health level across countries.

1.5 Income Inequality and Crime Rate

A high crime rate suggests an unsafe community, which brought significant impacts on civilian's quality of life and may discourage visitors, tourists and even investor to visits or invest in the countries. Anderson (1999) points out the fear of being victimised and the cost of private deterrence is a significant burden to the nations and it has been estimated to cost United States more than USD 1 trillion annually. In United Kingdom (UK), as reported by UK Peace Index (UKPI) (2012) violent crime cost the UK economy 124billion pounds a year which is equivalent to 4,700 pounds for every household. The figures equates to 7.7 percent of UK GDP, includes cost of police investigates, courts and prison expenditure and vast amount lost in productivity. It is so significant that a 8 percent reduction in violence would save UK economy enough money to pay for the entire London Olympics. Thus, the overall finding has suggested that violent crime is extraordinarily costly.

As highlighted by the General Strain Theory (Agnew, 1992), recent researches in the area of sociology of emotions and urban underclass has drawn to the development of General Strain Theory. The theory argues that the failure to achieve positively valued goals, which are influenced by factors such as social class, intelligence, income inequality and individual perception on fair outcomes and the actual outcomes could promote aggression as a way to escape or avoid the negative stimuli or seek revenge against negative stimuli. This implies that income inequality is a significant determinant of crime rate where the feeling of disadvantage and unfairness by the poorer groups of people may cause them to commit crime as a way of to seek revenge against the negative stimuli (Fajnzylber, Lederman and Loayza, 2001).

Furthermore, as highlighted by Modernisation Theory (Durkheim, 1895), the high level of urbanisation, inflation and unemployment rates due to the process of modernisation produce psychological stress to the poorer people in society. Durkheim (1895) also argued that as societies develop, the moral ties which bind people are weakened thus leading to an increase in crime rates, including violent crime. Hence urbanisation, inflation and unemployment could be an important variable to explain the level of crime rate across countries. Moretti (2005) argued that increasing educational attainment might lower the probability to engage in criminal activities in several ways. First, schooling increases the economic returns for legitimate work. Second, education may directly increase the psychological cost of committing crime. Finally, schooling could alter preferences in indirect ways as it helps individuals in better understanding of the consequences of committing crimes. As a result tertiary education could be an important determinant of crime rate across countries.

1.6 Background of Study

This chapter will focus on the general trends of income inequality, trade performance, mental health and crime rates of two specific economies, namely developed and developing countries. This chapter will be organised in accordance to the research objectives, where the background of income inequality will be discussed, followed by studies on background of trade liberalisation, mental health and crime rate with income inequality. In addition, the presence of institutional quality as a factor affecting the

impact of trade liberalisation on income inequality, income inequality on mental illness, and income inequality on crime rate will also be highlighted. Lastly, the background of institutional quality will also be presented.

1.6.1 Income Inequality: A Global Trend

Income inequality is often defined as the differences in the distribution of income between population and individuals. There are a number of methods to measure income inequality, namely Gini Index (also known as Gini coefficient), the Theil Index and The Hoover Index. However the most prominent one is the Gini coefficient which was developed by the Italian statistician and sociologist, Corrado Gini in 1912. A Gini coefficient of zero expresses perfect equality, whereas a Gini coefficient of one expresses maximal inequality. Income inequality has always be an important issue of concern for economists and policy makers to address. Uneven income dispersion divides the community and creates tension among citizens for both developed and developing countries. Classical economists Adam Smith and David Ricardo were among those who had showed their concern on the inequality of income distribution.

Income inequality is seen as the most important risk which triggers interest from significant empirical and policy recommendations concerning the relationship between income disparity and its socio economic determinants and impact (Lustig et al., 2004). Nevertheless, it is also the grievances rising from income inequality that sparked the popular demonstrations on the streets of Seattle during 1999 WTO's ministerial meeting. Thus, research on issues related to income inequality are predicted to remain popular over the coming years as the economic agenda of World Economic Forum (2014) has recently pointed out that one of the forum's aims is to increase global economic risk resilience in the wake of acute structural unemployment and widening income inequality, which indicated that income distribution disparity is not only affecting the developing nations but the world as a whole.

The following section highlights the background of income inequality, which begins with a brief analysis on income inequality across developed and developing countries. A brief comparison on the trends of income disparity within the two economies is presented using Gini index (dated obtained from Standardized World Income Inequality Database (SWIID) (Solt, 2009), which illustrates the range between a perfectly equal distribution to the highest possible level of inequality.

The purpose of the following section is to provide a general picture of how income inequality has evolved between 1995 and 2010. Tables 1.1 and 1.2 compares the trend of income inequality and Gross National Income (GNI[7]) per capital of both developed and developing countries from 1995 to 2010. Calculated using the World Bank Atlas

[7] GNI per capita (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad.

method, high-income economies are defined as those with a GNI per capita of $12,736 or more (World Bank, 2014). Annualised growth rate is being calculated to address the average changes per year from 1995 to 2010. The income distribution of top 3 richest and poorest countries based on GNI per capita is also presented to allow us to see their respective differences from 1995 to 2010 (see Figure 1.3 and Figure 1.4).

Developed Countries

As indicated in Table 1.1, all countries have achieved positive growth in terms of GNI per capital. Korea and Singapore having increased their GNI per capita by 5.13 percent and 3.81 percent per annum are with the highest annualised growth among the developed countries listed in Table 1.1. In contrast, Japan and Italy with 0.76 and 0.64 percent annualised growth rate are with the lowest annualised growth rate among the developed nations. With regards to income distribution, 18 countries (69.23 percent) have recorded an increase in income inequality in year 2010, whereas 8 countries (30.77 percent) has improved their income distribution disparities with lower income inequality rate. Finland has recorded the highest annualised growth rate with 1.15 percent and Sweden with 1.05 percent is with second highest growth rate. On the other hand, Ireland has recorded the highest improvement rate with 0.78 percent reduction rate per annum and New Zealand with 0.36 percent is with second highest reduction rate. Despite the positive growth in GNI per capita, income inequality is still a severe issue in developed countries. The scenario implies that increased GNI might be beneficial for certain group of people, but not for all.

As shown in Figure 1.3 above, the coefficients listed reveal that despite the positive growth in GNI per capita, there has been very little change over time for income inequality (mostly less than 1 percent). Such a scenario may suggest that income equality is not a result of sustained GNI growth, but rather making the rich relatively richer and the poor relatively poorer.

Table 1.1: Income Inequality and GNI per Capita (Constant 2005 US$) of Developed Countries

Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			GNI per Capita (Constant 2005 US$)		
Australia	29.57	33.26	0.78	25,670.95	34,743.36	2.21
Austria	27.70	27.41	(0.07)	31,162.69	40,457.69	1.86
Belgium	26.60	25.24	(0.32)	30,957.40	39,125.66	1.65
Canada	29.30	31.40	0.45	27,744.78	35,752.01	1.80
Denmark	21.80	25.35	1.02	40,357.17	48,583.52	1.27
Finland	21.60	25.57	1.15	26,632.93	40,232.52	3.19
France	28.30	30.02	0.38	29,678.20	35,933.34	1.32
Germany	27.07	28.60	0.35	30,905.89	37,935.37	1.42
Greece	34.90	33.30	(0.29)	16,727.41	21,683.06	1.85
Hong Kong	43.08	44.85	0.26	21,086.38	31,990.32	3.23
Ireland	33.60	29.40	(0.78)	25,509.18	41,068.56	3.81
Israel	32.80	37.44	0.88	16,045.67	22,522.14	2.52
Italy	33.90	32.70	(0.22)	27,838.78	30,709.40	0.64
Japan	26.89	29.39	0.58	33,205.77	37,254.90	0.76
Korea	31.32	31.98	0.13	12,223.95	22,263.39	5.13
Malta	25.67	27.43	0.43	12,165.57	15,858.46	1.90
Netherlands	25.48	27.02	0.38	33,729.74	43,856.74	1.88
New Zealand	33.04	31.12	(0.36)	22,266.51	26,418.26	1.17
Norway	22.70	23.14	0.12	52,658.70	66,841.52	1.68
Portugal	33.92	33.34	(0.11)	15,554.32	18,591.06	1.22
Singapore	38.82	43.34	0.73	21,889.34	34,684.10	3.65
Spain	35.30	33.30	(0.35)	20,303.72	25,823.60	1.70
Sweden	22.10	25.82	1.05	31,283.43	46,195.23	2.98
Switzerland	28.72	29.77	0.23	49,248.71	61,656.90	1.57
United Kingdom	34.40	35.70	0.24	30,958.27	39,804.61	1.79
United States	36.43	37.30	0.15	35,375.29	44,685.02	1.64

Source: World Bank, International Comparison Programme; Standardized World Income Inequality Database (SWIID)

Figure 1.3 Income Inequalities of Three Highest and Lowest GNI per Capita (Constant 2005 US$) of Developed Countries from 1995 to 2010

Source: World Bank, International Comparison Programme; Standardized World Income Inequality Database (SWIID)

Developing Countries

Whilst the previous section showed the income inequality experienced by developed countries, this section highlights the income distribution level across developing countries. From the observations in Table 1.2, all developing countries listed have achieved positive growth in terms of GNI per capita. China has recorded the highest per annum growth rate of 17.15 percent and follow by Armenia with 13.45 percent per annum growth rate. On the other hand, in terms of income distribution, there is one striking observation. The income inequality level is relatively high in developing countries. Thailand has the highest income inequality rate in 1995 with Gini Index of 64.09, whereas Zambia with Gini Index of 55.00 has recorded the highest income inequality rate in 2010. In terms of percentage changes between 1995 and 2010, developing countries have demonstrated significant signs of progress on equality front. A total of 18 countries (representing 64.29 percent) has visibly improved their respective income distribution parities level in 2010. Among them, Thailand has recorded the biggest gain by reducing its Gini index by 1.18 percent per annum. In contrast, 10 countries (representing 35.71 percent) have worsened their respective income inequality in 2010. China with positive 1.51 percent per annum growth rate, has the highest increase in comparison to the rest of the developing countries listed in Table 1.2.

In conclusion, despite the positive signs in GNI per capita recorded in developing countries, their respective income inequality level as recorded by Gini index remains highly significant. Such scenarios should be taken seriously as it was being suggested that the wave of social unrest in Middle East in early 2011 may due to the severe level of inequality in the region (UNICEF, 2011).

Table 1.2: Income Inequality and GNI per Capita (Constant 2005 US$) of Developing Countries

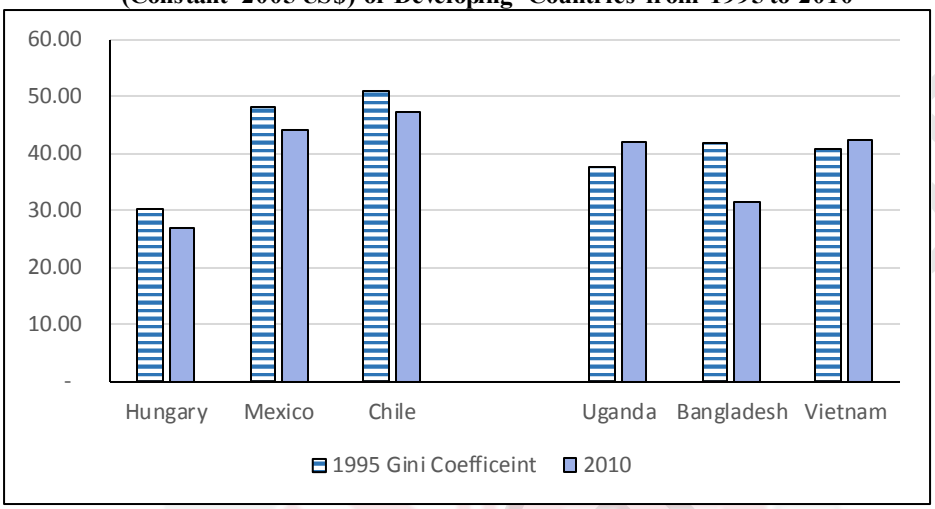
Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			GNI per Capita (Constant 2005 US$)		
Argentina	43.92	39.91	(0.57)	4,942.23	6,896.70	2.47
Armenia	37.39	35.39	(0.33)	664.17	2,093.32	13.45
Bangladesh	41.84	31.59	(1.53)	372.16	663.63	4.89
Belarus	25.70	26.00	0.07	1,513.96	4,412.23	11.96
Bolivia	52.92	43.21	(1.15)	4,125.92	5,485.30	2.06
Brazil	51.27	46.67	(0.56)	4,125.92	5,485.30	2.06
Bulgaria	30.16	34.85	0.97	2,518.08	4,573.17	5.10
Chile	50.93	47.21	(0.46)	5,600.52	8,032.06	2.71
China	43.37	53.86	1.51	769.19	2,879.44	17.15
Colombia	51.38	48.30	(0.37)	3,033.94	3,820.99	1.62
Ecuador	51.24	44.11	(0.87)	2,612.36	3,227.13	1.47
El Savador	47.44	42.60	(0.64)	2,319.77	2,964.15	1.74
Guatemala	50.09	47.49	(0.32)	1,843.74	2,144.58	1.02
Hungary	30.29	26.92	(0.70)	7,368.81	10,619.29	2.76
India	50.70	49.75	(0.12)	461.76	999.59	7.28
Indonesia	45.64	49.21	0.49	1,081.44	1,523.80	2.56
Iran	43.51	47.26	0.54	2,369.72	3,759.33	3.67
Kazakhstan	32.24	28.21	(0.78)	1,934.12	4,053.69	6.85
Malaysia	47.33	45.58	(0.23)	4,163.35	6,150.08	2.98
Mexico	48.07	44.07	(0.52)	6,352.82	7,942.51	1.56
Panama	50.99	47.13	(0.47)	3,500.76	6,575.51	5.49
Philippines	49.21	50.21	0.13	1,022.87	1,875.11	5.21
Thailand	64.09	51.94	(1.18)	2,317.23	3,260.52	2.54
Uganda	37.52	41.92	0.73	235.58	393.58	4.19
Uruguay	40.34	41.93	0.25	4,555.93	6,606.31	2.81
Venezuala	42.74	35.74	(1.02)	5,472.43	5,915.10	0.51
Vietnam	40.78	42.32	0.24	405.23	865.54	7.10
Zambia	53.71	55.00	0.15	520.93	843.16	3.87

Source: World Bank, International Comparison Programme Database; The Standardized World Income Inequality Database (SWIID)

Figure 1.4 show the income inequality level of the top three countries with highest and lowest GNI per capita among the developing countries listed in Table 1.2. Parallel with our observation for the developed countries, all countries are found with negligible changes in their respective income inequality level since 1995. For instance, the Gini index for Hungary, Mexico and Chile fluctuates less than one percent per annum.

Meanwhile, Bangladesh experienced higher changes in its Gini Index, by 1.50 percent per annum since 1995.

Figure 1.4 Income Inequalities of Three Highest and Lowest GNI per Capita (Constant 2005 US$) of Developing Countries from 1995 to 2010



Source: World Bank, International Comparison Programme Database; Standardized World Income Inequality Database (SWIID)

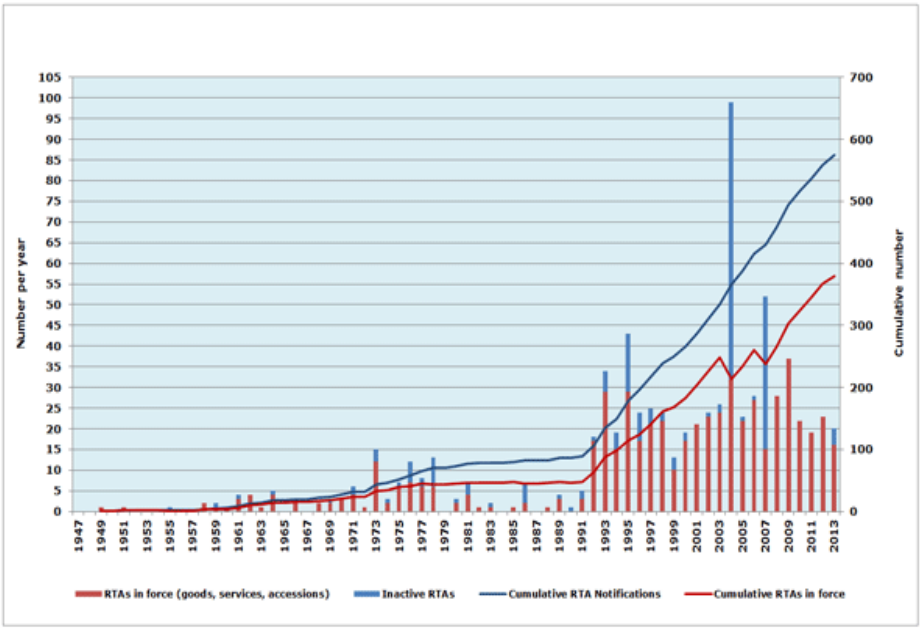
As an aggregate, higher income countries such as Norway, Switzerland and Denmark have experienced an increase in their respective income inequality level. On the other hand, most of the lower income countries successfully reduced their respective income disparities over the period of 1995 to 2010. However, we are not able to draw the conclusion that sustained GNI growth leads to income inequality, as income inequality is significantly decreasing in countries like Portugal and Hungary which has also experienced strong GNI per capita growth. Thus, as suggested by UNICEF (2011), addressing inequality will depend on a society's willingness to reduce social disparities through equitable policies which includes tax and investment. If society is unwilling to address inequality, then the rich will relatively get richer and the poor will get relatively poorer.

1.6.2 Trade Liberalisation

Cross border trade has been proven to be a powerful means for countries to promote economic growth and improve the standard of living (WTO, 2007). This explains the existence of cross border trade since ancient times, for example Egyptians traded in the Red Sea, importing spices from Arabia. The Greek Ptolemaic dynasty exploited trading opportunities with India prior to Roman times. In the event of promoting cross border trade, countries were seen to sign a free trade agreement to boost their respective cross border trade. From literature, the very first official trade agreement was formed and signed between Britain and France under the presidency of Napoleon III in 1860 which later sparked off successive agreements between other countries in Europe (Stearns and William, 2001).

These trends continued after World War II, where governments cooperated to reduce or eliminate import restrictions, which they believed would increase the volume in trade leading to economic growth and wealth accumulation (Ricardian Classical Growth Theory-1817). In 1948, the General Agreement on Tariffs and Trade (GATT) was formed, where 23 countries agreed to reduce tariffs. Subsequently, GATT has successfully promoted better integration of the world economy, which stemmed from substantial increases in exports of goods and services. The world trading system has indeed benefitted through eight rounds of multilateral trade liberalisation agreements over the past five decades. It has reduced the average global tariffs significantly. The last round of the multilateral liberalisation since Uruguay Round also led to the establishment of World Trade Organisation (WTO) in 1995. Many countries have substantially benefitted from trade liberalisation which results in a significant increase in their respective export of goods and services (WTO, 2007). For instance, U.S. exports to Mexico increased rapidly since North American Free Trade Agreement (NAFTA), from $41.6 billion in 1993 to $226.2 billion in 2013, an increase of 444.00 percent. U.S. imports from Mexico increased from $39.9 billion in 1993 to $280.5 billion in 2013, an increase of 603.00 percent[8]. As of 2013, more than 400 regional trade agreements were in force, where almost every member of WTO is detached with at least one regional trade agreement (WTO, 2013). Figure 1.5 shows all RTAs notified to the GATT/WTO (1948-2013).

Figure 1.5 Regional Trade Agreements Notified to GATT/ WTO



Source: WTO

[8] Data compiled by Congressional Research Service (CRS) using trade data from the U.S. International Trade Commission's Interactive Tariff and Trade Data Web, at http://dataweb.usitc.gov.

The following section highlights the relationship between trade liberalisation and income inequality of both developed and developing countries (see Table 1.3 and 1.4). In addition, the presence of institutional quality variable as a factor influencing the impact of trade liberalisation on income inequality is also being addressed (see Figure 1.7 and 1.8; Figure 1.10 and 1.11).

1.6.3 Trade Liberalisation, Income Inequality and Institutional Quality of Developed Countries

The following section will highlight the trade openness of developed countries from 1995 to 2010. Trade openness is frequently used to measure the importance of international transactions relative to domestic transactions. The indicator is calculated based on the sum of exports and imports of goods and services relative to GDP. As illustrated in Table 1.3, a total of 26 developed countries listed experienced positive growth in their respective trade openness. In terms of annualised growth, the highest annualised growth rate is recorded by Hong Kong and Netherlands with a positive growth rate of 4.02 and 3.51 percent respectively. On the other hand, Norway with 0.03 percent annualised growth rate has the lowest per annum growth among the developed countries listed in Table 1.3 Canada on the other hand, recorded a negative annualised growth rate of 0.05 percent. In addition, as indicated in Table 1.3, a total of 21 countries (77.78 percent) registered with higher per annum growth rate in their respective institutional quality level, whereas remaining 6 countries (22.22 percent) have suffered a negative growth rate in institutional quality.

Table 1.3 Trade Openness, Income Inequality and Institutional Quality of Developed Countries

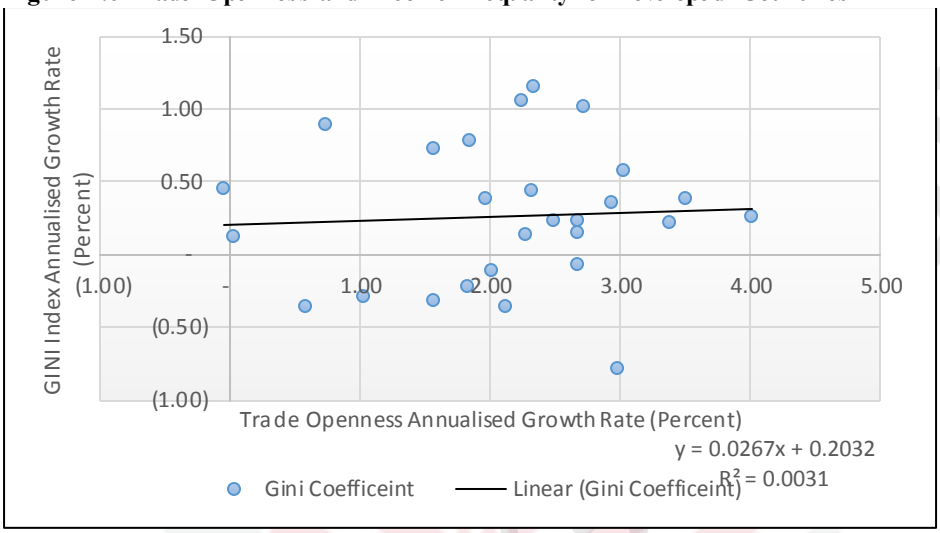
Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			Trade Openess			Institutional Quality		
Australia	29.57	33.26	0.78	31.44	40.71	1.84	6.88	7.17	0.27
Austria	27.70	27.41	(0.07)	72.65	103.77	2.68	6.67	7.41	0.69
Belgium	26.60	25.24	(0.32)	125.77	157.32	1.57	6.58	6.92	0.32
Canada	29.30	31.40	0.45	61.26	60.75	(0.05)	6.74	7.22	0.45
Denmark	21.80	25.35	1.02	66.39	95.39	2.73	6.88	7.04	0.15
Finland	21.60	25.57	1.15	58.21	80.03	2.34	7.08	7.67	0.52
France	28.30	30.02	0.38	40.54	53.27	1.96	6.64	6.50	(0.13)
Germany	27.07	28.60	0.35	60	88.18	2.94	6.85	6.97	0.10
Greece	34.90	33.30	(0.29)	44.56	51.88	1.03	6.21	5.81	(0.41)
Hong Kong	43.08	44.85	0.26	268.03	440.31	4.02	6.04	6.81	0.79
Ireland	33.60	29.40	(0.78)	123.98	183.29	2.99	6.92	7.18	0.24
Israel	32.80	37.44	0.88	64.23	71.79	0.74	5.55	5.40	(0.17)
Italy	33.90	32.70	(0.22)	42.72	55.22	1.83	6.11	6.46	0.36
Japan	26.89	29.39	0.58	19.7	29.26	3.03	6.75	6.72	(0.03)
Korea	31.32	31.98	0.13	75	102.31	2.28	6.32	7.20	0.87
Luxembourg	25.16	26.90	0.43	217.99	298.79	2.32	7.33	7.63	0.25
Netherlands	25.48	27.02	0.38	95.14	148.63	3.51	6.96	7.33	0.33
New Zealand	33.04	31.12	(0.36)	50.39	55.16	0.59	6.96	7.40	0.39
Norway	22.70	23.14	0.12	69.58	69.9	0.03	6.81	6.58	(0.21)
Portugal	33.92	33.34	(0.11)	52.37	69.24	2.01	6.45	7.04	0.57
Singapore	38.82	43.34	0.73	313.64	392.09	1.56	6.71	6.51	(0.18)
Spain	35.30	33.30	(0.35)	40.85	54.68	2.12	5.94	6.09	0.16
Sweden	22.10	25.82	1.05	69.18	93.97	2.24	6.72	7.38	0.61
Switzerland	28.72	29.77	0.23	67.05	95.77	2.68	7.08	7.17	0.08
Taiwan	28.60	29.57	0.21	90.78	139.98	3.39	6.43	6.58	0.14
United Kingdom	34.40	35.70	0.24	44.68	62.55	2.50	6.52	6.64	0.11
United States	36.43	37.30	0.15	20.35	29.05	2.67	6.62	6.82	0.19

Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1; The International Country Risk Guide (ICRG).

In the following section, we will look into the relationship between the annualised growth rate of trade openness and income inequality. Figure 1.6 indicates that the annualised growth rate of Gini index is positively associated with annualised trade openness growth rate from 1995 to 2010 ($R^2 = 0.0031$). From the Equation, $Y = 0.2032 + 0.0267x$ (Y= per annum growth rate of Gini Index; X = per annum growth rate of Trade Openness), the positive relationship implies that an increase in trade openness is likely to promote income inequality in developed countries. In conclusion, the evidence from Figure 1.6 is in parallel with the findings of Reynolds (1987), Fischer (2001) and Franco and Gerussi

(2012), which argued that income inequality is worsening in substantially trade advancement countries. Our observation is also in line with Sachs and Warner (1995) argument that, trade liberalisation failed to reduce wage disparity between skilled and unskilled workers and thus will worsen inequality.

Figure 1.6 Trade Openness and Income Inequality of Developed Countries



Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1

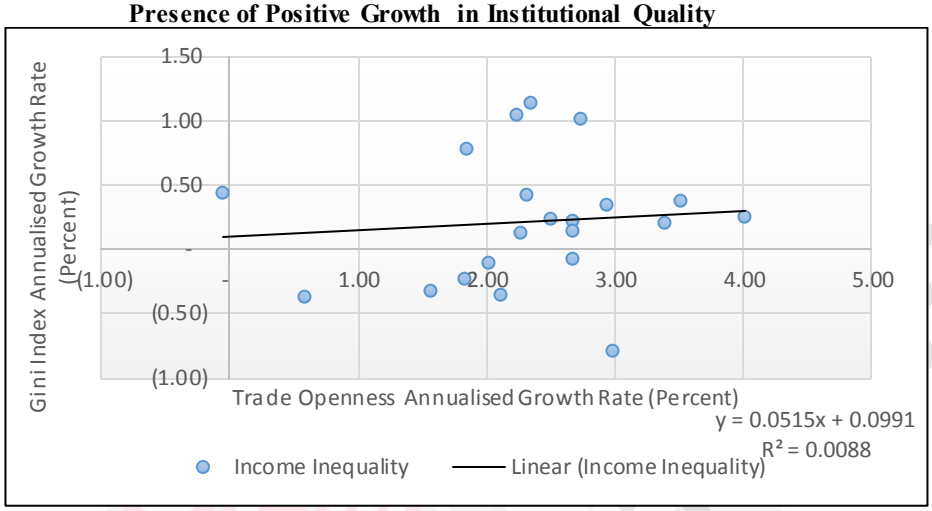
On the other hand, Figures 1.7 and 1.8 review the presence of institutional quality as a factor influencing the effect of trade liberalisation on income inequality for developed countries. Figure 1.7 highlights the presence of positive growth in institutional quality as a factor influencing the effect of trade openness on income inequality. Whereas, Figure 1.8 highlights the presence of negative growth in institutional quality as a factor affecting the impact of trade openness on income inequality.

As indicated in Figure 1.7, with a positive growth rate recorded in the institutional quality level of developed countries, trade openness is found to be positively associated with Gini index with Equation Y= 0.0991 +0.0515X (Y= per annum growth rate of Gini Index; X = per annum growth rate of Trade Openness). Where a percentage point increase in trade openness tends to increase income inequality by 0.0515 percentage point. On the other hand, as indicated in Figure 1.8, with a negative growth rate detected in institutional quality level, trade openness is found positively associated with Gini index with Equation Y=0.2352 +0.1196X (Y= per annum growth rate of Gini Index; X = per annum growth rate of Trade Openness). A percentage point increase in trade openness tends to increase income inequality by 0.1196 percentage point

Hence, the equations obtained suggest that the trade liberalisation increases income inequality, and this positive relationship between trade openness and income inequality is even more exacerbated in states where the institutional quality level is lower.

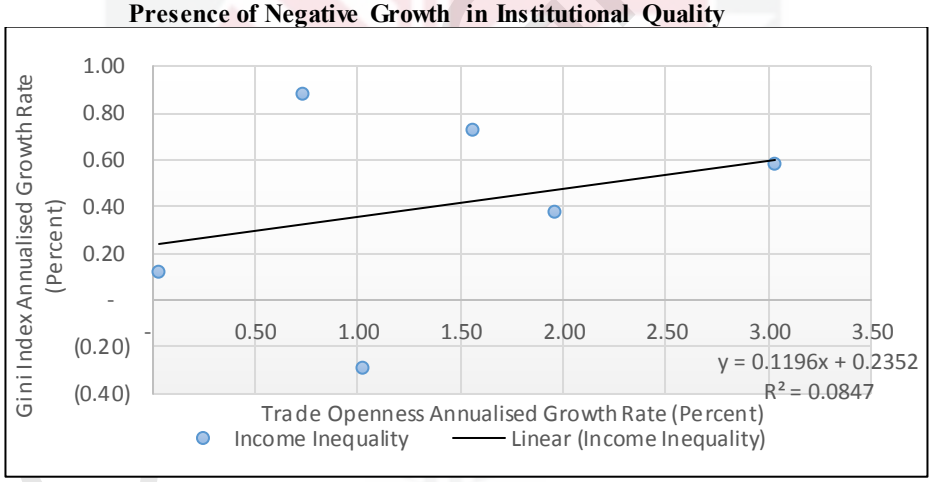
Figure 1.7 Trade Openness and Income Inequality of Developed Countries with the

Presence of Positive Growth in Institutional Quality



Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1; The International Country Risk Guide (ICRG).

Figure 1.8 Trade Openness and Income Inequality of Developed Countries with the Presence of Negative Growth in Institutional Quality



Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1; The International Country Risk Guide (ICRG).

1.6.4 Trade Openness, Income Inequality and Institutional Quality of Developing Countries

Compared to developed countries, developing countries present a more interesting assessment. As indicated in Table 1.4, while growth of trade openness permeates most developing countries, there are notable exceptions in Venezuala, Panama, Philippines, Sri Lanka, Zambia and Indonesia, all of which experienced a negative annualised growth in their respective trade openness from 1995 to 2010. Individually, Malaysia outperformed the rest of the developing countries with a positive per annum growth rate

9.52 percent. Followed by India and Uruguay which have recorded 7.01 and 6.44 percent per annum growth rate. In contrast, Venezuela with negative per annum growth rate of 1.85 experienced the highest negative growth rate in trade openness. Lastly, as highlighted in Table 1.4, a total of 11 countries (39.29 percent) registered with higher per annum growth rate in institutional quality, whereas remaining 17 countries (60.71 percent) have suffered a negative growth rate in institutional quality.

Table 1.4 Trade Openness, Income Inequality and Institutional Quality of

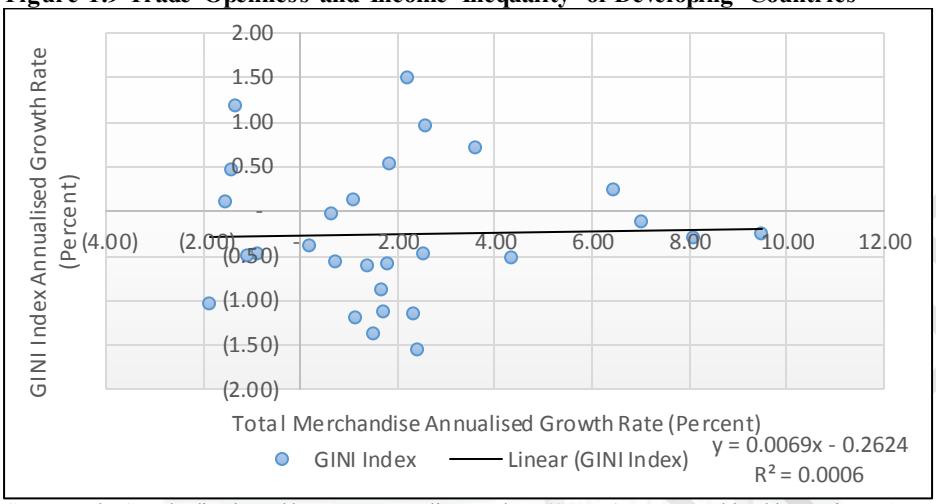
Developing Countries

Countries	1995	2005	Annualised Growth Rate (%)	1995	2005	Annualised Growth Rate (%)	1995	2005	Annualised Growth Rate (%)
	Gini Coefficient			Trade Openess			Institutional Quality		
Argentina	43.92	39.91	(0.57)	31.14	40.11	1.80	6.27	5.33	(0.93)
Bangladesh	41.84	31.59	(1.53)	31.45	43.64	2.42	4.53	4.49	(0.05)
Bolivia	52.92	43.21	(1.15)	54.92	75.51	2.34	5.26	4.98	(0.33)
Brazil	51.27	46.67	(0.56)	20.88	23.30	0.72	5.40	5.68	0.32
Bulgaria	30.16	34.85	0.97	83.04	117.50	2.59	5.97	5.71	(0.28)
Chile	50.93	47.21	(0.46)	52.49	73.84	2.54	6.27	6.47	0.19
China	43.37	53.86	1.51	36.38	49.21	2.20	5.24	5.10	(0.17)
Colombia	51.38	48.30	(0.37)	32.76	33.70	0.18	6.25	6.16	(0.09)
India	50.70	49.75	(0.12)	21.78	46.22	7.01	5.40	5.54	0.17
Indonesia	45.64	49.21	0.49	61.43	47.64	(1.40)	4.81	4.41	(0.52)
Iran	43.51	47.26	0.54	34.26	44.40	1.85	5.65	5.67	0.02
Jordan	37.80	45.07	1.20	139.67	110.21	(1.32)	4.96	5.04	0.11
Malawi	53.67	41.99	(1.36)	54.92	68.31	1.52	6.50	6.34	(0.15)
Malaysia	47.33	45.58	(0.23)	70.06	176.80	9.52	6.40	6.11	(0.28)
Mexico	48.07	44.07	(0.52)	36.56	62.01	4.35	5.56	5.74	0.21
Panama	50.99	47.13	(0.47)	173.42	148.60	(0.89)	4.92	6.30	1.76
Peru	54.44	46.83	(0.87)	37.26	47.35	1.69	4.66	5.18	0.70
Philippines	49.21	50.21	0.13	94.45	71.42	(1.52)	5.27	5.12	(0.18)
Poland	30.56	29.20	(0.28)	37.36	85.76	8.10	6.59	6.66	0.07
South Africa	59.62	59.40	(0.02)	49.91	55.01	0.64	4.70	4.62	(0.11)
Sri Lanka	46.24	42.59	(0.49)	63.65	52.71	(1.07)	2.38	5.10	7.18
Thailand	64.09	51.94	(1.18)	114.33	135.03	1.13	6.25	5.59	(0.66)
Tunisia	42.14	34.66	(1.11)	80.52	102.57	1.71	5.18	4.87	(0.37)
Turkey	44.05	39.83	(0.60)	39.03	47.76	1.40	5.58	4.64	(1.06)
Uganda	37.52	41.92	0.73	34.35	54.28	3.63	4.47	4.45	(0.03)
Uruguay	40.34	41.93	0.25	50.82	103.16	6.44	5.45	6.05	0.69
Venezuala	42.74	35.74	(1.02)	65.11	45.87	(1.85)	5.53	3.87	(1.88)
Zambia	53.71	55.00	0.15	70.05	82.60	1.12	5.50	5.25	(0.28)

Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1; The International Country Risk Guide (ICRG).

Figure 1.9 shows that the annualised growth rate of trade openness is positively correlated with annualised growth rate of Gini index from 1995 to 2010 ($R^2 = 0.0006$), from the Equation, $Y = -0.2624 + 0.0069X$, (Y= per annum growth rate of Gini Index; X = per annum growth rate of Trade Openness). Thus, a positive growth in trade openness is likely to promote income distribution disparities. The evidence presented hence suggests that in parallel with what theory has suggested, where trade will lead to wage disparity between skilled and unskilled workers thus worsening inequality.

Figure 1.9 Trade Openness and Income Inequality of Developing Countries

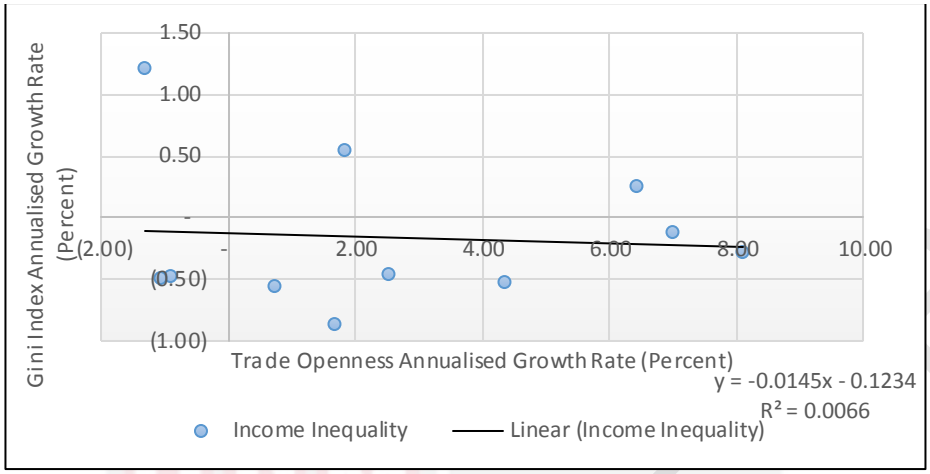


Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1

Alternatively, Figures 1.10 and 1.11 highlight the presence of institutional quality as a factor affecting the impact of trade liberalisation on income inequality for developing countries. Figure 1.10 highlights the presence of positive growth in institutional quality as a factor influencing the effect of trade openness on income inequality. Whereas, Figure 1.11 highlights the presence of negative growth in institutional quality as a factor affecting the impact of trade openness on income inequality.

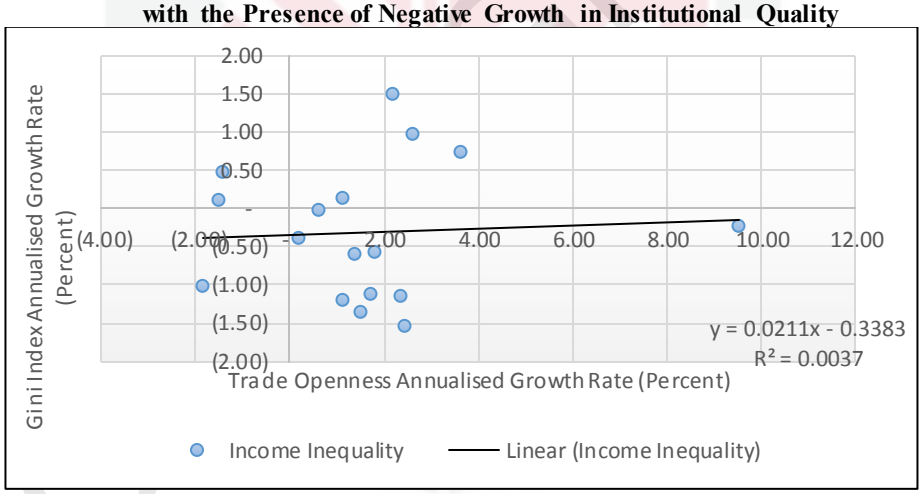
As indicated in Figure 1.10, with a positive growth rate recorded in institutional quality variable of developing, trade openness is found to be negatively associated with Gini index with Equation Y= -0.1234 -0.0145X (Y= per annum growth rate of Gini Index; X = per annum growth rate of Trade Openness). On the other hand, with the presence of a negative growth in institutional quality variable, trade openness is found to be positively associated with Gini index with Equation Y= -0.3383 + 0.0211X (Y= per annum growth rate of Gini Index; X = per annum growth rate of Trade Openness). Hence, the equations obtained suggest that trade liberalisation decrease income inequality in countries with high institutional quality and worsening income distribution parities with lower institutional quality. Hence, suggest that institutional quality is an important determinant in mediating the impact of trade liberalisation on income inequality.

Figure 1.10 Trade Openness and Income Inequality of Developing Countries with the Presence of Positive Growth in Institutional Quality



Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1; The International Country Risk Guide (ICRG).

Figure 1.11 Trade Openness and Income Inequality of Developing Countries with the Presence of Negative Growth in Institutional Quality



Source: The Standardized World Income Inequality Database (SWIID), Penn World Table Version 7.1; The International Country Risk Guide (ICRG).

1.6.5 Mental Health across the Globe

An Overview

World Health Organisation (WHO) states "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" which indicates that mental health is an integral part of general health and it is more than the absence of mental disabilities. Mental health is the basic fundamental which allows individuals to interact with each other, to think and most importantly to live and enjoy life. It is with mental health that every individual is able to realise their own potential, able to handle the stress of life, to contribute to society and to live fruitfully. Mental illness refers to suffering or morbidity due to mental, neurological and substance use disorders, it is however, is not uncommon as it affects all level of society and age groups. WHO (2013) estimates that approximately 10% of the adult population worldwide were diagnosed with some type of mental or behavioural disorder at any point of time.

There are various perceptions and theories seeking to explain the cause of mental illness. During the early 20th century, some argued that mental illness was linked to violence in families or problematic relationships between parents and their children (Hunstman, 2008). The perception, however, has changed over time as more and more research is done in this area. Today the most common view is that mental illness is caused by biological factors, psychological factors or environmental stressors, rather than by problematic relationships between family members solely (WHO, 2014).

Biological factors, refers to anything physical that can cause adverse effects on a person's mental health. It includes brain injuries or defects, genetics, pre-natal damages, substance abuse and exposure to toxins. Psychological factors, refers to psychological stressors that can cause mental illness including, emotional, physical or sexual abuse, loss of a significant loved one, neglect, isolation or not able to relate to others. In many cases, psychological factors result in emotional stress which in turn activates mental illness. Environmental factors, unlike biological and psychological factors, are the external stressors that individuals deal with in everyday life. Environmental factors include poor relationships with others, poverty, social expectations not being met, low self-esteem and substance abuse (WHO, 2014).

Mental illness in Developed Countries

Mental illnesses are commonly diagnosed in US, approximately 61.5 million or one in every four adults experience mental illness in a given year (National Institute of Mental Health (NIMH), 2008). Among them 13.6 million are living with serious mental illness such as bipolar disorder. Mental illness is the leading cause of disability in US and Canada for ages 15-44. In US 57.7 million people are diagnosed with mental illness are 18 years old or older and approximately 20 percent of youth aged 13-18 experience severe mental disorder in a given year[9]. Serious mental illness costs America USD193.2 billion in lost earning per year. Individual living with serious mental illness are reportedly die on average of 25 years earlier than other Americans. Suicide is the tenth leading cause of death in America with more than 90 percent of those who commit

[9] Reported by Census Residential Population of US (2004).

suicide had one or more mental disorders. 24 percent of state prisoners and 21 percent of local jail prisoners have a recent history of mental health disorder (Kessler et al., 2009).

In Canada, one in every five Canadian experience mental health problems and approximately 8 percent of adults in Canada experience major depression at some point in their lives. The economic cost of mental illness in Canada for the health care system is approximately Canadian Dollars (CAD)7.9 billion Canadian dollars and an additional CAD 6.3 billion was spent on uninsured mental health service of which was not treated by the health care system. Suicide is one of the leading causes of death in Canada where it accounts for 24 percent of all deaths among 15-24 years old and 16 percent among 25-44 years old. In 1999, 3.8 percent of all admissions into general hospitals were due to mental illness (Steward, 2002).

In UK at least one out of four adults experienced a diagnosable mental health problem in any one year (Singleton et al., 2001). One in four unemployed people has a common mental disorder. Suicide remains the most common causes of death in UK, in 2010 more than 5700 people committed suicide. Mixed anxiety and depression is the most common mental illness in UK, with approximately 9 percent of the population meeting the criteria for diagnosis. Total investment in mental health in England from 2009 to 2010 was £6.311 million Pounds and spending per head in London is budgeted at £211 per head compared to national average of £193 (Department of Health (DH), 2012)

In Australia, one in every five Australian is experiencing a mental health problem at some stage in their lives with some of them experiencing more than one mental illness at one time. Around 7.3 million or 45 percent of Australians aged 16–85 is expected to experience a common mental health-related condition such as depression, anxiety or a substance use disorder in their lifetime (Slade et al., 2009). Estimates from second National Survey of Psychosis conducted in March 2010 suggested that almost 64,000 people have a psychotic illness and are in contact with public specialised mental health services each year. The highest numbers of people recorded with mental illness are in the age group of 18-24, of which the onset of bipolar disorder and schizophrenia were the most common mental illness that occurs in the teenage years in Australia. Juveniles with mental illness problems reported a high rate of suicide. In Australia, women are more likely than men to be diagnosed with anxiety and affective disorder[10], however, men are way ahead in the case of substance use disorders such as alcohol and drugs. The economic cost of mental illness in Australia for the health care system is approximately $3.74 million Australia dollars which is equivalent to 7.5 percent from the total 100 percent health care spending in year 2000 (Slade et al., 2009).

The following section highlights the relationship between income inequality and mental illness of both developed and developing countries (see Table 1.5 and 1.6). In addition, the presence of institutional quality variable as a factor influencing the effect of income

[10] Affective disorders are a set of psychiatric diseases, also called mood disorders. The main types of affective disorders are depression, bipolar disorder, and anxiety disorder (Healthline, 2013)

inequality on mental illness is also being addressed (see Figure 1.13 and 1.14; Figure 1.16 and 1.17).

1.6.6 Income Inequality, Mental Illness and Institutional Quality in Developed Countries

Table 1.5 displays the annualised growth rates of mental illness of developed countries from 1995 to 2010. From observation, 18 (69.23 percent) out of the total 26 developed countries listed in Table 1.5 experienced positive growth in mental illness from the period of 1995 to 2010. Individually, the three countries with highest per annum growth rate are Denmark with 9.53 percent, Austria with 5.49 percent and United States with 5.18 percent. In contrast, 8 countries (30.77 percent) out of the total 26 countries listed recorded a decreasing rate in mental illness from the period of 1995 to 2010. Korea appears to perform better than the rest of the developed countries having recorded a decreasing per annum rate of 3.47. Hence, the above findings are in parallel with finding of WHO (2013) that mental disorder is worsening in most of the developed countries. Lastly, a total of 20 countries (76.92 percent) registered with higher per annum growth rate in institutional quality, whereas remaining 6 countries have recorded a decrease in their respective institutional quality level.

Table 1.5 Income Inequality, Mental Illness and Institutional Quality of

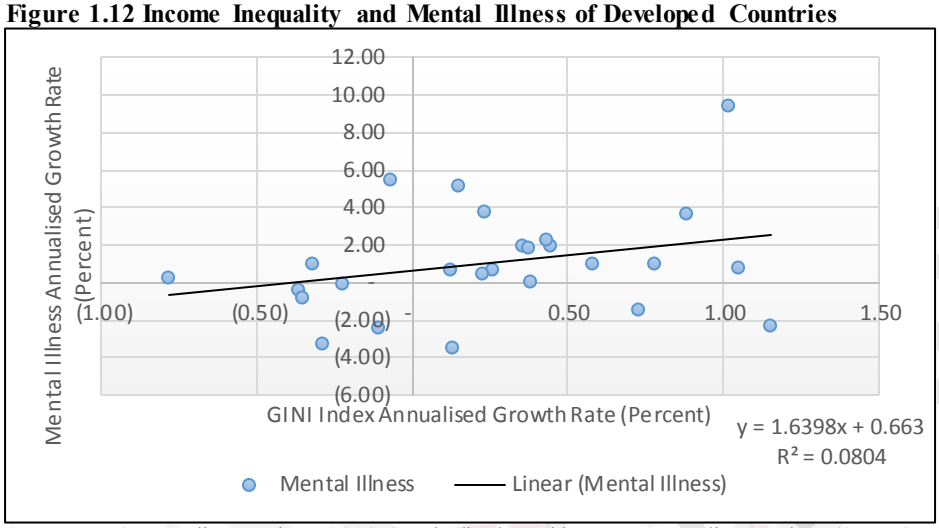
Developed Countries

Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			Mental illness			Institutional Quality		
Australia	29.57	33.26	0.78	11.78	13.80	1.07	6.88	7.17	0.27
Austria	27.70	27.41	(0.07)	3.62	6.80	5.49	6.67	7.41	0.69
Belgium	26.60	25.24	(0.32)	11.28	13.10	1.01	6.58	6.92	0.32
Canada	29.30	31.40	0.45	11.24	14.90	2.04	6.74	7.22	0.45
Denmark	21.80	25.35	1.02	10.02	25.30	9.53	6.88	7.04	0.15
Finland	21.60	25.57	1.15	25.32	16.30	(2.23)	7.08	7.67	0.52
France	28.30	30.02	0.38	11.20	11.40	0.11	6.64	6.50	(0.13)
Germany	27.07	28.60	0.35	9.16	12.10	2.01	6.85	6.97	0.10
Greece	34.90	33.30	(0.29)	0.82	0.40	(3.20)	6.21	5.81	(0.41)
Hong Kong	43.08	44.85	0.26	4.20	4.70	0.74	6.04	6.81	0.79
Ireland	33.60	29.40	(0.78)	7.86	8.20	0.27	6.92	7.18	0.24
Israel	32.80	37.44	0.88	5.72	9.10	3.69	5.55	5.40	(0.17)
Italy	33.90	32.70	(0.22)	7.06	7.00	(0.05)	6.11	6.46	0.36
Japan	26.89	29.39	0.58	1.54	1.80	1.06	6.75	6.72	(0.03)
Korea	31.32	31.98	0.13	18.24	8.10	(3.47)	6.32	7.20	0.87
Luxembourg	25.16	26.90	0.43	17.34	23.77	2.32	7.33	7.63	0.25
Netherlands	25.48	27.02	0.38	14.18	18.60	1.95	6.96	7.33	0.33
New Zealand	33.04	31.12	(0.36)	10.20	9.70	(0.31)	6.96	7.40	0.39
Norway	22.70	23.14	0.12	14.36	16.00	0.71	6.81	6.58	(0.21)
Portugal	33.92	33.34	(0.11)	2.28	1.40	(2.41)	6.45	7.04	0.57
Singapore	38.82	43.34	0.73	0.26	0.20	(1.44)	6.71	6.51	(0.18)
Spain	35.30	33.30	(0.35)	12.32	10.70	(0.82)	5.94	6.09	0.16
Sweden	22.10	25.82	1.05	14.66	16.70	0.87	6.72	7.38	0.61
Switzerland	28.72	29.77	0.23	17.48	18.90	0.51	7.08	7.17	0.08
United Kingdom	34.40	35.70	0.24	8.90	14.30	3.79	6.52	6.64	0.11
United States	36.43	37.30	0.15	9.68	17.70	5.18	6.62	6.82	0.19

Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.12 relates the correlation between mental disorder and income inequality of developed countries. As reveals in Figure 1.12, mental illness is found positively associated with income inequality ($R^2 = 0.0804$). From the Equation obtained, $Y = 0.663 + 1.6398X$ (Y= per annum growth rate of Mental Illness; X = per annum growth rate of Gini Index), a percentage point increase in income inequality is likely to increased mental illness by 1.6398 percentage point. This implies that our observation is in parallel with Li and Zhu (2006), Feng et al. (2012) that health and income inequality is positively correlated.

Figure 1.12 Income Inequality and Mental Illness of Developed Countries



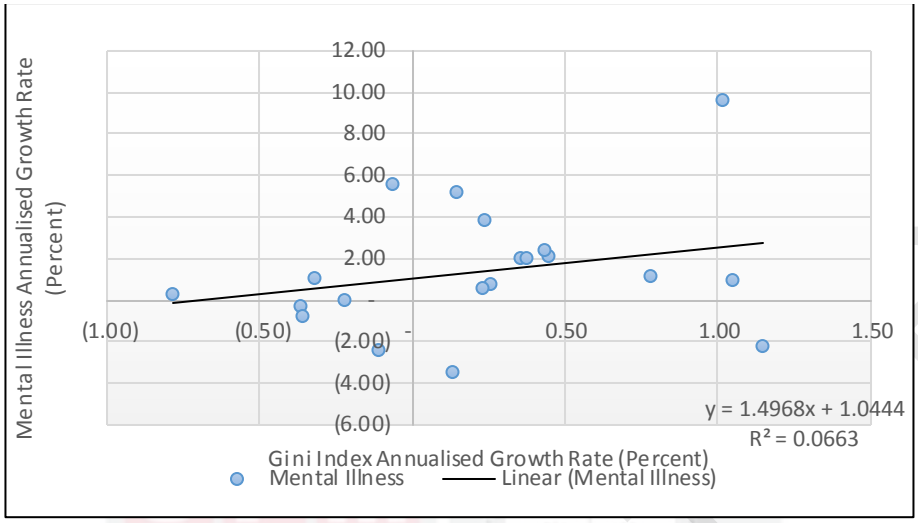
Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID)

Alternatively, Figures 1.13 and 1.14 review the presence of institutional quality as a factor influencing the impact of income inequality on mental health for developed countries. Figure 1.13 highlights the presence of positive growth in institutional quality as a factor influencing the impact of income inequality on mental illness. Whereas, Figure 1.14 highlights the presence of negative growth in institutional quality as a factor influencing the impact of income inequality on mental illness.

As indicated in Figure 1.13, with a positive growth rate obtained for institutional quality variable, the annualised growth rate of income inequality is found to be positively associated with mental illness with Equation Y= 1.0444 + 1.4968X (Y= per annum growth rate of Mental illness; X = per annum growth rate of Gini Index). Similarly, as indicated in Figure 1.14, with a negative growth rate recorded in institutional quality variable, the annualised growth rate of Gini index is found to be positively associated with mental illness with Equation Y= -1.3672 + 3.7897X (Y= per annum growth rate of Mental illness; X = per annum growth rate of Gini Index).

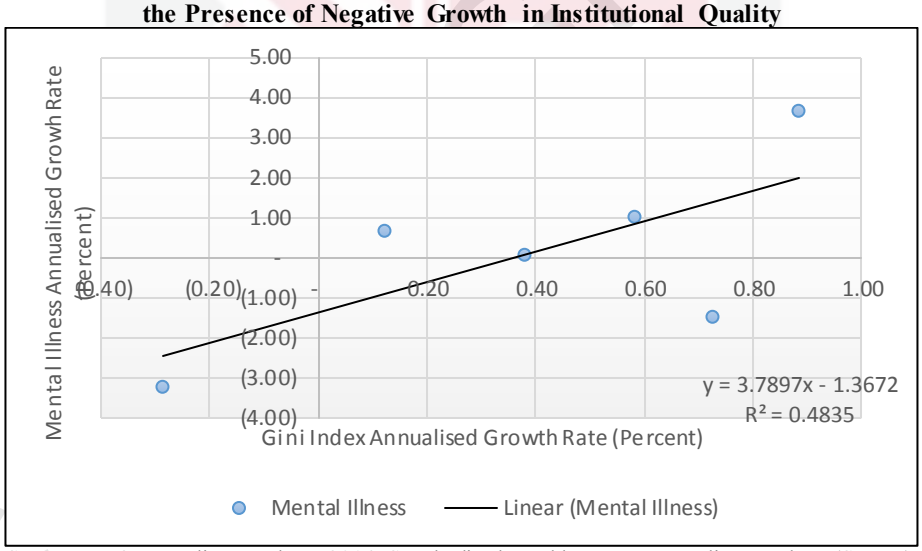
The equations obtained suggest that income inequality increases mental illness and the positive relationship between income inequality and mental illness is even more severe for countries where the institutional quality is lower. Thus, for developed countries, income inequality is associated with higher mental illness rate with the presence of negative growth in institutional quality level, in comparison to countries with the presence of positive growth in institutional quality.

Figure 1.13 Income Inequality and Mental Illness of Developed Countries with the Presence of Positive Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.14 Income Inequality and Mental Illness of Developed Countries with the Presence of Negative Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

1.6.7 Income Inequality, Mental Illness and Institutional Quality in Developing Countries

As illustrated in Table 1.6, only 8 countries (29.63 percent) out of the total 27 countries listed have recorded an increase in per annum growth rate in mental illness from 1995 to 2010. Among them, Romania with a per annum growth rate of 32.36 percent has the highest growth rate in comparison to the rest of developing countries listed in Table 3.0. On the flip side, Venezuala with a negative 8.80 per annum growth rate has the highest per annum reduction rate over from 1995to 2010. In conclusion, as compared to developed countries, developing countries seem to be less burdened by mental illness in terms of changes in mental illness rate over the period of 1995 to 2010. From this observation, most of the developing countries were found with a negative growth rate in mental illness rate from 1995 to 2010. This reflects that in developing countries, more people have become proactive in seeking diagnosis and are receiving necessary help hence leading to the reduction of mental illness rate (Watts, 2014). On the other hand, a total of 8 countries (29.63 percent) registered with higher per annum growth rate in their respective country's institutional quality level over the period of 1995 to 2010, whereas 19 countries (70.37 percent) have recorded a decrease in their respective institutional quality level.

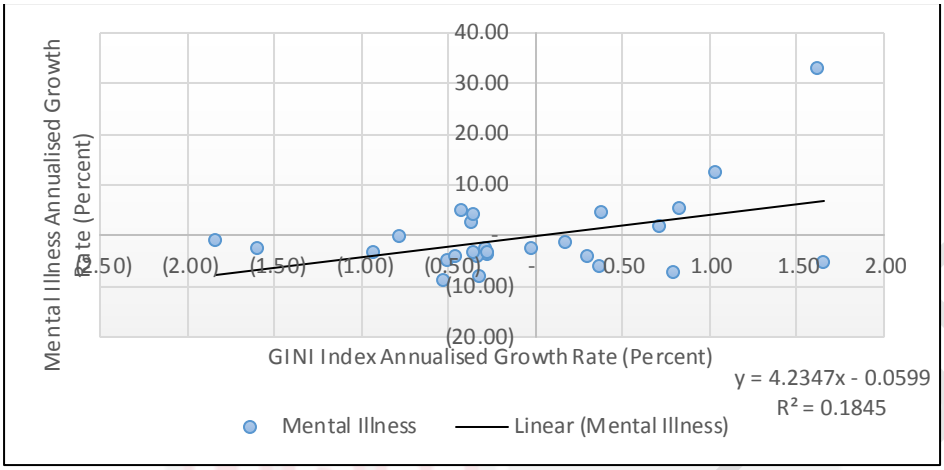
As illustrated in Figure 1.15, mental illness is found positively associated with income inequality ($R^2 = 0.1845$). From the Equation obtained, Y= -0.0599 + 4.2347X, (Y= per annum growth rate mental illness; X = per annum growth rate of Gini index), implying that a positive growth in Gini index will lead to the increase of per annum mental illness rate. The evidence of Figure 1.15 is in parallel with finding of Kahn, Wise, Kennedy and Kawachi (2000) and Pickett, James and Wilkinson (2006) that higher income inequality is associated with higher mental illness.

Table 1.6 Income Inequality, Mental Illness and Institutional Quality of Developing Countries

Countries	1995	2005	Annualised Growth Rate (%)	1995	2005	Annualised Growth Rate (%)	1995	2005	Annualised Growth Rate (%)
	Gini Coefficeint			Mental Illness			Institutional Quality		
Argentina	43.92	42.56	(0.28)	6.34	4.62	(2.47)	4.76	4.15	(1.17)
Armenia	37.39	36.08	(0.32)	3.26	0.35	(8.11)	2.95	2.37	(1.79)
Belarus	25.70	26.79	0.39	3.80	5.65	4.43	3.99	2.55	(3.28)
Brazil	51.27	48.89	(0.42)	3.72	5.78	5.03	3.74	3.45	(0.70)
Bulgaria	30.16	31.37	0.36	3.14	1.06	(6.02)	4.98	3.89	(1.99)
Chile	50.93	48.89	(0.36)	10.44	13.54	2.70	5.17	5.60	0.76
Colombia	51.38	51.24	(0.02)	0.22	0.16	(2.48)	3.05	3.26	0.63
Costa Rica	41.76	45.02	0.71	3.32	3.98	1.81	5.16	3.98	(2.08)
Ecuador	51.24	48.39	(0.51)	3.48	1.64	(4.81)	3.48	5.26	4.65
Egypt	33.82	32.51	(0.35)	0.60	0.88	4.24	4.07	3.52	(1.23)
El Savador	47.44	42.60	(0.93)	25.65	16.36	(3.29)	3.36	3.63	0.73
Guatemala	50.09	48.56	(0.28)	24.56	14.70	(3.65)	3.10	2.84	(0.76)
Hungary	30.29	27.69	(0.78)	10.14	9.84	(0.27)	6.63	5.18	(1.99)
Latvia	30.32	35.85	1.66	10.98	4.30	(5.53)	4.29	4.64	0.74
Mexico	48.07	45.67	(0.45)	8.46	4.74	(4.00)	3.92	4.41	1.14
Panama	50.99	49.12	(0.33)	1.63	0.86	(4.29)	2.92	4.12	3.74
Paraguay	49.85	47.90	(0.36)	2.84	1.74	(3.52)	3.53	1.46	(5.33)
Philippines	49.21	50.84	0.30	2.44	1.30	(4.25)	4.40	3.81	(1.22)
Poland	30.56	31.14	0.17	4.72	4.02	(1.35)	6.31	4.97	(1.93)
Romania	27.38	32.27	1.62	1.70	7.80	32.62	4.33	3.98	(0.73)
Russia	41.83	40.57	(0.27)	6.36	4.02	(3.34)	3.98	3.39	(1.35)
Slovakia	23.77	25.85	0.80	0.54	0.10	(7.41)	5.39	5.00	(0.66)
Sri Lanka	36.89	41.09	1.04	2.60	6.10	12.24	4.30	3.54	(1.61)
Thailand	64.09	52.87	(1.59)	1.37	1.00	(2.46)	4.82	3.19	(3.07)
Ukraine	36.63	29.22	(1.84)	6.10	5.34	(1.13)	4.05	3.32	(1.64)
Uruguay	40.34	44.02	0.83	9.73	15.16	5.07	3.60	4.00	1.01
Venezuala	42.74	40.27	(0.53)	1.85	0.06	(8.80)	4.20	2.46	(3.77)

Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.15 Income Inequality and Mental Illness of Developing Countries



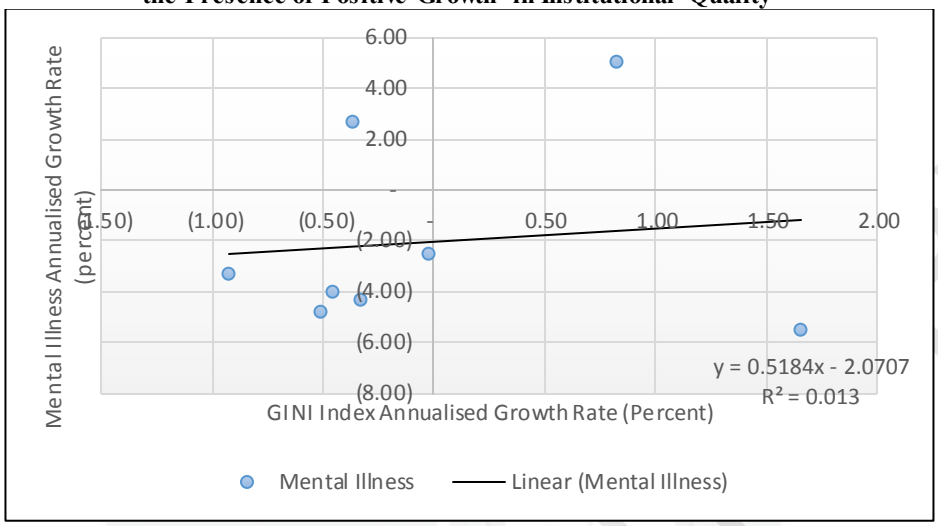
Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID)

Alternatively, Figures 1.16 and 1.17 review the presence of institutional quality as a factor influencing the impact of income inequality on mental health for developing countries. Where Figure 1.16 highlights the relationship between income inequality and mental illness with condition that better institutional quality is being attained (positive annualised growth rate of institutional quality variable). On the other hand, Figure 1.17 highlights the relationship between income inequality and mental illness with condition that lower level of institutional quality is observed (negative annualised growth rate of institutional quality variable).

As indicated in Figure 1.16, with a positive growth rate obtained for institutional quality variable, the growth rate of Gini index is found to be positively associated with mental illness with Equation Y= -2.0707 + 0.5184X (Y= per annum growth rate of Mental illness; X = per annum growth rate of Gini Index). On the other hand, as indicated in Figure 1.17, with a negative growth rate recorded for institutional quality variable, the annualised growth rate of Gini index is found to be positively associated with mental illness with Equation Y= 0.8962 + 5.789X (Y= per annum growth rate of Mental illness; X = per annum growth rate of Gini Index). The equations obtained suggest that the positive impact of income inequality on mental illness is greater for countries experiencing worsen institutional quality level. Where countries with lower institutional quality level are associated with higher mental illness level. Suggesting that institutional quality play an important role in mediating the impact of income inequality on mental illness.

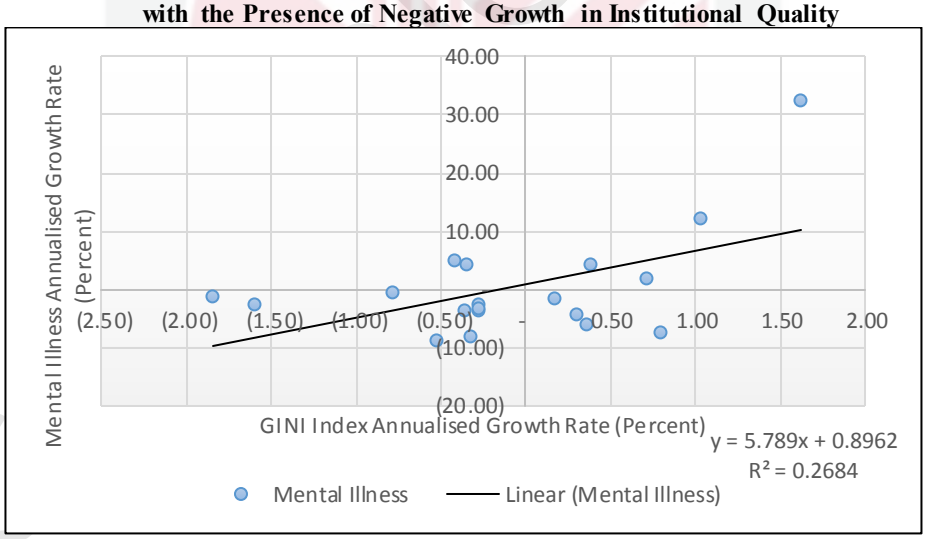
Figure 1.16 Income Inequality and Mental Illness of Developing Countries with

the Presence of Positive Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.17 Income Inequality and Mental Illness of Developing Countries with the Presence of Negative Growth in Institutional Quality



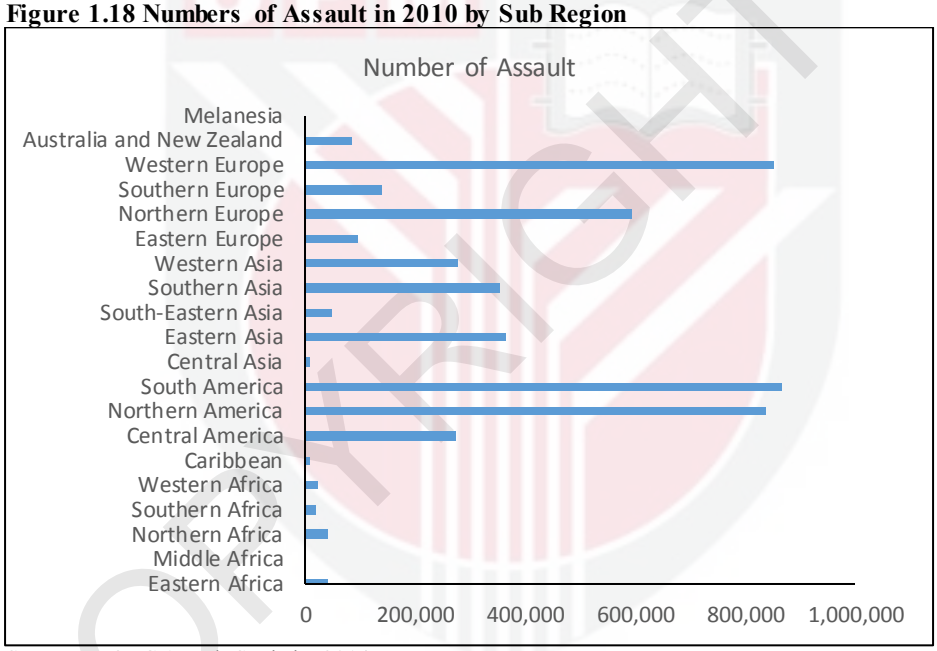
Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

1.6.8 Crime Rate

An overview

The patterns of crime in the various regions are linked to diverse situations, thus the reasons leading to high level of crime rate can be very complex and vary between regions. Poverty, inequality and rule of law can be considered as affecting the level of assault (UNODC, 2012). Assault[11] is defined as unlawful physical attack against the body of another person resulting in serious bodily injury. For the past year, reports of police actions against drug traffickers, homicide, assault, rape and burglary is almost the only stand out news we read from the newspaper on a daily basis. Data published by UNODC, 2013 (United Nations Office on Drugs and Crime) addressed that there are approximately 4.23 million cases of assault reported in 2008. Figure 10.0 shows the numbers of assaults reported are comparatively higher in the region of North America and Western Europe and relatively lower in Southern Africa and South-Eastern Asia.

Figure 1.18 Numbers of Assault in 2010 by Sub Region



Source: UNODC Assault Statistics 2014

The following section highlights the relationship between income inequality and crime rate of both developed and developing countries (see Table 1.7 and 1.8). In addition, the presence of institutional quality variable as a factor influencing the effect of income inequality on crime rate is also being addressed (see Figure 1.20 and 1.21; Figure 1.23 and 1.24).

1.6.9 Income Inequality, Crime Rates and Institutional Quality of Developed

[11] There are many different types of crimes but, generally, crimes can be divided into four major categories, personal crimes, property crimes, inchoate crimes, and Statutory Crimes. However, this research will focus on assault only.

Countries

As indicated in Table 1.7, the overall crime rates have decreased in the majority of developed countries. A total of 16 countries (61.54 percent) have experienced a negative per annum growth rate in crime from 1995 to 2010. Whereas, the remaining 10 countries have experienced an increase in the annualised growth rate of crime rate. Individually, Trinidad and Tobago and New Zealand have suffered the highest per annum growth rate in crime with 6.25 percent and 3.37 percent respectively. On the other hand, Singapore, Austria, Italy and Hong Kong have recorded the highest reduction of per annum rate in crime with 4.78 percent and 3.13 percent respectively from 1995 to 2010. Lastly, a total of 20 countries (76.92 percent) registered with higher per annum growth rate in their respective country's institutional quality level over the period of 1995 to 2010, whereas 6 countries (23.08 percent) have recorded a decrease in their respective institutional quality level.

In conclusion, crime rates in developed countries have generally declined over the last decade. Despite the positive progress, the group still hosts some of the countries with significant growth in crime rate. The above finding is however parallel with report of UNODC (2012), that crime rates have decreased in the vast majority of countries since 1995. Contributing to the reasons to the decreasing trend of crime rate was has been linked to an improvement in socio economic conditions, improvement in security measure and emergency health care (UNODC, 2012).

Table 1.7 Income Inequality, Crime Rates and Institutional of Developed

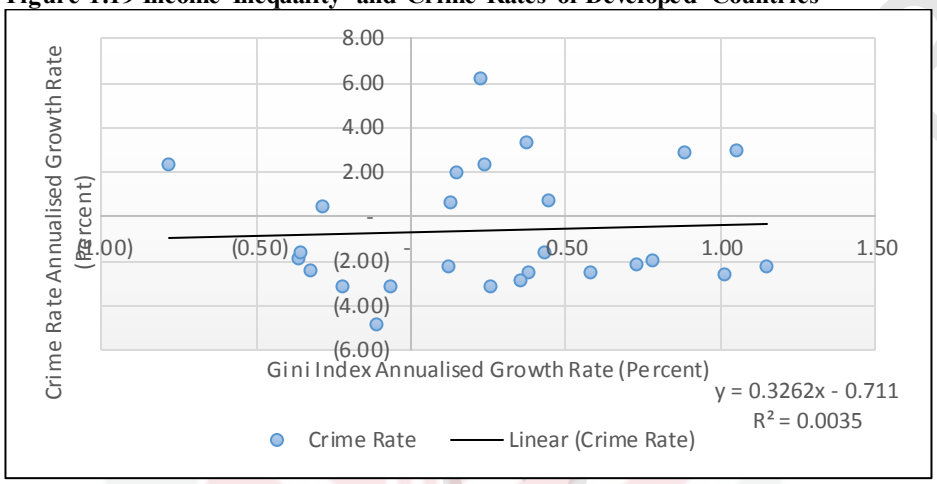
Countries

Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			Crime Rate			Institutional Qual		
Australia	29.57	33.26	0.78	1.60	1.10	(1.95)	6.88	7.17	0.27
Austria	27.70	27.41	(0.07)	1.00	0.50	(3.13)	6.67	7.41	0.69
Belgium	26.60	25.24	(0.32)	1.60	1.00	(2.34)	6.58	6.92	0.32
Canada	29.30	31.40	0.45	1.60	1.80	0.78	6.74	7.22	0.45
Denmark	21.80	25.35	1.02	1.20	0.70	(2.60)	6.88	7.04	0.15
Finland	21.60	25.57	1.15	2.80	1.80	(2.23)	7.08	7.67	0.52
France	28.30	30.02	0.38	1.00	0.60	(2.50)	6.64	6.50	(0.13)
Germany	27.07	28.60	0.35	1.10	0.60	(2.84)	6.85	6.97	0.10
Greece	34.90	33.30	(0.29)	1.20	1.30	0.52	6.21	5.81	(0.41)
Hong Kong	43.08	44.85	0.26	1.20	0.60	(3.13)	6.04	6.81	0.79
Ireland	33.60	29.40	(0.78)	0.80	1.10	2.34	6.92	7.18	0.24
Israel	32.80	37.44	0.88	1.50	2.20	2.92	5.55	5.40	(0.17)
Italy	33.90	32.70	(0.22)	1.40	0.70	(3.13)	6.11	6.46	0.36
Japan	26.89	29.39	0.58	0.50	0.30	(2.50)	6.75	6.72	(0.03)
Korea	31.32	31.98	0.13	1.00	1.10	0.63	6.32	7.20	0.87
Netherlands	25.16	26.90	0.43	1.20	0.90	(1.56)	6.96	7.33	0.33
New Zealand	25.48	27.02	0.38	1.30	2.00	3.37	6.96	7.40	0.39
Norway	33.04	31.12	(0.36)	1.00	0.70	(1.88)	6.81	6.58	(0.21)
Portugal	22.70	23.14	0.12	1.70	1.10	(2.21)	6.45	7.04	0.57
Singapore	33.92	33.34	(0.11)	1.70	0.40	(4.78)	6.71	6.51	(0.18)
Spain	38.82	43.34	0.73	0.90	0.60	(2.08)	5.94	6.09	0.16
Sweden	35.30	33.30	(0.35)	0.80	0.60	(1.56)	6.72	7.38	0.61
Switzerland	22.10	25.82	1.05	0.90	1.33	3.00	7.08	7.17	0.08
Trinidad and Tobago	28.72	29.77	0.23	11.00	22.00	6.25	6.43	6.58	0.14
United Kingdom	34.40	35.70	0.24	1.00	1.38	2.35	6.52	6.64	0.11
United States	36.43	37.30	0.15	8.90	11.75	2.00	6.62	6.82	0.19

Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.19 indicates that the annualised growth rate of crime rate and Gini index is positively associated (R^2 = 0.0035). From the Equation, Y= -0.711+ 0.3262X, (Y= per annum growth rate of Crime; X = per annum growth rate of Gini index). The positive relationship implies that this finding is parallel with the General Strain Theory. Whereby high income inequality tends lead to higher crime rate and vice versa.

Figure 1.19 Income Inequality and Crime Rates of Developed Countries

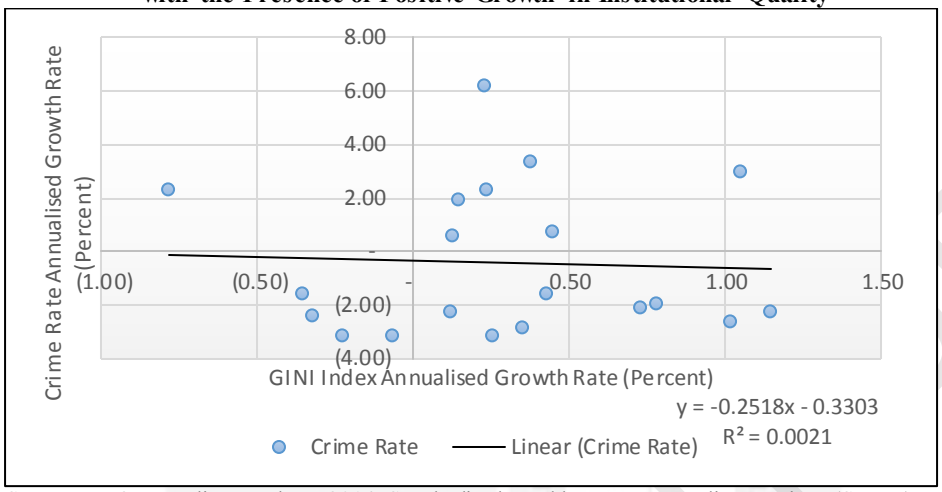


Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID)

Alternatively, Figures 1.20 and 1.21 review the presence of institutional quality as a factor affecting the impact of on income inequality on crime rate for developed countries. Figure 1.20 highlights the presence of positive growth in institutional quality as a factor influencing the impact of income inequality on crime rate. Whereas, Figure 1.21 reviews the presence of negative growth in institutional quality as a factor affecting the impact of income inequality on crime rate.

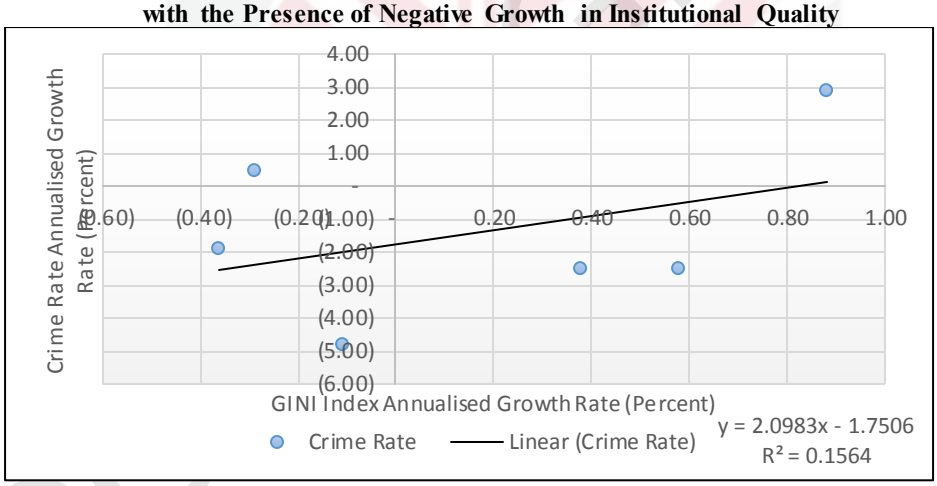
As indicated in Figure 1.20, with the presence of a positive growth attained in institutional quality variable of developed countries, income inequality is found to be inversely associated with crime rate with Equation Y= -0.3303 -0.2518X (Y= per annum growth rate of Crime Rate; X = per annum growth rate of Gini Index). On other hand, as indicated in Figure 1.21, with the presence of a negative growth recorded in institutional quality variable, income inequality is found to be positively associated with crime rate with Equation Y= -1.7506 + 2.0983X (Y= per annum growth rate of Crime Rate; X = per annum growth rate of Gini Index). The equations obtained suggest that income inequality decrease crime rate in countries with high institutional quality and worsening increasing crime rate with the presence of lower institutional quality level. Hence, suggest that institutional quality is an important determinant in mediating the impact of income inequality on crime rate.

Figure 1.20 Income Inequality and Crime Rate of Developed Countries with the Presence of Positive Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.21 Income Inequality and Crime Rate of Developed Countries with the Presence of Negative Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

1.6.10 Income Inequality, Crime Rates and Institutional Quality in Developing Countries

As highlighted in Table 1.8, the overall crimes rates in developing countries have increased from 1995 to 2010. As indicated in Table 1.8, a total of 16 countries have experienced a positive per annum growth rate in crime rates. Whereas, only 11 experienced a negative per annum growth rate in crime rates. Individually, Bulgaria and Poland have recorded the highest per annum reduction rate in crime with 4.58 percent and 4.40 percent respectively. On the other hand, Guatemala and Costa Rica have

suffered the highest increase per annum growth rates in crime with 6.13 percent and 5.89 percent respectively from 1995 to 2010. In addition, as indicated in Table 1.8, a total of 11 countries (40.74 percent) registered with higher per annum growth rate in their respective country's institutional quality level over the period of 1995 to 2010, whereas the remaining 16 countries (59.26 percent) have recorded a decrease in their respective institutional quality level.

In conclusion, crime rates among developing countries show a stable descending trend over time. The decrease in the crime rates is likely due to improvements in socio economic conditions and improvements in security measures (UNODC, 2012). However, despite the positive progress, a few countries still suffer an aggressive ascending trend in crime rates over the period of 1995 to 2010.

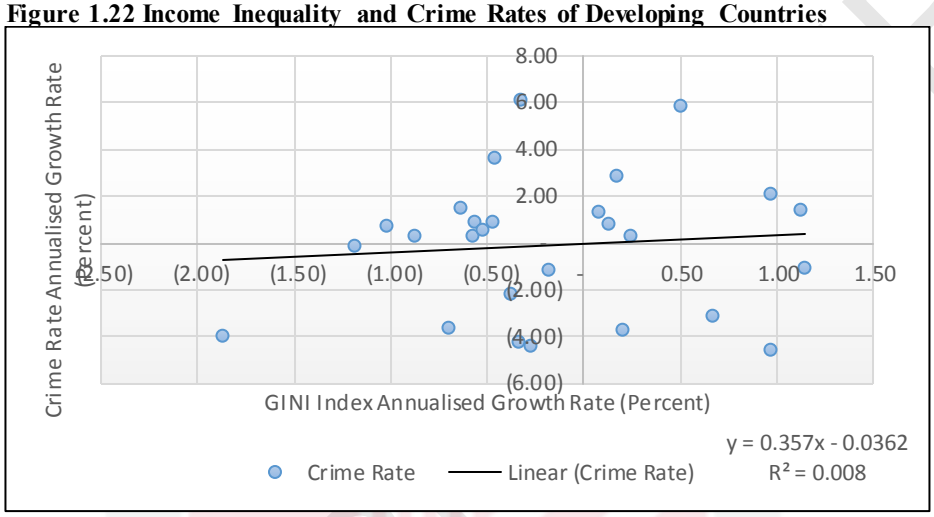
Table 1.8 Income Inequality, Crime Rates and Institutional Quality of Developing Countries

Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			Crime Rate			Institutional Quality		
Argentina	43.92	39.91	(0.57)	4.20	4.40	0.30	6.27	5.33	(0.93)
Armenia	37.39	35.39	(0.33)	4.40	1.40	(4.26)	4.53	4.49	(0.05)
Belarus	25.70	26.00	0.07	11.20	13.52	1.29	5.26	4.98	(0.33)
Brazil	51.27	46.67	(0.56)	21.80	25.10	0.95	5.40	5.68	0.32
Bulgaria	30.16	34.85	0.97	4.50	1.20	(4.58)	5.97	5.71	(0.28)
Chile	50.93	47.21	(0.46)	3.30	5.20	3.60	6.27	6.47	0.19
Colombia	51.38	48.30	(0.37)	63.80	41.90	(2.15)	5.24	5.10	(0.17)
Costa Rica	41.76	45.11	0.50	5.20	10.10	5.89	6.25	6.16	(0.09)
Crotia	29.22	30.03	0.17	3.20	4.69	2.91	5.40	5.54	0.17
Ecuador	51.24	44.11	(0.87)	15.10	15.90	0.33	4.81	4.41	(0.52)
El Savador	47.44	42.60	(0.64)	50.50	62.60	1.50	5.65	5.67	0.02
Guatemala	50.09	47.49	(0.32)	26.20	51.90	6.13	4.96	5.04	0.11
Hungary	30.29	26.92	(0.70)	3.10	1.30	(3.63)	6.50	6.34	(0.15)
Latvia	30.32	35.80	1.13	17.10	20.90	1.39	6.40	6.11	(0.28)
Mexico	48.07	44.07	(0.52)	19.00	20.80	0.59	5.56	5.74	0.21
Panama	50.99	47.13	(0.47)	19.00	21.70	0.89	4.92	6.30	1.76
Paraguay	49.85	48.37	(0.19)	12.90	10.50	(1.16)	4.66	5.18	0.70
Philippines	49.21	50.20	0.13	16.30	18.50	0.84	5.27	5.12	(0.18)
Poland	30.56	29.20	(0.28)	2.70	0.80	(4.40)	6.59	6.66	0.07
Romania	27.38	32.40	1.15	3.90	3.23	(1.08)	4.70	4.62	(0.11)
Russia	41.83	43.18	0.20	28.60	11.50	(3.74)	2.38	5.10	7.18
Slovakia	23.77	26.30	0.67	2.00	1.00	(3.13)	6.25	5.59	(0.66)
Sri Lanka	36.89	42.59	0.97	5.40	7.20	2.08	5.18	4.87	(0.37)
Thailand	64.09	51.94	(1.18)	5.90	5.80	(0.11)	5.58	4.64	(1.06)
Ukraine	36.63	25.65	(1.87)	14.10	5.20	(3.95)	4.47	4.45	(0.03)
Uruguay	40.34	41.93	0.25	4.70	4.90	0.27	5.45	6.05	0.69
Venezuala	42.74	35.74	(1.02)	29.00	32.50	0.75	5.53	3.87	(1.88)

Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID)
The International Country Risk Guide (ICRG)

Figure 1.22, highlights the correlation between the annualised growth rate of Gini index and crime rate of developing countries. As presented in Figure 1.22, the annualised growth rate of Gini index is found positively associated with crime rate. From the Equation, Y= -0.0362 + 0.357X, (Y= per annum growth rate of Crime; X = per annum growth rate of Gini index). The positive relationship observed is in parallel with what theory has suggested, whereby high income inequality should lead to higher crime rate and vice versa.

Figure 1.22 Income Inequality and Crime Rates of Developing Countries

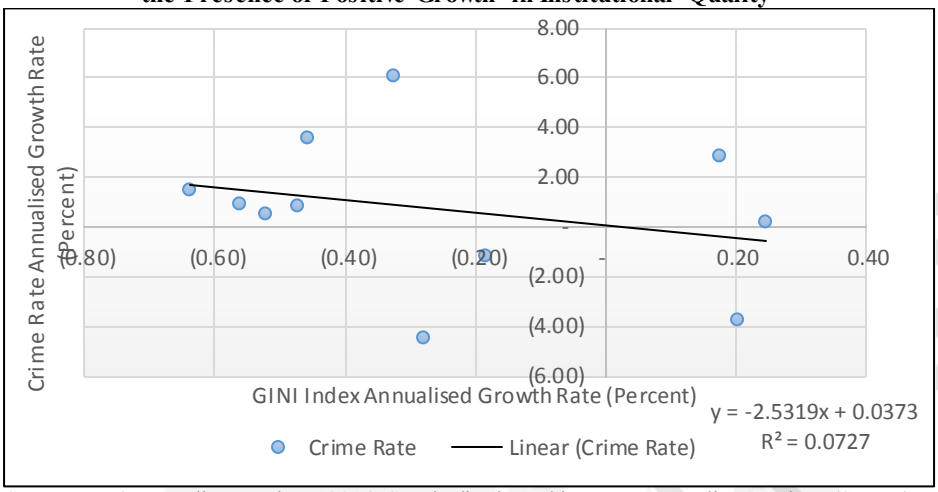


Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID)

On the other hand, Figures 1.23 and 1.24 review the presence of institutional quality as a factor affecting the impact of income inequality on crime for developing countries. Figure 1.22 highlights the presence of positive growth in institutional quality as a factor influencing the effect of income inequality on crime rates. Whereas, Figure 1.23 highlights the presence of negative growth in institutional quality as a factor impelling the effect of income inequality on crime rate.

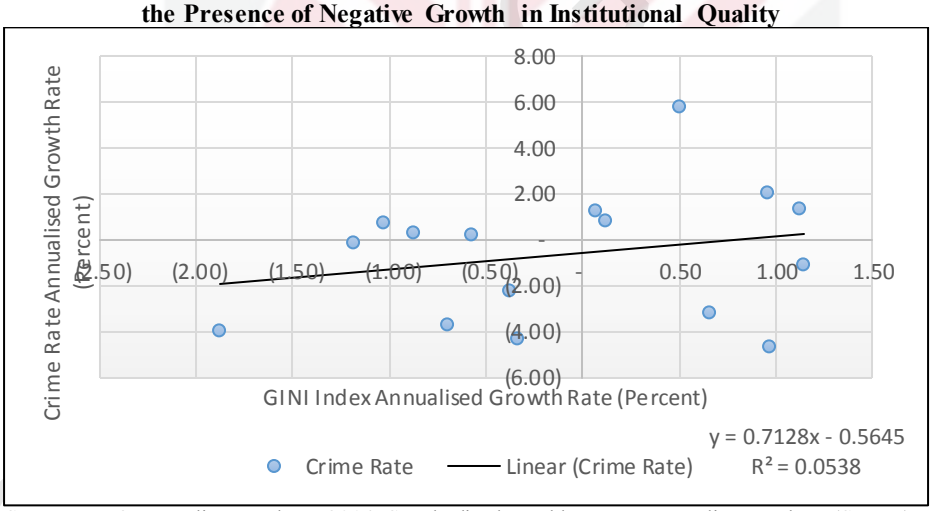
As indicates in Figure 1.22, with a positive growth rate obtained for institutional quality variable, income inequality is found to be negatively associated with crime rate with Equation Y= -0.0373 – 2.5319X (Y= per annum growth rate of Crime Rate; X = per annum growth rate of Gini Index). On other hand, as indicated in Figure 1.23, with a negative growth rate recorded in institutional quality variable, income inequality is found to be positively associated with crime rate with Equation Y= -0.5645 + 0.7128X (Y= per annum growth rate of Crime Rate; X = per annum growth rate of Gini Index). The equations obtained suggest that income inequality decrease crime rate in countries with high institutional quality and worsening increasing crime rate with the presence of lower institutional quality level. Hence, suggest that institutional quality is an important determinant in mediating the impact of income inequality on crime rate.

Figure 1.23 Income Inequality and Crime Rate of Developing Countries with the Presence of Positive Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

Figure 1.24 Income Inequality and Crime Rate of Developing Countries with the Presence of Negative Growth in Institutional Quality



Source: WHO Mortality Database, 2014; Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG)

1.6.11 Role of Institutional quality

North (1991), conceptualised institutional quality as the human devised constraints that structure political, economic and social interaction. Empirical evidence suggests that institutional quality is an important factor for economic performance. Good institutional quality provides the incentive for better economy performance as it shapes the direction of economic change towards growth, as factors like government effectiveness, regulatory

quality, rule of law, control of corruption and political stability are always the rule of thumb for better economic performance (Santiso, 2001). Williamson (1985) models institutional quality's comparative advantage on two different parties with competing interests. The author found out that contracts of parties with worse institutional quality are found to be more incomplete. The implication is straightforward that poor institutional quality leading to lack of proper contract enforcement also leads to significant distortions (Grossman and Helpman, 2005). This also explains why the concept of institutional quality has received a lot of attention in recent literature.

Quality of government has a substantial impact on economic development and well-being where low quality tends to reduce the trust people have in the administration of public services and misdirects public services and investment which will increase cost of public project and discourages foreign direct investment. Low quality of government also affects the poor, who depend more on public services and support. Additionally, low quality government also reduces the impact of cohesion policy of European Union (Farole, Rodriguez and Storper, 2009). Recently it has been also noticed that quality of government is the most critical criteria for countries who contemplating to join the European Union.

1.6.12 Income Inequality and Institutional Quality of Developed Countries

As illustrated in Table 1.9, the annualised growth rate of institutional quality has increased in the vast majority of developed countries from 1995 to 2010. A total of 20 countries (76.92 percent) registered with higher per annum growth rate in institutional quality, whereas the remaining 6 countries have suffered a negative growth rate in institutional quality. In terms of changes at the country level, Greece and Norway suffered the highest decrease in per annum growth rate in institutional quality with negative 0.41 percent and 0.21 percent per annum respectively. On the other hand, Korea with 0.87 percent per annum growth rate in institutional quality has recorded the highest growth rate in comparison to the rest of the developed countries listed in Table 1.9.

Table 1.9 Income Inequality and Institutional Quality of Developed Countries

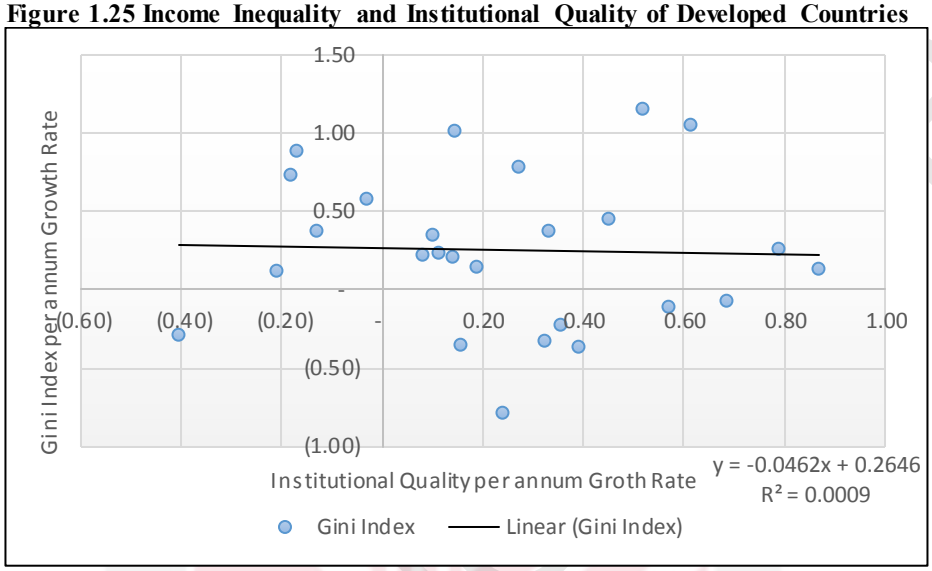
Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			Institutional Quality		
Australia	29.57	33.26	0.78	6.88	7.17	0.27
Austria	27.70	27.41	(0.07)	6.67	7.41	0.69
Belgium	26.60	25.24	(0.32)	6.58	6.92	0.32
Canada	29.30	31.40	0.45	6.74	7.22	0.45
Denmark	21.80	25.35	1.02	6.88	7.04	0.15
Finland	21.60	25.57	1.15	7.08	7.67	0.52
France	28.30	30.02	0.38	6.64	6.50	(0.13)
Germany	27.07	28.60	0.35	6.85	6.97	0.10
Greece	34.90	33.30	(0.29)	6.21	5.81	(0.41)
Hong Kong	43.08	44.85	0.26	6.04	6.81	0.79
Ireland	33.60	29.40	(0.78)	6.92	7.18	0.24
Israel	32.80	37.44	0.88	5.55	5.40	(0.17)
Italy	33.90	32.70	(0.22)	6.11	6.46	0.36
Japan	26.89	29.39	0.58	6.75	6.72	(0.03)
Korea	31.32	31.98	0.13	6.32	7.20	0.87
Netherlands	25.48	27.02	0.38	6.96	7.33	0.33
New Zealand	33.04	31.12	(0.36)	6.96	7.40	0.39
Norway	22.70	23.14	0.12	6.81	6.58	(0.21)
Portugal	33.92	33.34	(0.11)	6.45	7.04	0.57
Singapore	38.82	43.34	0.73	6.71	6.51	(0.18)
Spain	35.30	33.30	(0.35)	5.94	6.09	0.16
Sweden	22.10	25.82	1.05	6.72	7.38	0.61
Switzerland	28.72	29.77	0.23	7.08	7.17	0.08
Taiwan	28.60	29.57	0.21	6.43	6.58	0.14
United Kingdom	34.40	35.70	0.24	6.52	6.64	0.11
United States	36.43	37.30	0.15	6.62	6.82	0.19

Source: Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG).

To demonstrate the correlation between institutional quality and income inequality, we apply a simple regression on annualised growth rate of institutional quality with income inequality over the period of 1996 to 2010. Figure 1.25 indicates that the annualised growth rate of Gini index and institutional quality is negatively associated with R^2 = 0.0009. From the Equation, Y= 0.2646 +0.0462X, (Y= Annualised growth rate of Gini Index; X = Annualised growth rate of Institutional Quality), the negative relationship

implies that annualised growth of Gini index will decrease as annualised growth of institutional quality increased. Our finding is in parallel with Chong and Calderon (2000), Chong and Gradstein (2007) and Dobson and Dobson (2000) finding that there is a trade-off between income inequality and institutional quality.

Figure 1.25 Income Inequality and Institutional Quality of Developed Countries



Source: Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG).

1.6.13 Income Inequality and Institutional Quality of Developing Countries

As illustrated in Table 1.10, the annualised growth rate of institutional quality has decreased in the majority of developing countries over the period of 1995 to 2010. A total of 16 countries (59.26 percent) recorded with lower per annum growth rate in institutional quality, and the remaining 11 countries (40.74 percent) have experienced an increase in the per annum growth rate in institutional quality. In terms of changes at the country level, Venezuela and Thailand have suffered the highest decrease of per annum growth rate in institutional quality with negative 1.85 percent and 1.06 respectively. On the other hand, Sierra Leone and Panama with 7.18 percent and 1.76 percent per annum institutional quality growth rate have posted highest growth rate among the developing countries listed in Table 1.10. In conclusion, the level of institutional quality in the vast majority developing countries is significantly lower from 1995 to 2010. This is perhaps is due to factors such as lack of judicial independence, corruption and political freedom are among the factors contributing to the lower institutional quality (Carina, 2007).

Table 1.10 Income Inequality and Institutional Quality of Developing Countries

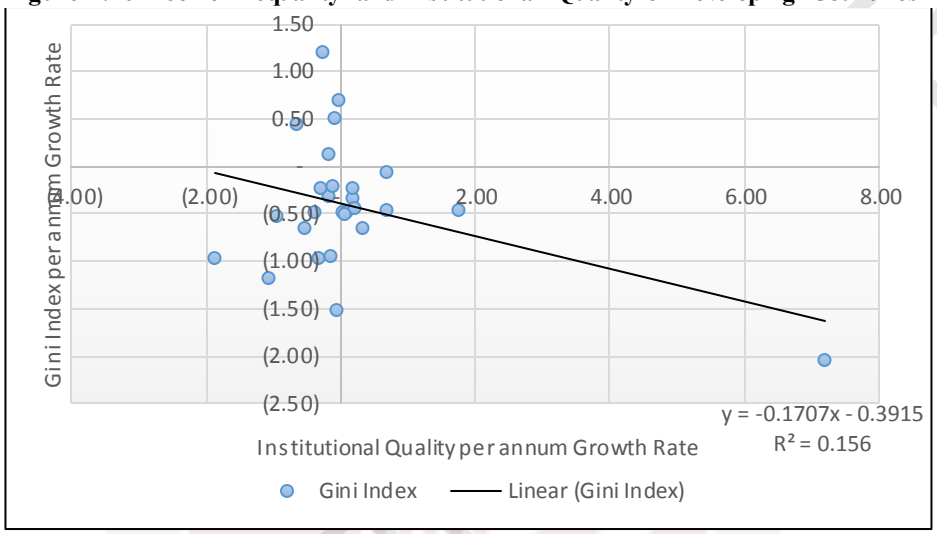
Countries	1995	2010	Annualised Growth Rate (%)	1995	2010	Annualised Growth Rate (%)
	Gini Coefficeint			Institutional Quality		
Argentina	43.55	39.91	(0.52)	6.27	5.33	(0.93)
Bangladesh	41.84	31.59	(1.53)	4.53	4.49	(0.05)
Bolivia	51.12	43.21	(0.97)	5.26	4.98	(0.33)
Brazil	52.07	46.67	(0.65)	5.40	5.68	0.32
Bulgaria	29.22	34.85	1.20	5.97	5.71	(0.28)
Chile	50.01	47.21	(0.35)	6.27	6.47	0.19
Colombia	50.88	48.30	(0.32)	5.24	5.10	(0.17)
Costa Rica	41.78	45.11	0.50	6.25	6.16	(0.09)
Dominican Republ	45.31	43.61	(0.23)	5.40	5.54	0.17
Ecuador	49.38	44.11	(0.67)	4.81	4.41	(0.52)
El Salvador	46.15	42.60	(0.48)	5.65	5.67	0.02
Guatemala	51.53	47.49	(0.49)	4.96	5.04	0.11
Hungary	31.70	26.92	(0.94)	6.50	6.34	(0.15)
Malaysia	47.33	45.58	(0.23)	6.40	6.11	(0.28)
Mexico	47.55	44.07	(0.46)	5.56	5.74	0.21
Panama	50.99	47.13	(0.47)	4.92	6.30	1.76
Peru	50.58	46.83	(0.46)	4.66	5.18	0.70
Philippines	49.21	50.20	0.13	5.27	5.12	(0.18)
Poland	31.80	29.20	(0.51)	6.59	6.66	0.07
Senegal	38.53	37.14	(0.23)	4.70	4.62	(0.11)
Sierra Leone	52.46	35.21	(2.05)	2.38	5.10	7.18
South Africa	55.44	59.40	0.45	6.25	5.59	(0.66)
Sri Lanka	46.24	42.59	(0.49)	5.18	4.87	(0.37)
Thailand	64.09	51.94	(1.18)	5.58	4.64	(1.06)
Uganda	36.80	40.90	0.70	4.47	4.45	(0.03)
Uruguay	42.33	41.93	(0.06)	5.45	6.05	0.69
Venezuela	42.37	35.74	(0.98)	5.53	3.87	(1.88)

Source: Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG).

Figure 1.26 indicates that annualised growth rate of Gini index and institutional quality is negatively correlated with R2 = 0.156 for developing countries. From the equation, Y= -0.3915 -0.1707x, (Y= Annualised growth rate of Gini Index; X = Annualised growth rate of Institutional Quality). This implies that annualised growth of Gini index will increase as annualised growth of institutional quality decreased.

In conclusion, from observation, trade liberalisation tends to promote income inequality, whereas income inequality is likely to increase mental illness and crime rates. The said finding has led to the formation of our research objectives for this study, which is to empirically examine the impact of macroeconomics variables on income inequality and vice versa.

Figure 1.26 Income Inequality and Institutional Quality of Developing Countries



Source: Standardized World Income Inequality Database (SWIID); The International Country Risk Guide (ICRG).

1.7 Problem Statements

The effects of growing inequality is being seen way beyond challenges faced by the less developed or developing countries. It has been observed within major nations on the global stage (Global Risks 2012 and 2013). The income inequality level in our sample (measured by Gini coefficients/index) can be differed by a factor of 2.27 within the same European region. France in 1990 recorded a Gini index of 0.220 and Russia with 0.501 (World Development Indicators (WDI), 2013). What worries us here is, what accounts for these differences, what is the cause and possible impact of income inequality and what can we do to reduce them?

There are growing numbers of literatures highlighting the impact of institutional quality on income inequality. Many studies viewed that countries with good institutional quality are likely to have low income inequality (Chong and Calderon, 2000; Chong and Gradstein, 2007). In addition, good institutional quality provides the incentive for better economy performance as it shapes the direction of economic change towards growth, as factors like government effectiveness, regulatory quality, rule of law, control of corruption and political stability are always the rule of thumb for better economic performance (Santiso, 2001). Therefore, the presence of institutional quality may also

affect, differently, the impact of impact of trade liberalisation on income inequality, income inequality on mental illness, and income inequality on crime rate. Hence, a study is needed to investigate if institutional quality is crucial in explaining income inequality, mental illness and crime rate.

1.7.1 Trade Liberalisation and Income Inequality

The trade liberalisation data in our core sample (measured by trade openness) has shown us that trade liberalisation increased market integration, but what worries us is that it does not guarantee an increase in welfare and wellness of the population. For example, under the European Union, Belarus managed to improve its respective exports and imports by 21.15 percent and 18.21 percent per annum during year 2000 in comparison to year 1990. However, their income inequality level suffered an increase of 1.64 percent per annum (World Development Indicators (WDI), 2013). This has raised the questions, "does trade liberalisation contribute to the increased income inequality" and "could institutional quality vary the impact of trade liberalisation on income inequality level?"

1.7.2 Income Inequality and Mental Health

As suggested by the World Health Organisation (WHO), factors that trigger mental illness include biological, psychological and environmental factors. Non-genetic and non-medical environmental factors are identified as equally important factors that may lead to the occurrence of mental disorders. Income inequality and poverty stress were among the valid environmental factors, which may trigger mental disorders. Income inequality, which addresses the gap between the rich and the poor's income differences is found to be correlated with a higher rate of health and social problems (Pickett and Wilkinson, 2011) and may also correlate with mental illness in this case.

Many researches have focused on the income level of a country such as GDP or GDP per capita to explain its possible correlation with the occurrence of socio-economic problems. GDP as an indicator is no doubt a good indicator to explain the wealth of a country and how developed it is. However, GDP fails to reflect the standard of living of general civilians living in the country. The Gini coefficient, on the other hand, developed from the normalization of both the cumulative population and the cumulative share of income and demonstrates how incomes vary relative to the other members of a population. Therefore, a study is needed to investigate if income inequality (Gini Coefficient) is crucial in explaining mental health incidents.

1.7.3 Income Inequality and Crime Rate

Violent crime degrades quality of life and can force skilled workers to leave, while the direct impacts of victimisation, as well as fear of crime, may impede the development of those that remain. Violent crime moreover weakens the ability of a country to promote development by destroying the trust relationship between the people and undermining democracy and confidence in the criminal justice system (UN, 2012). The United Nations Office on Drugs and Crime (UNODC) (2011) commented that the reason leading to higher levels of interpersonal violence could be very complex, varying greatly within

or between regions and poverty. From theory, we learned that the feeling of disadvantages and unfairness lead the poor to seek compensation through committing crimes. Thus, a study on income inequality and institutional quality should be considered in explaining the level of violent crime.

1.8 Research Objectives

The General objective of this study is to empirically examine the linkages between income inequality and macroeconomics explanatory variables. There are three specific research objectives being addressed in this study

1. To examine the impact of trade liberalisation on income inequality by incorporating the influence of institutional quality.

2. To study the effects of income inequality on mental illness by assimilating the role of institutional quality

3. To investigate the role of institutional quality on the effects of income inequality on crime rate.

1.9 Significance of the Study

1.9.1 Trade Liberalisation and Income Inequality

Trade (both imports and exports) is vital to any successful modern economy and crucial for the competitiveness of an economy in the long run. By exposing firms and products to international competition, economies are encouraged to focus on areas of comparative advantage, research and development (The Department for Business, Innovation & Skills (BIS) (2013)). The benefits of trade liberalization are always the focus of news and features of WTO, but the possible downsides of a nation's economy have always been neglected. Thus, this study will focus on trade liberalization's impact on income inequality where it provides useful information on the possible consequences of trade liberalisation to policy makers when it comes to the formulation or negotiations of new trade policies. In addition, with the inclusion of an interactive indicator, the effect of institutional quality as a factor influencing the impact of trade liberalisation on income inequality can be observed. With this, the policy maker will be equipped with additional tools to combat income inequality when it comes to policies' formulation.

1.9.2 Income Inequality and Mental Health

This study offers new perspectives for policy makers[12] in the following ways. Firstly, it reviews and analyses the impact of income inequality on mental health. Secondly, it promotes cohesive collaboration within the policy makers as causes of mental illness is no longer confined to biological background and genetics of a human being, but socioeconomic pressures are equally important in this context (WHO, 2012). Thirdly,

[12] For Malaysia, it could be for policy makers in both Ministry of Health and Economic Planning Unit

the constitutions of the research work on determinations of mental health in both developed and developing countries will enable policy makers to see the similarity and differences of the factors to mental health. With an understanding of the channel through which these factors influence mental health, policy makers will be able to formulate and suggest appropriate policies to combat mental disorders. Lastly, with the inclusion of the interactive indicator, the institutional quality as a factor influencing the impact of income inequality on mental illness can be obtained. Hence, it will encourage the policy makers to look into the indirect impact of other economy indicators on mental health.

1.9.3 Income Inequality and Crime Rate

Many researches and economists agreed that rising inequality is closely related to criminal activities. This is because income inequality explains an uneven distribution of wealth where those with a higher concentration of wealth will serve as an easy target for potential criminals (Fleisher, 1966). Aside from the study, the correlation between income inequality and crime rate and other potential crime determinants are also being controlled in this study, such as tertiary education enrolment and real GDP per capital, thus making the model more comprehensive. In addition, the adoption of the comparative cross-country approach meant every country observed contains independent information on crime rates, which avoids the need for cross observation effects. Thus, the implication of this study will provide a set of conventional facts on the relationship from a cross-country perspective. Lastly, with the inclusion of interactive indicator, the institutional quality as a factor influencing the impact of income inequality on crime rate can be observed. Thus, it will encourage the policy makers to look into the indirect impact of other economy indicators on crime rate.

1.9.4 Research Gap

In general, most of the literatures attempt to seek the explanations of the cause or effect of income inequality, but not many have integrated both in one study. In Europe, policy makers have incorporated the integrated approach to improve its regional growth and competitiveness, as policy recommendation in one particular area does not make sense without taking into consideration other social and economy policy areas (European Union (EU), 2010). Therefore, this study, which integrates both the cause and effect of income inequality, would provide policy makers with comprehensive references and allow the closed coordination of public policies.

Moreover, most of the existing literatures consider institutional quality as an independent variable (additive model) to explain its correlation with the dependent variable. The present study, on the other hand, incorporated institutional quality as an interactive term in the multiplicative model. The inclusion of the multiplicative term converts the general statement of relationship into a conditional statement, where the coefficients of the interactive term describe the effects of the institutional quality variable as a factor influencing the impact of independent variable on the dependent variable when institutional quality is present (Friedrich (1982)). Thus, our study will be able to imply that the relationship between dependent and independent variables are conditional by institutional quality.

1.10 Contribution of the Thesis

The first research objective of this thesis contributes to the literature concerning the impact of trade liberalisation in the following ways. First, the benefits of trade liberalization are always the focus of news and features of the WTO, but the possible downsides of a nation's economy have always been neglected. Thus, this study, which focuses on trade liberalization's impact on income inequality, provides useful information to policy makers when it comes to the formulation or negotiations of new trade policies. Second, with the inclusion of interactive indicators of institutional quality, the impact of the conditional hypothesis, which explains the effects of trade liberalisation on income inequality with the present institutional quality, can be observed. With this, the policy maker will be equipped with additional tools to combat income inequality when it comes to policy formulation. Third, the comparative study on developed and developing countries will enable the policy makers to see the similarity and differences on the impact of trade liberalisation on income inequality.

The second research objective contributes to the literature in a number of ways. Firstly, it reviews and analyses the impact of income inequality on mental health. Secondly, it promotes cohesive collaboration for the policy makers as causes of mental illness that are no longer confined to biological background and genetics of a human being, but socioeconomic pressures are equally important in this context (WHO, 2012). Thirdly, the comparison study on determinants of mental health on both developed and developing countries will enable the policy makers to see the similarity and differences of the various factors of mental health. With an understanding of the channel through which these factors influence mental health, policy makers will be able to formulate and suggest appropriate policies to combat mental disorders. Lastly, with the inclusion of interactive indicators of income inequality with institutional quality variable, it will encourage the policy makers to look into the indirect effect of the explanatory variable on mental health.

Finally, there are the main contributions of the third research objective to the literature concerning crime rate in the following ways. Firstly, incorporating the argument of modernisation theory in the study, urbanisation, unemployment and inflation variables are being included as controlled variables for this study, making the model more comprehensive. Secondly, the comparison study on determinants of crime rate in both developed and developing countries will enable the policy makers to see the similarity and differences of the factors to crime rate. In addition, the adoption of a comparative cross-country approach means that every country observed contains independent information on crime rates, which avoids the need for cross observation effects. Thus, the implication of this study will provide a set of conventional facts on the relationship from a cross-country perspective. Lastly, with the inclusion of interactive indicators of income inequality with institutional quality variable, it will encourage the policy makers to look into the indirect impact of the explanatory variable on crime rate.

1.11 Structure of the Thesis

In this chapter, we develop the general objective and hypothesis from issues that are related to the objectives of study. Chapter Two of the study provides a brief review of the literature. The first part of the review highlights previous literatures on trade liberalisation and income inequality and the second and third parts of chapter two consist of the review between income inequality and mental health and income inequality and crime rate. We conclude the chapter with a review on institutional quality and income inequality.

Chapter Three of the thesis addresses the methodology and data utilised in this study. It begins with empirical models and follows with estimation methods. The last section of the chapter briefly explains the source of data. Chapter Four presents the empirical results of the analysis as well as the robustness check of the analysis. A summary of the study and the finding of the empirical analysis are presented in Chapter Five. This chapter concludes with a discussion of the implication of the results and some recommendations for future studies.

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