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Exploring the Linkages between Financial Development and Income Inequality: Does Financial Kuznets Curve Exist in Kazakhstan?

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Abstract: Does financial Kuznets curve exist for the Kazakhstan economy? Motivated by this research question, this study, for the first time, examined the relationship between financial development and income inequality in case of Kazakhstan covering the quarterly data from 1991-2011. In this regard, we have applied Bayer-Hanck (2013) combined cointegration and Pesaran et al. (2001) autoregressive distributed lag (ARDL) bounds testing approaches to examine the long-run relationship in the presence of structural break stemming in the series. The unit root properties have been tested by applying Zivot-Andrews (1992) structural break test. The innovative accounting approach (IAA) is employed to detect the direction of causal relationship between financial development and income distribution. Moreover, Greenwood-Jovanovich (GJ, 1990) hypothesis has also been empirically tested for Kazakhstan economy.

We find the long run relationship between the variables. Our results document the reducing impact of financial development on income inequality in Kazakhstan. Furthermore, we also find that economic growth worsens income inequality, whereas both inflation and trade openness improve income distribution. We note that GJ hypothesis is not confirmed and U-shaped relationship exists between financial development and income inequality. We infer further that income inequality reduction or better income distribution among haves and have-nots in Kazakhstan economy is likely to be possible by only financially benefiting poor segments of rural and urban population. From a policy perspective, we suggest that the results of our study are believed to be more helpful for policymakers of developing countries in general and Kazakhstan economy in particular while designing their public policy agenda of achieving equal income distribution among larger proportion of the population in the economy.
Keywords: Financial Development, Income Inequality, Kazakhstan

1. Introduction

Income inequality or uneven distribution of income in the course of higher economic growth is a major concern in development and welfare economics as it relates to developing and transition countries (Tan and Law, 2012; Shahbaz et al. 2015). As far as both developing and transition countries are concerned, higher sustainable economic growth with equal distribution of income is a serious concern for them due to the demonstration effect of rich countries because the developed countries are growing and healthy in terms of higher standard of living, better distribution of income, less quantum of hunger, quality conditions of education, health, and housing. Such notable indicators enable developed countries to realize the benefits of sustainable steady state long run economic growth along with better income distribution, whereas developing and transition countries are far from this reality. Keeping this fact in mind, both developing and transition countries are trying to reduce income inequality through proper distribution of income among the rich and poor segments of population in the economy. As a result, the rise in living standard of population continued to be possible for these economies in the long run if they are trying to catch up and compete with developed countries in the world. Therefore, equal distribution of income and rising living standard of population in these economies have become twin objectives of their respective public policies. Moreover, it is tempting to believe in the growth and income distribution literature that unless we achieve these objectives, we can't achieve sustainable economic growth and rising living standard of population for developing and transition economies. In this perspective, a sharp rise of income inequality in the transition and developing countries has debated a wide-ranging discussion about the factors affecting income inequality.

Given that above raising issue on the dynamics of income inequality in developing and transition countries, Kuznets' (1955) seminal paper initiated most of the cross-country investigations on the determinants of income inequality[1]. It is found in the extensive literature that apart from studying the impact of growth on income inequality (Cornia and Kiiski, 2001; Ferreira, 1999), several other factors are also responsible about the dynamics of income inequality in developing and transition countries (Kaasa, 2003). It is again well documented in the international growth and finance literature that financial development is considered as potential tool for achieving sustainable steady state economic growth (King and Levin, 1993; Demetriades and Hussein, 1996; Levin, 1997; Arestis and Demetriades, 1997; Levin et al. 2000; Rajan and Zingales, 2001; Wachtel, 2003; Beck et al. 2004; Demetriades and Andrianova, 2004; Goodhart, 2004; Ang and McKibbin, 2007) but the same inference on the links between financial development and income inequality can't be drawn for developing and transition countries. In view of this, there have been some of the studies to investigate the importance of financial development on income inequality (Ang, 2010; Banerjee and Newman, 1993; Beck et al. 2007; Claessens and Perotti, 2007; Galor and Zeira, 1993; Greenwood and Jovanovich, 1990; Tan and Law, 2012; Shahbaz et al. 2015). In the presence of these growing studies, three influential hypotheses have emerged on the links between finance and inequality in the literature, such as finance-inequality widening hypothesis, finance-inequality narrowing hypothesis, and finance-inequality inverted U-shaped hypothesis. The postulated first two hypotheses are derived from the conceptual framework of Banerjee and Newman (1993) and Galor and Zeira (1993), while the third hypothesis was proposed from the theoretical foundation of Greenwood and Jovanovich (1990).

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[1] See the study by Mukhopadhaya (2004), page no.230, Table-1.

The finance-inequality widening hypothesis reveals that financial development may benefit the rich and well off people when institutional quality is weak. This hypothesis further suggests that rich are only benefitted because of the fact that they are able to show credit-worthiness attitude and offer required wealthy collateral to financial institutions, and as a result, they do not have any problem of repaying the loans to the banks at the time of maturity. The socially and economically backward poor people, on the other hand, who relatively lack credit-worthiness attitude and sufficient collateral at their disposal, may find it difficult to access the financial services of financial institutions. In this sense, it can be argued that the poor people will be out of the banking benefits irrespective of whether banking sector is underdeveloped or fully developed. Therefore, they used to obtain some amount of informal loans on the basis of connection with close friends and relatives. The access to informal loans by the poor people may not be sufficient for them to investment on necessary food, cloth, housing, health and elementary and primary education. In such circumstance, it is again difficult for them to investment on higher education. This indicates that the poor people are equipped only with primary education, and, therefore, their contribution to unskilled labour market will increase at lower wage rate and will decline to skilled labour market. As a consequence, the limited employment opportunities will be available for them, leading less contribution to the family welfare, rising the living standard and economic growth. Hence, we can conclude that financial development will worsen income inequality suggesting the positive relationship between financial development and income inequality.

The finance-inequality narrowing hypothesis is likely to take place when bottom section of the population (the poor people) who were previously excluded in obtaining loans from financial institutions now might access to credit from the banks in the presence of growing financial sector in the economy. The access to banking credit by the poor people will help them in investing on education, health and housing. Among these, financial investments on different levels of education will make the poor people to be skilled, productive and competitive in the domestic and international job markets. As a result, the poor people with possessing potential human capital or having with new innovative ideas and managerial skills will largely benefit them from getting better employment in the well-suited job markets and also realizing the other economic potential opportunities, and eventually their higher productivity resulting from human capital will lead to rise in the total factor productivity and, in turn, will also enhance the sustainable economic growth and development. In this way, financial development may improve income distribution of the poor which is also considered as potential mechanism of poverty reduction in developing and transition countries (Jalilian and Kirkpatrick, 2002). The third hypothesis developed by Greenwood and Jovanovich (hereafter GJ, 1990) reveals that at the early stages of financial development, it intensifies inequality and eventually after reaching peak point then inequality decreases once financial sector tends to mature. This suggests the existence of inverted U-shaped hypothesis between financial development and income inequality. In other words, it shows that at early stages of economic development, only the rich can afford to access and profit from the developed financial markets; thus financial markets development intensifies income inequality and on the other hand, at higher levels of economic development, financial development helps in benefitting larger section of the population in the society (Tan and Law, 2012).

Motivated by the above listed hypotheses and literature discussed in the previous and subsequent sections, it is seen in the recent years that there is increasing interest of researchers to analyze economic consequences of financial development on income inequality at national and cross-country levels. An additional reason for larger engagement of researchers in examining the impact of financial development on income inequality could be

due to the adverse impact of uneven income distribution on the standard of living of the poor and also on poverty. Moreover, income inequality is one of those stunning problems that facing most of the developing and transition countries in the world. Slottje and Raj (1998) concluded that in South Africa and Asia, there is the worst income distribution while in Europe the income inequality is low. By a simple comparison, the recent study by Kaasa (2003) also showed that income distribution is very poor in Kazakhstan. Kazakhstan is one of the transition countries which have undergone considerable economic and political changes and it seems that economic development for Kazakhstan economy is very variable, thus making it impossible to establish some stable level of income inequality. In this case it is useful to approach the impact of financial development on income inequality for Kazakhstan economy at the empirical level. Before highlighting the contribution of our study, it is always beneficial to justify the position of Kazakhstan economy in terms of looking at the trend of income inequality, gross domestic product (GDP) per capita and financial development per capita.

Figure-1 shows the fluctuating trend of income inequality (measured by Gini coefficient) in Kazakhstan. Initially, income inequality is increasing from 1991 to 1993 and then starts increasing at a decreasing rate beyond 1993 to 2001. From 2002 onwards, income distribution in Kazakhstan has been very low and poor compared to previous years. By looking into trend of GDP per-capita in Figure-2, we observe that it has initially increased, then decreased and now again has moved upward. Figure-3 also shows domestic credit to private sector per capita which is used as proxy indicator for financial development in Kazakhstan. Financial sector development shows increasing trend till 1994 and began deteriorating till 1999, remained relatively low and stable in 2000 to 2005 but gradually that has improved in subsequent years. The reason for an increasing financial development in Kazakhstan after 2005 onwards could be due to the efficiency of banking sector and opening of various banking branches more in rural areas. After seeing the simple trend analysis of income inequality and real GDP per capita in Figure-1 and Figure-2, we found that the inverse relationship exists on the links between economic growth and income inequality, suggesting that at an early stage of economic development, income inequality continues to be high and the reverse exits at a higher level of economic development. But when we look at the relationship between financial development and income inequality in Figure-1 and Figure-3, we also find that at an initial stage of financial development, the income inequality is high and subsequently the income inequality has been lower in the presence of higher financial development in Kazakhstan. Taken together, it shows that financial development has the reducing impact on income inequality through the channel of higher economic growth in Kazakhstan. In this context, the present study attempts to empirically examine whether financial development positively or negatively impacts income distribution in Kazakhstan by endogenizing economic growth and other possible factors. Therefore, this study, for the first time, makes towards this empirical understanding on the links between financial development and income inequality for the transition economy like Kazakhstan.

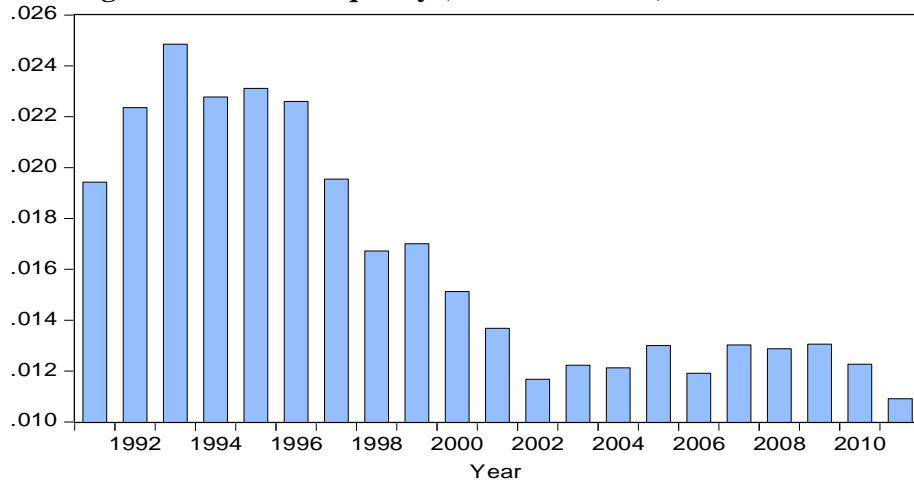**Figure-1. Income inequality (Gini-Coefficient) in Kazakhstan**
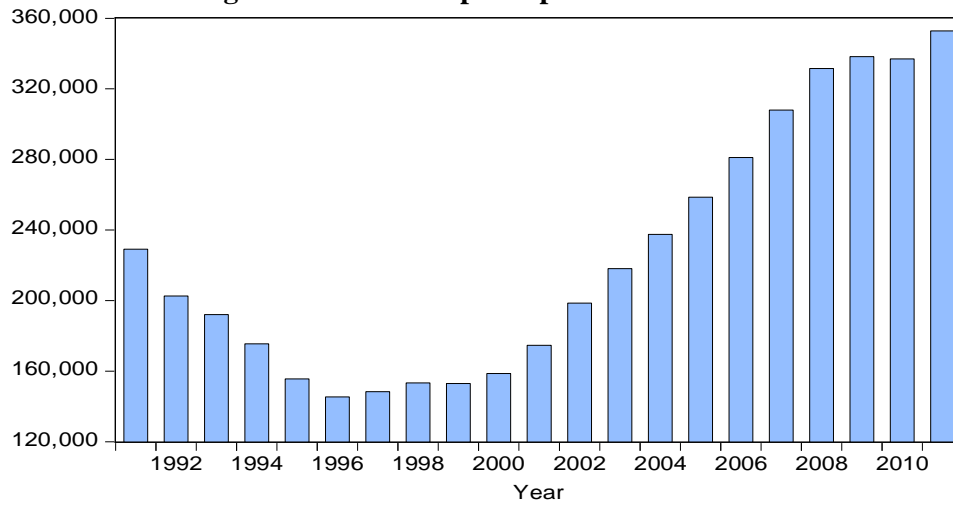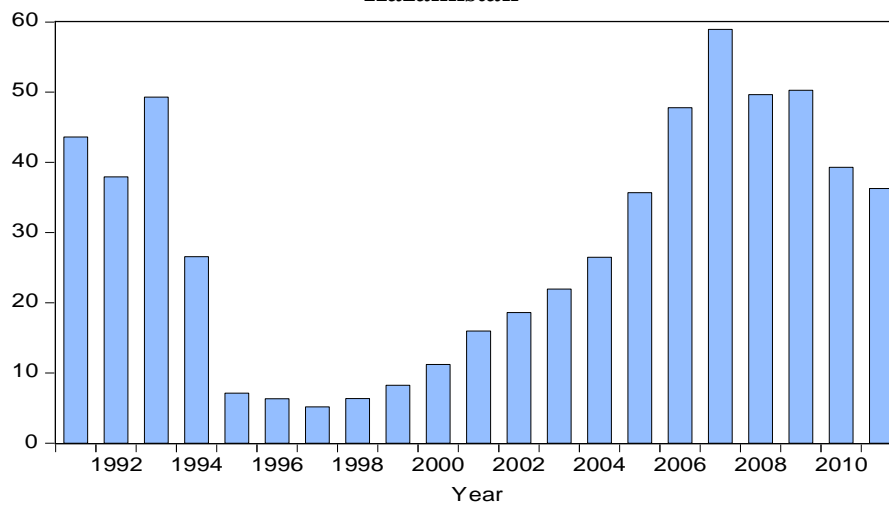

Figure-2. Real GDP per capita in Kazakhstan

Figure-3. Financial development (real domestic credit to private sector per capita) in Kazakhstan

Given the above background, it is again interesting to note that the extensive discussion made in the subsequent section of empirical literature survey about the factors influencing income inequality in developed, developing and transitions countries shows that a large body of existing studies over the years have made investigations on the impact of financial development on income inequality but their results are found to be inconclusive and mixed. Moreover, to the best of our knowledge and belief, no empirical investigation has been carried out on the links between financial development and income inequality in Kazakhstan. Given that research gap, this study tries to raise some possible research questions: does financial development increase or reduce income inequality in Kazakhstan? Is there any financial Kuznets curve existing in the case of Kazakhstan economy? In answering these research questions, this study attempts to contribute to the existing literature by considering the Kazakhstan economy on several aspects: (i) we focus on Kazakhstan economy in a partial macroeconomic framework of using quarterly time series data for the period 1991-2011 rather than considering a larger set of countries in a panel framework given that the effects of financial development may be heterogeneous across countries at different stages of economic development,[2] (ii) the nexus between financial development and income inequality is investigated by using quarterly time series data in case of Kazakhstan. In doing this, this not only could enhance our understanding of financial development-income inequality relationship, but also fills the gap in extant literature and in turn enrich the literature, (iii) unit root properties of the variables have been examined by applying structural break unit root tests such as Zivot-Andrews (1992), (iv) we have applied Bayer-Hanck (2013) combined cointegration and the structural break autoregressive distributed lag (ARDL) bounds testing approaches to cointegration for examining the long run relationship between the variables and, (v) the innovative accounting approach (IAA) is applied to test causal relation between the variables. From our empirical analysis, we find the long run relationship between the variables. Our results also document the reducing impact of financial development on income inequality in Kazakhstan. Furthermore, we find that economic growth worsens income inequality, whereas both inflation and trade openness improve income distribution among larger section of the population in Kazakhstan. We note that GJ hypothesis is not confirmed and U-shaped relationship between financial development and income inequality is also found. Hence we further infer that income inequality reduction or better income distribution among haves and have-nots in Kazakhstan economy is likely to be possible by only financially benefiting poor segments of rural and urban population in Kazakhstan. From a policy perspective, we suggest that the results of our study will be more helpful for policymakers of developing countries in general and Kazakhstan economy in particular while designing their public policy agenda of achieving sustainable economic growth and equal income distribution among larger section of the population in the economy.

The remainder of this study is structured as follows. Section-2 describes conceptual and theoretical issues on finance-income inequality nexus. Section-3 reviews the empirical literature on the relationship between finance and inequality. The methodological framework, estimations techniques and data employed in this study are described in section-4. The empirical results are discussed in section 5. Finally, section-6 summarizes the core findings and concludes with policy recommendations.

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[2] Ogwang (1995) argued that an empirical investigation on the links between financial development and income inequality should be undertaken on a country-by-country basis. In addition, Ang (2010) also favoured the Ogwang argument, suggesting that a case study would be particularly useful in knowing the actual impact of financial development on income inequality.

2. Conceptual and theoretical issues on finance-income inequality nexus
Before analyzing the theoretical set up between finance and income inequality, from a perspective of wide readership it is useful for researchers to conceptualize the financial system and income inequality. A country's financial system allocates capital across economic activities. Every financial system is an ecological system consisting of ''bodies'' and ''institutional arrangements''. The ''bodies'' include financial institutions such as banks, security firms and insurance companies and government organs such as the central bank and security regulatory agency. The ''institutional arrangements'' include whether a country choses to have a flexible and fixed nominal exchange rate regime, whether it has a single financial regulatory body for all or most financial activities or a set of segmented and specialized regulatory bodies, whether it chooses to regulate cross border capital flows and whether it decides to have an inflation targeting framework to constrain the discretion of its central bank (Wei, 2014). Income inequality, on the other hand, implies the uneven distribution of income among the rich and the poor population.[3] Income inequality can be again interpreted as a sign of injustice, unequal opportunity, social instability and insider privileges (Tan and Law, 2012). In this sense, Tan and Law (2012) further argued that income inequality is believed to be destructive and problematic to larger society of developing countries. The possible reason for such adverse impact of inequality could be due to the presence of market failures and ineffective governments programs and intervention in the markets, leading to hamper sustainable economic growth and welfare development and thereby resulting uneven income distribution for future generation. In this way, if income inequality persists over the time, the adverse consequence tends to be higher for larger section of the society not for the present generation but also for the future generation in the economy. For instance, inequality may affect society's ability to convert a given amount of income into welfare. That means potential welfare which is lost due to the presence of income inequality (Atkinson, 1970; Herzer and Vollmer, 2012). Moreover, the adverse consequence of income inequality tends to be higher for larger portion of the population in the society if ''trickle-down effect'' does not work[4]. Recognizing the problems associated with income inequality, it is argued in the income and finance literature that a prudential development of financial sector can employed as one of the potential tool in the reduction of poverty and achieving effective income distribution among the larger section of the population or improving the income levels of the poor in the society.

It has been emphasized in the literature that better management of financial sector can foster higher economic growth (Levin, 2005). In this regard, a recent literature often argued whether financial development contributes to less poverty and inequality (Claessens and Perroti, 2007). Hence, it is worth stressing to note that the theoretical predictions of the impacts of financial development on income inequality are found to be conflicting. Some models indicate that financial development enhances growth and reduces poverty and inequality. Because both developing and transition countries are often characterized by the presence of credit constraints due to their market imperfections, such as moral hazard problems, asymmetric information and transaction costs. These credit constraints may intensify inequality and increase poverty level as it seems to a binding on the poor, who may not have equal access to credit due to the lack of collateral and credit-worthiness attitude, established networking with financial institutions in their locality and the presence of higher transaction costs. Thus, any relaxation of these credit constraints will disproportionately benefit the poor through improvements in financial system and financial literacy. As a result, it will improve

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[3] The income produced in the economy is only benefiting the rich rather benefiting the poor.
[4] According to ''trickle-down effect'', as economies expand, poverty is likely to be reduced, but poverty reduction is likely to be adversely affected due to increased income inequality.

the efficient allocation of financial resources (i.e. bank credit) and, thereby it reduce income inequality by facilitating funding to poor households and small firms with expectation of higher return on investments (Aghion and Bolton, 1997; Galor and Zeira, 1993; Beck et al. 2007; Claessens and Perotti, 2007; Ang, 2010). In a laymen perspective, the impact of financial development on income inequality can be argued in multiple dimensions. First, easy access to financial resources may boost investment activities that directly increase the income levels of the poor segments in total population by generating employment opportunities for them. Second, easy access to financial resources provides various platforms in the sense that it enables the poor among the total population in order to increase their human capital formation by largely investing in education, health, housing and various other aspects of socio-economic development of their children, family members and relatives. Third, financial development reduces income, wealth and human capital inequality via ''trickle-down effect'' channel. Fourth, easy access to financial resources enables the poor in total population to initiate their small business ventures or helps in supporting running business and, in turn, benefits them through getting profit from their own new or old ventures. Fifth, easy access to financial resources allows the poor population those who live below the poverty line (BPL) to feed their children as well as to support their education and provide them better health security that leads to enabling them to be more skilled and higher productivity-driven better wage in the labour market and, thereby they are part of the higher economic growth process and ultimately improving income distribution of the poor in total population. Finally, financial system development provides loans to the poor farmers at affordable rate and allows them to be more financially inclusive so that they will be in a position to promote and contribute to rural economy (Galor and Zeira, 1993; Canvire-Bacarreza and Rioja, 2009; Arora, 2012; Shahbaz et al. 2015). From these perspectives, we can conclude that financial development helps the poor by improving the level of income distribution and, thereby it reduces income and opportunity inequality in the economy.

In contrast, some theories also postulate that financial development primarily helps the rich. Rajan and Zingales (2003) in their study argue that in the presence of weak institutional environments, financial development is more likely to benefit the rich due to having the asset backed securities (collateral) at their disposal. In this way, the rich people may be able to prevent poor people and other small firms from accessing credit from the banks and simultaneously they also reduce the ability of the poor to improve their well-being as well as to invest sufficiently in human, physical and social capital which seems to be highly necessary for achieving sustainable economic growth and better income distribution of the developing and transition countries in the world. Moreover, this implies that credits constraints and lack of connections with banking industry may not allow the poor to access the credit from financial institutions. Therefore, the poor mainly rely on informal lending, family connections for assessing financial capital which might be helping them to investment in human and physical capital. In this regard, the pioneering work proposed by Greenwood and Jovanovich (GJ, 1990) shows a non-linear relationship between financial development, income inequality and economic development. More clearly, they have argued that at every stages of economic development, financial development improves capital allocation irrespective of the rich and the poor, boosts aggregate growth, and ultimately helps the poor through this channel. This, in turn, indicates that the distributional effect of financial development on the incomes of poor primarily depends on the level of economic development. More importantly, it further shows that at early stages of economic development, only the rich can afford to access the credit and directly profit from the better financial markets. At higher levels of economic development, many people including the rich and the poor access the financial markets so that financial development directly helps larger

segments of the population in the society (Beck et al. 2007; Claessens and Perotti, 2007). From these perspectives, the emerged established GJ (1990) hypothesis can be arrived and documented that initially, financial development increases income inequality, but declines income inequality once financial sector matures.

3. Related empirical literature

Over the last three decades, it is clearly seen that there is growing interest of researchers in analyzing the impact of financial development on economic growth (King and Levin, 1993; Pagano, 1993; Demetriades and Hussein, 1996; Arestis and Demetriades, 1997; Levine, 1997; Levine et al. 2000; Anderson and Tarp, 2003; Wachtel, 2003; Beck et al. 2004; Demetriades and Andrianova, 2004; Goodhart, 2004; Jalilian and Kirkpatrick, 2005; Ang and McKibbin, 2007). Levine (1997) confirms that long run economic growth has been experienced by those economies which have well-developed banking system. This implies that financial development is regarded as one of the potential tool in enhancing economic growth and development for developed, developing and transition countries. But the effect of financial development on economic growth is likely to more for developing and transition countries in comparison to developed countries because the developing and transitions countries are yet to achieve the steady state economic growth position, whereas the developed countries are already in the path of steady state (long run) economic growth. In spite of this differential advantage of financial development on economic growth for various economies, the underlying theoretical concern is unclear and inconclusive. In response to this, Kirkpatrick (2000) provides a constructive justification for the positive impact of better financial system on economic growth, indicating that a well-functioning financial system helps in mobilization of savings, resource allocation, and facilitation of risk management which, in turn, provides support for capital accumulation, improves efficiency of investment and promotes innovations in technology and hence contributes to economic growth. Similarly, Goldsmith (1969), Mckinnon (1973), King and Levine (1993), Pagano and Volpin (2001), Christodoulou and Tsionas (2004), Shan (2005), Ma and Jalil (2008), and Shahbaz et al. (2008) paid their attention to identify the effectiveness of financial development on sustained economic growth, physical capital accumulation and economic efficiency.

As already discussed in the introduction section, a drawing inference on the links between financial development and economic growth may not be concluded as same as on the impact of finance on income inequality as the issue of uneven income distribution in developing and transition countries is one of the vital developmental problems. Moreover, although the large body of literature find that financial development produces faster average growth (Levin, 1997, 2005; Beck et al. 2007), but researchers have not yet sufficiently examined whether financial development benefits the whole population equally, or whether it disproportionately benefits the rich or the poor in developing and transition countries. From this underlying perspective, it is clearly documented that if financial development intensifies income inequality, then the beneficial effect of financial development on poor is expected to be minimal. Thus, our concern in this study is to empirically examine the relationship between financial development and income inequality in Kazakhstan by endogenizing other factors, such as economic growth, inflation and trade openness given the fact that there is no such study available in Kazakhstan using the quarterly time series data at the macro level as far as the literature is concerned[5]. Before discussing the studies in the case of Kazakhstan economy,

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[5] To the best of our knowledge, only few studies exist in Kazakhstan economy which are purely based on the micro level household survey analysis (Hare and Naumov, 2008; Howie and Atakhanova, 2014).

it is more pertinent to discuss cross-countries study and their theoretical arguments on the causal links between financial development and income inequality.

There are various studies which have highlighted the impact of financial development on income inequality. For instance, Galor and Zeira (1993), and Banerjee and Newman (1993) have argued that particularly the credit market improves income distribution in the economy. They suggested that the initial income gap between the rich and the poor would not be reduced to an expected level unless financial markets are sound. Similarly, Canavire-Bacarreza and Rioja (2009) also argued that "given their lack of collateral and scant credit histories, the poor entrepreneurs may be the most affected by financial market imperfections, such as information asymmetries, moral hazard problems, contract enforcement costs, and higher transactions costs". There are some other channels through which financial development may increase income inequality. For example, Behrman et al. (2003), Dollar and Karaay (2002), Beck et al. (2004), Shahbaz et al. (2015) and others argued that in the early stages of financial development, the poor segments of population in total population may find it difficulty in accessing the credit from the financial institutions due to the lack of collateral and financial literacy. In addition to this, the poor are denied from the benefits of better financial system due to higher screening costs in educating them about the opening up their bank accounts. Taken together, these costs are beyond the affordability of the poor individuals in accessing the credit from the financial institutions and markets (money market, credit market, stock market, real estate market and government securities market). Furthermore, deficiencies in money markets in terms of asymmetric information, intermediation and higher transaction costs restrict the poor people to get loans from the financial institutions because they do not have ensuring collateral, credit records and political; and personal connections with high authorities of the financial sector to access loans at reasonable interest rate. Hence, even if there are enough funds to be distributed to the poor at reasonable rate of interest then they are unable to avail benefit of such financial services from the financial institutions due to the credit constraints. In this context, Perotti (1996), Claessens (2006) and Claessens and Perotti (2007) and others also provided another reason due to which the poor people are unable to access the benefits of financial development in the case of developing and transition countries. They also argued that since the poor individuals are not much educated, formal financial sector does not prefer them in offering loans, but in many high income countries, financial sector has dualism in the provision of financial services. In such circumstance, the poor individuals are unable to come out from the circle of income inequality and eventually the income inequality intensifies more in developing and transition countries rather in developed countries.

In a similar manner, Galor and Zeira (1993) pointed out the positive consequence of financial development on living standard and welfare of the poor in the society. This shows that an easy access to bank credit will enable the poor firms or poor households to initiate small and income generating ventures through which they can easily support their life survival, mitigate the necessary investments in health, human, social and physical capital. As a result, the beneficial effect of financial development hinges on the poor chunk of the population in the society and, thereby it increases the level of income and living standards of the poor, leading to the reduction of poverty and income inequality. In contrast, Bourguignon and Verdier (2000) also argued that benefiting the poor is not financial system driven because in almost all cases, they mainly rely on informal networks for credit availability. This indicates that the poor segments of the population are denied of accessing the bank credit due to credit constrains. In such circumstance, financial development would only benefit the rich class of

the population in the society on account of having healthy credit-worthiness and therefore it raises income inequality in the economy.

Given the above extensive theoretical discussion on the links between financial development and income inequality, it is now appropriate to validate the existence of true relationship between finance and inequality by surveying the empirical literature available on this aspect. Furthermore; Westley (2001) investigated the impact of financial markets on income distribution for Latin American countries in panel framework and reported that easy access to financial resources through micro finance policies reduces income inequality. Calderon and Serven (2003) disclosed that financial development worsens income distribution while education improves it. Similarly, Lopez (2004) also found that better education and low prices decrease income inequality. Financial development, international trade, and government size hamper income distribution. Similarly, Honohan (2004), Beck et al. (2004), and Stijn and Perotti (2007) noticed that financial development and income inequality are not only a correlation but also a causal relationship between both the variables. For example, positive impact of financial development on economic growth may enable the poor segments of population to demand for necessary loans from financial markets to increase their income levels as economy grows at different levels. In a larger cross country studies of 49 developed and developing countries, Li et al. (1998) found that financial development lowers income inequality by raising the average income of bottom 20% population. This happens mainly because the amount of credits accessed by the poor from the financial institutions is invested in human capital formation, leading to increase in the living standard of the poor. In an analysis of income inequality, Clarke et al. (2006) study the effect of financial development on the level of the Gini coefficient-a measure of deviations from perfect income inequality. Their results show that financial deepening is associated with lower income inequality. In a similar fashion, Beck et al. (2007) using cross-country data from 1960-2005 and employing regression technique in their empirical analysis found that financial development disproportionately boosts incomes of the poor and reduces income inequality. Moreover, they also empirically found that about 40% of the long-run impact of financial development on the income growth of the poor is the result of reductions in poverty and income inequality while the remaining 60% is mainly due to the impact of financial development on aggregate economic growth. Similarly, Demirguc-Kunt and Levin (2007) analyzed the impact of financial development on changes in income distribution and income of the poor. Their results reveal that financial development reduces income inequality and enhances income levels of the poor. The recent study by Shahbaz et al. (2014), covering the annual data from 1965-2011 and using the ARDL bounds testing approach and VECM causality test for Iran found that financial development reduces income inequality indicating that financial sector provides opportunity to the poor segments of population in accessing the bank credit for their human capital and small business investments.

On contrary, Bonfiglioli (2005) used cross-country data to empirically examine the impact of financial development on income inequality and concluded that financial development has progressive effect on income inequality. Similarly, Tan and Law (2012) empirically investigated the dynamics of finance-inequality nexus using data of 35 countries. Their results indicated U-shaped relationship between financial deepening and income distribution. This further implies that financial markets are inefficient to improve income distribution in these countries. In case of emerging economies like China, Ling-Zheng and Xia-Hai (2012) applied threshold model developed by Hansen, (1999) using provincial data to investigate the relationship between financial development and income inequality. Their results disclosed

that financial development deteriorates income inequality and supported the existence of U-shaped relationship between both variables.

Table-1. Studies on finance-income inequality in transition and developing countries

Study	Country	Empirical evidence
Liang (2006)	China	Financial development improves urban income distribution in post-reform China.
Hare and Naumov (2008)	Kazakhstan	Minor impact of oils shock on income distribution is found.
Li et al. (2008)	East Asian countries	U-shaped Kuznets curve is validated.
Law and Tan (2009)	Malaysia	The favorable impact of financial development on income inequality is found.
Shahbaz (2009)	Pakistan	Greater reducing effect of financial development is found on income inequality in the absence of financial instability but this effect is nullified by financial instability.
Ang (2010)	India	Financial development reduces income inequality and financial liberalization increases income inequality.
Bittencourt (2010)	Brazil	Financial development declines income inequality.
Jalil and Feridun (2011)	China	Financial development reduces income inequality (inequality narrowing hypothesis is accepted).
Shahbaz and Islam (2011)	Pakistan	Financial development declines income inequality while financial instability worsens income distribution.
Wahid et al. (2011)	Bangladesh	Financial development increases income inequality
Yu and Qin (2011)	China	Financial development reduces rural-urban income gap.
Arora (2012)	Indian states	Financial development improves inequality in rural but raises inequality in urban areas.
Ling-zheng and Xia-hai (2012)	China	Financial development deteriorates income inequality and supported the existence of U-shaped relationship between both variables.
Tiwari et al. (2013)	India	Financial development increases rural-urban income inequality.
Howie and Atakhanova (2014)	Kazakhstan	Resource income lowers income inequality.
Shahbaz et al. (2015)	Iran	Financial development lowers income inequality

We find from Table-1 that the impact of financial development on income inequality is mixed and conflicting in developing and transition countries context. When it comes to the case of Kazakhstan economy, we find the existence of very few studies examining the impact of trade and resource boom on income distribution. There is no study so far in investigating the impact of financial development on income inequality in Kazakhstan by using the quarterly time series data. In this context, our study looks to be the first attempt and makes an empirical examination on this issue. We largely believe that this study in the case of Kazakhstan economy will contribute to the existing literature by better understanding the impact of financial development on income inequality by endogenising economic growth, inflation and trade openness with the help of employing Bayer-Hanck (2013) combined

cointegration and Pesaran et al. (2001) autoregressive distributed lag (ARDL) bounds testing approaches in a partial macroeconomic framework.

4. Modeling, Methodological Framework and Data Collection

The objective of this study is to examine the relationship between financial development and income inequality including economic growth, inflation and trade openness are other potential determinates of income inequality in case of Kazakhstan. The general functional form of model is given below as following:

$$IE_t = f(Y_t, F_t, P_t, TR_t) \qquad (1)$$

In this equation, IE_t is income inequality, Y_t shows economic growth, F_t illustrates financial development, P_t represents inflation, and TR_t is trade openness. We have converted all the series into logarithm for consistent and reliable results. The log-linear specification provides better results because direct conversion of the series into logarithm reduces the sharpness in time series data (Shahbaz, 2010). The empirical equation is modeled as following:

$$\ln IE_t = \theta_1 + \theta_2 \ln Y_t + \theta_3 \ln F_t + \theta_4 \ln P_t + \theta_5 \ln TR_t + \varepsilon_i \qquad (2)$$

Where, $\ln IE_t$, $\ln Y_t$, $\ln F_t$, $\ln P_t$, $\ln TR_t$ is natural log of income inequality proxies by Gini-coefficient, natural log of economic growth measured by real GDP per capita, natural log of financial development captured by real domestic credit to private sector per capita, natural log of inflation proxies by consumer price index, natural log of trade openness measured by exports plus imports. ε is residual term containing normal distribution with finite variance and zero mean. To test the GJ hypothesis following non-linear specification is considered:

$$\ln IE_t = \theta_{11} + \theta_{22} \ln Y_t + \theta_{33} \ln F_t + \theta_{44} \ln F_t^2 + \theta_{55} \ln P_t + \theta_{66} \ln TR_t + \varepsilon_t \qquad (3)$$

Equation-3 envisages inequality reducing hypothesis if $\theta_{33} < 0$ keeping $\theta_{44} = 0$. Income inequality increases if $\theta_{33} = 0$ and $\theta_{44} > 0$. The GJ (1990) hypothesis would be confirmed if $\theta_{33} > 0$ and $\theta_{44} < 0$ otherwise U-shaped relationship between financial development and income inequality is accepted if $\theta_{33} < 0$ and $\theta_{44} > 0$.

Numerous unit root tests are available on applied economics to test the stationarity properties of the variables. These unit tests are ADF by Dickey and Fuller (1979), P-P by Philips and Perron (1988), KPSS by Kwiatkowski et al. (1992), DF-GLS by Elliott et al. (1996) and Ng-Perron by Ng-Perron (2001). These tests provide biased and spurious results due to not having information about structural break points occurred in series. In doing so, Zivot-Andrews (1992) developed three models to test the stationarity properties of the variables in the presence of structural break point in the series: (i) this model allows a one-time change in variables at level form, (ii) this model permits a one-time change in the slope of the trend component i.e. function and (iii) model has one-time change both in intercept and trend function of the variables to be used for empirical propose. Zivot-Andrews (1992) followed three models to check the hypothesis of one-time structural break in the series as follows:

$$\Delta x_t = a + ax_{t-1} + bt + cDU_t + \sum_{j=1}^{k} d_j \Delta x_{t-j} + \mu_t \qquad (4)$$

$$\Delta x_t = b + bx_{t-1} + ct + bDT_t + \sum_{j=1}^{k} d_j \Delta x_{t-j} + \mu_t \qquad (5)$$

$$\Delta x_t = c + cx_{t-1} + ct + dDU_t + dDT_t + \sum_{j=1}^{k} d_j \Delta x_{t-j} + \mu_t \qquad (6)$$

Where dummy variable is indicated by DU_t showing mean shift occurred at each point with time break while trend shift variables is show by DT_t. So,

$$DU_t = \begin{cases} 1 ... if \ \ t > TB \\ 0 ... if \ \ t < TB \end{cases} \text{ and } DU_t = \begin{cases} t - TB ... if \ \ t > TB \\ 0 ... if \ \ t < TB \end{cases}$$

The null hypothesis of unit root break date is $c = 0$ which indicates that series is not stationary with a drift not having information about structural break point while $c < 0$ hypothesis implies that the variable is found to be trend-stationary with one unknown time break. Zivot-Andrews unit root test fixes all points as potential for possible time break and does estimation through regression for all possible break points successively. Then, this unit root test selects that time break which decreases one-sided t-statistic to test $\hat{c}(= c - 1) = 1$. Zivot-Andrews test intimates that in the presence of end points, asymptotic distribution of the statistics is diverged to infinity point. It is necessary to choose a region where end points of sample period are excluded. Further, Zivot-Andrews suggested the trimming regions i.e. (0.15T, 0.85T) are followed.

Avoiding traditional approaches to cointegration due to their demerits, we apply the structural break autoregressive distributed lag model or the ARDL bounds testing approach to cointegration in the presence of structural breaks in the series. The ARDL bounds testing approach to cointegration is preferred due to its certain advantages. For example, the ARDL bounds testing is flexible regarding the integrating order of the variables whether variables are found to be stationary at I(1) or I(0) or I(1) / I(0). The Monte Carlo investigation shows that this approach is superior and provides consistent results for small sample (Pesaran and Shin, 1999). Moreover, a dynamic unrestricted error correction model (UECM) can be derived from the ARDL bounds testing through a simple linear transformation. The UECM integrates the short run dynamics with the long run equilibrium without losing any information for long run. The empirical formulation of the ARDL bounds testing approach to cointegration is given below:

$$\Delta \ln IE_t = \alpha_1 + \alpha_T T + \alpha_D D + \alpha_{IE} \ln IE_{t-1} + \alpha_Y \ln Y_{t-1} + \alpha_F \ln F_{t-1} + \alpha_P \ln P_{t-1} + \alpha_{TR} \ln TR_{t-1} + \sum_{i=1}^{p} \alpha_i \Delta \ln IE_{t-i}$$

$$ (7)$$

$$+ \sum_{j=0}^{q} \alpha_j \Delta \ln Y_{t-j} + \sum_{k=0}^{r} \alpha_k \Delta \ln F_{t-k} + \sum_{l=0}^{s} \alpha_l \Delta \ln P_{t-l} + \sum_{m=0}^{t} \alpha_m \Delta \ln TR_{t-m} + \mu_t$$

$$\Delta \ln Y_t = \alpha_1 + \alpha_T T + \alpha_D D + \alpha_{IE} \ln IE_{t-1} + \alpha_Y \ln Y_{t-1} + \alpha_F \ln F_{t-1} + \alpha_P \ln P_{t-1} + \alpha_{TR} \ln TR_{t-1} + \sum_{i=1}^{p} \beta_i \Delta \ln Y_{t-i}$$

$$ (8)$$

$$+ \sum_{j=0}^{q} \beta_j \Delta \ln IE_{t-j} + \sum_{k=0}^{r} \beta_k \Delta \ln F_{t-k} + \sum_{l=0}^{s} \beta_l \Delta \ln P_{t-l} + \sum_{m=0}^{t} \beta_m \Delta \ln TR_{t-l} + \mu_t$$

$$\Delta \ln F_t = \alpha_1 + \alpha_T T + \alpha_D D + \alpha_{IE} \ln IE_{t-1} + \alpha_Y \ln Y_{t-1} + \alpha_F \ln F_{t-1} + \alpha_P \ln P_{t-1} + \alpha_{TR} \ln TR_{t-1} + \sum_{i=1}^{p} \beta_i \Delta \ln F_{t-i}$$

$$+ \sum_{j=0}^{q} \beta_j \Delta \ln IE_{t-j} + \sum_{k=0}^{r} \beta_k \Delta \ln Y_{t-k} + \sum_{l=0}^{s} \beta_l \Delta \ln P_{t-l} + \sum_{m=0}^{t} \beta_m \Delta \ln TR_{t-m} + \mu_t$$

(9)

$$\Delta \ln P_t = \alpha_1 + \alpha_T T + \alpha_D D + \alpha_{IE} \ln IE_{t-1} + \alpha_Y \ln Y_{t-1} + \alpha_F \ln F_{t-1} + \alpha_P \ln P_{t-1} + \alpha_{TR} \ln TR_{t-1} + \sum_{i=1}^{p} \vartheta_i \Delta \ln P_{t-i}$$

$$+ \sum_{j=0}^{q} \vartheta_j \Delta \ln IE_{t-j} + \sum_{k=0}^{r} \vartheta_k \Delta \ln Y_{t-k} + \sum_{l=0}^{s} \vartheta_l \Delta \ln F_{t-l} + \sum_{m=0}^{t} \vartheta_m \Delta \ln TR_{t-m} + \mu_t$$

(10)

$$\Delta \ln TR_t = \alpha_1 + \alpha_T T + \alpha_D D + \alpha_{IE} \ln IE_{t-1} + \alpha_Y \ln Y_{t-1} + \alpha_F \ln F_{t-1} + \alpha_P \ln P_{t-1} + \alpha_{TR} \ln TR_{t-1} + \sum_{i=1}^{p} \rho_i \Delta \ln TR_{t-i}$$

$$+ \sum_{j=0}^{q} \rho_j \Delta \ln IE_{t-j} + \sum_{k=0}^{r} \rho_k \Delta \ln Y_{t-k} + \sum_{l=0}^{s} \rho_l \Delta \ln F_{t-l} + \sum_{m=0}^{t} \rho_m \Delta \ln P_{t-m} + \mu_t$$

(11)

Where, Δ is difference operator, μ_s are residual terms and D is dummy variable to capture the structural breaks stemming in the series[6]. Here, we compute F-statistic to compare with critical bounds generated by Pesaran et al. (2001) to test whether cointegration exists or not. Pesaran et al. (2001) developed upper critical bound (UCB) and lower critical bound (LCB). We use F-test to examine the existence of long run relationship between the variables following null hypothesis i.e. $H_0 : \alpha_{IE} = \alpha_Y = \alpha_F = \alpha_P = \alpha_{TR} = 0$ against alternate hypothesis ($H_1 : \alpha_{IE} \neq \alpha_Y \neq \alpha_F \neq \alpha_P \neq \alpha_{TR} = 0$) of cointegration for equation-3. The F-test is non-standard and we may use LCB and UCB developed by Pesaran et al. (2001). Using Pesaran et al. (2001) critical bounds, there is cointegration between the variables if computed F-statistic is more than upper critical bound (UCB). The variables are not cointegrated for long run relationship if computed F-statistic does not exceed lower critical bound (LCB). If computed F-statistic falls between lower and upper critical bounds then decision regarding cointegration between the variables is uncertain. The critical bounds generated by Pesaran et al. (2001) may be inappropriate for small sample like ours case which has 80 observations in case of Kazakhstan. Therefore, we use lower and upper critical bounds developed by Narayan (2005). The stability tests, to scrutinize stability of the ARDL bounds testing estimates, have been applied i.e. CUSUM and CUSUMSQ (Brown et al. 1975).

The ARDL bounds testing approach can be used to estimate long run relationships between the variables. For instance, if there is cointegration in equation-3 where income inequality (IE_t), financial development (F_t), inflation (P_t) and trade openness (TR_t) are used as forcing variables then there is established long run relationship between the variables that can be molded in following equation given below:

$$\ln IE_t = \theta_0 + \theta_1 \ln Y_t + \theta_2 \ln F_t + \theta_3 \ln P_t + \theta_4 \ln TR_t + \mu_i \qquad (12)$$

Where $\theta_0 = -\alpha_1 / \alpha_{IE}, \theta_1 = -\alpha_Y / \alpha_1, \theta_2 = -\alpha_F / \alpha_1, \theta_3 = -\alpha_{IN} / \alpha_1, \theta_4 = -\alpha_G / \alpha_1$ and μ_t is the error term supposed to be normally distributed. These long run estimates are computed using the ARDL bounds testing approach to cointegration when income inequality (IE_t) treated

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[6] The structural breaks are based on Zivot-Andrews unit root test.

dependent variables. This process can be enhanced by using other variables as dependent ones.

The study uses quarterly frequency time series data over the period of 1991-2011[7]. The data on real GDP per capita, real domestic credit to private sector per capita, Gini-coefficient (a measure for income inequality), real consumer price index (inflation), and real trade openness (exports + imports) have been sourced from world development indicators (CD-ROM, 2012). Except income inequality, all other variables used in the analysis are in the per capita form. The per capita form of level variables used in the estimation process is beneficial because it reduces the higher probability of multicollinearity between the variables. The advantage of using real GDP per capita takes into both economic and social aspects of development. The domestic credit to private sector is used as proxy for measuring financial development. The considerable advantage of using domestic credit to private sector over other measures of financial development is that it captures the amount of credit channeled from savers, through financial intermediaries, to private firms while excluding credits given to the public sector and credits issued by the central bank and development banks. This clearly shows that it channelizes society's savings into private sector projects via financial intermediaries. In this way, credit to the private sector is regarded as comprehensive measure of financial development. The use of consumer price index (CPI hereafter, inflation) in our analysis reflects the real purchasing power of the consumers, households and producers. It is seemingly better than whole sale price index (WPI). Finally, both exports plus imports are used as potential indicators for measuring trade openness. This openness variable has often used in the international trade and finance literature.

5. Empirical Results and their Discussion

We infer from Table-2 that income inequality, economic growth, financial development, inflation and trade openness have normal distribution as confirmed by Jarque-Bera test statistics. We note that inflation has high variations compared to financial development. Income inequality and economic growth are less volatile compared to trade openness. The correlation analysis reveals that economic growth is positively linked with income inequality.

Table-2. Descriptive Statistics and Pair-wise Correlation

Variable	$\ln IE_t$	$\ln Y_t$	$\ln F_t$	$\ln P_t$	$\ln TR_t$
Mean	0.4457	12.2826	3.0988	3.5892	12.2051
Median	0.3137	12.2190	3.2797	4.3464	12.2888
Maximum	0.9102	12.7739	4.0765	5.1676	12.7561
Minimum	0.0871	11.8871	1.6432	-1.5702	11.5104
Std. Dev.	0.2747	0.3093	0.8136	2.0134	0.4105
Jarque-Bera	2.2950	1.8422	2.3078	1.6647	2.0238
Probability	0.3174	0.3980	0.3154	0.1700	0.3635
$\ln IE_t$	1.0000				
$\ln Y_t$	0.3355	1.0000			
$\ln F_t$	-0.0166	0.5924	1.0000		
$\ln P_t$	-0.1247	-0.4938	-0.4812	1.0000	
$\ln TR_t$	-0.0551	0.5258	0.4708	-0.7783	1.0000

[7] Since the data are not available sufficiently for Kazakhstan, this study primarily focuses on using the quarterly frequency data for our empirical analysis by interpolating the annual data into quarterly from 1991-2011.

The correlation between financial development and income inequality is negative. Inflation (trade openness) and income inequality are inversely correlated. Testing the unit root properties of the variables is required before proceeding for any cointegration approach. In doing so, we use ADF developed by Dickey-Fuller (1981) and PP by Philips-Peron (1988) to test either variables are stationary at level or first difference or have mixed order of integration. The cointegration approach such as Bayer and Hanck, (2013) require that the variables should be integrated at first difference and we can also apply the bounds testing approach if none of the variable is stationary at 2nd difference. Table-3 provided the results of ADF and PP unit root tests. We infer that income inequality, economic growth, financial development, inflation and trade openness have unit root problem at level accommodating intercept and time trend. We can reject the hypothesis of unit root problem at first difference. It entails that all the series are stationary at first difference i.e. I(1). ADF and PP unit root tests do not accommodate information about structural break occurred in the series and provide misleading empirical results. We cover the deficiency of both unit root tests by employing the Zivot-Andrews, (1992) unit root test that accommodates the single unknown structural break in the series. The results of Zivot-Andrews unit root tests are reported in Table-4. The results show that at first difference, we may accept the hypothesis of no unit root problem. This validates that the variables have unique order of integration i.e. I(1).

Table-3. Unit Root Analysis

Variables	ADF Unit Root Test		P-P Unit Root Test	
	T-statistic	Prob. values	T-statistic	Prob. values#
$\ln IE_t$	-2.2630 (3)	0.4487	-2.3140(3)	0.4216
$\ln Y_t$	-2.1777 (2)	0.4951	-3.5191 (6)	0.0438
$\ln F_t$	-2.2734 (2)	0.4431	-1.9082 (3)	0.6413
$\ln P_t$	-2.5823 (2)	0.2829	-2.2051 (6)	0.4803
$\ln TR_t$	-2.6223 (4)	0.2719	-2.2790 (3)	0.4403
$\Delta \ln IE_t$	-5.4412 (2)*	0.0001	-4.6366 (3)**	0.0216
$\Delta \ln Y_t$	-3.4477 (1)*	0.0500	-3.6356 (3)*	0.0477
$\Delta \ln F_t$	-3.7313 (0)**	0.0213	-3.8479 (3)**	0.0184
$\Delta \ln P_t$	-3.6269 (2)**	0.0337	-4.69834 (3)*	0.0015
$\Delta \ln TR_t$	-5.0299 (3)*	0.0005	-4.6713 (6)*	0.0016
Note: * and** show significance at 1% and 5% levels respectively. Optimal lag order for ADF and bandwidth for PP unit root tests is determined by Schwert (1989) formula.				

Table-4. Zivot-Andrews Unit Root Test

Variable	At Level		At 1st Difference	
	T-statistic	Time Break	T-statistic	Time Break
$\ln IE_t$	-3.786(2)	1992QII	-7.739(1)*	2002QII
$\ln Y_t$	-4.577 (1)	1993QII	-5.901(2)*	2000QII
$\ln F_t$	-4.281 (0)	1993QII	-6.478 (3)*	1995QIII
$\ln P_t$	-1.632 (1)	1994QI	-8.601 (1)*	1995QIV
$\ln TR_t$	-4.782 (1)	1993QII	-7.229 (3)*	1999QII
Note: * represents significance at 1% level. Lag order is shown in parenthesis.				

The unique order of integration of the series inclines us to employ the combined cointegration approach developed by Bayer and Hanck, (2013).[8] We infer based on the results reported in Table-t that our calculated F-statistics exceed the EG-JOH, and EG-JOH-BO-BDM test's statistics at 1% level of significance. This leads us to accept the hypothesis of cointegration as we used income inequality, economic growth and financial development as dependent variables. We may not reject the hypothesis of no cointegration as we employed inflation and trade openness as dependent variables. We find that there are three cointegrating vectors confirming the presence of cointegration among income inequality, economic growth, financial development, inflation and trade openness for the period of 1991QI-2011QIV in case of Kazakhstan.

Table-5. The Results of Bayer and Hanck Cointegration Analysis

Estimated Models	EG-JOH	EG-JOH-BO-BDM	Lag Order	Cointegration
$IE_t = f(Y_t, F_t, P_t, TR_t)$	55.301*	69.619*	6	Exists
$Y_t = f(IE_t, F_t, P_t, TR_t)$	55.273*	70.299*	6	Exists
$F_t = f(IE_t, Y_t, P_t, TR_t)$	55.815*	112.634*	6	Exists
$P_t = f(IE_t, Y_t, F_t, TR_t)$	9.493	18.897	6	Not Exists
$TR_t = f(IE_t, Y_t, F_t, P_t)$	13.236	34.498	6	Not Exists
Note: * represents significant at 1% level. Critical values at 1% level are 15.845 (EG-JOH) and 30.774 (EG-JOH-BO-BDM) respectively. Lag length is based on minimum value of AIC.				

Table-6. Results of the ARDL Cointegration Test

Estimated Model	$IE_t = f(Y_t, F_t, P_t, TR_t)$	$Y_t = f(IE_t, F_t, P_t, TR_t)$	$F_t = f(IE_t, Y_t, P_t, TR_t)$	$P_t = f(IE_t, Y_t, F_t, TR_t)$	$TR_t = f(IE_t, Y_t, F_t, P_t)$
F-statistics	4.940*	3.904***	4.973*	2.407	2.726
Structural Break	1992QII	1993QII	1993QII	1994QII	1993QII
Critical values[#]	1 per cent level	5 per cent level	10 percent level		
Lower bounds	3.06	2.87	2.53		
Upper bounds	4.90	4.00	3.59		
Diagnostic tests					
R^2	0.8936	0.9793	0.9739	0.9588	0.9433
$Adj - R^2$	0.7720	0.9557	0.9440	0.9117	0.8786
F-statistics	7.352*	9.458*	12.662*	10.377**	14.581
D-W Test	2.127	2.170	2.134	2.144	2.043
Note: * and *** show the significance at 1% and 10% levels respectively. Critical bounds are generated by Narayan (2005).					

The combined cointegration developed by Bayer and Hanck (2013) may provide inefficient empirical results. This cointegration approach does not contain information about structural breaks occurred in the series. We have overcome this issue by inserting dummy variable containing the information about structural breaks in the series (Shahbaz et al. 2015). The lag length of the variables for calculating the ARDL bounds testing F-statistic is based on Akaike

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[8] We chose an appropriate lag order of the variables following Akaike Information Criterion (AIC) due its superior explanatory properties. It is argued by Lütkepohl, (2006) that IAC provides efficient and reliable empirical evidence for choosing appropriate lag order of the variables and results are presented in column-4 of Table-5.

Information Criterion (AIC). The reason is that the bounds testing provides different F-statistics at different lag lengths of the variables. The results reported in Table-6 infer that computed F-statistics are greater than upper critical bounds at 1% and 10% levels of significance respectively.[9] This indicates that we may not accept the hypothesis of no cointegration as we used income inequality, economic growth and financial development as dependent variables. The hypothesis of no cointegration may be accepted as we used inflation and trade openness as dependent variables. We infer that the empirical findings by bounds testing are robust and consistent with Bayer and Hanck (2013) cointegration approach. This corroborates that income inequality, economic growth, financial development, inflation and trade openness are cointegrated for long run relationship in Kazakhstan.

The presence of cointegration intends us to investigate the impact of financial development, economic growth, inflation and trade openness on income inequality. The results of long-run relationship are reported in Table-7. Our findings show that economic growth is positively and significantly (at 5% level) linked with income inequality. It reveals that economic growth is linked with growth of income of elite class rather than bottom segments of population. We note that a 0.3851% deterioration in income inequality is linked with 1% increase in economic growth. These results are consistent with Shahbaz (2010) in case of Pakistan but contradictory with Barro (2000) who reported negative impact of economic growth on income inequality in low income countries. The relationship between financial development and income inequality is negative and significant at 5% level. It shows that financial development improves income distribution via allocating domestic private credit to poor segments of population efficiently in Kazakhstan. It is noted that a 1% increase in allocation of domestic credit to private sector improves income distribution by 0.1299% keeping all else is same. This finding is consistent with Law and Tan (2009); Shahbaz and Islam (2011); Ang (2010) and Shahbaz et al. (2015) for Malaysia, Pakistan, India and Iran respectively. On contrarily, Tiwari et al. (2013) for India; Ling-zheng and Xia-hai (2012) for China and Wahid et al. (2011) for Bangladesh reported that financial development impairs income distribution. The impact of inflation on income inequality is negative and significant (at 1 per cent level). It is unveiled that a 0.1881% decline in income inequality is related with 1% increase in inflation. Similarly, Shahbaz et al. (2010), Shahbaz and Islam (2011) and Bittencourt (2010) also reported that inflation improves income distribution in Pakistan and Brazil respectively. Trade openness is negatively and statistically (at 5% level) linked with income inequality. It indicates that trade openness lowers income inequality by creating employment opportunities both for unskilled labor comparatively. But Shahbaz and Islam, (2011) argued that trade openness impairs income inequality in Pakistan.

To examine test GJ (1990) hypothesis exists or does not exist, we have inserted non-linear term of financial development ($\ln F_t^2$). The GJ (1990) hypothesis reveals that initially income inequality increases with financial development and after threshold level of financial development it starts to decline i.e. i.e. inverted U-shaped relationship between financial development and income inequality. The impact of linear and non-linear terms is negative (-0.8301) and positive (0.5716). This validates the presence of U-shaped relationship between financial development and income inequality. This exposes that initially financial development improves income distribution and pro-poor but after threshold level of financial development, income inequality starts to worsen. We note that financial development improving income distribution impact is greater than income distribution deteriorating effect. This reveals that overall financial development improves income distribution. These findings

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[9] We use critical bounds from Narayan, (2005).

are consistent with Sebastian and Sebastian (2011) for 138 developed and developing nations, Tan and Law (2012) for Malaysia, Ling-zheng and Xia-hai (2012) for China but contrary with the line of literature such as Clarke et al. (2006) for 83 developed and developing economies, Batuo et al. (2012) for African countries, Shahbaz et al. (2015) for Iran who reported an inverted U-shaped relationship between financial development and income inequality. We find that empirical models fulfill the assumptions CLRM (classical linear regression model). It shows the no problem of non-linearity of residual term. The absence of serial correlation and autoregressive conditional heteroskedasticity is found. There is no problem of white heteroskedasticity and functional form of empirical models is well formulated.

Table-6. Long Run Analysis

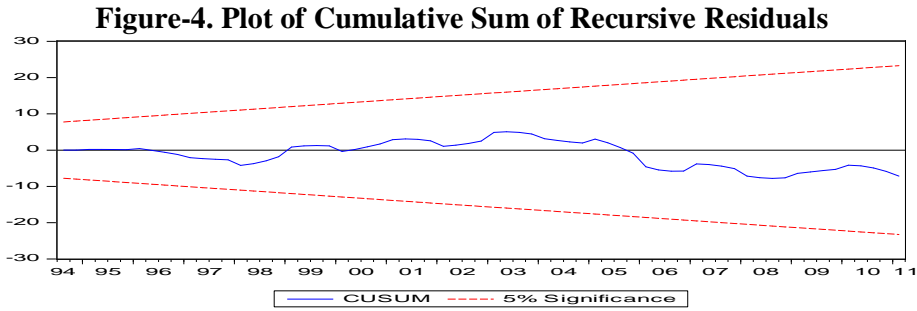| Dependent Variable = $\ln IE_t$				
Variables	Coefficient	T. Statistic	Coefficient	T. Statistic
Constant	0.2097	0.5007	1.4584*	3.3559
$\ln Y_t$	0.3851**	2.3531	0.0287	0.1833
$\ln F_t$	-0.1299**	-2.1103	-0.8301*	-5.6656
$\ln F_t^2$	....	....	0.5716*	5.1241
$\ln P_t$	-0.1881*	-9.8119	-0.1454*	-7.8815
$\ln TR_t$	-0.3282**	-2.4657	-0.3346*	-2.9266
Diagnostic Tests				
R^2	0.8103		0.8620	
F-statistic	75.8546*		87.5522*	
$\chi^2 NORMAL$	2.0172	(0.3247)	3.0100	(0.1646)
$\chi^2 SERIAL$	2.1455	(0.1144)	2.0102	(0.1499)
$\chi^2 ARCH$	0.3563	(0.5651)	0.0136	(0.9055)
$\chi^2 WHITE$	0.7044	(0.6863)	0.5164	(0.7510)
$\chi^2 RAMSEY$	1.8575	(0.1725)	2.9916	(0.1500)
Note: *, ** and *** denote the significant at 1%, 5% and 10% level respectively. $\chi^2 NORM$ is for normality test, $\chi^2 SERIAL$ for LM serial correlation test, $\chi^2 ARCH$ for autoregressive conditional heteroskedasticity, $\chi^2 WHITE$ for white heteroskedasticity and $\chi^2 REMSAY$ for Resay Reset test.				

The Table-7 reports the results of short run dynamics and we find that current income inequality is positively influenced by income inequality in previous period at 1% significance level. Economic growth impacts income inequality negatively and insignificantly. Financial development improves income distribution significantly at 10% level. Inflation is negatively and significantly with income inequality. Trade openness affects income inequality positively but insignificantly. The estimate of lagged error correction term i.e. ECM_{t-1} is -0.0631 revealing the short run deviation toward long run equilibrium path. It unveils that that short run deviations towards long run are accurate by 6.31 percent per every year. It takes 48 months to attain full convergence process for the adjustment of shock to income inequality equation in Kazakhstan economy. Further, statistical significance of lagged error term validates our recognized long run linkages between financial development and income inequality.

Table-7. Short Run Analysis

Dependent Variable = $\Delta \ln IE_t$			
Variable	Coefficient	T-statistic	Prob. value
Constant	0.0004	0.4428	0.6594
$\Delta \ln IE_{t-1}$	0.4915*	4.9545	0.0000
$\Delta \ln Y_t$	-0.0242	-0.8103	0.4207
$\Delta \ln F_t$	-0.0410***	-1.9405***	0.0567
$\Delta \ln P_t$	-0.4360***	-1.9372***	0.0571
$\Delta \ln TR_t$	0.0117	0.1771	0.8600
ECM_{t-1}	-0.0631**	-2.1464	0.0356
R-Squared	0.3609		
F-statistic	6.024*		
D. W Test	1.8964		
Diagnostic Tests			
Test	F-statistic	Prob. value	
$\chi^2 SERIAL$	2.3371	0.1051	
$\chi^2 ARCH$	0.1740	0.6779	
$\chi^2 REMSAY$	2.1146	0.1410	
Note: *, ** and *** denote the significant at 1%, 5% and 10% level respectively. $\chi^2 SERIAL$ for LM serial correlation test, $\chi^2 ARCH$ for autoregressive conditional heteroskedasticity and $\chi^2 REMSAY$ for Resay Reset test.			

Looking at the results of diagnostics tests reported in lower segment of Table-7, it is found that both serial correlation and autoregressive conditional heteroskedasticity are not significant, indicating that short run model is well formulated due to the absence of serial correlation and heteroskedasticity. Moreover, Hansen (1992) argued that potential biasedness and misspecification of the model should be avoided while testing the stability of long run parameters. Therefore, we have employed cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMsq) tests in our empirical analysis to examine the stability of the ARDL estimates. Given that stability of long run estimates, Brown et al. (1975) developed these tests. Hence, Brown et al. (1975) postulated that recursive residuals are to be less affected by small or regular changes in parameters and these changes can be detected by using these residuals[10]. In this regard, they further argued that if the null hypothesis of parameter constancy is correct, then the recursive residuals have an expected value of zero and if the condition of constancy parameters is violated, then the recursive residuals have non-zero expected values following the parameter changes.

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[10] The CUSUM) indicates the plotting of cumulative sum of recursive residuals against the order variable and checking for deviations from the expected value of zero. The CUSUMSQs also shows the plot of cumulative sum of squares of recursive residuals that have expected values ranging in a linear fashion from zero at the first-ordered observation to one at the end of the sampling interval provided the null hypothesis is correct. In both the CUSUM and CUSUMSQ tests, the points at which the plots cross the confidence lines give some indication of value(s) of the ordering variable associated with parameter change.

Figure-4. Plot of Cumulative Sum of Recursive Residuals

The straight lines represent critical bounds at 5% significance level.

Figure-2. Plot of Cumulative Sum of Squares of Recursive Residuals
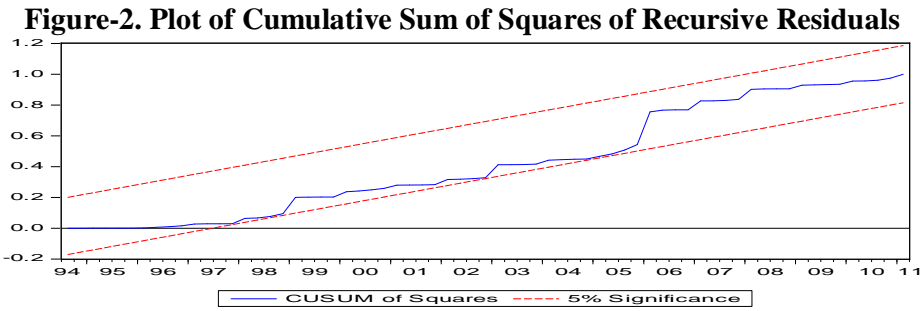
The straight lines represent critical bounds at 5% significance level.

Figure-1 and 2 show the results of CUSUM and CUSUMSQ tests. We find that the graph of both CUSUM and CUSUMsq remain between the critical bounds (red lines) indicting the reliability of the ARDL estimates.

Given the extensive and overused application of time series technique called as vector error correction method (VECM) Granger causality test with the purpose of examining both the short and long runs causal relationships between the variables, it often invites some sort of potential limitation in the empirical exercise of financial and developmental research. It is practically believed that VECM Granger causality test only captures the relative strength of causality within a sample period but fails to derive the additional worthy inference out of the sample period.[11] The subsequent demerit behind the VECM Granger causality approach is that it is unable to identify the exact magnitude of the feedback relationship from one variable to another variable. In solving these issues, Shan (2005) approached the new methodological concept of Innovative Accounting Approach (IAA), such as variance decomposition approach (VDA) and impulse response function (IRF). Under the umbrella of IAA, the VDA indicates the exact amount of feedback or dynamics of one stated variable due to innovative shocks occurring in another variable simultaneously considered in the estimated framework over the various time horizons. Moreover, the VDA is considered as a substitute for the IRF in the framework of IAA. In this sense, the VDA also indicates the magnitude of the predicted error variance for a series accounted for by innovations from each of the independent variable over different time-horizons beyond the sample period. It is further pointed out by Pesaran and Shin (1998) that the generalized forecast error variance decomposition method shows proportional contribution in one variable due to innovative shock emanating from other variable in the model. The potentiality of this approach is that like orthogonalized forecast error variance decomposition approach; it is also insensitive with

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[11] The additional inference emerging beyond the sample period could be helpful for the policymakers of developing countries in designing their public policy for better income distribution.

respect to ordering of the variables in the model because ordering of the variables is uniquely determined by VAR system. Furthermore, the generalized forecast error variance decomposition approach estimates the impacts of simultaneous shocks. Keeping this fact in mind, Engle and Granger (1987) and Ibrahim (2005) also argued that within the VAR framework, variance decomposition approach produces better results as compared to other traditional approaches.

Table-8. Variance Decomposition Approach

Period	S.E.	$\ln IE_t$	$\ln F_t$	$\ln Y_t$	$\ln P_t$	$\ln TR_t$
Variance Decomposition of $\ln IE_t$
1	0.0062	100.0000	0.0000	0.0000	0.0000	0.0000
2	0.0107	99.8091	0.0157	0.1461	0.0003	0.0285
3	0.0150	99.3554	0.1253	0.4485	0.0019	0.0685
4	0.0183	98.4346	0.6339	0.8240	0.0018	0.1054
5	0.0210	97.2987	1.3326	1.2124	0.0014	0.1546
6	0.0232	96.1202	2.0905	1.5666	0.0065	0.2160
7	0.0248	95.0706	2.7390	1.8658	0.0321	0.2922
8	0.0261	94.2308	3.1964	2.1086	0.0928	0.3712
9	0.0272	93.6066	3.4553	2.2954	0.2032	0.4392
10	0.0281	93.1522	3.5568	2.4260	0.3798	0.4849
11	0.0288	92.7931	3.5595	2.4988	0.6436	0.5047
12	0.0295	92.4500	3.5133	2.5172	1.0160	0.5034
13	0.0301	92.0533	3.4521	2.4919	1.5125	0.4900
14	0.0307	91.5546	3.3975	2.4385	2.1361	0.4731
15	0.0312	90.9310	3.3641	2.3730	2.8742	0.4575
Variance Decomposition of $\ln F_t$
1	0.0189	2.9367	97.0632	0.0000	0.0000	0.0000
2	0.0304	2.9829	96.0905	0.3155	0.0346	0.5763
3	0.0405	2.9230	93.6678	1.3535	0.3167	1.7389
4	0.0494	3.0185	88.2684	3.65637	1.6593	3.3972
5	0.0573	2.6861	80.9363	7.10887	4.1933	5.0752
6	0.0642	2.1634	72.6753	11.1965	7.5588	6.4058
7	0.0703	1.9939	64.6049	15.1542	11.0112	7.2355
8	0.0757	2.8333	57.3355	18.3851	13.9444	7.5015
9	0.0807	5.19714	50.9938	20.5472	15.9719	7.2898
10	0.0856	9.24027	45.4609	21.5744	16.9605	6.7637
11	0.0906	14.6519	40.6071	21.6225	17.0089	6.1093
12	0.0957	20.7877	36.3673	20.9909	16.3806	5.4732
13	0.1009	26.9462	32.7290	20.0075	15.3872	4.9298
14	0.1060	32.6009	29.6830	18.9375	14.2868	4.4915
15	0.1108	37.4772	27.1940	17.9470	13.2418	4.1398
Variance Decomposition of $\ln Y_t$
1	0.0017	9.84412	16.9985	73.1573	0.0000	0.0000
2	0.0032	10.7657	15.4549	73.3636	0.0105	0.4051
3	0.0048	11.6031	15.0188	72.2978	0.0708	1.0093

	0.0065	12.1452	15.9903	69.8904	0.3617	1.6122
4	0.0065	12.1452	15.9903	69.8904	0.3617	1.6122
5	0.0081	13.0142	16.6831	67.1872	0.7871	2.3282
6	0.0096	14.2870	17.0561	64.3348	1.2363	3.0856
7	0.0111	16.0342	17.0550	61.4950	1.5796	3.8360
8	0.0126	18.3028	16.7431	58.6977	1.7768	4.4793
9	0.0140	21.0877	16.2209	55.9306	1.8234	4.9371
10	0.0154	24.3322	15.5832	53.1674	1.7462	5.1707
11	0.0168	27.9227	14.9099	50.3914	1.5859	5.1898
12	0.0182	31.6996	14.2570	47.6127	1.3907	5.0397
13	0.0196	35.4834	13.6596	44.8708	1.2050	4.7810
14	0.0209	39.1061	13.1364	42.2251	1.0613	4.4709
15	0.0223	42.4374	12.6942	39.7386	0.9760	4.1536

Variance Decomposition of $\ln P_t$

Period	S.E.	$\ln IE_t$	$\ln F_t$	$\ln Y_t$	$\ln P_t$	$\ln TR_t$
1	0.0387	17.2437	1.7757	9.74226	71.2383	0.0000
2	0.0647	16.4510	1.4540	11.2981	70.7959	0.0008
3	0.0871	15.5129	0.9956	12.5511	70.9135	0.0267
4	0.1030	14.9981	0.7615	12.5767	71.4557	0.2078
5	0.1154	13.8734	1.1979	12.2003	72.3289	0.3993
6	0.1255	12.3456	2.5201	11.6033	73.0215	0.5092
7	0.1344	10.8042	4.6462	10.9843	73.0616	0.5035
8	0.1424	9.7209	7.1821	10.3551	72.2914	0.4495
9	0.1495	9.2922	9.7329	9.7328	70.7952	0.4467
10	0.1557	9.45901	12.0079	9.1331	68.8384	0.5614
11	0.1610	10.0076	13.8732	8.5942	66.7277	0.7970
12	0.1656	10.6935	15.3274	8.1449	64.7302	1.1038
13	0.1693	11.3234	16.4448	7.7936	63.0262	1.4117
14	0.1722	11.7882	17.3230	7.5307	61.6945	1.6634
15	0.1745	12.0576	18.0461	7.3382	60.7255	1.8323

Variance Decomposition of $\ln TR_t$

Period	S.E.	$\ln IE_t$	$\ln F_t$	$\ln Y_t$	$\ln P_t$	$\ln TR_t$
1	0.0122	6.9042	6.0350	11.5859	39.5812	35.8935
2	0.0202	5.6639	8.3950	15.3674	38.3661	32.2075
3	0.0272	4.4551	9.8915	18.85513	36.77856	30.01957
4	0.0324	3.6774	9.8376	21.1243	35.1886	30.1719
5	0.0359	3.0312	10.0476	22.8983	34.2699	29.7528
6	0.0381	2.8904	10.3300	24.2046	33.7276	28.8472
7	0.0395	3.9283	10.5070	25.0242	33.0622	27.4780
8	0.0409	6.6613	10.5287	25.1334	31.8779	25.7986
9	0.0424	11.0495	10.3176	24.5246	30.0944	24.0137
10	0.0442	16.4423	9.9084	23.4346	27.9498	22.2646
11	0.0462	22.0043	9.3859	22.2166	25.7872	20.6058
12	0.0482	27.1258	8.8217	21.1455	23.8556	19.0512
13	0.0502	31.5118	8.2570	20.3531	22.2542	17.6237
14	0.0521	35.1025	7.7159	19.8501	20.9677	16.3637
15	0.0539	37.9806	7.2204	19.5732	19.9200	15.3057

The results of variance decomposition method are described in Table-8. We find that income inequality is 99.93% explained by its own innovative shocks. The contribution of financial development and economic growth in income inequality is 3.36 and 2.37 respectively. Inflation and trade openness contribute to income inequality minimally i.e. 2.87% and 0.45%. Income inequality contributes to financial development by 37.47%. A 27.19% portion of financial development is donated by its innovative shocks and economic growth adds in financial development by 17.94%. The innovative shocks of inflation and trade openness add in financial development by 13.24%, 4.13% respectively. Income inequality and financial development significantly contributes in economic growth by 42.02% and 39.73% respectively through their innovative shocks. The contribution of inflation and trade openness to economic growth is negligible. A 12.69% portion of economic growth is contributed by its own innovative shocks. Income inequality, financial development, economic growth and trade openness contribute to inflation by 12.05%, 18.04%, 7.33% and 1.83% respectively. The innovative shocks of inflation itself contribute by 60.72%. A 15.30% portion of trade openness is contributed by its innovative shocks. The contribution of income inequality, economic growth and inflation to trade openness is 37.98%, 19.57% and 19.92% respectively. Financial development contributes to trade openness minimally. Overall, we find that income inequality causes financial development and economic growth. The unidirectional causality is found running from economic growth to financial development. Financial development leads inflation. Income inequality, economic growth and inflation cause trade openness.
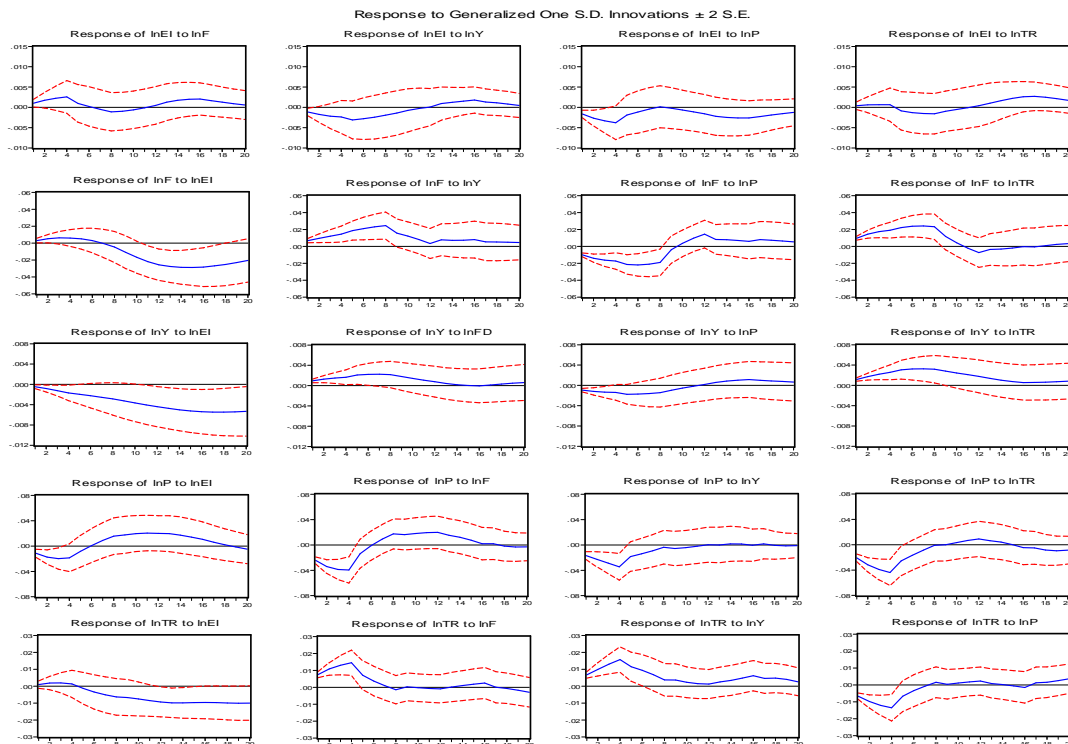
Figure-6. Impulse Response Function

Figure-3 shows the of impulse response function that response in income inequality is U-shaped due to forecast error stems in financial development. This entails that income distribution improves initially with financial development but starts to deteriorate after a threshold level of financial sector's development. This finding is consistent with long run

relationship between financial development and income inequality. Income inequality responds negatively (positively) till 12th (after 12nd) time horizon due forecast error in economic growth. The response of income inequality is negative due to forecast error in inflation. Trade openness affects income inequality negatively and then becomes positive after 12th time horizon. Financial development responds positively by economic growth. Income inequality and trade openness contribute positively (negative) till 6th and 10th (after 7th and 11th) time horizons. The response in financial development is positive but becomes negative due to forecast error in inflation after 10th time horizon. Economic growth responds inversely and positively due to income inequality, financial development and trade openness. Inflation affects economic growth negatively (till 12th time horizon) and positively (after 12th time horizon). The relationship between inflation and income inequality in inverted U-shaped and similar outcome is between inflation and financial development. The response in trade openness is negative due to forecast error in income inequality but trade openness responds positively due to forecast error in economic growth.

6. Conclusion and Policy Implications

The study, for the first time, makes an empirical attempt on examining both the long-run and short-run relationships between financial development and income inequality in Kazakhstan by endogenising other factors, such as economic growth, inflation and trade openness. We have applied Bayer-Hanck (2013) combined cointegration approach and robustness of cointegration results is tested by applying Pesaran et al. (2001) ARDL bound testing approach. We have also applied the structural break unit root test developed by Zivot-Andrews (1992) to examine the integrating order of all the level variables taken in the estimation process. Finally, Greenwood-Jovanovich (GJ, 1990) hypothesis illustrating ''an inverted-U shape relationship between financial development and income inequality'' is also tested. Our empirical results reveal that unique level of integration of the variables as well as presence of long-run relationship between the series is validated. Furthermore, the results of this study indicate that economic growth impedes income distribution. Financial development reduces income inequality. Inflation benefits income distribution. Trade openness also improves income distribution. Our analysis has proved the empirical absence of GJ (1990) hypothesis in the case of Kazakhstan economy as we noted the existence of U-shaped relationship between financial development and income inequality.

It goes without saying that the results of this study have some valid explanations which may be necessary or sufficient for achieving better income distribution as well as management of the public policies in Kazakhstan. Given that findings emerged from this study, it offers some policy suggestions for Kazakhstan economy. We find the reducing impact of financial development on income inequality. This study that first, in order to have a better income distribution between the rich and the poor segments of the population, financial sector in Kazakhstan must be developed in such a way that the concept of ''financial inclusive'' and ''social inclusive'' should move together over the time, leading to benefit both the rich and the poor in the economy. Second, to reduce the gap between the rich and the poor, it is necessary to make it easier for small size entrepreneurs to access the financial services from the financial institutions. Finally, expansion of capital market used as proxy for measuring financial development could be another remedy for Kazakhstan's economy in this aspect. However, there can be several channels through which the rising living standard and welfare of the poor segments of population in Kazakhstan economy can be possible: (i) access to capital markets, re-allocation of resources in various socio-economic activities, technological innovation and proper human capital development could be enhancing factors for ensuring a better life of the poor, (ii) developing entrepreneurial skill of the poor by the advancement of

financial development and thus engaging them in productive activities and /or by allowing them to learn higher and quality education, particularly in the areas of science and engineering that would help to the poor in generating both human capital formation and managerial skills that in fact can be used as potential inputs in the process of intermediate and final production, leading to higher growth in the economy. Such re-allocation of human resources embodied within the poor segments of the population will also help to increase their income levels in the long run as because they are the vital agents of the total final output produced in the economy. From these perspectives, it can be argued that the technological innovation and effective human capital development is very crucial for enhancing sustained steady state (long-run) growth path and better income distribution in an transition economy like Kazakhstan. Finally, we suggest that proper attention of the policymakers to financial sector development can definitely prevent the higher chance of mismanagement in the monetary and fiscal policy actions and therefore it can save this active and cooperative policy mix from a big disaster. Keeping the fact in mind that the main aim of public policy in developing and transition countries is to promote economic growth, create employment, and reduce poverty. In this line, the role of proper management of government policies should not be ignored in any transition and growing economy. Understanding the role of public policy in transition countries in general and Kazakhstan economy in particular, we further suggest that the policymakers need to pay a very serious attention in initiating the worthy reforms particularly in the financial sector. As a result, we believe that such reforms rather improving the financial sector will certainly have positive impacts on economic growth and better income distribution of the society. The positive impacts of economic reforms on growth and income distribution in an transition economy is likely to happen due to the larger engagement of private players. Therefore, private players can also be given a great responsibilities and chances and in this regard, we largely believe that the fiscal governments should take necessary steps which should allow private players to operate in the market oriented system without any fear or undue political influence. Taken together, someone can easily claim that in order to have a higher productive and efficiency from private players leading to sustainable steady state economic growth and better income distribution, the fiscal governments of any developing and transitions countries should not take any economic decisions based on the political grounds but it should be taken on the basis of economic principles.

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