The Effect of Financial Development on Income Inequality

An Empirical Study of Developing Countries

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CERTIFICATE

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“And be patient; verily, Allah loses not the reward of the good-doers.”

(Quran 11:115)

DECLARATION

*I **Hafiza Sadaf Zahra** solemnly declare that this thesis entitled **"the effect of Financial development on income inequality; An empirical Study of Developing countries** submitted by me for the partial fulfillment of Master of Philosophy in Development Studies is my own tough work under the full supervision of my respected supervisor. Furthermore, this thesis has not been submitted simultaneously to any other university for any other degree.*

DEDICATION

To my Loving ***Aman jan, my Father Faiz Jahangir(late), and my brother Dr. Fakhar Jahangir,*** *who brought me here where I am today. Their love, affection, devotion, prayers, moral and financial support especially when I was facing the peaks and valleys of my life, energize me to do something extraordinary.*

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LIST OF ACRONYMS

Acronym	Description
AIC	Akaike Information Criteria
ARDL	Autoregressive Distributed Lag Model
ASEAN COUNTRIES	Association of South East Asian Nations
CIS	The commonwealth independent states
ECM	Error Correction Method
ECT	Error Correction Term
FD	Financial Development
GDP	Gross Domestic Product
GOVFCEX	Government Final consumption And Expenditure.
IMF	International Monetary Fund
LAC	Latin America and Caribbean
MDG	Millennium Development Goal
MENA	Middle East and North African Countries
MG	Mean Group
NEP	New Economic Policy
OECD	Organization for Economic Co-operation and Development
PMG	Pool Mean Group
POPG	Population Growth
SAARC	South Asian Association for Regional Cooperation

SC	Schwarz Bayesian Information Criteria
SR	Short Run
TR	Trade Openness
WDI	World Development Indicator

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Abstract

We investigate the effect of financial development on income inequality in case of developing countries over the period 1991-2015. The paper use the Auto Regressive Distributed Lag (ARDL) testing approach and correlation analysis to investigate the long run relationship, the error correction model (ECM) apply for the short run relationship, However, stationary of the properties also check for the unit root. The finding shows financial development reduces the income inequality in long run while the results are different in short run, means financial development have positive effect on income inequality (financial development increases the income inequality in short run). The control variables are trade openness, population growth, government final consumption and expenditure, inflation. The result strongly supported the negative linear relationships while the result do not in favor of an inverted u-shaped relationship.

Chapter: 1

Introduction

1. The Issue of Income Inequality

Income inequality is an economic issue that can be found in an individual nation as well as at international level. Universally, it is accounted that 1 percent of income beneficiaries get around 15% of overall income; the highest 5% receive the 40% of all the income. However, the 20% of poor people receive only 1 percent of the worldwide income Braun, (1997). The discussion of income inequality was caught the attention in the literature. Issue is not restricted to some particular nation as pointed out by Milanovic, (2005) that income inequality expanded in the world. Study of inequality is essential to get welfare and prosperity of a country. The dimension of inequality and poverty is different crosswise over countries and regions.

The Human Development Report in 2011 demonstrate that general inequality has exacerbated. Moreover, the dimension of income and poverty changes overtime, while a few countries experiences diminishing inequality, other experiences the increase in inequality e.g. Beck et al. (2007). These examples demonstrate that the comprehension of what derive inequality is significant as ever. Similarly, Atkinson, (1970) worked on the measurement of inequality and linked it with welfare distribution. Income inequality is most interested debatable issue since 1960 which lessened as these countries faced the greater issue of growth rate and the debt issue (Gillis, 1992). Today, income inequality is an important issue since it concerns human welfare. Measures of inequality give knowledge of poverty in countries and guide the national and international level organizations worried about the enhancement of the expectation for everyday comforts of poor people.

Income inequality is an important issue in all the societies. Income inequality can be huge. If we discuss the example of Argentina in 2006, the 10% rich people are 31 times more extravagant rich as compared to poor that are 10%. This ratio is round about 4 in Norway. Income inequality is the core of governmental issue and even political belief system. Since redistribution is an essential approach of policy. Income inequality has its own unintended consequences on growth and stability. Considering the determinants and impact of income inequality is consequently significant from a societal perspective. Income

inequality is noteworthy being developed and welfare financial economic aspects, Particularly, as it identifies with developing economies. Such type of inequality can be consequences as a sign of injustice, insider benefit, unequal chance, lack of stability in social work. It can be seen damaging and tricky for society as well as for economy. This inequality can be joined with immature markets and incapable governments projects can be an immense obstacle to development and welfare development Law, (2009).

Income inequality can be found in developed as well as in developing countries. Considering the case of developed economies, For instance, United States is also part of this issue. Although this developed economy experienced the stable during the world war second and in 1970 income inequality move faster after that. U.S was at the top level having issue of income inequality among Western Industrialized economies. (Weinberg, 1996).

This expansion in income inequality is driven by changes in the top and base of the pay dissemination. For instance, in 2000, the income offer held by the most unfortunate 20% of Americans drifted around 5%, while the portions of salary setting off to the most extravagant 10% of Americans was roughly 30%. Given late patterns in globalization and information proposing that the developing pay divergence gives no indications of backing off, numerous analysts have started to analyze the social results related with living in a general public portrayed by financial disparity (Nielsen, 2002).

Pakistan economy is designed by huge level of income inequality and it was worse during the 1980s and 1990s. Generally, a well-established government in 1990 launched and applied various policies related to macroeconomics which was a good guidance to achieve the high rate of economic growth. A largest growth rate obtained in Pakistan in 2005, Inflation declined by the rate of (7.444%) from 9.063%., while the income inequality reduced Pakistan recorded 42.87& (42.50%) in 2005 (2004). However, the growth persuaded that poverty will diminish, draw up the pay portion of the populace at the base 20% by headway in the salary circulation. In opposition to the desires, income ratio of the group down from 6.18% to 16.12% during a comparative period recommending that the estimation of the Gini coefficient went up. Therefore, the base 20% declined of economic situation in this manner Shahbaz et al. (2011).

Income inequality has been the most debatable issue in Kazakhstan since its independence in 1990 Shahbaz et al, (2017) give a phenomenal overview depicting the

changes of Kazakhstan financial libertarianism into a public with non-existent social wellbeing net and obvious disparity from Soviet-style. A sharp decline in output, rising income inequality, hyperinflation and other problems like lack of social security were common in Kazakhstan during 1990s.

In this point of view, fast increase in income inequality has made the attention to the policy makers of state and different institutions at international level in modeling comprehensive growth of the country, and making surroundings for an expanding growth, trade and providing money for different profit opportunities for the investment of the upcoming days. Considering a new transformation economy, Kazakhstan experienced a huge change during the period, It has accomplished the initial three achievements of the worldwide Millennium development report in 2001. These significant objectives were to eradicate the poverty level, A possible availability of the basic primary education level gave idea of male and female equality in education. A huge preference of Kazakhstan till 2050, considering the determinates of MDG goals, are declining the extent of individuals in less urban areas on subsistence income, give the proper secondary level of education, and expanding the number of ladies in state planning and allocating the budget.

Malaysia has achieved the highest economic growth from the last 20 years in developing countries. The average household income increased significantly but the Malaysia also paying the money for its robust economic development, social economic divergence such as income inequality. Income inequality causes the social instability and it create the armed conflict, which hinder the economic development. While Malaysia has dependably been touchy to the distribution problem, it was observed the extending of income inequality in 1990 among the Malaysian household. The estimation of income inequality to be specific Gini coefficient of Malaysia from 1970-2000. So, the income inequality was high in Malaysia in 1976 and fell down in 1990.

As pointed out by Shari, (2000), the general development policies executed by NEP 1971-1999 have majorly affected the diminishing income inequality in Malaysia from the late 1970s. The confirmed activities attempted under the NEP were related with the decrease in the Gini coefficient from 51% in 1970s, it was 49% in 1980, and 44% in 1990s respectively. However, there was a pattern rising the income inequality in 1990s. Shari

(2000) describes that the administration strategy towards liberalization, deregulation and privatization has included the pattern of rising inequality since the 1980s, Law, (2009).

There is remarkable cross-country variation of sharing the income and the Commonness of poverty. As indicated by human development report (2005), ratio of the income of the poorest 20% of the inhabitants to the 20% poor is greater in 21 countries. But There was low in 27 others. In certain countries, no one can survive below than1 dollar a day, but more people surviving below the poverty line in 22 countries. Moreover, income inequality did not remain the same. From the last thirty years France, Turkey and Finland, experienced the decrease in the Gini coefficient of one percent per year, but US, Chile, Argentina experienced a sharp increase in Gini coefficient. In Thailand, the level of the population living under $1 every day in 2000 was one-tenth of the dimension in 1981, the rate doubled in Venezuela. (Beck, 2007)

1.1 The Significance of Income Inequality

Income inequality considers the most debatable issue that need to be discussed at local, regional and global level. An increase in the size of the income inequality is most significant on a global level, and stressing, an aspect of the improvement of overall economy for the last 200 years Zanden et al. (2014). A few universal analysts and commentators have drawn the awareness to the expanding income inequality in various developed and developing countries in the recent increasing financial crisis globally. Hence, the attention has turned out to be a standout amongst the most debatable points in the sociology. Specifically, the discussion on the estimation and interpretation of worldwide inequality in the recent pattern. Is it expanding yet? And what is the reason? That has pulled in the extensive consideration. (Bourguignon & Morrisson, 2002; Anand & Segal, 2008; Deininger & Squire, 1996; Milanovic, 2002 and 2007).

Trends and pattern of income inequality is applicable for an individual as well as for societies wellbeing. Income inequality is helpful providing the information and integral part to the average personal income. However, the GDP per capita provide the information related with the average income increase, income inequality progressively provide knowledge deeply that how much economic growth is beneficial in any society or region. It also inform us who is more advantageous of economic growth and what percentage they

are getting. Other than this association with prosperity, a broad literature examines the influence of income inequality on a wide amount of social consequences, like a trust crime, social versality, physical and educational achievements (Wilkinson & Pickett, 2007).

It is contended that at a given dimension of income, progressively more income share would be disseminated at a lower level of deprivation. Additionally, income share itself deteriorated the long term economic growth (Deininger & Squire, 1998; Alesina & Rodrik, 1999; Easterly, 2001). The well-known contention is that inconsistent of income pressurize the policy makers for the redistribution and it damage incentives for work and investment. In the present of imperfect financial markets might be harmful for investment environment. It also diminishes the opportunities for physical assets as well as accumulating the human capital. To resolve the pressure of income inequality, policy makers must have to focus the reasons behind the income inequality.

The most important work which is nominated as inverted u-shaped relationship describe income inequality enhances at the initial stage of economic development, therefore per capita income rises but income distribution become worse at the same time. After certain time income inequality progressively start reducing when per capita income is upward, so the procedure of development comprises to move from conventional to industrial and other services sectors, where the usage of modern technology is beneficial mostly a marginal ratio of the population. With the progression of time, when the advance strategies of production become formative, the income is distributed equally in the large population therefore higher level of per capital income refer to reduce the income inequality issue. (Kuznet, 1955).

It has been seen that income inequality upsurge worldwide, though social welfare of the general population related inversely on the level of inequality in the country. The more inequality causes the economic activities inefficient as it seems the rich people save less, where the rich people like landlords, business leaders, politician and other rich elites usually spend the proportion of their income on imported expensive goods, good houses, international tours and prefer to deposit money in abroad accounts. In fact, large base of inequality supports the political influence of the elite class and subsequently their bargaining power which help them in rent seeking. High inequality can be observed biased generally. Increase in income inequality causes the negative economic growth rate, reduce

the level of employment and social instability. It is true income inequality has been increased in the world. Therefore, it is necessary to make the policies in order to avoid the decreasing economic growth. There is need to make the equal distribution for the poor and elites people in both developed and developing countries (Azam, 2018).

An extensive literature is available on the determinants of income inequality both at micro and macro level factors that influence the income inequality (Li, Squire& Zou, 1998; Lundberg & Squire, 2003; Foster & Szekely, 2001; Clark *et al.* 2003; Beck *et al.* 2004). The most significant component of income inequality that is mostly mention by the literature are government consumption and expenditure, inflation, population growth, financial market development, as well as economic development.

1.1.2 Financial Development

Financial development is commonly characterized as an expansion in the level of monetary administration given through banks as well as financial services who involved like an investment funds by shareholders, insurance companies, and benefit assets in addition to an expansion in the monetary transaction in capital market such as stock, bond and derivative market. Hussain & Chakraborty, (2012).

Financial sector is the arrangement of organizations, instruments, markets, just as the lawful and administrative system that grant exchanges to be made by broadening credit Satti, (2015).

1.1.3 Functions of Financial Development

(Levine, 1997) Describe the five elements of the financial system, which actually upgrades the profit-making growth (i) diminishing loss. (ii) granting resources, (iii) observing director and influencing corporate management (iv) organizing reserve funds, (v) boost the programs of goods and services. A well-developed financial system by performing the better financial function lead towards the better economic growth. Every one of these financial related capacities can impact the saving and investment and the adequacy with which assets are distributed. Therefore, financial exert the accumulation of physical and

human capital and aggregated factor efficiency, the three factors that determine the economic growth. Financial system is helpful to diminish financial asymmetries, financial limitation and upgrade the risk sharing, it can increase the capability of financial systems to absorb the shocks and it can decrease the enhancement of cycles through the monetary accelerator, reducing macroeconomic volatility and inequality.

A well-developed financial system provides the transactions, encourages savings, grant the funds to economic activities, and monitor the activities of those funds. A good financial system conducted the rules to increase the economic growth (Levine, 1997). In addition, a non-developed system disables to provide the credits, loans, and least managed borrowers, which badly effect the economic growth ((Hubbard, 1990).

Financial system is multidimensional procedure. With the passage of time, financial development has well known globally, and modern financial system turned out to be multifaceted. For instance, while banks are commonly the biggest and significance, including banks that purchase large holdings of newly issued shares and resells them to investors, insurance companies, common assets, benefits supports a couple of investment firms, and various distinctive minds of non-banks monetary establishments assume a significant role.

Specifically, financial development has progressively developed in methods that individual and organizations can broaden their savings, and firms are able to raise their funds through stock market, bonds, and whole sale money markets by passing traditional bank lending. These types of financial organizations and markets encourages the financial services. Moreover, an important component of financial system is their effectiveness and access, financial system is limited and less usable if it’s not efficient to providing the facilities of the large proportion of people. Though the financial system is large in size, their involvement to economic advancement would be constrained if it considers extra and less efficient. This idea follows, for instance, Čihák et al.2012; Park, 2015. Various types of financial system worldwide suggest that one need to cover the multiple indicators for the measurement of financial development.

Financial development involves many procedures, where every measurement catches one side of measurement of the financial framework. Therefore, its exact measurement is risky for the researcher. It is essential to discover the better way for the estimation of financial development in order to explore the impact of financial development on aggregate level including growth, investment, and household consumption. Previous monetary sector plays a minor action in the advancement of long lasting economic growth. So, the improvement in financial markets, financial intermediaries, and monetary institutions around the world make attentive to the modern economist by playing an important role of the financial sector in designing the economy of the nation (Levine, 2002).

1.1.3 Link between Financial development and Income inequality

To show the relationship between Income inequality and financial development a lot of data is available: Just like Greenwood, (1990) presented their hypothesis to describe how the financial and economic development can make u-shaped association between financial development and income inequality. On the other hand, two other well-known scholars Newman & Zeira, (1993) illustrated that there is a negative linear relationship between these two variables that leads to a continuous wealth distribution during the investments in financial market imperfections. These two models open the ways to find the link between a negative linear relationship and other is inverted U-shaped relationship.

According to economic and finance literature, Accumulation of physical capital can be increased along with improved economic efficiency that will lead to a long-term growth, but this is possible only in well-structured and well functional financial system that has a potential to do this. (Levine et al. 2000; Levine 2003). Due to best functioning financial system channels, the scare capital is used in its optimal form. However, Impact of the distribution of income can also be seen during the development of the financial markets, the dimension of that impact is long way around from the literature. According to some of the critiques positive impact can be seen with the development of the markets as due to growing and free markets credit is available easily that can be used building human capital as well as in physical capital. This can lead to start a small business Newman, (1993).

Thus, all this manner growing the financial development can help the poor by providing credits and other facilities that can lead to equally provided of income.

In case of Malaysia, the country with many races is a country that is a good example of a nation sensitive to distribution of income. Being various type of societies, Malaysia has always faced sensitive social issues. Social instability that leads to class distribution is one of the main reason behind this inequality. Historically, Malaysia has faced the violence disturbance in May 1969. Income inequality in a country can also lead to political instability and increase in crime rate as well, and all these are the factors that result in harming the economic growth. The native Government played his vital role to provide basic infrastructure and made policies that developed its financial system like Islamic financing system. In fact, in 2000 Malaysia had highest financial development rate that was measure by private investment, GDP, Credit etc. This rate of development was just lower than only by the Japan, Switzerland, United States and Hong Kong (Law & Tan, 2009). Numerous past studies give proof of the huge pretended by money and compelling monetary framework, as they contribute for the most part to add up to efficiency and are commonly viewed as the most extreme critical factor of long haul financial development and improvement. (Bagehot,1873) Similarly, some earlier studies e.g. Clarke et al. (2003); Beck et al. (2007); Jalil & Feridun (2011); Agnello, (2011); Nikoloski, (2013); and Satti et al. (2015) observe that financial development is certainly leads to mitigate largely income inequality. In many developing countries, a devolved financial system has played its utmost important role for economic growth. Studies shows that if a country has better developed financial system it will resist in better way to currency crisis Federici & Caprioli, (2009). Many researchers found that if you want to boost economic development and growth you need to make your financial system more effective and more stable (Beck, 2011). In a study, Westley, (2001) found that in Latin American countries a major reason of income inequality was an inadequate financial system that was failed to meet requirements. Mookherjee , (2003) found a similar result that inequality is the result of imperfect markets. Daisaka et al. (2014) also says that income inequality increases due to financial imperfection as it hurt the lenders in reducing capital rent rate as well as helping the entrepreneurs.

On the other hand, the importance about the financial development and income inequality has been discussed in literature as Claessens, (2007); Levine, (2009). They mainly argue that finance and strong financial system provided opportunities to different people according to their need, so it's association have positive implication on income distribution. One phenomenon is finance, it is not only considered as pro- growth but it's like an impose element that reduce the income inequality Newman & Zeira, (1993); Mookherjee & Ray, (2003). A high volume of finance helps the investors and small-scale entrepreneurs due to low cost, that's hike the entrepreneurial and productive activities, resulting in higher number of jobs and other opportunities raising the standard of life of the poor people Shahbaz, (2011). On the other hand, some analysts say that in developing countries finance and financial services are not available that makes a gap between poor and rich; this gap continues for the decades across generations. This weak financial system ends up benefiting the rich thus having income inequality and dynamic victimization of the poor. This is the reason that some economies cannot produce according to its potential and rest of the produced benefits are not distributed eventually Rajan, (2003).

The connection between financial development and income inequality is not only an easy-going relationship but this relationship is yet additionally associated. The positive connection between non-government fund and financial development for deserving people might be taken by unlimited ratio of interest for money related administrations as the poor establish a bigger offer in citizen income. So also, a decrease in pay disparity may promote political strain to make progressively productive budgetary framework that dispenses the assets to the ventures dependent on market criteria and not on political contemplations. No investigation has decided if money related area improvement benefits the entire population, essentially benefits the rich, or excessively helps poor people Honohan, (2004).

The present study breaks down the connection between financial development and income inequality utilizing board information of creating nations for the period between 1991 to 2015. We inspect the two standard ways to deal with fund imbalance interface by the assistance of dynamic examination. We test for the significance of inverted u-shaped relationship and the negative linear of creating nations and explore potential disparities. In addition, the results of this investigation are relied upon the direct strategy producers of

these nations to diminish disparity through the improvement of financial development frameworks.

1.2 Literature Gap

Empirical studies to investigate the association between the financial development and income inequality is continuing to occupy the literature. These studies have evolved different conflicted views. Some studies suggested financial development have positive influence on income inequality, whereas the financial development have negatively associated with income inequality. For example, Levine, (2007) described the negative relationship between financial development and the growth of Gini coefficient. Greenwood, (1990) build up a model predicting an inverted u-shaped association between financial development and income inequality.

These studies fill this gap and it will try to make valuable addition in the previous literature.

i. This study use the most recently available data of developing countries time covering the 1991 to 2015 period.
ii. This study use various tests to check the relationship between financial development and income inequality.
iii. This study add to the literature in three following aspects regarding the financial development.

First, only one or two aspects of finance and inequality have been mentioning in the literature such as negative linear relationship or u-shaped relationship. In addition, most literature does not test the hypothesis individually of developing countries. But in our study, we have tested both hypothesis in case of developing countries.

Second, studies up to now focus on countries or they include the region which depend on short and long time. For this purpose, the present study includes both short run and long run time periods which does not mention in the previous literature.

Third, the previous literature used only few areas of financial development such as non-government credit or stock market advancement etc. For example, Batu et al. (2010) used financial development index including broad money to GDP, and domestic sector

lending through banks as a share of GDP. We use an updated index that mention all aspect of financial development that is introduced by updated data of IMF by Cihak et al. (2012)

1.3 Explanation of the Key Definitions and Terms/Concepts

Financial Development, Income Inequality.

1.3.1 Financial Development

Financial sector is the arrangement of organizations, instruments, markets, just as the lawful and administrative system that grant exchanges to be made by broadening credit. (Satti, 2015).

Financial development is defined as a combination of

Depth (size and liquidity of markets),

Access (ability of individuals and companies to access financial services).

Efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets). This broad multi-dimensional approach to defining financial development follows the matrix of financial system characteristics developed by Čihák et al. (2012).

Stability (how financial institutions are stable to provide their services.)

Mostly in empirical literature, financial development approximates the two estimation of monetary depth such as the proportion of non-state credit to GDP, and the stock market capitalization as a ratio of GDP since the 1970. However, Rajan, (1998) used both measures in their influential industry level study and described financial development accelerate the economic growth.

1.3.2 Income inequality

Income inequality is characterized the unequal appropriation of the household or individual over the different members living in an economy and how material assets are disseminated over the society. Various indices have been mentioned in the previous studies to ascertain the income inequality. These indices are Lorenz curve, Gini coefficients, log normal distribution, we used the Gini coefficient as it is also followed by the many empirical studies. Gini can be measured the surface under the Lorenz curve and line of perfect equality that is illustrated most of the area within line. The value of Gini lies between 0 and 1, so the value of 0 define there is equality every single getting the same income while 1 implies there is inequality in the analyses which describe that only single person have whole income of the economy while the rest of the individuals lack this.

1.4 Statement of the Problem

Income inequality is the most important debated issue in the context of developing countries. Many countries are trying to overcome the problem of income inequality and poverty by adopting different strategies. The most important factor to reduce the income inequality is financial development. Previous literature defined the role of financial development on income inequality, but it is continuing to find the impact of financial development on income inequality related to developing countries by using the updated index that covers almost all variables of financial development like financial depth, financial access, financial inefficiency and financial stability.

1.5 Research Problem and Its Operationalization into Research Questions and Objectives

Based on the previous discussion the data is narrow down into the influence of financial development on income inequality related to developing countries and operationalize the research into the following research questions and objectives.

1.6 Research Questions

1. What is the role of financial development on income inequality.
2. What is the long run and short run time relationship between financial development and income inequality in case of developing countries.
3. How the financial development effect positively and negatively on income inequality.

1.7 Objectives of the Study

The core objectives of the study are to investigate the association between financial development and income inequality; However, the specific objectives of the study is stated as under.

In the light of the previous discussion there are specific objectives following,

1. To investigate the role of financial development on income inequality.
2. To examine the long run and short run relation between financial development and income inequality related to developing countries.
3. To examine whether the relationship between financial development and income inequality has positive effect or negative effect.

1.8 Significance of the Study

There is an extensive literature, which discussed the impact of financial development on economic growth and income inequality. But the literature is silent about using the all aspect of financial development. So, to investigate the association between financial development and income inequality. The recent analyses will be helpful for the policy makers in case of underdeveloped countries analysis whether the role of financial development has positive effect on income distribution or negative relation exist between these selected sample developing countries covering all aspects of financial development in the form of index. This is related to the development studies as financial development will boost, income inequality will reduce, and development will increase.

1.9 Organization of the Study

The study contains of 6 chapters. The first chapter briefly discussed the introduction, importance and the link between financial development and income inequality, Research Question, Research objectives, Research gap, and organization of the study. Second chapter discussed the two main theories (i) Newmen & Ziere, 1993) (ii) GJ (Greenwood, (1990) hypothesis, all the literature is based on these two theories. Chapter 3 describe the theoretical framework and variable construction. Chapter 4 is about the model specification, empirical estimation method and data description. Chapter 5 explain the empirical results of the data. Chapter 6 contain the main findings, conclusion theory supported discussion, limitation of the study and future direction of the upcoming researchers.

Chapter: 2

Review of Literature

Introduction

The overall world economy has been facing the issue of income inequality. Rising income inequality may decrease the economic chances, and limited growth is available that make hurdles for the poor to get benefit of the different opportunities that is offered by the globalization and create hurdles to mismatch the abilities of capital and labor so that they remain inefficient. Diminishing income inequality considers the significant and important factor to accomplish the target of egalitarian distribution of income and come out the social and welfare issues that is due to the increase income inequality. Finical system considers the mainly important for economic advancement and income inequality removing the effect of current economic downfalls on income inequality.

2. Macroeconomic Fluctuations and Income Distributions

A well-documented study conducted by Penalosa, 2004 suggested that vitality in output could affect the income distribution if agents with different endowments have different attitudes towards risk. For clarification of this idea, they consider an economy with workers and entrepreneurs and suppose the entrepreneur are less risk averse than the workers. They also supported the entrepreneur have access to individual technology, which is subject to random aggregate shocks. It means due to random technology shocks; marginal product of workers also fluctuates from period to period. Therefore, workers themselves willing to accept fixed wages less than their productivity in order to avoid uncertainty of non-fixed wages that must be linked with fluctuating marginal productivity and technological shocks. In other words, entrepreneur by virtue of being less averse, can capture the risk premium of fixed wages, and thus increase their share of income. it means the more volatile is the technology, the larger will be the risk premium, which workers will be willing to pay the fixed wages. It shows income inequality will worsen overtime between entrepreneur and workers due to different attitudes towards risk.

An alternative mechanism explored by Cheechi & Penalosa, (2004) focused on the effects of attitudes towards risk on human capital formation. For example, the author

suppose that output fluctuation due to technology shocks and at least a part of this risk or fluctuations in output is passed on the wage, in neoclassical framework, wages must be equal to average productivity of worker. In such condition, decision of young individual whether to invest or not to build up their human capital, depends upon the amount of bequest from their parents and the amount they borrow from the financial intermediaries.

2.1. Background of the Literature

An extensive empirical research supported the idea about the financial development. Specifically, Financial development participate as precious role to decrease the income inequality. The empirical phenomenon experienced two school of thoughts about financial development and income inequality, named as u-shaped hypotheses, idea given by Greenwood, (1990). The second one is negative linear hypothesis that is supported by Newman, & Zeira, (1993). Both school of thoughts discussed in current scenario, several literatures favored the negative linear hypothesis while other favored the inverted u-shaped hypothesis to investigate the relationship between financial development and income inequality.

2.1.1 The negative linear hypothesis

Newman, & Zeira, (1993) recommended negative linear connection between the financial development and income inequality. The model concerned the agent's professional choice and the distribution of wealth. The hypothesis is made by the theory that financial market imperfection like financial asymmetries, exchange cost, and contract requirement cost create many hurdles for the deprived people who might lack of guarantees, like various types of credit facilities and different network relationship. Poor will move to work on wages instead of thinking about to run their own business while the rich will supervise the work. Particularly, the main structure is not tough, in the present of imperfect market the poor will get small amount, to run the business the large amount for investment require but it will not be available for poor. The wage rate and pattern of professional choices will be determined by the force of labor market. Depending upon the situation and availability of wealth the poor will take decision either they have to work or not. When the poor will be facilitated by some tasks with high returns they may be partial,

and this type of activity reduce the capital allocation and will constrain the migration of the poor, so under this criterion the financial development will enhance the income inequality.

2.1.2 The Inverted U-Shaped Hypothesis

A relatable idea having different point of views based on the school of thoughts, Greenwood, (1990) presented a hypothetical model that has components of two thoughts. Describing the detail of the model, intermediaries gain more but consider as risk lover of two advancement when they enhance chance by putting the resources in monetary negotiator coalitions. However, the fixed cost as enrollment charges related with these allowances avoid low income people from going along with them. Expecting that poor people save low amount as compared to the rich one and they have slow process to save the wealth. The gap between the high-income and lower level of income will spread, consequences as expansion in disparity. In the light of the case the extra charge of fee is fixed, all mediators will participate in the coalitions, bringing about an inevitable invasion in the upward pattern. Accordingly, Greenwood, (1990) idea of this hypothesis or an inverted u-shaped association between income inequality and financial development, with income inequality initially expanding and after that diminishing before going to the steady in the long-run time span as more individual participate in monetary coalitions. We consider this experience as inverse u-formed hypothesis of financial development.

The most important work which is nominated as inverted u- shaped curve income inequality enhances at the initial stage of economic improvement. Therefore, per capita income rises but income distribution become worse similarly. After certain time, income inequality progressively start reducing when per capita income is upward, so the procedure of development comprises to move from conventional to industrial and other services sectors, where the usage of modern technology is beneficial mostly a marginal ratio of the population. While, with the progression of time, when the advance strategies of production become formative, the income is distributed equally in the large population. Therefore, higher level of per capital income refer to reduce the income inequality issue.
Kuznet, (1955).

2.1.3. Theoretical and Empirical Literature of Financial Development and Income Inequality

The recent work done by Bittencourt et al. (2018) on financial development and income inequality in 50 states of US between 1976 to 2011. US considered the land of opportunity for those who are capable of hard work and can get the success easily. But for a few decades US has been facing the problem of income inequality. The current scenario in US inequality raise many issues e.g. less income people don't have any access to get facilities from monetary and subsidies markets, and these imperfect markets can impact the professional outcomes of lower pay people. They described due to the impact of diminishing economic mobility the rich children remain rich while the poor children remain poor, this trend causes the widening income inequality between rich and poor. Theoretically and empirically the research leads to ambiguous findings because it only explains the lower income peoples.

The connection between economic development, financial development and income inequality can be seen in BRICS (Brazil, Russia, India, China, South Africa) countries conducted by Younsi, (2018) covering the period annually from 1995-2015 by testing the hypothesis of U-shaped relationship. An amalgam of monetary sector improvement index has been constructed composite financial sector development index is constructed for these nations, the approximate variables used for financial development are household credit to non-government sector portion share to GDP, M2/GDP, local credit given by banks division to GDP proportion, and financial exchange capitalization to GDP proportion. In this articles they referenced the money related advancement assumes a significant job towards the financial development for the most part nations like the BRICS nations (Brazil, Russia, India, China, and South Africa) they have cited the social and monetary changes for a couple of decades The quick financial development expanded in India about 7.5% in 2015 and china about 6.9% income inequality was the main task of these nations.. However, the results are robust by estimating the GMM. The model characterized that money related improvement index has a positive affiliation and noteworthy effect on income inequality. its squared-term impacts pay disparity.

The impact of monetary sector improvement on income inequality in five Asian countries name as Malaysia, Singapore, Indonesia Philippines and Thailand from the year

1989 to 2003 is investigated by Azam,(2018). They have created the financial development indexes for Asian nations by using the complex general method for major approximate variables of financial development such as household credit for banking, household credit to the individual sector, and financial exchange capitalization to GDP, money supply. four proxies of financial development such as domestic credit for banking sector, domestic credit to the private sector, money supply and stock market capitalization. The result evidences the proxies that were used for financial development have positively associated with income inequality in five Asian nations while their squared term have negative association with income inequality.

Another important study have been contributed by Mansor, (2018) to analysis the eight Asian nations namely India, Singapore, Philippines, Japan Hong Kong, Malaysia, and Indonesia, South Korea, to assess the inferences of up warding the monetary sector level on income inequality. A panel data approach was used that describe the association between the monetary market size and income inequality is nonlinear. They mentioned that these Asian countries were higher level of growth while some of these countries like Philippines were facing the rising level of income inequality. Increase in the financial level size is beneficial for income inequality up to the threshold level, so the enlargement of monetary size beyond the level of threshold worsens the income inequality. They highlighted in further analysis the income makes the same influence of economic development, infrastructure advancement, not similar income effect of trade and government expenditure. The estimation showed that the financial sector size is good for income inequality if it's not reach more than 10% that uncovered the u-shape relationship. The main theme of the analysis contributed there is positive association of economic improvement and infrastructure advancement to income inequality as well as income inequality inferences of worldwide trade and state expenditure.

The study was conducted by Fukuda, (2017) using the VARX and ARDL model from 1952-2011 to investigate the association between financial development and income inequality in India. India considered the good economic activities over recent years, whereas poverty is major issue in India. It was concerned the country has been facing the chronical inequality based on different historical and social agendas. so, the poor provided the various subsidies. The paper mentioned the main crucks to worldwide, monetary crises,

and trade openness included in estimation. The output were indicated both monetary level, and efficiency enhance the disparity, economic development improved, Rest of the variables raised the disparity, the nonlinear influence of financial development were absent in the study.

Haan, (2017) worked on financial sector development, financial liberalization banking crisis that are associated with income inequality of 121 nations from 1975 to 2005. They used the panel fixed effect regression for large sample countries. The results suggested that a higher level of financial development, financial liberalization and the occurrence of a banking crisis all increase income inequality in a country.

Shehbaz et al. (2017) conducted study in Kazakhstan between 1991 to 2011 by using the ARDL. The study involved the role of monetary, trade openness macroeconomic and economic improvement, procedure policies effecting income disparities for a new transformation in the economy such as Kazakhstan. The statement designed first time in Kazakhstan linking with economic level monetary and economic unification with income disparities within the transition time. They described in paper income inequality was major concern in Kazakhstan since it's become self -government in 1990. Income inequality, a little fall in output, hyperinflation and breakdown in social safety nets were prominent in 1990. Increasing income inequality in the transition period created awareness to the policy government and different institutions to shape the inclusive growth of this country, creating the diversities of growth, and investment opportunities for future. The empirical findings of the study showed the economic growth impede the income distribution, financial development can lower the income inequality, and trade openness improve the income distribution.

Another study conducted by Ahmed, (2017) to highlight the impact in Malaysia from 1970 to 2007. Throughout the previous 45 years, Malaysian income inequality has been diminishing from 0.56 in 1976 to 0.4 in 2014, For the last 45 years, the monetary sector development particularly the banking sector of its nation has been expanding. The problem is to research the significant in creating nation, regardless whether the monetary sector improvement assume a huge job in decreasing income inequality by preparing and allotting reserve into beneficial investments. They utilized the ARDL and ECM approach to examine the actuality of short run association. The cointegration test demonstrate that

there is a long run connection between money related advancement, financial development, exchange transparency and pay imbalance. However, financial development itself is observed to be not measurably critical in influencing income inequality during the sample period. Only two financial development indicators considered in the paper as domestic credit and stock market capitalization. The discoveries of the examination demonstrated the income inequality is coordinated with per capita GDP and exchange receptiveness during the thought about period. The paper referenced income inequality is contrarily connected with securities exchange capitalization/GDP, which means lower disparity, is connected with higher financial exchange capitalization. At the point when the hole of salary progresses towards becoming therapist more individuals get chance to put resources into capital market speculation and exchanges.

Further analysis has been studied by Seven, (2016) to examine the objective to what extent the bank, stock development sector decreased the income inequality and poverty in 45 emerging countries from 1987 to 2011. The paper mentioned the three aggregate measured bank development, stock sector improvement and financial development to investigate the level of monetary sector involvement for the poor. Although financial development has good impact on economic growth, but it does not beneficial for income inequality specially in emerging countries. They rather locate that upgrade in banking sector may enhance the earning inequality in emerging nations. Comparatively upgrade in bank is more effective on income inequality and poverty rather than stock exchange. Their consequences find no significant relation among the financial development income inequality and poverty when they tested the mixed impact of banks and stock market. The result suggested financial development failed in stock sector development and banks for the deserving society in emerging nations because poor do not have any facility for financial services may be they are able to get access in other activities except the poverty reduction.

Contrary Aziakpono, (2016) investigated in 15 countries from 1985 to 2007 by using the Augmented Mean Group to see the impact that is there threshold level of financial development and income inequality associated with the sectoral form of the nation. However, the conclusion drawn from the study is financial sector which mainly emphasize

on depth dimension credit grant or not how many people have access to finance is not sufficient to increase the wellbeing.

Moreover, the research has been added by Jauch, (2016) to examine the wide unsettled dataset of almost 138 advanced and developing nations from the period of 1960 to 2008. The paper depicted the different analysis that they denied the earlier theories and empirical research by implying the larger data set in panel estimation through specific time invariant country. Indicating the time invariant the positive association have been found in financial development and income disparities within nations. They gradually added financial development is beneficial for those who already well developed because income inequality is gradually rising. A working more advanced monetary system strengthens the gross income inequality. The positive relation tends to be significant for small magnitude. Ten percent increase in credit upward the Gini coefficient by the estimation of 0.23. They mentioned in the paper it is better to provide the facilities to the poorest peoples so that disparity might be diminish. However, the result showed financial development increase the income inequality.

Zhang, (2016) think about four elements of financial development. financial access, depth, effectiveness, stability and progression. Every aspect is spoken by two variables. One identifies as financial institutions the other one is financial market. Utilizing an enormous example of 143 nations from 1961 to 2011, the creators locate that four of the five elements of financial development can essentially decrease income inequality and destitution, with the exception of financial advancement, which will in general compound them. Like (Seven & Zhang, 2016) proof proposes that financial segment advancement has more grounded pay narrowing impact on income inequality than securities exchange improvement. Together, these discoveries are predictable with the view that macroeconomic dependability and changes creditor rights, contract authorization, and monetary organization guideline are expected to guarantee that budgetary advancement and progression completely bolster the decrease of poor people and income inequality. Their discoveries likewise bolster the positive jobs played by per capita salary, government consumption, and exchange receptiveness diminishing disparity and destitution. Inflation is found to hurt the pay of poor people.

The study comprised in OECD countries over the last three decades by Denk, (2015). The whole population examined to see the relation between finance and income inequality, finance and income growth of household at different level of income. The empirical study measured three financial size, the value added of finance, credit by banks and other financial institutions to the non-financial private sector stock market capitalization. The paper analyzed the credit patterns that are inconsistent with reverse causality running greater income inequality to more household borrowing.

Another research developed by Shahbaz, (2015) in case of Iran by using the ARDL method. Rising income inequality was major issue for the Iranian government. Various steps have been taken to alleviate the income inequality and the financial system were used as a tool during the period. The paper mentioned the Gini coefficient were high during the 1971 to 1975 due to the oil shock. Income inequality again raised during the Iranian revolution in 1985 to 1987. Gini coefficient remain low till 1992 then Iranian faced the inflation and again it began to increase. Iranian government launched 5 years plan to improve the financial sector and to allow banks who are not Iranian to launch the other banks to make the monetary system more efficient. Iranian government should adopt the better policies to make the income distribution more equal e.g. to facilitate the entrepreneurs, to expand the financial market, to provide the opportunities to the needy, Hence the gap between needy and elites becomes low, providing skills to non-skilled peoples, reallocation of resources all these will improve the financial sector of Iranian government.

Another work done by Asongu, (2015) to investigate the relation how investment driven finance impact on income inequality from 1980 to 2002 in Africa. The three motives were required to investigate the relation between inequality, finance and pro-poor investment in Africa. Surplus liquidity problem in African financial institutions, the requirement for financial investment to increase the continent ambitious the last one is exclusive development on the continent. However, the measurement of income inequality was estimated through household income inequality while financial development included financial depth, financial efficiency, financial activity and financial size. The findings implicated financial dynamics of depth, efficiency, activity, and size increase the equalizing income distribution through domestic private and public investment channels.

The existing literature were examined in Philippines by Cruz (2014) to underly from 1961-2000. The paper mentioned the four proxy variables for financial development, all were supporting the unidirectional causality from monetary depth to pay disparity. The result described financial development widened the inequality due to the oligopolistic nature of the banks.

The dynamic study contributed by Li, (2014) to investigate the influence of monetary reforms on income inequality in 18 countries of Asia. The paper added financial reforms, good banking invigilation, uplift of credit control, and safety market improvement significally effect to reduce the income inequality.

An empirical study was conducted by Teheni, (2014) to explore the multi-faceted link between financial development governance and disparity. The sample has been used for 39 countries from 1996 to 2009. By comparing the Latin America and Carribean countries with European North American countries, the composite indicator showed the less governance in Latin American and Carribean countries than European and North American countries. However, Kendall's and Spearman's test correlation analyses shows a positive link between supervision and financial development. The result suggested for policy implications a better governance will make the pay disparity equal. Good supervision should be taken as necessary tool for improvement specially for Latin America and the Carribean territory.

A multicounty politico-economic model was developed by Azzimonti et al. (2014) to investigate the worldwide financial sector system, disparity and the increasing public debt in most developed countries. They described the two reasons when the allowances of states lending enhance when monetary markets are homogenized and when disparity increased with the association of higher income risk. They explained the growing stock of government money enhance in 1980 in most developed nations. The findings showed the hypothesis supported the US share in debt was increased during the last 30years.

The recent study depicted by the Daisaka et al. (2014) to analyzed financial development and globalization on income distribution during imperfection of the financial institution. The findings showed financial development alleviate capital misallocation while the decreased in trade cost didn't enhance the efficiency. They concluded financial

imperfection created the income inequality through providing benefit to borrowers and damaged the lenders to lower the capital interest rate.

Furthermore, Johansson, (2014) examined study between monetary repression and income inequality across countries from 1981 to 2005. The study focused on how the financial repression effect the income inequality in context of china. The findings of the study defined that financial repression increased the income inequality and worsened the poverty level. They mentioned in the paper while focusing on the individual policies like the return rate control, weak banking guidance, and concentration on the banking sectors all have positive association with income inequality. The results are helpful to implement the policy specially with lower countries as they are facing the higher level of inequality. In case of china, which is heavily influenced by the income, inequality due to financial repression the paper also suggested the Chinese policy makers for financial sector reforms.

The recent study contributed by Elmawazini et al. (2013) to investigate the worldwide trade, and worldwide financial system as a matter of disparity in the territory of South Europe and CIS(The commonwealth of independent states) countries from 1992 to 2007. However, (KOF, 2010) index were used to estimate the effect of worldwide on income inequality in South East Europe and CIS nations. Two results were concluded in the paper that both trade and financial globalization increased the income inequality in CIS and South East Europe countries, the crucks of the paper described the worldwide worsens the disparity of these selected nations. The result supported assumption that worldwide increased the income inequality within nations.

Zielschot, (2013) differentiated the gross and net income inequality of 72 countries from 1960 to 2005. They mentioned in the paper that how the financial development effect the growth share of the income of quantiles in a country. The findings of the study showed the poorest get benefits from the financial development whereas the richest quantile might lose the income share. Further result concluded inversely association between the financial development and income inequality, but it is not favor the gross income inequality.

Another study demonstrated by Agnello et al. (2012) to explore the effect of monetary repercussion and income inequality. However, panel data were used for 62 countries between 1973 to 2005. The paper mentioned nine aspects of repercussion

including money controls, credit ceiling, directed reserve requirements, interest rate control etc. the result concluded command on credits and prohibit the huge reserve requirements plays role to diminish the income inequality.

In a sample of 60 countries from 1960 to 2000, it was explained by Barugahara, (2012) rising level of inflation worsened the pay imbalance and make the financial development weaker to provide access to resource allocation. The study used the non-overlapping five-year average data because of non-availability Gini coefficient that measured the proxies of income inequality. The paper mentioned it is necessary to lower inflation rate so that the needy may get facilitate through financial development and reduce the gap of inequality that specified by inefficient allocation of resources.

Wahid et al. (2012) conducted study to examine the relationship between financial development and income inequality in Bangladesh from 1985 to 2006 by using the ARDL method for cointegration. They mentioned in the paper financial development and income inequality is positively associated as they move in the same direction. The result concluded Inequality worsened the GDP and make the society more egalitarian. Growth rate of 9% reduce the income inequality by 2.5%inflation that is positively related with the equity in income distribution that show the higher inflation increase the income inequality it means the inflation don't favor the poor population in living Bangladesh. finally trade openness also effect the inequality for example 1%increase in trade worsened the income by 0.2%.

Moreover, another study is conducted in MENA (Middle East and North Africa) economies by Elmi, (2011) using panel data in 2004 to 2008. The study confirmed the two theories assumption such as Greenwood, (1990) inverted u-shaped relationship and the other one is Ziera, (1993) described the inverse and linear relation between monetary and disparity. The empirical result concluded the improvement of trade openness decreases the level of inequality. The estimated result strongly favors the Ziera, (1993) assumption but do not in favor of u-formed assumption.

Another study demonstrated by Kunieda, (2011) covering the panel data for the sample of more than 100 countries from 1985 to 2008. The approximate variables used for income inequality is Gini while the ratio of individual credit to the gross domestic product

were measured for financial market advancement. The output of the study were the two conditions discussed in the paper (i) financial market that is highly freedom for the world economic nation. (ii) financial market that is closed to the world market. The reason behind the monetary sector market open to the world market that efficient people will prefer to lending creation resources at the global return rate whereas the less efficient people will prefer to lend in financial market so the efficient people get benefit from world market return rate that was comparatively low according to their abilities thus the inefficient people will not be able to use the abilities of the efficient people , the inequality will larger as market will get mature. If the financial market is close to the world market less efficient people will get benefit production will reduce hence the income inequality will become narrow.

Shahbaz, (2011) examined the link between financial development and income inequality in Pakistan from 1971 to 2005. The study supports the Ziera & Newmen, (1993) to describe the financial development, income inequality in Pakistan while it does not support the Greenwood, (1990) assumption. The paper included financial development diminishes the income inequality while monetary instability worsened the inequality more. They mentioned that policies should be made to provide the opportunities for employment, to alleviate the poverty, and proper management should be introduced. Financial reforms are necessary to avoid the financial instability. Economic decision should be focused through the economic laws and principles not on the basis of political grounds.

Ang, (2010) explained that how financial development and monetary repercussion can lower the level of income inequality almost half of the century by taking the time series data. The data has been taken from 1951-2004 in India. Applying the ARDL techniques and ECM cointegration test the evidences confirmed there is connection linked with Gini-Coefficient and its determinants. The analyses provided the evidences in monetary sector the needy people get more hurt than the rich, that's why the difference between the poor and the rich becomes larger. Hence, the result depicts the enhance in income inequality. Growth effects of financial development and its level consider more significant. However, the result contains the advancement of monetary system tends to diminish the income inequality. Both the domestic, international finance reforms don't be able to down the unequal provide to monetary but further they need to work more diminishing income

inequality in India. The output is flexible to the measurement of financial development and monetary liberalization.by increasing banking efficiency and banking density tends to be found the more effective result on diminishing the income inequality in India. In short, the study reported financial development is helpful to decrease the level of income inequality while financial liberalization increased or worsened the income inequality between the elites and needy people. In this paper the evidences don't favor to provide the presence of non-linearity association between monetary and disparity, and it also don't provide any favor for Greenwood, (1990) hypothesis.

Kappel, (2010) investigated an empirical analysis similar result as in Beck et al. (2007). They used the OLS and 2SLS techniques of 78 countries for the period 1960-2006. Headcount ratio has been taken as dependent variable, whereas private credit taken as explanatory variables. To get alternative chances to what level financial development can affect the income inequality and deprivation they not just incorporate proportions of the financial segment's improvement, yet additionally control for securities exchange, and broke down the high and low-pay nations, Financial development tends to have inverse relation of disparity for medium and high-income nations. The control variables like ethnic fractionalization, government spending and schooling, land inequality approximately used for health variable, individual credit and stock sector system decrease the inequality. Her data is averaged over the period 1960-2006. According to my opinion stock market that is used approximate variable for the financial development might not be the strong idea because stock market included the recent idea of development. She reported the stock market for the time of 1960-2006 while the observation started in 1989 and in some countries, it was also late. It would be better if the average between the zero and stock market will be calculated in 2006. Another critical point is that Kappel (2010) didn't give any clear statement that how she taken the data from WIID2b. it would be difficult to trace back her data that how she dealt with different income measures. The findings showed if the market loans and stock markets improved then there is an option to diminish the income inequality. They likewise demonstrated that the connection between money related advancement and imbalance especially for creating nations is week than the created nations.

Batuo et al. (2010) describe the same results as Beck et al. (2007) and Kappel, (2010) empirical proof on how financial development is identified with income inequality in a board informational collection covering 22 African nations for the period 1990 to 2004 by utilizing a dynamic board estimation method (GMM) just as inverted u-shaped assumption of Greenwood, (1990). The empirical outcomes demonstrate that the coefficients on Gini and financial development index are fundamentally negative. Whatever proportion of money related improvement variable utilized, the minimal effect of financial development on pay disparity is with the end goal that when the degree of budgetary advancement is high, the degree of imbalance will in general lessen. Therefore, affirming the presence of negative and direct relationship as proposed by Zeira & Newman, (1993). They discover no proof for the transformed u-formed theory and Kuznets curve assumption.

Another work done by Levine, (2009) critically examined the relationship between financial development and income inequality. In their critique, they argued economics do not favor the probability effect of monetary sector policies on income inequality. The bulk of theoretical and empirical research suggested that monetary exert an initial stage impact on disparity. They argued with various theories like the budget limitations consider as outside effect, static information and other cost produced endogenous unfavorable selection as well as moral problem that hinder the monetary contracting. Then they mentioned in the paper future research needs appropriate theories and evidences to reduce the gap. There is no appropriate measure to define how monetary contracts, markets and negotiator refine the financial scrapings. The theory highlighted changes in the direct use of financial services by individuals and families, the sufficient cross-country data on the use of financial sector is not available that limited how experimental research can examine the theoretical exhibit channel linking finance and disparity.

Law, (2009) investigated relationship between financial development and income inequality during 1970 to 2002, using ARDL approach, which provide the evidences that financial development is weak initially as well as statistically, it is not significant decreasing the income inequality in Malaysia. They described as Malaysia considered the highest economic growth among developing countries at the same time Malaysia was also facing the robust economic development and other social disparities like the income

inequality. Malaysia faced the higher level of income inequality among the Malaysian household in 1990. Their findings showed that income inequality was higher in Malaysia 1976 and fell down in 1990. The empirical findings suggested that among all the other determinants of income inequality GDP considered the most robust one indicator while the findings also showed the inflation is most significant and robust one indicator of income inequality. They suggested improving economic development and maintaining the low inflation rate contributes towards the lower income inequality.

Hamori, (2009) described the relation between worldwide monetary deepening and disparity containing sample of 29 Sub Saharan African countries between 1980 to 2002. Due to the lack availability of the data the findings confirmed that globalization worsened the inequality, as globalization decreased the economic growth of the country improved, whereas financial deepening decreased the inequality. The result concluded the difference between the rich and needy people become wider in Sub Sharan Africa.

One of the major concern in Latin America and Caribbean (LAC) founded to alleviate the poverty and income inequality by Roija, (2009). Income inequality and poverty was major problem in Latin America and Caribbean though many political parties and economist were involved to locate the parameters that reduce the income inequality and deprivation in the region. Those political and economic analysis consisted of heavy government intervention and protectionism, depended by the privatization and market-oriented reforms, and not doing the market reforms in some countries. Many of those reforms that applied in developing countries for the last 30 years, the liberalization and expansion of financial market was forefront to detect the deprivation and income inequality. Using GMM method of 21 LAC nations from 1969 to 2005, they added by expanding the financial system income of the quantile poor did not effect. The result further described the financial system has positive and disproportionate effect on the further quantile.

The study conducted by Lutz, (2008) to examine the short run and long run relationship in Egypt and Morocco, Algeria. Co-integration, VECM models and another four variables of financial development were developed. However, the result suggested long-run association found between income inequality and financial development except credit to the private sector in Algeria.

Beck et al. (2007) explained financial development is helpful to reduce the income inequality and increase the income quantile of the deserving people. Financial development reduces the income inequality more than the mean per capital GDP development that reduce the income inequality. The paper concluded financial development enhances the income portion of the needful person quantile, decrease the disparity about 40% as well as the 60% is related to the financial development on overall economic development. However, the paper did not include how foster poverty reduced the financial development.

Clarke et. al. (2006) examined finance and income inequality of 91 cross-country analysis from 1960-1995. They analyzed the impact between financial intermediation and income inequality, to analyses the impact of financial intermediation improvement or the categorical feature of the nation, as mentioned by various theories. They added that Kuznets (1995), describing the sectoral structure association between financial development and income inequality is important which suggested monetary might affect the inequality at low level where the countries have large modern sector. This shows the strong evidences for the linear and for the augmented Kuznets hypothesis. The empirical result showed 1% improve in financial development can diminish the income inequality by 0.31%. They supported the inverted u-shaped assumption, but this result is not applicable for their all specified level. They found a link to harm expropriation and ethnos linguistics mobilization on income inequality, and inverse influence can be found on income inequality when a nation is modernizing like less Agri economy. The results suggested increase in the financial sector might diminish the income inequality while the result also added inequality can enhances as the monetary system develop at less scale of monetary sector improvement as followed by Greenwood, (1990). However, they rejected the hypothesis that financial sector only favorable for the rich. It has been described due to enhance in growth, monetary sector can cause to diminish the disparity.

Liang, (2006) worked on 29 provinces of urban China from the year 1986-2000. The findings of the study described financial development is inversely related with the income inequality in urban China. Empirical results show that China's financial development significantly helps to reduce urban income inequality. However, these positive distributional gains from financial sector development have been severely offset by the increased urban unemployment and massive layoffs brought about by the implementation of radical urban reforms and the restructuring of state-owned enterprises. The empirical

result strongly supported the linear hypothesis but not the GJ hypothesis of inverted u-shaped association between the financial development and income inequality.

The further research done by Bittencourt, (2006) investigated the effect in Brazil between 1985-1999, conducting the empirical evidences through panel series data, the possibility in accessing the monetary and credit sector had more effect diminishing the disparity during the study period. Brazil considered in emerging nations, which is facing the higher level of income inequality and facing the macroeconomic fluctuations performance. Gini coefficients showed the high inequality 0.63% and the poor macroeconomics with high and volatile inflation rate. In this paper they described the availability to credit market is beneficial for the poor via investment in productive activities channel. The poor can invest in education if they get more access to credits, they can facilitate themselves by increasing the facility, other allowances, hence they diminish the cycle of disparity. However, the poor holding the cash loose gradually their cash via the tax channel. Financial market is more important in Brazil because it provided the needy people to use money in activities and it protects the chronic macroeconomic fluctuations. The result analysis that facility to individual market specially deserving people have positive effect reducing the income inequality.

There is broad literature on the connection between financial development, income inequality and growth. A decent review of hypothetical just as an empirical work in such manner is given by Levine, (2005). As a rule, Financial related improvement is required to upgrade development by empowering the productive assignment of capital and diminishing acquiring and financing imperatives. Be that as it may, this writing does not address the issue of which part of society profits by the development empowered by budgetary improvement. Development could profit the poor by making greater work openings, however it could likewise support the business people and their overall revenue. Furthermore, theory and evidence imply that better developed financial systems ease external financing constraints facing firms, which illuminates one mechanism through which financial development influences economic growth.

2.1 Summary and Conclusion

The literature based on the two school of thoughts, some studies supported Greenwood, (1990) “inverted u-formed assumption while other studies supported Zeira & Newman, (1993) “negative linear assumption”. It is still debatable because the empirical findings contradict. There is still gap exist for further research to test empirically whether financial development increase or reduce the income inequality in developing countries. The empirical study contributes to the literature in the sense that it focused on the developing countries.

However, it has been noticed none of the literature covered all aspects of financial development few literatures like Kappel (2010) included some proxies for financial development.

Chapter: 3

Theoretical Framework and Variable Construction

This chapter provide different segments. First, detail about the theoretical framework, second, variable construction, nature and sources of the data use in the current study, it also mention the time and region.

4. Theoretical Framework

Financial sector incorporates markets, foundations, instruments just as legitimate and administrative system that permit the exchanges by giving the credits. Financial related improvement has beneficial outcome on long run improvement as it is confirmed by the economic theories and experiences. (Levine et al. 2000; Levine 2003). The theory supported the Schumpeter, (1912) views that defined services given by the monetary intermediaries were essential for further advancement and improvement.

Financial development has positive results on the long run economic improvement. On the macroeconomic dimension, Zervos, (1998) illustrated that banking and financial market development is similar and complementary observer of real growth. On the microeconomics dimension, Zervos, (1998) also stated that well developed financial institutions and easy access to financial resources are main role for the best performance of the firms and for the all the industries. Hence, the theoretical and empirical studies concluded the same result that there is steady finance growth relation Demirguc-Kunt & Maksimovic, (1996).

Income inequality is an economic issue that is relevant with both developed and developing countries. It can be described the unequal distributions between the households and individuals that are living in the economy. The factors that are the main role of income inequality is described at aggregate level, Zou et al. (1998). However, the elements of income inequality include economic advancement, financial market improvement, state expenditure, training of education, progressively increasing prices, increasing population and trade etc.

There are two basic ways that finance can influence the income inequality. directly and indirectly, the poor get related with the economy. At the point when the size of the money related specialists has been broadened the lower pay, quantile can clearly access to the fund. Hence, the poor will be indirectly involved when they will provide the employment opportunities or better economic development from the investment. Whereas in developing nations, the saving and loaning is the fundamental business in money related intermediation, various types of proxies for financial development such as credit ratio of private credit to GDP. Be that it may as, in creating markets and more advanced countries, monetary intermediation is dynamically advanced and required various component of finance. (Kappel, 2010).

Theories observed the various forecasting about the connection between financial development and income inequality. The two persuasive hypotheses have been introduced. First, the inequality widening hypothesis. Second, the inequality narrowing hypothesis.

3.1. The Inequality Widening Hypothesis

It is stated that financial development may profit the elites, but it is associated with depriving people particularly when institutional performance is no longer strong. The reason is that the elites has protection to offer but the depriving people has more constrained. The poor individual who do not have background of social and economic activities might lack credit, need credit values and adequate insurance available to them. They may think it's hard to get the financial services inside the financial related establishment. In view of this position, the poor just include with an essential instruction, and generally joined the work of advertise where they are willing to get as low paid worker. Henceforth, it's hard to access financing when the financial markets are highly created. Subsequently, income inequality will diminish and there is inversely relation exist between the financial development and income inequality. (Clarke et. al. 2006; Law & Tan, 2009).

3.1.2. The Inequality Narrowing Hypothesis

It is briefly discussed that when the financial markets advance the deserving people who were prohibited from getting credits will approach financing. The monetary related system enhances the effectiveness of capital allocation and diminish the subsidizing limitation from the monetary market along this they get the negative relationship Law, (2009).

This hypothesis is followed by Zeira & Newmen, (1993). Theories suggested in the attention of financial market imperfections, it discourages the poor from obtaining sufficiently to put resources into the well-being and physical capital, inferring that financial development is helpful to decline the income inequality. This is due to the single acquires diverse measure of property and those who has huge amount of wealth can put their investment in education and become skilled worker. Those who have the initial stage of wealth need to depend on obtaining the borrowings for investing money in wellbeing capital. An immature money markets, getting loans are expensive and those who cannot get the loans will remain unskilled workers and this procedure faced by many generations. As the economy developed, financial markets create to help the developing economies and the more extensive credit benefits, the poor have the chance to get for human capital investment and redesign their earning potential. Income inequality starts to decline and linear hypothesis consequences that income inequality is inversely associated with the financial sector development.

Financial development can affect the income inequality through multiple channels. For instance, financial development supports the capitalization that influence the economic action and economic growth. Accordingly, it has been depicted financial development guide the poor to get access to the various monetary assets Zeira, (1993) And this access makes the poor progressively proficient to begin the independent venture or may give the chance to the little existing task which provide the sources of employment opportunities and diminish the income inequality. Financial resources provide asset to the poor so that they are able to feed their children and they give them education in order to secure the future by enhancing the income distribution Rioja, (2009).

Various types of credits are given at low expenses to the farmers to increase the rural economy, declining the income inequality and poverty. Rioja, (2009) characterized financial development upgrade the income inequality and afterward at some level it reduces when the financial sector improves. There expect to be u-shaped association between financial development and income inequality.

3.2 Data Sources

Since, we want to see the effect of financial development on income inequality. In order to check the coefficients effect, the study considers selected developing countries. This time period of the selected developing countries taken from 1991 to 2015 using the panel data set. Therefore, we use the Panel data in the analysis that mainly depends upon selected countries and its observations. The dependent observations in each selected country is 25 and our study consider the 13 countries. The total number included of the selected developing countries is or panel estimation is 325. The data of Gini coefficient and control variables data has taken from WDI, while the data of financial development has taken from IMF.

3.3 Variable Construction and Definition

This section explains the construction of the variables and differentiate the dependent and independent variables that was followed by the previous literature. Financial development considers as independent variables whereas the income inequality considers the dependent variables. Control variables are GDP, general final government consumption expenditure, trade, inflation, and population growth.

3.3.1 Financial Development (Independent Variable)

Financial system incorporates the instruments, institutions, markets and the legal as well as regulatory framework that extend the credit by providing the transactions. There are different dimensions of financial development that has been described in empirical literature, but the researcher used the data that was available for long series of the broad

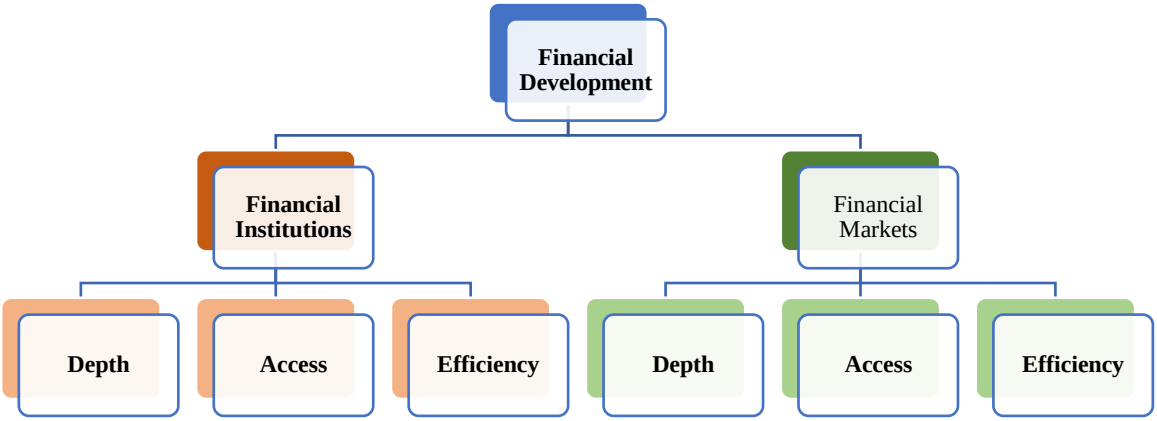
range of countries, for instance, M2 as a share of GDP, liquid liabilities as a share of GDP, and domestic non-state subsidies to bank sector as a share of GDP.

Mostly in empirical literature, financial development approximates the two estimation of financial depth such as the ratio of non-state credit to GDP, and the stock market capitalizations as a ratio of GDP since the 1970. However, Rajan, (1998) used both measures in their influential industry level study and described financial development accelerate the economic growth. Similarly, Panizza, (2010) used recently credit ratio to GDP, stated that there is magnitude level which described the financial development did not affect the positively on economic growth. On the Macroeconomic level, Srivisal, (2013) resulted financial development that is estimated by credit ratio to GDP from banks and other institutions has most important role in diminishing votality of output, consumption and investment growth at a certain level. Different researchers used the different measures to analyses the association between financial development and income inequality.

(Cihak, 2012) Approached updated dataset named as Global Financial development based on 205 countries for the period 1960-2010.

To overcome the shortcomings of single indicators as proxies for financial development, we create a number of indices that summarize how developed financial institutions and financial markets are in terms of their depth, access, and efficiency, culminating in the final index of financial development.

Figure 3.3.1 Financial Development Pyramid



There are four main features of financial market and financial institutions to measure the financial system.

First, Financial depth which describe the level of monetary institutions and market, however it also guides how much the sources are available from monetary institutions. for instance, non-state credit proportion to GDP, M2 and also included widen money proportion to GDP.

Second, Financial access or Financial institutions. It describes how much individual can enter to get facilities from the monetary institutions and monetary market. For example, how much proportion of the people owned accounts in banks, and number of sub branches per 10000 young.

Third, Financial efficiency it defines how much monetary institutions and markets can provide the services to the peoples. It includes the return on equity and return on assets.

Financial Stability, how much financial institutions and markets are stable for example systematic risk. The liquid liability ratio and asset ratio are the good proxies of the financial instability. This variable is considered by Batu et al. (2010).

Table 3.3.1 Financial Development Index

CATEGORY	INDICATOR
Depth	Private-sector credit to GDP
	Pension fund assets to GDP
	Mutual fund assets to GDP
	Insurance premiums, life and non-life to GDP
Access	Bank branches per 100,000 adults
	ATMs per 100,000 adults
Efficiency	Net interest margin
	Lending-deposits spread
	Non-interest income to total income
	Overhead costs to total assets
	Return on assets
	Return on equity
Depth	Stock market capitalization to GDP
	Stocks traded to GDP
	International debt securities of government to GDP
	Total debt securities of financial corporations to GDP
	Total debt securities of nonfinancial corporations to GDP
Access	Percent of market capitalization outside of top 10 largest companies
	Total number of issuers of debt (domestic and external, nonfinancial and financial corporations)
Efficiency	Stock market turnover ratio (stocks traded to capitalization)

The main four approximate variables including depth, stability, effectiveness and inclusion are the main part of monetary system. Moreover, to incorporate the single variable may be inefficient to define the financial system because it does not imply the essential higher level of financial access. Essentially, analyzing just proficiency can't be adequate because a very proficient monetary area does not more secure than the less effective one, etc. In this manner, a well-working monetary framework should catch each of the four intermediaries.

aa3.3.2 Income inequality (Dependent Variable)

Income inequality is characterized the unequal appropriation of the household or individual over the different member living in an economy and how material assets are disseminated over the society. Various indices have been mentioned in the previous studies to ascertain the income inequality. These indices are Lorenz curve, Gini coefficients, log normal distribution, we used the Gini coefficient as it is also followed by the many empirical studies. Gini can be measured the surface under the Lorenz curve and line of perfect equality that is illustrated most of the area within line. The value of Gini lies between 0 and 1, so the value of 0 define there is equality every single getting the same income while 1 implies there is inequality in the analyses which describe that only single person has whole income of the economy rest of the individuals lack this. Following the ongoing previous studies such as Liang (2006a); Liang (2006b); Chen, 2007), the present study investigates the normal logarithm of Gini coefficient approximate used as GINI. The reason behind using the Gini coefficient is that it is more informative estimator, covering all aspects of income disparities and encourages the direct correlation of two population paying little respect to their sizes. In this way, it is presumably the most understood and comprehensively utilized proportion of disparity mention in economic studies. Most of the empirical studies explained income inequality diminish as the financial development increases. Levine, (2009); Clarke et al. (2010); Shahbaz et al. (2011) also agreed in their studies that enhances in financial development can diminish the income inequality.

3.3.3 GDP (Control Variable)

GDP is derived the total price of gross value that is included by the producer living in the economy. It added the manufactured taxes and excludes the facilities not mention in the worth of the manufactured goods. It is determined and do not deduct the markdown the fabricated owned assets or reduction and mortification of real resources. The variable data is taken from the WDI and this unit is taken as permanent 2010 U.S. dollars. The dollar is then transformed from national domestic currencies by using the 2010 official exchange rate. Those countries who don't have the official transformation rate can be incorporated as their actual foreign transformation rate transactions, so the substitution conversion factor is being used by the countries.

3.3.4 General Government final consumption and expenditure

General government final consumption and expenditure covers all current state expenses for purchasing the goods and services. It covers the expenses on state defense and protection but did not include state expenses on military that are the main part of the state final consumption and expenditure. The variable data is taken from WDI and it is constant in 2010 U.S. dollar.

Government consumption can also have effect on income inequality. It has decreasing or increasing relation with government consumption. When the redistribution of tariff duty and transfer trend is towards the poor, state expenses lead to increase in income inequality. The opposite direction is when the government consumption is not aim to developmental, the theories define the larger or smaller volume of non-state sector is helpful reducing the income inequality. Stock, (1978).

3.3.5 Trade Openness

Openness incorporate exports plus imports of goods and facilities and divide this total by GDP. If the country has more ratio then it is more exposed towards the international trade. However, the economic policies can be observed by measuring the trade openness either they have limited or flexible trade between the economies. Most of the developed and developing countries heavily depend on international trade by achieving economic goals. Fukuda, (2017) described openness have negative association on income inequality. Dollar & Kraay, (2004) suggested in favor of the idea that globalization causes to enhance the economic growth and diminish the income inequality.

3.3.6 Inflation

Inflation is steady increment in the general value level of goods and facilities in the economy during a specific year. When the persistent general price level increases, each unit of currency get a limited goods and services. So, the inflation effected by reducing the obtaining buying and sailing per unit of money. Inflation is calculated as the purchaser value index that effect rate change in the cost yearly to the average purchaser of acquiring

a basket of goods and services that might be fixed or change during a specific interval, like a year wise it can be changed or fixed. Mainly a calculation of price is the inflation rate, it is yearly percentage change in general level index. It is explained that great level of inflation is curse for the poor and middle class rather than on rich, after that they get alternative way to monetary markets that encouraged them to fence their exposure towards inflation. Rehman et al. (2008).

3.3.7 Population Growth

Yearly population improvement for year t estimated for the development of midyear t-1 to t, depicted as a percentage rate. Population can be defined the number of residents either they are having the legal status or citizenship. Variations in population improvement is one more factor that states the inter country differences in income inequality. In general, the population down according to capita salary increment. The variation has been found in population development rate along the different economies who have similar pay level. However, it is stated that higher population development rate lead towards higher income inequality. The reason is that the dependency rate may be greater for poor people. Rehman et al. (2008).

Conclusion

This chapter underlies the theoretical perspective of the financial development and income inequality. The direct and indirect linkage between financial development and income inequality briefly discussed. Various hypothesis provides the connection between financial development and income inequality. At the end different channels of financial development and income inequality has been defined. Various method of data collection and variable construction defines in this chapter.

Chapter: 4

Specification of the Model, Description of the sources of the Data, and Estimation Methodology

The main purpose of this study is to describe model specification and the description of the data plus the estimation methodology to investigate the association between financial development and income inequality.

4.1 Specification of the Model

i. Econometric model

4.1.1 Econometric Model

This section deals the econometric methodology and estimation procedure to use in the empirical analysis. Specifically, the empirical work demanded by applying different expertise and procedures that have been introduced in technological era to resolve the problem. Following the method of Shahbaz et al. (2011); Fukuda, (2017). we will investigate the influence of financial development on income inequality by using the panel set of 13 countries.

The required equation that will use in the model is…

$Gini = \beta_0 + \beta_1 FD + \mu i$……..(1)

We will express this into an equation form

$$Gini = \beta_0 + \beta_1 FD + \beta_2 GDP + \beta_3 TR + \beta_4 INF + \beta_5 POPG + \beta_6 GOVCONEX + \mu i$$

Here

Y= income inequality (Gini coefficient)

βo= intercept term

β1= slope

FD= Financial development

GDP= gross domestic product

TR= trade openness

INF= inflation

POPG = population growth

Govconex = Government final consumption and expenditure.

μ_i = Residual term

The above equation shows the dependent variable is income inequality whereas FD is independent variable, other variables are GDP, Trade openness, Inflation, Pop Growth, Government final consumption and expenditure.

We will estimate the above equation by different methods then we will analyze the short run and long run relationship between financial development and income inequality.

4.2 Description of the Data

The data use in the analysis compile from different sources that have been set into unique and original data set. The data of income inequality and other control variables obtain from WDI, the data of FD obtain from IMF. Our sample comprise of developing countries, Bangladesh, Bolivia, Chile, Colombia, Indonesia, India, Kazakhstan, Malaysia, Paraguay, Peru, Pakistan, Thailand, and Ukraine, from 1991 – 2015. we contemplate this dataset to be enough because of availability of data. The targeted length of the dataset, which is the period of 1991 to 2015, it also allows us together a maximum number of observations on each economy. The data of financial development taken from IMF. we choose the traditional method and good approximate of income inequality that is Gini coefficient for every selected country.

4.3 Methodological Framework for Financial development and Income inequality

4.3.1 Procedure of Estimation

Following the methodology of Shahbaz et al. (2011); Fukuda, (2017) we observe the ARDL panel set of selected developing economies by conducting a unit root test. we use the Augmented Dickey-Fuller (ADF) test that is apply for the unit root test. In addition, cointegration apply for the long-time span. All the procedures of methodology discuss here.

4.3.2 Stationary of Data

It is preliminary step to check the stationary of the data of macroeconomic variables that are taken from different sites. The stationary of the data describes the mean and the variance are same while non-stationary of the data describes the means and the variance are not same. However, it might be possible that panel data will be faced by the Spurious Regression problem, so to prevent from Spurious Regression by checking the stationary of the data will be good. Further, if the problem of the heterogeneity will appear then it can also have resolved by generating the pool

4.3.3 Unit root Test

The further step follows to observe the test for the stationary of the data that are selected in the model. If the problem of spurious regression occurs, then we assume that the estimated coefficients do not meet the assumption of BLUE properties.

The following hypothesis will be tested in the panel data for stationary of the variables.

H0 = The panel set contains the unit root. (it means the data is non-stationary)

Alternative hypothesis.

H1 = The panel set do not contain the unit root. (it means the data is stationary).

Various techniques have been used for the panel unit test like Johansen Co-integration method, but we imply the ARDL for the unit test. If the data is non-stationary, then we use the ADF test for the stationary of the data that must be I (0) OR I (1).

4.3.4. Co-integration analysis;

This term describes the long run association between the selected variables. Various tests have been introduced for the co-integration analysis like the Johansen, (1990) co-integration and Engle Granger, (1987). These two tests are mostly used in the empirical literature. However, we apply the ARDL because in our data stationary at level I (0) confined while some variables are confined stationary at first difference I (1). The main advantages of the ARDL is that it can be applied when the variables are integrated at level

I (0) or the variables are I (1), or a combination of two. Furthermore, we apply the ARDL to validate the long run relationship. after the ARDL the estimation of ECM choose for the short run estimation result.

4.3.5. Auto Regressive Distributed Lag (ADRL)

The concept of the ARDL model was first introduced by Pesaran & Shin, (1995), typically, by Pesaran et al. (2001), which investigate the long run association between income inequality and regressor like Financial development, openness, inflation, increasing population, state final consumption and expenditure. The ARDL has some qualities more than other technical methods. First, ARDL is applicable when the variables are stationary at level or first difference or a combination of both. We can't consider the Engel Granger, (1987) because it is applicable for two variables only. Same is the case with (Johanson & Juselius, 1990) it is also applicable though all the estimated variables contain the same level of integration and it work for large data set only. Secondly, it covers the maximum lags for data set moving from general to particular method. Third, ECM can be used if any shock happens in the short run, how the convergence or equilibrium will be transformed to the long run adjustment. ARDL is used for single equation which can withdraw and estimate the result without any difficulty. Forth, ARDL is use for small sample so it has advantage over other techniques because it does not include the error term correlation. Fifth, endogeneity is low problematic in this technical method, because it is free of error term correlation. Lastly, (Pesaran & Shin, 1999) also described that the long time span and short the estimation and lag order in the ARDL neglect the issue that are related with serial correlation and endogeneity problem.

Equation

$$\Delta GIN_i = \alpha_0 + \sum_{i=1}^{k} \beta_i \Delta Gini_{t-1} + \sum_{i=1}^{k} \pi_i \Delta FD_{t-1} + \sum_{i=1}^{k} C_i \Delta GDP_{t-1} + \sum_{i=1}^{k} \phi_i \Delta TR_{t-1} + \sum_{i=1}^{k} \omega \Delta gov_{t-1} + \sum_{i=1}^{k} \delta_i \Delta Inf_{t-1} + \sum_{i=1}^{k} \gamma_i \Delta PopGrowth + \lambda_1 FD_{t-1} + \lambda_2 GDP_{t-1} + \lambda_3 TR_{t-1} + \lambda_4 GovExp_{t-1} + \lambda_5 Inf_{t-1} + \lambda_6 PopGrowth_{t-1} + \mu_t$$

The above equation describe both long and short run specifically. The estimated coefficients are nominated by different variables ($\beta_i . \pi_i, C_i, \phi, \delta_{i_i}$) for short run while the long run are shows by($\lambda_1, \lambda_2 \ldots\ldots \lambda_6$)

However, ARDL mainly has two particular steps. First the parameters of long as well as for short run coefficients will be measured after selecting the lag length criteria. Second, to validate the long run magnitude level, we will apply the bound test method for the selected variables in the data. The main advantages are that there is no need for pre-testing unit because most of the variables are integrated at first level I (0) or I (1). Further if the order is I (2) or more than I (2) then we can't be used co-integration analysis it will not give reliable results.

The null hypothesis can be stated as…

H0 = $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = 0$

The alternate hypothesis can be stated as

H1 $\neq \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq \alpha_6 \neq \alpha_7 \neq 0$

If the cointegration can be found among the selected figures, then the long-run model will be applied to get the residual term.

4.3.6 Error Correction Model

The lag of error term can be named as error correction method that analysis the short run mechanism and the movement of adjustments. If there is any shock happen in the short time span, it also states towards the convergence of long run, then the ECM value must be negative and highly significant. Moreover, it simply defines how much the disequilibrium take place correctly in single time period. If the value of ECM= -1, it means 100 percent adjustments can be sure in one period.

Conclusion

This chapter covers the sources of the data, model specification and estimation methodology that will use in next chapter to analyses the further results. However, estimation procedure will be taken to analyses the influence of financial development that is regressor variables on income inequality which is dependent variable. We first test the stationary of the macroeconomic variables data that is taken from different sites for the relationship. So, the ADF test briefly explained for the stationary of the data. After the confirmation of the stationary level which mean first difference or not, we further discussed the cointegration test, ARDL test also has been describe more specifically. we also elaborate the ECM process. Then finally we have described the various methods of data collection.

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Chapter 5

Estimation Results and Interpretation

This chapter illustrates the estimated analysis of the current study. The influence of financial development on income inequality for the selected sample countries namely as Bangladesh, Bolivia, Chile, Colombia, India, Indonesia, Kazakhstan, Malaysia, Paraguay, Peru, Pakistan, Thailand, Ukraine, for the period of between 1991 to 2015. We apply the ADF unit root test for stationary of the data to avoid the spurious regression. Then we select the optimal lags and correlation matrix after that we apply the ARDL bound cointegration techniques to check the short and long run association among the targeted variables. We also move to apply the ECM to test the convergence of short run towards the long run after any shock happen in short run. Then we use the Pool mean group, Hausman test for the estimation procedure.

5.2 Correlation Test

In order to find out the positive and negative relation between the selected variables the correlation analysis has been done.

5.2.1 Table 1

	Y Gini	**FD**	**GDP**	**TR**	**INF**	**POP**	**GOVEXP**
Y Gini	1						
FD	-0.1791	1					
GDP	-0.2594	-0.0193	1				
TR	0.0568	-0.072	-0.0885	1			
INF	-0.1253	-0.1176	-0.0501	0.0261	1		
POP	0.2638	0.1646	0.0081	-0.1673	-0.2296	1	
GOVEXP	-0.2447	-0.0477	0.979	-0.0479	-0.0141	-0.0734	1

The result of the table shows financial development, GDP, Inflation and GovEx are inversely correlated with income inequality. While TR and POPG are positively associative with the income inequality. However, GDP, TR, INF, and GovEx are inversely related with

the FD. The POPG is positively related with the FD.GDP has negatively correlated with TR and INF while there is positive relation exist between the POPG and GovEx. Inflation has negative impact on PopG and GovEx. Similarly, POP is inversely linked with Gov final consumption and expenditure.

5.3 Unit Root Test

Before going to the co-integration test, it is obligatory to test the stationary of the variable. Estimating the phenomenon without checking the stationary level will give the spurious results. However, different tests have been introduced like Phillip Parron (PP) Augmented Dicky Fuller test (ADF) KPPS (1992) to analyze the stationary of the variables. The ADF test will be applied for every variable because it is mostly used in the empirical literature.

5.3.1 Table 2

Variable	Statistics	P-value	Integrated order
Y Gini	-9.3464	0.0000	I(1)
FD	-9.6346	0.0000	I(1)
GDP	-1.7354	0.0413	I(1)
TR	-1.4142	0.0786	I(0)
INF	-7.9288	0.0000	I(0)
POPG	-4.4457	0.0000	I(1)
GOVEXP	-2.1636	0.0152	I(0)

The result of the above table reported TR, INF and GOVEX are stationary at level while rest of the variables (GINI,FD,GDP,POPG) are stationary at the first level of difference. The test of the unit root clearly stated that no level is stationary at I(2) or higher. The first condition of the model has been completed now we will move for the next step to analyze the Lag length criteria.

5.4 Selection of Lag Length Criteria

Before going to the ARDL model, it is compulsory to choose the lag length criteria in the analyses. Different model have been use in the literature like AIC and SC. Particularly, we have selected this because it is also applicable for small samples and provide the more suitable results other than lag selection methods such as SC. The results of the lag selection criteria is shown in the below table.

5.4.1 Table 3

Variable	Ygini	FD	GDP	TR	INF
Lag order	1	0	0	1	0

We have selected the 5lags in our auto regressive process. The most repeated lags are included from every country in this table that are 1 and 0.

5.5 ECM Model of ARDL

The next step is to further move to the ECM that is based on the Westerlund (2007) methods in which both short and long period is estimated. Specifically, the ECM included into the model that how long it will be on the equilibrium of the dependent series when the external shock deviates the equilibrium of the regressor.

However, the lagged of residuals term will be taken place by combining all the linear variables including regressed in ECM. The variable with sample (D) in ECM denote the short run impact only, the table 4 depicts the correction of taken place to move from the equilibrium of long run if any shock happen in short period duration. The table 4 of ECT has to be significance statistically and inversely related for convergence towards the balance.

$$\Delta Gini = \alpha_0 + \sum_{i=1}^{k} \beta_i \Delta Gini_{t-1} + \sum_{i=1}^{k} \beta i \pi \Delta_i FD_{t-1} + \beta i ECT(-1) + \mu i \ldots\ldots\ldots\ldots (1)$$

$$\Delta Gini = \alpha_0 + \sum_{i=1}^{k} \beta_i \Delta Gini_{t-1} + \sum_{i=1}^{k} \beta \pi \Delta_i FD_{t-1} + \sum_{i=1}^{k} \beta c_i \Delta GDP_{t-1} + \sum_{i=1}^{k} \beta \phi_i \Delta TR_{t-1} + \sum_{i=1}^{k} \beta \phi_i \Delta gov_{t-1} + \sum_{i=1}^{k} \beta \delta_i \Delta Inf_{t-1} + \sum_{i=1}^{k} \beta \theta \Delta grwth + \beta ECT(-1) + \mu_t \ldots\ldots\ldots\ldots\ldots (2)$$

ECT(-1) consider the error-correction method.

5.6 Pool Mean Group

Pool mean group tell us the short run and long run relationship between the variables. In our analysis the short run relation is differ in every country while the long run is same and have negative relation on income inequality. (when the problem of heterogeneity occurs then we resolve this through pool mean group.)

5.6.1. TABLE 4

ECT		Coef.	Std-error	P-value
	FD	-6.484651	3.469495	0.062
	GDP	8.83e-13	5.16e-12	0.864
	TR	-8.045237	4.183062	0.054
	INF	.0015785	.001567	0.314
SR				
	ECT	-.3211716	.0425711	0.000
	FD D1	.2769249	4.670009	0.953
	GDP D1	2.34e-11	1.73e-11	0.174
	TR D1	.0749964	2.250459	0.973
	INF D1	-.0013722	.0005731	0.017

The table shows financial development is negative and significance effect with income inequality in the long run, this describes 1% increase in financial development reduces the income inequality by -6.48%. this implies that by providing easy accessing to the deserving, financial development might redistribute the income. There may be possibility if the availability of lend helps wellbeing capital evolution or improved the entrepreneurial skills among the disadvantages. The results are similar with Zou, (2002) while GDP have positive effect on income inequality and it is not significant in the long time. Trade openness has negative relation with income inequality and significance at 5% level the result supported the Ariani, (2011) that TR reduces the income inequality. Inflation have positive linked with financial development and this relation is insignificance in the long time period, contrary result are similar with (Nacure,2016) that Inflation harms the poor of the income. But in short run FD, TR,GDP have positive insignificance relation with the income inequality. Inflation have inverse and significance in the short time period. The value of ECM coefficient is -0.3211716 stating that 32.11% placement of short run will move towards the long time period in single year after any shock. In short run income inequality and financial development has positive linked with income inequality it means increasing the financial development can also increase the income inequality, the researcher results are consistent with Dollar, (2002). GDP and TR have also positive effect on income inequality in short time period, while inflation has negative effect on income inequality. The data found the problem of multicollinearity so in order to resolve the problem of multicollinearity we exclude the variable like general government final consumption and expenditure.

5.7 Hausman Test

The two important techniques have been introduced by Hausman, (1998). The first one is fixed effect and the second one is random effect. The Hausman test guide to choose the test which is best suited according to the data. So, in our model we use the fixed effect. The fixed effect has the advantages to deal with unobserved heterogenous. (Haan & Edgbert,2017) used the fixed effect in their model

The hypothesis considers under the criteria.

H0= There is no homogeneity in the panel data.

H1= There is heterogeneity in the panel data.

So the model supported our hypothesis and describe that we do not reject the null hypothesis and we will accept the alternate hypothesis.

5.7.1. TABLE 5

DFE (b)	DFE(b)	PMG(B)	b-B	S.E
FD	-6.484651	.979787	-7.464438	3.622687
GDP	8.83e-13	7.03e-12	-6.14e-12	5.31e-12
TR	-8.045237	-3.484922	-4.560315	4.175961
INF	.0015785	.0017695	-.000191	
Prob>chi2	0.2026			

The above table shows there exist an inverse linear association between financial development and income inequality. The value of P 0.2026 describes we do not reject the null hypothesis and we will accept the alternate hypothesis.

5.8 Test of GJ Hypothesis

Further analysis to test the inverted u-shaped hypothesis of GJ (Greenwood and Jovanovic, 1993) we have included the nonlinear term, the square of FD in the basic log linear model to explore the association between the financial development and income inequality.

5.8.1 Table 6

Variables	Coefficient	Std. Error	t-Statistic	Prob.*
LNFD	-30.66709	1.506430	-20.35746	0.0000
LNFD2	-10.99062	0.620434	-17.71441	0.0000

Above table depicts that the coefficient is still inverse and significant, but the value of t-statistics has negative. So, we fail to favor the inverted u-formed theory. The non-linearity association between financial development and income inequality was not in favor for other countries result like for China (Liang, 2006) and India (Ang, 2008; 2010). Another case Clarke *et al*. (2003, 2007) was in favor of this theory in cross country data of underdeveloped economies.

Conclusion

This chapter provides the estimation procedure that is done by using the STATA and the method of ARDL step by step is completed. Some variables are stationary at level or some are stationary at first difference. When the problem of heterogeneity occurs, we generated the pool. However, we conduct two school of thoughts test. the researcher result supported the negative linear relationship in long run while it is different in short run.

Chapter 6

Findings and Conclusions

The study depicts the findings, conclusion, limitation of the study, and future recommendation.

6. Conclusions

The present paper examines the issue by conducting empirical test to observe the relationship between financial development and income inequality made by alternative theories such as specifically, Newman & Zeira, (1993). The study takes the annual data of selected developing countries from 1991-2015 and apply the ARDL approach of cointegration which describe the relation in an individual specific equation. we also check the unit test for the stationary of the variables. The result of ARDL approach of cointegration satisfied there is long run association between the variables of selected countries. Accordingly, we also test the ECM to check convergence and divergence towards the long- time after any shock. However, the coefficient is inverse and significant in all cases, and accurate the convergence towards the long run if any shock hit the short run. However, the researcher result is also similar in the form of methodology and results Shehbaz et al. (2012); Fukuda, (2017); Levine, (2007) that income inequality diminishes as the financial development improved.

The main findings of the study can be listed as below.

- Financial development is inversely associated with income inequality which illustrate enhances in financial development reduce the income inequality in targeted developing economies. This study supported the Newmen & Ziera, (1993) hypothesis.
- The study does not in favor of the Greenwood, (1990) hypothesis which describe an inverted u-formed association between the financial development and income inequality.

- The result of short run is different from the result of long run result. The result are consistent with jalil, (2011).

It is generally believed financial sector provide various solutions to tackle the issue of economic crisis. However, the policies determine the financial sector can work viable two channels. First, the policies can be made by extending the credit to all investors, but the small businessman get more advantages. The talented worked can enhance their productive activities, create various type of employment opportunities, and focus to increase the welfare of the concerned people. Second, providing fund at low cost to the most vulnerable people is helpful so may they support their families and children for education and for health protection. Education is good for wellbeing capital origination and opens the gate for equality of income inequality. Education provide the chance for highly competitive world in order to expand the opportunities. So, the human capital increases the technological process through proper innovation, the most helpful for economic growth. Last but not lease, it is not sufficient situation for reducing the income distribution. Shahbaz et al. (2012).

The two phenomena mainly observed since the five decades around the world, particularly in targeted developing economies, they are facing the increasing financial development and increasing income inequality. We have discussed the theoretical and empirical models that depicts enhancing in financial development can reduce the income inequality up to a specific level. However, the results based on the previous empirical research by using the new estimation techniques. Further, it will allow the researcher to be observed while working on the financial development and income inequality. The association between financial development and income inequality is still an open question for more research opportunities by using index that covered almost all aspects of financial development.

6.1 Limitation of the Research

The analysis has the constrain with respect to the size of the sample which is mainly an important role about the association between financial development and income

inequality. We have restricted our study because of availability of macroeconomic variables data that is taken from the WDI and IMF. We have used the ARDL techniques that is more advantageous over other models.

6.2 Future Recommendations

Our study is based on panel data of targeted developing economies. Instead of taking the microeconomics variables, our main focus was on macroeconomic variables that is taken from the WDI and IMF. So, to solve the issue of income inequality, a future predictor must have full command of factors responsible for disparity. Instead of increasing quantitative measures, the government should focus on qualitative improvement as well. Reducing income inequality promotes economic growth so the government of these countries concentrate on those poor who are in vulnerable situation, provide health facilities, education, skill enhancement program and much more. Therefore, it is an open way for the upcoming scholars to analyses the relation and can get data from IMF instead of using the proxy's variable like credit ratio of GDP, they just cover a few aspects of financial development the recent updated index is more informative as compared to the proxies used in the previous literature. Other macroeconomic variable can also be included to see the influence of financial development on income inequality in case of selected underdeveloped economies.

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Appendices

Appendix A

Descriptive Statistics

variable	Y_GINI_	GDP	FD	GOVCOEXUEMP	INF	LNFD2	POP	TR
Mean	41.53900	2.46E+11	0.414458	2.77E+10	57.99674	1.898656	1.329802	0.735553
Median	42.20000	1.47E+11	0.311439	1.82E+10	6.362039	1.360843	1.420203	0.649126
Maximum	61.60000	2.30E+12	2.362697	2.29E+11	4734.914	7.751408	2.794760	2.400574
Minimum	11.11596	9.80E+09	0.061783	1.43E+09	-0.900425	0.009432	-1.752259	0.086142
Std. Dev.	10.79174	3.35E+11	0.413256	3.56E+10	391.1122	1.604921	0.866123	0.502669
Skewness	-0.071150	3.338769	2.926973	3.095874	9.465732	1.091882	-1.351261	1.656742
Kurtosis	1.919201	16.11224	11.92390	14.33040	98.39709	3.551275	4.951072	5.625362
Jarque-Bera	15.99354	2914.002	1532.968	2243.715	127302.4	68.27048	149.5262	240.5233
Probability	0.000337	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Appendix B

Unit Root Analysis

Variable	**t-statistics**	**p-value**	**p-value**	**Integrated level**
Y Gini	-9.3464 . I (1)	0.7027	0.0000	I(1)
FD	-9.3464 I(1)	0.7969	0.0000	I(1)
GDP	-1.7354 I(1)	1.0000	0.0413	I(1)
TR	-1.4142 I(0)	0.0786		I(0)
INF	-7.9288 I(1)		0.0000	I(1)

Appendix C

Correlation Analysis

	Y Gini	**FD**	**GDP**	**TR**	**INF**	**POP**	**GOVEXP**
Y Gini	1						
FD	-0.1791	1					
GDP	-0.2594	-0.0193	1				
TR	0.0568	-0.072	-0.0885	1			
INF	-0.1253	-0.1176	-0.0501	0.0261	1		
POP	0.2638	0.1646	0.0081	-0.1673	-0.2296	1	
GOVEXP	-0.2447	-0.0477	0.979	-0.0479	-0.0141	-0.0734	1

Appendix D

Pool Mean Group

ECT		Coef	Std.error	P-value
	FD	-6.484651	3.469495	0.062
	GDP	8.83e-13	5.16e-12	0.864
	TR	-8.045237	4.183062	0.054
	INF	.0015785	.001567	0.314
SR				
	ECT	-.3211716	.0425711	0.000
	FD D1	.2769249	4.670009	0.953
	GDP D1	2.34e-11	1.73e-11	0.174
	TR D1	.0749964	2.250459	0.973
	INF D1	-.0013722	.0005731	0.017

Appendix E

Hausman Fixed Effect Pool Mean Group

DFE (b)	DFE(b)	PMG(B)	b-B	S.E
FD	-6.484651	.979787	-7.464438	3.622687
GDP	8.83e-13	7.03e-12	-6.14e-12	5.31e-12
TR	-8.045237	-3.484922	-4.560315	4.175961
INF	.0015785	.0017695	-.000191	
Prob>chi2	0.2026			

Appendix F

Hausman Mean Group and Pool Mean Group

Variable	Mg (b)	Pmg (B)	Difference (b-B)	S.E
FD	-14.69837	.979787	-15.67815	17.46082
GDP	-1.28e-10	7.03e-12	-1.35e-10	9.86e-11
TR	16.08217	-3.484922	19.56709	21.31071
INF	.0991015	.0017695	.097332	.0900969
Prob>chi2	0.3178			

Appendix G

GJ Hypothesis

Variables	Coefficient	Std. Error	t-Statistic	Prob.*
LNFD	-30.66709	1.506430	-20.35746	0.0000
LNFD2	-10.99062	0.620434	-17.71441	0.0000

List of Developing Countries. 1991-2015

Country No	Country Name
1	Bangladesh
2	Bolivia
3	Chile
4	Colombia
5	Indonesia
6	India
7	Kazakhstan
8	Malaysia
9	Paraguay
10	Peru
11	Pakistan
12	Thailand
13	Ukrain