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The Beauty of Ivy: When Inequality Meets Equality

By Julia Puaschunder

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Abstract- Thomas Piketty's (2014) *Capital in the 21st Century* revolutionized economic thoughts on inequality. Started by the 2008/09 World Financial Crisis and cumulated in the subsequent Occupy movement, attention to rising inequality regarding economic wage, opportunity and wealth led to advocacy for a more equal society. Innovatively, this article argues for a mixture of equality and inequality within a societal network holding value when access to opportunities to transfer implicit wealth is distributed merit-based. By the example of Ivy League educational institutions, but also elaborating on social environments and interaction networks, a novel economic wealth transfer model is proposed. Within an economic system, dyads of *unequal* crystallized value based on heritage (e.g., royal families, legacy admits) and merit-based *equality* represented by offspring from families with underprivileged backgrounds, whose outperforming ambition, fluid intelligence and drive may lead to fruitful social interactions and beneficial wealth transfers, may create beneficial economic outcomes. On the societal level, within networks favorable environments may serve as transformation hubs if entered merit-based by underprivileged families.

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The Beauty of Ivy: When Inequality Meets Equality

Julia Puaschunder

Abstract- Thomas Piketty's (2014) *Capital in the 21st Century* revolutionized economic thoughts on inequality. Started by the 2008/09 World Financial Crisis and cumulated in the subsequent Occupy movement, attention to rising inequality regarding economic wage, opportunity and wealth led to advocacy for a more equal society. Innovatively, this article argues for a mixture of equality and inequality within a societal network holding value when access to opportunities to transfer implicit wealth is distributed merit-based. By the example of Ivy League educational institutions, but also elaborating on social environments and interaction networks, a novel economic wealth transfer model is proposed. Within an economic system, dyads of *unequal* crystallized value based on heritage (e.g., royal families, legacy admits) and merit-based *equality* represented by offspring from families with underprivileged backgrounds, whose outperforming ambition, fluid intelligence and drive may lead to fruitful social interactions and beneficial wealth transfers, may create beneficial economic outcomes. On the societal level, within networks favorable environments may serve as transformation hubs if entered merit-based by underprivileged families. While presenting a preliminary idea of an economic model of value transfer between equality and inequality, the article outlines a blatant research gap on information about the direct and indirect transactions and interactions between equality and inequality representing agents within societal networks. The article concludes with giving hope in Piketty's outlook of rising inequality by showing the economic merits of inequality when paying attention to merit-based distributed value transfer opportunities.

I. Introduction

We live in the age of inequality. Thomas Piketty's (2014) *Capital in the 21st Century* leveraged attention to societal inequality. While Piketty's solution to narrow inequality ends at direct tax and wealth transfer recommendations, his book also raises important, yet hardly captured, questions about access to opportunities and social mobility to ease the negative externalities of inequality.

While pre-2008/09 World Financial Crisis there was a neo-liberal consensus of inequality being a driver of economic prosperity, Piketty's (2014) *Capital in the 21st Century* raised attention for equality in the post-2008/09 World Financial Crisis bailout finance sectors (Puaschunder, 2012b). A fairer distribution of wealth but also wage equality have become the top priorities on the economic agenda of U.S. presidential candidates (Clinton, 2015). While the pendulum swung from inequality to equality focus, the combination of equality and inequality within a societal network has hardly been touched on. Inequality and equality representing agents existing next to each other, however, is a real-world relevant observation of diversified human capital portfolios featuring the advantages of exclusivity alongside merit-based access opportunities that drive ambition. Inequality and equality represented in one societal network lead to positive externalities –such as hope of advancement and extraordinary ambition – and may therefore be the economically more favorable and thus dominant societal composition. Within the societal network compound, explicit and implicit wealth transfer opportunities and positive image spill-over effects may arise between the luxuries of crystallized family heritage value and fluid intelligence of current out performers who are mobilized to extraordinary performance as for currently feeling pressure to change their social status.

The following article outlines Thomas Piketty's call for equality in the 21st century in the aftermath of the 2008/09 World Financial Crisis Economy (Chapter 2). Piketty's results are presented as a pendulum swing in opposition to neo-liberal inequality dominance of orthodox and conservative pre-2008/09 Financial Crisis economics. The paper then presents a novel model of equality and inequality agents concurrently represented in one societal network as an economically efficient solution (Chapter 3) by the case of Ivy League Schools (Chapter 3.1) and differing environmental conditions of societally stratified living compositions (Chapter 3.2). The importance of social interaction (Chapter 3.3) for intertemporal opportunities within societal networks (Chapter 3.4) but also meritocracy (Chapter 3.5) determining access to social mobility hubs (Chapter 3.6) for efficient inequality-equality transfers is underlined. The preliminary theoretical results are discussed and avenues for future research given (Chapter 4).

II. Inequality

Globalization, political changes and societal trends, but in particular the current world economy, have leveraged the societal demand for attention to inequality in society (Piketty, 2014). Our time has been referred to as the "Age of Responsibility" in US president Barack Obama's 2009 inauguration speech (Washington Post,

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January 21, 2009).[1] In the eye of the many negative consequences of the 2008/09 world financial downturn, the subsequent governmental bailouts climaxed the call for responsibility in financial markets (Milberg, 2013). The announcement of the recapitalization of the banking system in October 2008 created a demand for societal equality in a newly defined economic order. In the wake of bottom-up advocacy for fair market practices and equal wage remuneration, most vividly outlined in the Occupy movement, governmental efforts targeted at breeding equality within society and create opportunities to work hard and prosper for all(Clinton, 2015).

In the wake of readjustment of the finance sector to imbue fairness and equality in the societal order, Thomas Piketty (2014) most recently presented intercultural studies on wealth concentration and distribution over the past 250 years. Thomas Piketty's (2014) *Capital in the 21st Century* captures the contemporary trend of a rising super-rich elite having unequal access to power and holding unequal proportions of resources within society. Subsequently the top 1 percent was blamed to have unequally favorable access to tax benefits and financial markets (Clinton, 2015; Volscho & Kelly, 2012). In line with comparative work on inequality in other developed countries, Piketty built a statistical series on the evolution of inequalities in the Western world. Wealth inequality is captured to have risen over the past thirty years in the Western World, which is described as having experienced increasing levels of inequalities. The rate of capital return in developed countries is shown persistently greater than the rate of economic growth, which is prospected to cause wealth inequality to increase in the future. Unequal wealth distribution raises problems of inequality as a negative feature of capitalism, which should be alleviated through state intervention, foremost proposed through direct wealth transfers of progressive global tax on wealth (Piketty, Saez & Stantcheva, 2011). Piketty's work on economic inequalities also extends to education arguing disparities among different schools (Piketty & Valdenaire, 2006), wages, pensions and taxation schemes (Bozio & Piketty, 2008; Landais, Piketty & Saez, 2011).

Looking back in the history of political economy, the 2008/09 World Financial Crisis and Thomas Piketty's important work appear to have triggered a pendulum swing from neo-liberal thoughts on inequality as driver of economic productivity (Brenner, 2002; Greenspan, 2007). Until the 2008/09 World Financial Crisis, income inequality and wealth disparity were seen as a positive incentives to advance and prosper within society counter arguing communist and socialist political ideas. Only by the prospect of improving one's situation in comparison to others, people were believed to be motivated to strive for improvement and engage in economic worship (Marx, 1867/2008). Overall, there was the neo-liberal consensus that inequality was a vital driver of economic activity and socio-economic advancement if being complemented with social welfare for those who are naturally excluded from economic competition due to disability. Only different life starting positions and societal advancement prospects were believed to push economic excellence.

While the two camps, equality and inequality advocates, have their clear merits, within contemporary economic systems, however, neither pure equality nor pure inequality exists. In order to change democratic nations, policy makers must also be in charge that can understand how to connect the two worlds of inequality and equality living next to each other. Politicians may only be able to touch on a wide variety of constituents if they can set out an economic agenda that transfers wealth between those two poles of the socio-economic spectrum both ways. An accurate understanding of socio-economic market behavior in the interaction of economic markets and real-world economic outcomes of equality and inequality represented concurrently is therefore needed. Capturing the real-world phenomenon of unequal exclusivity and equality of merit-based democracy but also understanding the mutual beneficial transfer opportunities between the islands of the rich in an ocean of striving eyeing for entering will help policy makers getting a wide range of a few exclusive, yet importantly affluent and a mass of democratically-equally-important constituencies on board their economic agenda.

While inequality and equality arguments capture extreme poles on a spectrum, the time is ripe to depict the real-life balance of equality and inequality within the social compound. In order to address real-world relevant view on inequality, mainstream economics must therefore be complemented by heterodox insights on socio-economic dynamics of equality and inequality within one system. Describing inequality and equality as two sides of the same coin, raises hope to benefit from the positive aspects of both economic approaches. In addition, knowledge on the harmonious composition of equality and inequality within society will allow to maximize welfare effects and lower negative externalities of inequality and equality extremes, such as plutocracy or communism, within economic markets. As a first step towards resolving societal losses imbued in the complex debate of equality versus inequality, the following paper innovatively explores new opportunities to foster a harmonious interplay of equality and inequality within societal networks. The vital combination of equality and inequality through mutually beneficial wealth transfers and favorable social interaction offering merit-based societal status improvement opportunitiesis thereby outlined to offer Pareto-improving transfers within

[1] https://www.whitehouse.gov/blog/2013/06/11/what-great-gatsby-curve

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educational systems but also as a means to stabilize economic markets in the post-2008/09 World Financial Crisis era and serve a whole-rounded constituency (Puaschunder, 2012b).

III. The Power of Equality and Inequality Dyads

The most recent attention to inequality has raised demand for imbuing equality into society. After decades of neo-liberal advocacy for inequality, the time seems ripe to contest inequality. While contemporary equality advocates speak up for the ideal of an equal society, this paper attempts a different approach, trying to argue for the economic efficiency of equality and inequality represented concurrently alongside networks with implicit value transfer points, which can be entered merit-based. By drawing on the example of elite educational institutions as well as segregated societal environments featuring transformation hubs with access to social and human capital, the paper aims at providing the first economic modeling of merit-based equality and inequality transfers within societal networks. Merit-based equality and inequality concurrently represented in one system is presented as an economically efficient and Pareto-improving solution by the case of Ivy League education (Chapter 3.1) and society as a whole (Chapter 3.2).

a) The Beauty of Ivy

Social environments and education play a key role in determining peoples' success (Puaschunder, 2012a). The role of location and subsequent access to education opportunities for human capital formation has become subject to scrutiny in many inequality studies, foremost to address issues of intergenerational mobility (Bowles & Gintis, 2002; Katz & Autor, 1999; Brasington, Kato & Semmler, 2010; Mincer, 1958). While there are recent studies on intergenerational transmission mechanisms to explain intertemporal inequality (Nybom & Stuhler, 2014; Puaschunder, 2015b); no information exists about the interplay of inequality representing agents and merit-based entrants of transformation systems.

Ivy League professional schools are often criticized for breeding inequality in legacy admissions (Bazerman, 2014; Bazerman & Tenbrunsel, 2011).[2] Legacy admits are students who bring in a family legacy, often in terms of admission history to the institution sometimes criticized for breeding a family tradition of elitism, e.g., such as royal dynasties and/or long-lasting political or diplomatic ties. Parents' wealth, income and networks determining the admission into elite clubs is often blamed for crowding out merit-based scholarship and subsequently if individuals cannot advance based on education, work and natural skills, then their societal status remains dependent on their parents' wealth, income and networks – a situation which stagnates society (Cooper, Durlauf & Johnson, 1994; Corak & Heisz, 1999).

Besides legacy admits, Ivy Leagues are granting access to elite education to underprivileged children who outperform given their elevated levels of intelligence, ambition and drive. Merit-based access to elite institutions decreases inequality by imbuing intergenerational mobility to people improving their societal placement from one generation to the next. While individual ability and ambition appear as more just determinants of one's place in society, merit-based allocations are also more productive from an economic perspective (Arrow, Bowles & Durlauf, 1999).

This paper argues a model of elite academic institutions' success being built on the transfer between agents who represent equality and inequality, while serving a societal purpose of merit-based intergenerational mobility.

Overall, the value of agents for elite educational institutions is captured based on the rational expectations of their future wealth and given a constant discounting rate of their success. In period t, the agents' value for an elite educational institution is defined as the expectation

$$V_t = E_t \frac{1}{1+r}(I_{t+1} + M_{t+1}) \qquad \text{(Equation 2.1)}$$

where by V_t represents the future expected discounted value of the student pool, E_t the expectation of future success discounted by r, the time-invariant riskless interest rate of the value of human capital, I_{t+1} the future expected value of legacy admits and M_{t+1} the future value of merit-based admitted students. Merit-based admission is hereby defined as entrance to elite universities purely based on elevated levels of intelligence, ambition and drive.

Imposing arbitrage conditions that investing into legacy admits and merit-based students must be equally profitable, therefore the growth of value is assumed to be equal but on different dimensions that are complementary and allow a transfer between these diverse student populations within the entire university's network.

The overall present-time value of the admitted student pool of Ivy League institutions is given by

$$V_t = I_t + M_t + T_{I+M} \qquad \text{(Equation 2.2)}$$

where by T_{I+M} denotes an implicit value transfer opportunity between legacy admits and merit-based students. The value of Ivy League education can thus be decomposed of the future value of the student pool's human capital price of known legacy wealth and known intelligentsia of meritocracy admitted children as well as the transfer opportunities between these groups within the legacy network. The value itself is determined by the

[2] how-you-can-do-better-than-the-ivy-league-944cd730cf83

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human capital price as the sum of all discounted future profits arising from legacy wealth, intelligentsia and network transfer between legacy and intelligentsia. While unequal legacies may bring in backward looking, stable value in terms of family prestige; merit-based placed equal opportunity agents offer ambition, drive and fluid intelligence as a guarantee for future innovation and advancement. Legacies' historical wealth and capital is traded for merit-based outperformers' intelligence and innovation image in these inequality-equality transfer hubs. Note that in reality, equally intelligent legacy admits as non-legacy admits may exist but for simplicity in the theoretical model extremes are assumed based on descriptive going-native evidence (Bazerman, 2014).[3]

For Ivy Leagues the mixed student body brings a diversification advantage to spread risk of future failure of one of the groups later in life. The diversified student composition thereby also represents a temporally diversified spectrum of legacy and future prospects. Within the Ivy Leagues networks, there is an indirect wealth transfer as legacy admits are more often paying full tuition and their families make generous donations to the education institutions, while non-legacy admits benefit from scholarships and access to fully-funded resources. Both groups themselves also benefit from the image transfer and membership in a particular ivy group. Within the Ivy League network, the diverse peers therefore gain from each other by mutally beneficial transfers that allow positive image spillovers and direct wealth transfers. While legacy students gain an image of intelligentsia, the underprivileged benefit from a lifelong association with favorable legacy, heritage and social status their families will never have, no matter how hard they strive. Legacies benefit from inflated intelligence perceptions, merit-based intellectuals from the inherited wealth and networking opportunities with their legacy peers within the Ivy League network. For society, Ivy Leagues thereby serve as merit-based economic transition hubs to instigate intertemporal mobility and breed societal equality.

Overall, when positive interaction effects occur in these social capital access hubs, this can give rise to better opportunities for both group members and turn the combination of equality and inequality into a Pareto-improving situation (Brasington et al., 2010). From the admission perspective, heterogeneity within the student pool is favorable, thus extreme cases of legacies and extreme cases of underprivileged but smart students in one entering cohort appear most favorable if considered the entire network. Counter arguing the current attention to equality, this paper thus advocates for equality of opportunity but inequality of outcome based on either legacy heritage value or intellectual capacity, ambition or drive. The model of inequality and equality representing agents transferring value and benefitting from positive image spill-over effects can also be extrapolated onto the societal level as follows (Chapter 3.2).

In order for the diversified portfolio of equality and inequality representing students to be economically efficient, meritocracy is key. As for enabling intergenerational mobility, meritocracy builds equality. Inequality is a feature of immobile societies (Wolfers, 2015). If individuals cannot advance based on education, work and natural skills, then their societal status depends on their parents' wealth, income and networks (Atkinson, Maynard, & Trinder, 1983; Lee, Roys & Seshadri, 2014). The Great Gatsby Curve illustrates the connection between wealth in one generation and the ability of those in the next generation to move up the economic ladder compared to their parents.[4] The curve shows that children from poor families are less likely to improve their economic status in countries where income inequality is higher, measured by societal wealth concentration.

Inequality decreases through intergenerational mobility – when people improve their societal placement from one generation to the next. Inequality therefore is a sign of persistence across generations. To overcome inequality over time, structural changes affect intergenerational mobility over multiple generations (Nybom & Stuhler, 2014). But intergenerational mobility also requires meritocracy and access to merit-based education opportunities.[5] Because social welfare spending reduces education gaps for students from disadvantaged backgrounds by up to 43 percent, Gary Becker and Richard Posner recommend that governments provide first-class education and social services to gifted yet underprivileged children (OECD, 2012).[6] In the novel explanation of the economically-favorable stratified composition of Ivy Leagues to grant intergenerational mobility opportunities, a theoretical framework as well as an exploratory empirical investigation of the socio-dynamics between the two groups representing merit-based equality and inequality is missing. Overall granting merit-based access to Ivy League societal intergenerational transformation hubs is a feature of socio-economic development within diversified societies.

b) Diversified societies

Within the social compound, inequality persists when children cannot advance from their parents' social position. Intergenerational mobility is enabled through

[3] https://medium.com/galleys/how-you-can-do-better-than-the-ivy-league-944cd730cf83

[4] https://www.whitehouse.gov/blog/2013/06/11/what-great-gatsby-curve

[5] http://www.conferenceboard.ca/hcp/details/society/intergenerational-income-mobility.aspx

[6] http://www.becker-posner-blog.com/2012/12/meritocracy-social-mobility-intergenerational-mobilityposner.html

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intertemporal opportunities of social transformation hubs given social interaction and meritocracy.

c) Social interaction theory

Social environment and human capital formation are necessary yet overlooked intergenerational advancement determinants (Borjas, 1995). According to the social interaction theory of inequality, the social environment and the network groups to which a person belongs play an important trole for socio-economic outcomes (Brock & Durlauf, 2006; Durlauf, 2006). Socio-economic and cultural differences in geographically-distant districts stemming from current and past policies, institutions and societal conditions, lead to different access to social and human capital (Nybom & Stuhler, 2014). The environment during childhood is seen as one of the key determinants of an individual's long-term societal status prospect (Bouchard & McGue, 1981; Chetty, Hendren & Katz, 2015). For instance, if a district is rich, determined by relative differences in property tax, the environment offers better schools, social welfare and cultural events. Social environments may lead to the agglomeration of opportunities, which are distributed bi-modal (Brasington et al., 2010). Agglomerations of social capitaland opportunity are distributed unequal as captured by the World Bank[7] (Brasington et al., 2010; Romer, 1990). Social environments either create opportunity hubs or poverty trap holes, which individuals cannot leave (Brasington et al., 2010; Goldberger, 1989). Intergenerational stickiness was found in housing zones determining education, marital fulfilledness, and wages over time (Chetty et al., 2015; Lee et al., 2014; Osborne, 2002). Within the different areas, positive network externalities are distributed through social interaction within networks (Durlauf, 2001), which allows vertical intertemporal upward mobility (Brock & Durlauf, 2006; Durlauf, 2004, 2006). The driver to break intergenerational persistence through intergenerational mobility lies in intertemporal merit-based advancement opportunities within the societal compound (Brock & Magee, 1982).

d) Intertemporal opportunities

Intergenerational equity grants equity of chances – not outcomes, which should be merit based – over time for this generation and the following (Clinton, 2015; Loehlin & Nichols, 1976). If individuals cannot advance based on their education, work and natural skills, then their societal status remains determined by their parents' and ancestors' wealth, income and networks, which stagnates society (Becker, 1988; Bowles, Gintis & Osborne, 2008; Menchik, 1979). Individual ability and ambition appear as fairer determinants of one's place in the social order and, from an economic perspective, merit-based allocations are also more productive (Arrow et al., 1999; Becker & Tomes, 1986).

Inequality persists in immobile societies (Erikson & Goldthorpe, 1992). An OECD (2010) Economic Policy Reform Report outlines a $r=.56$, 88, $p<.05$ correlation between inequality and intergenerational wage persistence, measured by the gap between the estimated wage of an individual whose father had achieved tertiary education and the wage of an individual whose father had below upper secondary education (Solon, 1992; Solon, 1999; Taubman, 1976). For intergenerational mobility, meritocracy is key. Meritocratic intergenerational mobility is at the core of equitable societies (Arrow et al., 1999).

e) Meritocracy

In order for the diversified portfolio of equality and inequality representing students but also for unequally beneficial environments to be economically efficient, merit-based access to legacy and transformation hubs is essential. Meritocracy builds equality as for enabling intergenerational mobility.

Across countries intergenerational mobility is a feature of equal societies.[8]Meritocracy and access to education are prerequisites for intergenerational mobility. Gary Becker and Richard Posner therefore recommend that governments provide first-class education and social services to gifted, yet underprivileged children.[9]Social welfare spending helps reduce education gaps for students from disadvantaged backgrounds by up to 42.9 percentage points (Ashenfelter & Krueger, 1994; OECD, 2010).

But OECD economists find government-funded higher education and merit-based scholarships do not entirely reduce unfair favoritism of privilege (OECD, 2010). Instead, intergenerational immobility persists. OECD economists (2010, 2012) outline that government-funded higher education and merit-based scholarships are not enough to entirely reduce the favoritism of privilege. The link between individual and parental earnings ranges from 15% to 50% intergenerational earnings elasticity across OECD countries. Parental backgrounds influence student achievement in secondary education by up to 63 score points on the OECD's Programme for International Student Assessment (PISA) worldwide study, which measures 15-year-old school pupil's mathematics, science, and reading skills. Children of uneducated parents are three times less likely to enter higher education. They are also 44% less likely to finish higher

[7] http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTTSOCIALCAPITAL/0,,contentMDK:20185164~menuPK:418217~pagePK:148956~piPK:216618~theSitePK:401015,00.html

[8] http://www.conferenceboard.ca/hcp/details/society/intergenerational-income-mobility.aspx

[9] http://www.becker-posner-blog.com/2012/12/meritocracy-social-mobility-intergenerational-mobilityposner.html

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education compared to those with fathers who also achieved higher education. Children from parents with academic backgrounds also benefit from a wage premium of up to 20% compared to those growing up in non-academic households. This human capital transmission from parents to children is attributed to parental spillover effects (Lee et al., 2014). The link between individual and parental earnings ranges from 15 to 50% intergenerational earnings elasticity across OECD countries (Charles & Hurst, 2002; Mazumder, 2008). Robert Putnam (2015) therefore argues that people might not overcome their parent's social economic status because societal class creates and molds one's expectations for success and ability (Mulligan, 1997). Living in a society with little merit-based opportunity reinforces low expectations for escape. Education may not make sense if there is no hope for merit-based mobility (Osborne, 2008). Intergenerational advancement may thus only prosper in the wake of meritocracy, an overlooked prerequisite of societal equality.

f) Intertemporal social mobility hubs

Extrapolating the inequality-equality dyads micro-model onto a macro-level, a diversified composition of equality and inequality may allow for positive transfer opportunities within society. Extending the idea of the necessity of value transfers between inequality and equality within societal networks may help deriving a more sophisticated understanding of the role of the social environment and human capital formation (Brasington et al., 2010).

Nature and nurture determine societal success as outlined in psychological studies of economic success using twin populations (Costa & McCrae, 1992; Eysenck & Eysenck, 1985). In order to alleviate poverty, social interaction can lead to positive socio-economic outcomes overcoming heritage advantages and natural ability differences (Durlauf, 2004, 2006). The social environment surrounding an individual can lead to a take-off of the individual or can lock-up in substantial immobility, Brasington et al. (2010) and Chetty et al. (2015) capture, demanding for a more sophisticated understanding of the role of human capital formation. Thereby, in particular, the transfers that take place in social mobility hubs within societal networks needs to be explored. A closer scrutiny of the social settings by which inequality gets alleviated and network theory based explanations of intergenerational transfers are demanded.

Social interaction theory holds environment and education as key to intergenerational mobility within societal networks. The mere local conditions that parents and their children face during their lifetimes will change their position in society and determine their economic success and societal status (Chetty et al., 2015; Nybom & Stuhler, 2014). With the social surrounding determining one's place in society, access to a certain community environment can improve social status but do not necessarily have to (Chetty et al., 2015). Social interaction hubs can be interpreted as either 'basins of attraction' or 'poverty traps' with a threshold separating the two areas (Brasington et al., 2010). The general attractiveness of a community is determined by the access to work, education, business and social contacts (Brasington et al., 2010). The social and physical environment of an individual shapes education levels and access to social capital. The environment as the attractiveness of a community depends on the magnitude of public and private investments (Brasington et al., 2010). Investments build basic public services such as education, health care, public transportation, safety, sanitation, jobs and services to the community. Environments represent unequal economies of agglomeration hubs as the more attractive an environment, the more investment it can thus further attract, and therefore the better the environment gets over time. Changes in the economic environment affect intergenerational persistence immediately but also over time in subsequent generations (Nybom & Stuhler, 2014). Policy or institutional reforms generate long-lasting mobility trends, which are often non-monotonic (Nybom & Stuhler, 2014). Agglomeration creates mechanisms where households in a better environment enjoy a greater advantage in growth due to attributes that make communities more desirable (Brasington et al., 2010). These attributes include climate, pollution, availability of parks and cultural institutions such as museums and libraries (Brasington et al., 2010). Communities benefit from these economies of agglomeration creating power hubs. Stronger economies of agglomeration bring about greater environmental and human resources with higher income (Brasington et al., 2010). A community with initial environmental and social interaction opportunity resources above a certain threshold tends towards the upper steady state, while a community with those below the threshold tends towards the lower steady state (Brasington et al., 2010). Power hubs build human capital and therefore reduce poverty in the long run.

Extending on Brasington et al. (2010), inequality is seen as vital mechanism to create power hubs with abundance of access to social capital and societal improvement opportunities. If everyone were equal, similar situations as in socialism would emerge, in which the overall societal infrastructure quality was run down. The mere existence of inequality creates power hubs, which attract positive attention to further investment and as a wishful entrance gate to future prosperity. Entering these power hubs is an incentive for underprivileged community members who may strive to move to the better areas and thereby be economically

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productive in taking up the extra effort for gaining access to better communities.

In contrast to Chetty et al.'s (2015) voucher experiment which chose random households to move up the economic ladder by relocation, the opportunity to move to power hubs should be granted merit-based to ensure the most efficient social advancement situation. Again, public policies should target at accommodating merit-based allocations to access fruitful communities, by alleviating discrimination and social welfare provision to those who cannot compete in meritocracy due to natural disabilities or disadvantages. Inequality and merit-based chances to equal access to these community hubs are thus Pareto-efficient societal networks. The novel model of equity-inequality transfers may capture how to instigate transfers from one basin of opportunity to another hole of inequality within societal networks. A clearer understanding of implicit wealth transfers between inequality and equality pegged onto merit-based societal contribution requirements will provide real-world relevant social harmonization strategies. Unraveling different transfer opportunities may help deriving public policy implications targeted at reducing inequality through mutually beneficial and thus Pareto-optimal network transfers. Gaining information on merit-based social mobility within real-world representative social structures will help policy advocates to gain a realistic outlook on economic improvement opportunities, whilst embracing a wide range of constituencies.

In this model, social mobility may be captured by p, the likelihood to advance to more access to 'social capital areas' ε based on the distance to social capital δ, the size of social capital κ accessible in the entire pool and the ambition a and ability α to accomplish successful social mobility dependent on meritocracy M.

$$p_{t+1} = \varepsilon - \delta + \kappa + (a + \alpha) * M \qquad \text{(Equation 4.1)}$$

with p denoting the likelihood to advance to access ε ranging from 0 to 1 and being measured in relation to other societal actors.

Meritocracy is captured in the equation of educational and occupational status S being a function *f*of cognitive ability c, outperforming ambition b and social contributions δ determining the social position within society as exhibited in

$$S = f(c, b, \delta) \qquad \text{(Equation 4.2)}$$

The higher the level of meritocracy within a society, the more the societal status measured in educational and occupational placements will be determined by cognitive abilities and ambition. Within the power hubs of societally fluid networks, transfer between merit-based placed equality and privileged households may take place, leading to an overall Pareto-improving situation over time.

In a climate of previous either equality and inequality focused research, the transfers between the actors of diversified communities within societal networks has not been studied. The overall mutually beneficial transfer between inequality islands in an ocean of for equality striving access seekers may lead to socially-unpleasant competition and socio-economic downfalls for those who have a natural disadvantage in competing, e.g., such as disabilities or discrimination. Social instability and social unrest may be negative externality effects of creating transfer hubs that underprivileged households can enter to enjoy access to social capital and thereby gain better future prospects to succeed. Social instability and societal unrest may be negative effects of mixing privileged and underprivileged households in the social capital transformation hubs. How to alleviate tensions between privileged and underprivileged households living together next to each other and how to breed harmony and positive inter-household transfers are yet unknown.

IV. Discussion and Future Research

Thomas Piketty's (2014) *Capital in the 21st Century* revolutionized economic thoughts on inequality triggering a discussion on how to breed equality within society. The solution to achieve equality mostly ends at taxation and direct wealth transfers, reminding of socialist ideas. Rather than contributing to the current pendulum swing towards the ideal of equality after decades of neoliberal inequality dominance, this article proposes a novel approach to gain economic efficiency and societal well-being based on social environment and human capital formation within societal networks. The mixture of equality and inequality within a system may hold positive transfer value and be the most efficient strategy for economic systems when access to opportunities to transfer implicit wealth is distributed merit-based, under the premises of additional social welfare to counterweight discrimination and support of those who have a natural disadvantage to compete in meritocracy. By the example of Ivy League educational institutions but also elaborating on societal interactions in social transformation hubs, a novel economic wealth model was introduced. Within an economic system, dyads of *unequal* crystallized value based on heritage (e.g., royal families, legacy admits) and merit-based *equality* represented by offspring from families with underprivileged backgrounds, whose outperforming ambition, fluid intelligence and drive may lead to fruitful social interactions and beneficial wealth transfers, may create the most favorable economic outcome. The example of Ivy League Schools was extrapolated onto societal levels describing inequality-built favorable environments as transformation hubs if accessible merit-based by underprivileged families. Building on social interaction theory based value transfers in the equality domain and image transfer effects, the article outlined a blatant research gap on information about the direct and

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indirect transactions and interactions between equality and inequality representing agents within societal networks. The article provides a first preliminary idea of an economic model of value transfer between equality and inequality represented next to each other within a Pareto-optimal economic system. Understanding the interaction and transfer opportunities will allow to embrace a wider constituency for policy makers and serve democracy truly whole-roundedly.

In the current trend of equality demands, after a pendulum swing from neo-liberal inequality dominance, the idea of economically efficient inequality-equality dyads provides an innovative stance of capturing the positive effects of inequality being accessible by merit-based allocations. In Ivy League institutions but also in societal networks, merit-based access to unequal abundance in environmental conditions is captured as economically favorable. The concurrent representation of inequality and equality appears favorable as pure inequality often creates social tension and instability while pure equality may crowd out economically-favorable striving for improvement (Puaschunder, 2012a). Inequality is key to Ivy League educational experiences, where positive image transfers between privileged and underprivileged occurs. Inequality can also lead to the creating of powerful societal hubs, in which underprivileged may benefit from access to already established abundant social capital and long-term heritage wealth. The highest transfer opportunities are given in dyads with diverting privileged and underprivileged agents and households. The inequality-and-equality bundling strategy is an innovative and real-world relevant approach for implementing widespread societal welfare. By acknowledging the merits of both – inequality and equality – a wide range on the political spectrum can be brought on board to embark on a socially-beneficial and harmonious society. Alongside spearheading economic network theory development, creating intergenerational mobility advancement opportunities grants real-world relevant means for hard-working individuals to climb up intergenerationally. For academia, the novel angle towards the equality and inequality debate may alleviate tensions between two intellectual and political camps. Providing real-world relevant social development strategies will help politicians to embrace a wide range of constituents and implement economic policy at the forefront of democracy.

Presenting the idea of by-inequality-established social transformation hubs that can be accessed merit-based is not an attempt to counter argue Thomas Piketty's important work, but rather seeks to complement the Piketty results and enrich his noble perspective with an additional real-world relevant angle. The article is targeted at giving hope in Piketty's grim outlook of rising inequality by showing the economic merits of inequality when paying attention to merit-based distributed value transfer opportunities within permeable social networks.

On a personal note, the author's academic career and intergenerational mobility would never have been possible without the social welfare provided by a social-democratic education system featuring equal access to opportunities and merit-based allocation of social benefits. But when it came to gaining most excellent higher education, the author transferred to an Ivy League as a non-legacy representing agent, where the power of inequality-equality transfers but also the socio-psychological dynamics of these transfers became apparent. These socio-psychological foundations of social mobility at Ivy Leagues are also described by Michelle Obama's Princeton University senior thesis, but have hardly been captured in contemporary equality research and demand for further scientific investigation (Robinson, 1985).[10]

Reflecting on Thomas Piketty's recommendation of drastic wealth transfers, e.g., his quest of a progressive global wealth tax of 50 taxation faced by all super-rich, we may add to imbue meritocracy to the gains of wealth redistribution. Simple direct investments and pure transfer payments without quality control or conditionalities have proven to be unsuccessful in breeding socio-economic transformation in the past, if we recall examples of cash-for-clunkers, IMF foreign direct investments without conditionalities but also minority programs that were simply based on cash transfers without providing underprivileged opportunities to contribute successfully to society.

As for the novelty of the proposed idea, future studies may address particularities of positive transfers between different equality levels representing agents within societal networks. Power agglomerations based on inequality and how to grant access in a societally just manner are additional quests arising from the detected research gaps. In the contemporary extensive writing on inequality, unraveling equity transfers opens ways to steer intertemporal social mobility (Arrow et al., 1999; Becker & Tomes, 1986; Piketty, 2014; Puaschunder, 2015a, b[1]). Pursuing to fill laissez-faire gaps on intergenerational concerns, outlining public or private sector endeavors in coordinating societal exchange would provide concrete means how to balance benefits between different societal stratain a fair way (Broome, 1999; Puaschunder, 2015a, b). *Public* and *private* sector contributions to wealth transfers should be addressed (Puaschunder, 2015b). Stringent hypothesis testing in cross-sectional studies could capture if public sector contributions are associated with public societal wealth transfer and private sector contributions associated with private intergenerational transfer (Phelps, 1961; Samuelson, 1975a, b). Additional hypothesis testing

[10] https://obamaprincetonthesis.wordpress.com/

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could scrutinize if public and private sector transfers are inversely related (crowding out) or can lead to complementary benefits (Puaschunder, 2015b).

Studying the interaction of individuals regarding striving for access to elite societies as well as transfer of crystalized and fluid intelligence within societal networks' power hubs will offer a more comprehensive and inclusive application of the rationalist and social intuitionist paradigms in the equality domain. Deriving information on circumstances under which decision makers are likely to grant access to elite clubs or share their intelligentsia and ambition within social transformation hubs is targeted at outlining ways how to improve intergenerational equity based on ethicality in the absence of legal enforcement and governmental control. Capturing social transfer triggers will help designing context that advance intergenerational mobility. Implicit value transfers opportunities will complement institutional efforts to solicit direct wealth redistribution advancing economic growth (Clinton, 2015; Shell, 1967; Tobin 1967). Investigating transfers from a global governance perspective will help understanding the impact of public and private sector contributions on equality.

In future studies, the complex interplay of individual and environment variables on economic success should be unraveled in order to retrieve contextual influences on equity. Institutional rules, policies and regulations should be analyzed in the search for meritocracy accessed opportunities to implement equality. Further, light should be shed on how the public and the private sectors can be systematically designed to promote a harmonious interplay of inequality and equality in order to retrieve real-world relevant intergenerational equity implementation strategies and education recommendations. Studying the interplay of individuals' propensity to engage in transfers and contextual environments to support equal access to transformation hubs based on meritocracy will allow controlling the interaction of individual and external variables to steer equality within societal networks. At the same time, unraveling the socio-economic dynamics of transfers will help avert intergenerational stickiness. Shedding light at potential intergenerational equity transfer downfalls will enable institutional technocrats to create contexts that automatically raise reciprocity and open ways to steer democratic compliance based on a cooperative relationship within transformation hubs. Delineating constraints for equality will help creating cultures that promote and encourage positive societal transfers as well as alleviate the societal downfall potential of disability and discrimination. Practical implications comprise of incentivizing outperforming yet underprivileged society members for their societal contributions and implementing quality controls of merit-based opportunity allocations based on transparency and oversight.

Future research on equality may help understanding the socio-dynamics of equality transfers as enhanced by social norms, public and private rules, policies, and procedures that establish equality transfers as a prerequisite for a harmonious society. The socio-economic impacts and social dynamics of inequality-equality dyads should be studied by going native but also in economic modeling using nonlinear model predictive control (NMPC) (Greiner, Grüne & Semmler, 2012). In addition, the present research should be tied to preliminary findings of exploratory research on cross-country differences in skill complementarity, which captures countries where industries employ technologies in which skills are more complementary will exhibit social mobility (Abbott & Gallipoli, 2014).

Overall, while economists can improve access to economic market opportunities[11] and institutional policy makers can minimize discrimination and global governance entities instigate intergenerational transfers, social scientists should focus on how to build societal trust in merit-based intergenerational mobility (Brasington et al., 2010; Ghilarducci & Lee, 2005; Puaschunder, 2012b, 2015b). Meritocracy as the psychological backbone of a fair society, together with trust in upward mobility over time are key drivers of economic productivity, opening an innovative path to an economically growing, fair and harmonious society.

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[11] http://www.nytimes.com/2015/05/05/upshot/why-the-new-research-on-mobility-matters-an-economists-view.html?abt=0002&abg=0&_r=0

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The Impact of Internal Service Climate on Employees' Job Satisfaction: With Reference to Commercial Bank of Ethiopia, Gedeo Zone

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Abstract- It is of great interest to improve an organization's service quality by investigating the antecedents of customers' satisfaction in a dynamic, global business environment. Service industries try to compete by providing high-quality customer service via developing their internal service climate. Currently both industry and academia have shown a growing interest in the concept of internal service climate. Furthermore, internal service climate increases job satisfaction and reduces role stress. The main purpose of this study is to investigate the impact of internal service climate on employees' job satisfaction. The research design is a descriptive research. Both primary and secondary data were used in this research. A survey questionnaire with five point Likert scale was a main tool for gathering primary data about internal service climate effect on job satisfaction. 123 permanent employees were participated in filling the questionnaires. The researcher used censes sampling method.

Keywords: internal service climate (reliability, assurance, empathy, tangibility, and responsiveness), ANOVA, SPSS, likert scale.

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The Impact of Internal Service Climate on Employees' Job Satisfaction: With Reference to Commercial Bank of Ethiopia, Gedeo Zone

Teklemariam Fitwi [α] & Gemechu Abdissa [σ]

Abstract- It is of great interest to improve an organization's service quality by investigating the antecedents of customers' satisfaction in a dynamic, global business environment. Service industries try to compete by providing high-quality customer service via developing their internal service climate. Currently both industry and academia have shown a growing interest in the concept of internal service climate. Furthermore, internal service climate increases job satisfaction and reduces role stress. The main purpose of this study is to investigate the impact of internal service climate on employees' job satisfaction. The research design is a descriptive research. Both primary and secondary data were used in this research. A survey questionnaire with five point Likert scale was a main tool for gathering primary data about internal service climate effect on job satisfaction. 123 permanent employees were participated in filling the questionnaires. The researcher used censes sampling method. The data was analyzed by using appropriate statistical tools such as mean, standard deviation correlation, and regression, ANOVA, by using SPSS (statistical packaging for Social Science). The findings show that ISC have impact on employees' job satisfaction. All the independent variables are positively and directly related to employees' job satisfaction particularly in commercial bank of Ethiopia. The relationship between internal service climate and employees' job satisfaction is significant. Again internal service climate is also significant. From the internal service climate reliability and assurance highly explain employees' job satisfaction. Internal service climate is highly explains employees' job satisfaction. Therefore, the bank should focus more on reliability and assurance from the Internal Service Climate and meaningfulness to increase employees, motivation, moral and productivity.

Keywords: internal service climate (reliability, assurance, empathy, tangibility, and responsiveness), ANOVA, SPSS, likert scale.

I. Introduction

Financial institutions are a service setting that most consumers are likely to use on a relatively frequent basis. Because of their knowledge and experience, consumers can able to evaluate financial institutions (particularly banks) in terms of both expectations and perceptions of service quality (Awoke, 2010). The delivery of quality internal services is critical to customer satisfaction since improvements in internal service quality are expected to produce improved external service quality and satisfaction" (Kang *et* al., 2002) cited in (Wasihun 2011).

Employees of the organization manage all the resources of the organization for effective and efficient utilizations of resources to achieve the Vision, missions and objectives over a specified period of time. Therefore, employees are the most crucial assets of the organizations. It is known that each and every resource has value but the values of the resources are different to one another. On the other hand, employee in an organization works in a various work environments/conditions that is called service climate. These service climates have either positive or negative impact on employees' job satisfaction. Having a good internal service climate makes the organization to gain highest market share and also makes to encourage employees' moral, commitment and job satisfaction. According to Marshall, Baker and Finn (1998), recently there has been risen an interest in service quality issues in business to business markets, both in internal and external perspective. The authors continue that the service quality requirements of external customers have been the focus of much research, but internal customer service requirements have received few attentions in the recent researches. Usually, according to various researchers, there is positive relationship between service climate and employees' job satisfaction (Dimitriades and Maroudas, 2007, Hui et al., 2004). This indicate that if internal service climate is poor that is usually described based on the five service quality dimensions (reliability, assurance, tangibles, empathy and responsiveness) the employees' moral, commitment, productivity and job satisfaction are negatively affected.

Currently employees' in an organization are more qualified and well experienced to their jobs than ever before (Bhatnagar and Sandhu, 2005). Even in Ethiopia number of qualified employees' in various professions is increasing. Therefore, these people are more capable to perform tasks that are assigned to them effectively and efficiently. They do not wait orders from bosses to perform a task/job. As a result, today, the issue of psychological empowerment is among concerns in workplace which negatively/positively affects the employees' attitude to the job and job

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satisfactions. Job satisfaction is an earliest anticipated or predictors outcomes of empowerment (Spreitzer, Kizilos & Nason, 2007). The authors argue that psychological empowerment is significantly positively related with job satisfaction. If employees' are not empowered in their jobs, they may waste more working hours in waiting decisions from bosses. As a result, according to Doughty (2003) cited in chen (2008), employees' moral, productivity and employees' job satisfaction might be deteriorated. In Commercial Bank of Ethiopia in Gedeo zone, internal service climate and psychological empowerment practices are not yet fully developed and implemented and there is a significant lack of practical and empirical research.

Commercial Bank of Ethiopia is one of the leading banks in Ethiopia by 677 branch and 13106 employees' and it has more than four million account holders (www.cbe.com). Out of the whole 8 branches and 123 employees' with 56 thousand account holders are in Gedeo zone. To serve the loyal and potential customers the existence of attractive working environment is necessary. The internal service climate practice in the bank affects employees' job satisfaction. To serve their potential and loyal customer with the appropriate time and free from error, their knowledge and politeness, equipments used, willingness to accommodate special needs of co-workers/ prompt service, providing accurate and necessary information, meaning to their job, autonomy how to do their job, the ability to perform and their impact on their department affects employees' job satisfaction positively/negatively. On this ground, the researchers put forward that the relationship and impacts between internal service climate on employees job satisfaction is worthy of investigation in the case of Commercial Bank of Ethiopia in Gedeo zone.

II. Literature Review

The world Bureau of Labour Statistics reports that the service-producing sector will continue to be the dominant employment generator in the economy, adding 20.5 million jobs by 2010. Employment in the service producing sector is expected to increase by 19 percent over the 2000-2010 periods, whereas manufacturing employment is expected to increase by only 3percent. In fact, manufacturing's share of total jobs is expected to decline from 13 percent in 2000 to 11 percent in 2010.These numbers and others have led to a growing interest in the special problems of marketing services (Kotler and Keller, 2006).

Service, can define as: any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product (Ibid).

Services possess several unique features that often have a significant impact on marketing program development. Manufacturing organizations produce tangible goods that can be numbered, stored and consumed at a later time whereas, services are intangible performance. These special features of services may cause problems and often result in making decisions that are substantially different from those found in connection with the marketing of goods.

Service, as stated by Kotler (1996), generally has the following major characteristics that greatly affect the design of service management programs. These are intangibility, heterogeneity, inseparability, Variability and perishability features of services. Services are intangible, unlike physical products, they cannot be felt, smelled, heard, or tasted before they are bought or rendered. Heterogeneity refers to the difficult nature of services to standardize them; as a result, output can vary widely in quality. Services are usually designed around the specific requirements of the individual customer. Services are inseparable because they are typically produced and consumed simultaneously i.e. production and consumption occurs at the same time. It is usually impossible to separate the production and consumption. Customers participate in the service delivery system, and they receive the value as the service is produced. Services possess a potential for high variability in the quality of output. Because they depend on people who provide them and when and where they are provided. It cannot be guaranteed to be identical in all aspects to those that have gone before and to those that will follow. Perishable is to mean that services cannot be stored because it is not tangible goods.

Services intangibility, inseparability and heterogeneity underline the importance of the "human interaction element of service delivery" – the service encounter (Bitner *et* al., 1990) cited in (Dimitriades and Maroudas 2007). The term service encounter is used to denote person-to-person interaction between a customer and an employee of an organization during the acquisition of a service. Indeed, Berry and Parasuraman (1991) cited in Dimitriades and Maroudas (2007) expand the "customer" construct by viewing employees' as "internal customers". An internal customer is defined as anyone in an organization who is supplied with products or services by distinct organizational departments or by persons working in them.

Internal services can be defined as services provided by distinctive organizational units or people working in these departments to other units or to the employees within an organization (Stauss, 1995). The above definition involves a wide range of miscellaneous services within an organization, which include human resources management, R&D and marketing departments, internal logistics services, maintenance support, and so on.

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a) Service Climate

Service climate refers to the shared perception of employees concerning the practices, procedures, and kinds of behaviour that get rewarded and supported in a particular setting (Schneider *et* al., 1998). The service climate is the message employees get about how important service is in their organization. Employees get this message from the experiences they have during their workday (Schneider & Bowen, 1995). It has been claimed by Schneider and Snyder (1975) cited in Safius (2003) that the molar or holistic nature of climate perceptions is such that perceptions function as a frame of reference for the attainment of some congruity between behaviour and the system's practices and procedures. Further, because satisfaction is a personal evaluation of a system's practices and procedures, people in the system will tend to agree less on their satisfaction than on their description of the system climate. Moran and Volkwein (1992) cited in Safius (2003), defined climate as: a relatively enduring characteristic of an organization, which distinguishes it from other organizations and (a) embodies members' collective perceptions about their organization with respect to such dimensions as autonomy, trust, cohesiveness, support, recognition, innovation and fairness; (b) produced by member interaction; (c) serves as a basis for interpreting the situation; (d) reflects the prevalent norms and attitudes of the organization's culture; and (e) acts as a source of influence for shaping behaviour.

b) Organizational Climate

Organizational climate concepts are employees' attitude towards their organization which has great impact towards their working ways and contributions; in consequence organizational climate causes organization performance because this relates directly to employees' motivation. Employees' perception to organization as defined in six factors (Stringer, 2002) cited in (Safius, 2003).

Structure: means employees understand clearly about their duties and responsibilities including each rank decision power.

Standards: means employees take their efforts to develop their working quality to proud levels toward quality working.

Responsibility: reflects the employees' feeling in term of courage used in problem solving without taking into consideration of decisions of others.

Recognition: reflects the feeling of employees who receive rewards, blame and appropriate punishment. In addition to this includes balance and consistency.

Support: the trust and the contributing to share with one another as a working team and colleagues and the ability to get the chief's assistance, whenever it is needed.

Commitment: reflects the employees' feeling in sense of integration to the organization and commitment level towards the objectives of the organization (Ibid).

c) Service Quality Dimensions of Internal Service

Because the characteristics services are complex, the quality of services can also be complicated. When service providers understand how customers evaluate the service quality, they can also better control and manage the service quality. Groonroos (2000) various researchers have contributed to the identification of service quality dimensions, but the most publicized quality dimensions are the dimensions identified by (Parasuranam, Zeithaml and Berry 1988; 1990). They first identified ten different dimensions, but through exploratory research consolidated them into five principal dimensions that customers use in judging the service quality. These dimensions are reliability, responsiveness, assurance, empathy and tangibles. The concise definitions for the dimensions are discussed below.

Reliability:- means the service provider's ability to perform the promised service both dependably and accurately. Customers expect reliable service delivery and that the service is delivered on time, in the same manner, and without errors every time (Awoke, 2010).

Responsiveness:- is customer service's willingness to help customers and to provide prompt service. For example keeping customers waiting may create unnecessary negative perceptions of quality. Whenever a service failure occurs, the ability to recover quickly and with professionalism can still leave customers very positive perceptions of service quality Groonroos, 2000).

Assurance:- refers to the knowledge and courtesy of employees as well as their ability to convey trust and confidence. The assurance dimension includes the following features: competence to perform the service, politeness and respect for the customer, effective communication with the customer, and the general attitude that the server has the customer's best interests at heart (Awoke, 2010).

Empathy:- refers to the caring and individualized attention what the customer gets during the service delivery. This includes the approachability, sensitivity of service employees and effort to understand the customer's needs (Parasuranam, Zeithaml and Berry, 1988; 1990).

Tangibles:- are the physical aspects of service delivery i.e. the appearance of physical facilities, equipment, personnel, and communication materials (Awoke, 2010). The five service quality dimensions are suitable for measuring the quality of internal services as well, and not just for measuring external service quality: "SERVQUAL, with appropriate adaptation, can be used by departments and divisions within a company to

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ascertain the quality of services they provide to employees in other departments and divisions" (Ibid).

Further, the research of Reynoso and Moores (1995) confirms that these five dimensions of Parasuranam *et* al. can be used when studying internal customer's perception on the service quality. However, these dimensions are not to be used as the only ones for measuring internal service quality, but there can be other additional dimensions important to internal customers. For example, Vandermerwe & Gilbert (1991), identified six key needs of internal customer in their research on internal services. These six key needs are responsiveness, relevance, i.e. the service provided is useful and easy to use, reliability, cost within budget, i.e. cost of the service does not exceed its expected price, and on time service, i.e. service is delivered when promised. However, most of these dimensions are highly consistent with those identified by (Parasuranam et al. 1988). Only the cost within budget and relevance are different from the dimensions of (Ibid).

d) Internal service Climate

According to Dimitriades and Maroudas (2007) having empowered contact employees' is a necessary but not sufficient condition of effective service delivery. To respond to customers' needs and expectations, employees depend on quality internal services (Kang *et* al., 2002). "The delivery of quality internal services is critical to customer satisfaction since improvements in internal service quality are expected to produce improved external service quality and satisfaction" (Kang *et* al., 2002) cited in (Wasihun 2011).

e) Job Satisfaction

Job satisfaction has become a primary factor that will influence the individuals jobs and to the job experience. If there is enhancement of employees' job satisfaction within the organization, this will in turn lead to increase in individual employee and overall organization productivity and performance, improve employee creativity and innovative, reduced turnover rate as well as absenteeism (Dickson & Lorenz, 2009). Sometime, job satisfaction is responsible to act as important roles to determine an individual employee either to resign or remain with the organization. If he or she has a low job satisfaction, then he or she tends to resign or leave the organization.

Although, there are many different definitions of job satisfaction from various researchers, but the meaning of job satisfaction is remain the same. Job satisfaction can be defined as an indication of the employees' emotional and their physical feelings (Hoppock, 1935) cited in (Dickson & Lorenz 2009). Vroom (1964) has further explain the job satisfaction in more detailed and precisely which if one individual job or job experience has been evaluate and appraise by the organization, then the employee will have a pleasant feelings and positive emotional state. This meant the job evaluation and appraisal of their work outcome will determine whether an individual employee get a good or bad feedback. The feedback will lead to employees emotional state and pleasant feelings which will affect the level of employees' job satisfaction. Locke (1976) has defined the job satisfaction as a pleasant or positive emotional state as a result of the job evaluation and appraisal or job experience.

Hirschfeld (2000) defined intrinsic job satisfaction as the way in which a person feels about the nature of the tasks itself and extrinsic job satisfaction as the way an employee feels about aspects of the work situation that are external to the job tasks.

Robbins (2003) found that the level of job satisfaction is influenced by the work itself, promotional opportunities, the ability of the supervisors to provide emotional and technical support, the extent to which fellow workers are supported, working conditions and the equitability of remuneration. Considering Hirschfeld (2000) definition it seemed that Robbins (2003) was mostly referring to extrinsic factors of satisfaction.

Job satisfaction seems to be influenced not only by what the job can offer for the employees but also the expectations of the employees in relation to what the job offers. To a great extent the environment influences the satisfaction being experienced although in similar working environments different levels of satisfaction could be influenced by other factors such as age, sex, race or educational experience (Hirschfeld 2000; and Lu, Robbins, 2003; White & Barriball, 2005). This is also another indication that satisfaction stems from the cognition of the employee since employees could be exposed to the same working environment although experience it distinctly different.

Job satisfaction is defined as "a state that depends on the interaction of employees, their personal characteristics and expectations with the working environment and the organisation" (Pinikahana & Happell, 2004). They have highlighted that this is a state, meaning that it can be altered and influenced depending on how the employee see/experience these interventions.

Buitendach and De Witte (2005) distinguished that job satisfaction can be categorised into two dimensions namely intrinsic and extrinsic satisfaction. "Extrinsic satisfaction refers to satisfaction with aspects that have little to do with the job tasks or content of the work itself, such as pay, working conditions and co-workers. Intrinsic satisfaction refers to the job tasks themselves. (E.g. variety, skill utilisation, autonomy) (Buitendach & De Witte, 2005).

Job satisfaction was also defined by Hausknecht, Hiller and Vance (2008) as the shared sense of enjoyment that individuals derive from their experiences on the job and within a work unit. Considering the support of colleagues, supervisors and

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how team members interact could also be influence job satisfaction positively or negatively. This will only be the case for employees that value the support of colleagues and this was also supported by Robbins (2003), Hirschfeld (2000) and Lu, White and Barriball (2005) emphasising the unique expectations of employees.

III. Conceptual Framework

Standing form the model presented by Carless (2004) the researcher tried to study the effect of internal service climate on job satisfaction. To use the carless (2004) model on this study Wasihun.M (2011) makes slight modification on the model. As the internal service climate have an effect on employees' job satisfactions discussed in the literature it is a major independent factors on job satisfaction (dependent factor). Diagrammatically, the conceptual framework of the study is presented below.

ISC are as indicated described with the reliability, assurance, tangibles, empathy and responsiveness, if these things in the organization are not good employees' are not directly satisfied with their jobs.

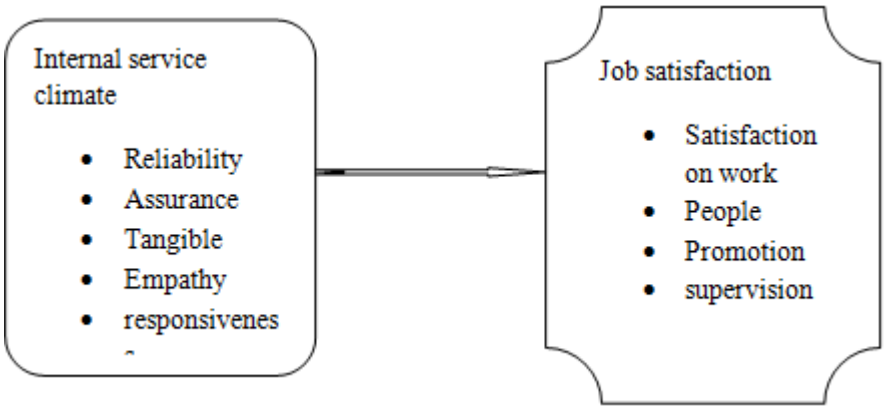

Figure 1 : Conceptual framework

IV. Materials and Methods

This section has addressed the overall methodology used in this research. It consists of brief discussion of the research approach, research design, types and sources of data population definition, sample size determination, sampling technique, method of data collection and the data analysis method.

a) Description of the Study Area

The Commercial Bank of Ethiopia (CBE) is the largest commercial bank in the country; presently having 677 branches nationwide out of which 46 are located in the Addis Ababa area, and one subsidiary office in Juba (Southern Sudan). The CBE also has a majority owned subsidiary, Commercial Nominees Private Ltd., Co. The CBE is owned by the government of Ethiopia and was established in 1942 making it the oldest bank in the country with a total of more than 8000 employees. Currently the bank has 13106 employees' with 155 billion Birr capital. At present, the CBE is providing a wide range of commercial banking services ranging from the provision of Savings, Current Accounts, Overdrafts and Loans to International Letters of Credit and other international transactions. Currently the bank's strategic direction is focused on achieving its vision "to become World Class Commercial Bank" (www.cbe.com). From the total 677 branches and 13106 employees'; 8 branches and 123 employees' are in Gedeo zone.

b) Research Approach

According to Dawson (2002), there are three types of research approaches: quantitative, qualitative and mixed method. Mixed methods research is an approach that combines or associates both quantitative and qualitative forms. Depending on aspects like timing, weighting, mixing and theorizing mixed method led writers to develop procedures like sequential, concurrent and transformative procedure are stated in the work of (Creswell, 2009). In this research paper, the researcher have used a sequential exploratory procedure (qualitative – quantitative), because the researcher use the result of qualitative response from managers to gather quantitative data from employees.'

c) Research Design

A research design "is the framework for the generation of evidences that are suited both to a certain set of criteria and to the research question in which the investigator is interested" (Bryman and Bell, 2007). The objective of this research is to explore the impact of internal service climate on job satisfaction in Commercial Bank of Ethiopia in Gedeo zone using an appropriate sampling technique.

The researcher used a descriptive research. A descriptive research "uses a set of scientific methods

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and procedures to collect raw data and create data structure that describes the existing characteristics of a defined target population" (Shiu *et* al., 2009). This research design deals with everything that can be statistically measured and counted numerically in a study. Therefore, descriptive research is also known as statistical research and gathered data to describe characteristics of a population or phenomenon.

With emphasis on descriptive type, in order to conduct primary data the researcher has questionnaires on the impacts of internal service climate and psychological empowerment on employees' job satisfaction. Models and hypothesis will test to link to the factors made mention for the analyses.

d) Types of Data and Sources

Both primary and secondary data were employed in this research in order to gather detailed information on internal service climate on employees' job satisfaction. The primary sources of data were collected from sample respondents focussing to their attitudes towards ISC to see how they influence their job satisfaction. The secondary data were collected by reviewing books, previous research works, articles and journals and related online information available.

e) Target Population

To study internal service climate on employees' job satisfaction, the study population units constitute one hundred twenty three permanent employees of CBE in Gedeo zone.

f) Sample Design

Sampling is a part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population of concern especially for the purposes of statistical inferences. According to Kumar (2005), sampling can be defined as, the process of selecting a few (a sample) from bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. In CBE Gedeo zone there are 123 permanent employees'. Since the population is small the researcher was used the whole population.

V. Sampling Techniques and Sampling Size

a) Sampling Techniques

Sampling is a part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population of concern especially for the purposes of statistical inferences. According to Kumar (2005), sampling can be defined as, the process of selecting a few (a sample) from bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group.

The total populations of commercial Bank of Ethiopia in Gedeo zone are 123 permanent employees; working in eight branches of CBE in Gedeo zone. Since the number of population is small, the researcher use censes survey method. According to Kothari (2004), censes survey is important method when the universe is a small one; it is no use resorting to a sample survey. When field studies are undertaken in practical life, considerations of time and cost almost invariably lead to a selection of respondents i.e., selection of only a few items.

b) Sampling Size

There is no one hard and fast rule of presenting the sample size. Therefore, different researchers take different sample sizes like, 5percent, 10 percent, 15 percent, and 20 percent …of the population under investigation (Kothari, 2004).

For this study the whole population permanent employees' who are working in the bank in Gedeo zone was participated in filling the questionnaires. As per the data collected from the branch managers of the banks, totally there are 123 employees'. Among these, 37 were from the main branch (Dilla Branch), 15 were from Sessa branch, 10 were from Michile Branch, 8 were from Wonago, 25 were from Yiga cheffee, 10 from chelellektu, 8 from Gedeb and the remaining 10 were from Hanchullcha branch.

VI. Data Collection Instruments

Quantitative research use to collect the data that involves larger, more respondent's samples and numerical calculation of results (Wiid and Diggines, 2009). The research derives some advantages by using the quantitative research design over the qualitative one. It has merits on the validity, reliability, replication and generalization which are valuable for the quality criteria of the thesis (Bryman, 2012 and Shiu *et* al., 2009).

The study was conducted based on both secondary and primary data sources. It began with the analysis of secondary data through the detailed review of related literatures. To effectively accomplish it books, articles, journals, magazines, bulletins and the Banks' policy and procedure documents were reviewed.

Primary data about the impact of internal service climate and psychological empowerment was collected through questionnaire surveys. The questionnaires about internal service climate adapted from (Parasuranam, Zeithaml and Berry, 1988; 1990) and employees' job satisfactions from (Minnesota, 1967). The questionnaire comprises both close end and open-end questionnaires, about items to the effect of internal service climate on job satisfaction, based on the measures of Reliability, Assurance, Tangibles, Empathy, and Responsiveness for internal service climate.

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Moreover, related to job satisfaction the following measures was used: satisfaction on work, people, promotion, communication and supervision. And a five point Likert scale that range from 1 (strongly disagree) to 5 (strongly agree) was used. Finally, the researcher was incorporating an open ended question that gives respondents a chance their own explanation to the phenomenon.

VII. Data Analysis and Presentation

After collecting the data through questionnaire and interview, the process of analysis began. Analysis of data in this research was done by using statistical tools like regression and correlation models. Regression analysis was used to know by how much the independent variable i.e. ISC explains or influences the dependent variable which is employees' job satisfaction. Correlation analysis also conducted to measure the strength of the association between ISC and Employees' job satisfaction. And also descriptive analysis was used to measure employees' perception towards the ISC practice of the bank and for the demographic factors such as gender, age, education, occupation, monthly income and for service years in the bank. Tools like tables and percentage are used. Data analysis was performed by using SPSS software version 16.

In order to reduce the possibility of getting wrong answers, different actions were taken to ensure the soundness of this study.

- Data were collected from reliable sources, from respondents who are permanent employees of the bank to maintain the reliability of the study.
- The questionnaire was based on literature review to ensure the soundness of the results.
- SPSS software version 16.0 was used to analyze the data and special emphasis was given during data coding.

VIII. Reliability Test Result

Alpha reliability is regarded as a measure of internal consistency of the mean of the items at the time of administration of the questionnaire. Cronbach's alpha is a reliability coefficient that indicates how well the items in a set are positively related to one another (WWW.Wikipedia.com).It is computed in terms of the average inter correlations among the items measuring the concept. Reliability is calculated in such a way that it represents the reliability of the mean of the items, not the reliability of any single item. So, the alpha reliability of 10 items would be higher than that of 5 similar items. This coefficient can hold a value of 0 to 1. The result of 0.7 and above implies an acceptable level of internal reliability. The result of reliability test for the questionnaire is shown in the following table. As it is indicated in the table, the test result is between 0.747 and 0.923. Therefore, based on the test, the results for the items are reliable and acceptable.

Table-1 : Reliability Test Result for the Questionnaire

Item	Number of item	Cronbach's alpha
Reliability	5	0.889
Assurance	4	0.834
Tangibility	4	0.785
Empathy	5	0.758
Employees' job satisfaction	25	0.923

IX. Data Analysis and Interpretation

To analyse the collected data in line with the overall objectives of the research undertaking, statistical procedures were carried using SPSS 16.00. In this part to identify the major issues and to provide workable recommendations for the problems concerning internal service climate, on employees' job satisfaction the researcher has collected data through self- administered questionnaire. In this chapter the findings of the study are presented. During the survey a total of 123 questionnaires were distributed to employees. All 123 distributed questionnaires were returned. So the analysis was made based on 123 responded questionnaires. Questionnaire was developed in five scales ranging from five to one; where 5 represents strongly agree, 4 agree, 3 no opinion/neutral, 2 disagree, and 1 strongly disagree. All questionnaires were filled by the employees' of CBE in Gedeo zone.

Descriptive statistics were used for demographic factors and scale type. In addition correlation and regression analysis were also conducted for scale typed questionnaires.

a) Descriptive Analyses

The editing and coding phase was followed by descriptive analysis of the sample. Descriptive analysis refers to "the elementary transformation of raw data in a way that describes the basic characteristics such as central tendency, distribution and variability" (Zikmund *et* al., 2010).

Every variable in the questionnaire has been examined by several statements. For the purpose of this research the statements investigating the same variable

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were transformed into a variable index by computing mean values of the responses. The mean values are presented in table form, together with standard deviation of values for each variable. The standard deviation is defined as "the spread or variability of the sample distribution values from the mean" (Hair *et* al., 2007).

This descriptive analysis is used to look at the data collected and to describe that information. It is used to describe the demographic factors and for employees' opinion on ISC for more clarification. The demographics factors used in this research are gender, age, education qualification, monthly income, and length of time the respondents work in the bank. For the scale typed questionnaires for all variables mean or average response of respondents was used.

b) Employees' Response to Internal Service Climate Effect on Job Satisfaction

Here, employees' response to the major issue of the topic "impact of internal service climate on employees' job satisfaction" was presented in detail. In addition to this, the relationship and impacts between internal service climate on employees' job satisfaction was determined.

Responses of employees' were measured on five point Likert scale with 1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; and 5 = Strongly Agree. To make an easy interpretation, the following range of values was assigned to each scale: 1-1.80 or below = Strongly Disagree; 1.81- 2.60 = Disagree; 2.61- 3.4 = Neutral; 3.41 – 4.20 = Agree; and 4.21 and above = Strongly Agree (Best, 1995).

c) Employees' response on ISC (Internal Service Climate)

Table 2 : Descriptive Statistics of Reliability

Reliability	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
My Co-workers provide service that is promised	123	1	2	6	69	45	4.26	.699
Coworkers are dependable for handling my problems	123		15	15	45	48	4.02	1.004
My Co-workers perform services right the first time, to avoid having to make corrections later	123	3	22	4	65	29	3.77	1.077
My Co-workers provide correct and necessary information	123		2	4	66	51	4.35	.627
My Co-workers are reliable	123			22	52	49	4.22	.730
Total	615	4	41	51	297	222		
Percentile		0.65	6.67	8.29	48.29	36.10		
Total mean (mean of means)							4.12	0.8274

The table 2 above indicates that the reliability of the service provider's ability to perform the promised service both dependably and accurately, handling problems, providing correct and necessary information and customers expect reliable service delivery and that the service is delivered on time, in the same manner, and without errors every time. The table above 3 reveals that 84.39 percent of the respondents to all questions respond positively, 7.32 percent of the respondents respond negatively and 8.29 percent are neutral. Consistently, when we see the mean value, the result indicates 4.12 with the standard deviation of 0.8274 which are generally agreed as per the standard mean range mentioned above. From this it is possible to infer that employees' of the bank are satisfied and they can provide correct, necessary and reliable information to the internal users.

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Table 3 : Descriptive Statistics of Assurance Dimensions

Assurance	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
I can trust my coworkers	123	2	1	12	54	54	4.28	.803
I feel safe in dealing with co-workers	123		12	6	57	48	4.15	.902
My Co-workers are polite and kind	123		13	2	61	47	4.15	.897
My Co-workers are knowledgeable	123		19	9	64	31	3.87	.966
Total	492	2	45	29	236	180		
Percentile		0.46	9.15	5.89	47.97	36.59		
Total mean (mean of means)							4.11	0.892

Beside to the knowledge and courtesy of the company's employees' and their ability to convey trust and confidence/assurance in the service climate, the table 3 above indicates that more than half 84.56 percent of the respondents to all questions agreed/ positively response, 9.61 percent of the respondents respond negatively and 5.89 percent are neutral. In addition, when we see the mean value of each question, the result indicates more than 3.87 and less than 4.28 which are generally labeled as agreed to this analysis. Therefore, the major indication in assurance dimension, 84.56 percent of respondents are agree on the knowledge and courtesy of co-workers and their ability to convey trust and confidence in the organization is satisfactory /good, with the mean value of 4.11.

Table 4 : Descriptive statistics of Tangibility Dimensions

Tangibility	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
We have up-to-date equipment	123	19	64	2	25	13	3.37	1.021
Working environment is comfortable a nd attractive	123	24	28	13	32	16	2.96	0.986
My Co-workers have a neat, professional appearance	123		8	11	49	55	3.98	.867
The materials used in the work place are visually appealing	123	21	25	30	37	10	3.24	0.998
Total	492	64	126	56	143	94		
Percentile		13.08	25.61	11.38	29.07	19.11		
Total mean (mean of means)							3.39	0.968

Regarding the tangibility dimensions means equipments used in a bank, working environment of the organization is comfortable and attractive, Co workers neatness and professional appearance, and physical arrangement of materials, equipment's and facilities in the workplace, the table 4 shows that majority 48.18 percent of the respondents agree/ positive response and 38.6percent of respondents disagree/ negative response to the statement and the remain, 11.38 percent are neutral. Consistently, when we see the mean value (see table 4), above the result indicates 3.39 with the standard deviation of 0.968 which are generally neutral as per the standard mean range mentioned above. Other open-end question was raised "do you think that your working environment is attractive?" their response was No. their reason is there is no full resource, up-to date material and geographical locations. So, from this we can infer, equipment's used in the bank, the working environment and the appearance of the bank's physical facilities, equipment's and personnel are not attractive and appealing with the mean value of 3.39.

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Table 5 : Descriptive statistics of Empathy Dimensions

Empathy	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
My Co-workers are sincerely concerned about problems	123		13	8	53	49	4.12	.937
We have convenient working hours	123	10	28	15	40	30	3.42	1.101
My Co-workers give me individual attention	123	24	29	26	34	10	2.81	1.003
Co-workers seem to have each other's best interests in mind	123	2	13	24	66	18	3.69	.907
Co-workers are sensitive to my work-related needs	123	2	20	37	42	22	3.50	.897
Total	492	38	103	110	235	129		
Percentile		7.72	20.93	22.36	47.76	26.22		
Total mean (mean of means)							3.51	0.969

As clearly demonstrated in the table 5 above, large number 73.98 percent of respondents are answered positive to the statement that "Co-workers are sincerely concerned about problems", working hours, co-workers give each individual attention and co-workers are sensitive to my work related needs. Similarly, small number (28.65 percent and 20.93 percent) of respondent's replied disagree and neutral to the statement respectively. The average value indicates (see table 5) 3.508, with the standard deviation of 0.969 which are generally agreed as per the standard mean range mentioned above.

From this we can understand the mean scores of empathy, (3.508); this is to mean that the bank is empathic for its employees. The implication, the bank's individual attention, convenient working hours and to work-related needs is less satisfactory; its ability to understand the dynamic, specific customer feelings and needs is lower.

Table 6 : Summary of employees' responsiveness

Responsiveness	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
My communication with co-workers is appropriate, accurate, and clear	123	1	8	3	71	40	4.15	.817
Co-workers respond quickly and efficiently to my requests	123	1	9	18	71	24	3.88	.836
Co-workers are willing to help me	123	2	17	2	78	24	3.85	.947
Co-workers are willing to accommodate special requests and needs	123	16	25	24	42	16	3.14	1.201
Total	492	20	59	47	262	104		
Percentile		4.06	11.99	9.55	53.25	21.14		
Total mean (mean of means)							3.76	0.950

The illustration in the table 6 above reveals, 74.39 percent of the respondents replied positively to the questions "communication with co-workers is appropriate, accurate and clear, Co-workers respond

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quickly and efficiently to my requests, Co-workers are willing to help each other and Co-workers are willing to accommodate special requests and needs". And 16.05 percent of the respondents have negative response to the idea. Consistently, when we see the mean value in the table above 6, the result indicates 3.76 with the standard deviation of 0.950 which are generally agreed as per the standard mean range mentioned above. This result implies that employees' of the bank are satisfied with the appropriateness, accurate, and clear communication, quickly and efficiently response, and willing to help among co-workers. But they are not agreed or disagree with the idea of willingness of co-workers to help and accommodate special requests and needs of each other.

d) Employees' Level of Agreement on Job Satisfaction

As stated in the literature, Job satisfaction has been a result of various factors. Most commonly satisfaction on work, people, promotion, communication and supervision are used to examine the level of employees, job satisfaction. Accordingly, these five factors were used to measure employees' job satisfaction in the bank. Therefore, the response of employees' related to job satisfaction is presented here below.

Table 7 : Summary of employees' response to Job satisfaction (with in a work)

Job satisfaction	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
Within the work	123	2.60	39.84	10.73	16.59	30.24	3.30	1.0596
People	123	1.23	13.82	6.91	60.57	17.48	3.8	0.9315
Communication	123	2.76	13.98	10.24	48.78	24.07	3.77	1.0518
Supervision	123	4.07	10.84	7.95	50.32	26.74	3.85	1.033
Promotion	123	14.63	38.48	13.55	24.39	8.94	2.59	1.248
Total		25.29	116.96	49.38	200.65	107.47	18.34	
Percentile		5.10	23.39	9.88	40.13	21.50		
Total mean (mean of means							3.46	1.065

The illustration in the table above 7 reveals, 61.63 percent of the respondents replied positively to the questions "concerning work within the bank, people, communication, supervision and promotion." And 28.49 percent of the respondents have negative response to the idea. The rest 9.88 percents of the respondents are neutral. Consistently, when we see the mean value in the table above 7, the result indicates 3.46 with the standard deviation of 1.065 which are generally agreed as per the standard mean range mentioned above. This result implies that employees' of the bank are satisfied.

X. Pearson Correlation Analysis

This research is investigating the strength of relationships between the studied variables. The study employs the Pearson correlation which "measures the linear association between two metric variables" (Hair et al., 2008). The Pearson correlations were calculated as measures of relationships between the independent variables and dependent variables. This test gives an indication of both directions, positive (when one variable increases and so does the other one), or negative (when one variable increases and the other one decreases) (Pallant, 2010). The test also indicates the strength of a relationship between variables by a value that can range from --1.00 to 1.00; when 0 indicates no relationship, -1.00 indicates a negative correlation, and 1.00 indicates a perfect positive correlation (Pallant, 2010). For the rest of the values is used the following guideline:

- small correlation for value 0.1 to 0.29
- medium correlation for 0.3 to 0.49
- Large correlation for 0.50 to 1.0 (Pallant, 2010).

Like the demographic factors, the scale typed questionnaire entered to the SPSS software version16.00, to process correlation analysis. Based on the questionnaire which was filled by the employees' of the bank, the following correlation analysis was made.

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Table 8 : Correlation analysis result between internal service climate and employees' job satisfaction

ISC dimensions		Reliability	Assurance	Tangibility	Empathy	Responsiveness	Job satisfaction
Reliability	Pearson Correlation	1	.401**	.357**	.412**	.312**	.732**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	123	123	123	123	123	123
Assurance	Pearson Correlation	.401**	1	.314**	.497**	.391**	.691**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	123	123	123	123	123	123
Tangibility	Pearson Correlation	.357**	.314**	1	.454**	.403**	.603**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	123	123	123	123	123	123
Empathy	Pearson Correlation	.412**	.497**	.454**	1	.413**	.613**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	123	123	123	123	123	123
Responsiveness	Pearson Correlation	.312**	.391**	.403**	.413**	1	.687**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	123	123	123	123	123	123
Job satisfaction	Pearson Correlation	.732**	.691**	.603**	.613**	.687**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	123	123	123	123	123	123

***. Correlation is significant at the 0.01 level (2 tai tailed)*

The values of correlation are also used for checking multicollinearity. The correlation between each of the independent variables is not too high, meaning that the correlation is not above value 0.5. It can be concluded that in this study is no problem with multicollinearity. The strongest relationship between the independent variables is 0.497 between empathy and assurance.

The Pearson correlations between independent variables reliability, assurance, tangibility, Empathy and responsiveness and the dependent variable employees' job satisfaction are depicted in Figure 2 below.



Figure 2 : The Model with Correlation Coefficients

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a) Correlation Analysis between Reliability and Employees' Job Satisfaction

The table 8 above shows, the relationship between reliability and employees' job satisfaction was investigated using Pearson correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumption of normality and linearity. There was a strong positive correlation between the two variables, r=0.732, n=123, p<0.01.

b) Correlation Analysis between Assurance and Employees' Job Satisfaction

For these variables Pearson correlation test was conducted and the results are (see table 8) above. As it is shown in the table, there is significant correlation between assurance dimension and employees' job satisfaction. In other words assurance dimension and employees' job satisfaction have high relationship (r=0.691 with p< 0.01).

c) Correlation Analysis between Tangibility and Employees' Job Satisfaction

For these variables Pearson correlation test was conducted and the results are shown in table 8 above. As it is shown in the table, there is significant correlation between Tangibility dimension and employees' job satisfaction. In other words, tangibility dimension and employees' job satisfaction have high relationship (r=0.603 with p< 0.01).

d) Correlation Analysis between Empathy and Employees' job satisfaction

For these variables Pearson correlation test was conducted and the results are (see table 8). As it is shown in the table, there is significant correlation between empathy dimension and employees' job satisfaction. In other words, empathy dimension and employees' job satisfaction have high relationship (r=0.613 with p< 0.01).

e) Correlation Analysis between Responsiveness and Employees' Job Satisfaction

For these variables Pearson correlation test was conducted and the results are shown in table 8. As it is shown in the table, there is significant correlation between responsiveness dimension and employees' job satisfaction. In other words, responsiveness dimension and employees' job satisfaction have high relationship (r=0.687 with p< 0.01).

The values of correlation are also used for checking multicollinearity. The correlation between each of the independent variables is not too high, meaning that the correlation is not above value 0.5. It can be concluded that in this study no problem with multicollinearity.

The Pearson correlations between independent variables reliability, assurance, tangibility, Empathy and responsiveness and the dependent variable employees' job satisfaction are depicted in Figure 3 below.

XI. Regression Results

The multiple regression analysis is "an analysis of association in which the effects of two or more independent variables on a single, interval scaled dependent variable are investigated simultaneously" (Zikmund et al., 2010). The results of this analysis indicate how well a set of variables is able to predict the dependent variable. Furthermore, it shows how much unique variance in the dependent variable is explained by each of independent variables (Pallant, 2010).

Regression analysis was conducted to know by how much the independent variable explains the dependent variable. It is also used to understand by how much each independent variable (Assurance, Empathy, Tangibility, responsiveness) explains the dependent variable that is employees' job satisfaction.

When a small sample is involved the Adjusted R square value in the sample tends to be a rather optimistic overestimation of the true value in the population. The adjusted R square statistic corrects this value to provide a better estimation of the true population value, rather than the normal R square value (Pallant, 2010).

So, for the whole regression analysis of this study the adjusted R square were considered to provide a better estimation of the true population than the normal R square. The results of the regression analysis are as following.

a) Regression Analysis of Internal Service Climate and Employees' job satisfaction

To analyze the conceptual framework several independent variables were entered into the multiple regression equation: Reliability, Assurance, Tan gibility, Empathy and Responsiveness. The model summary in Table 9 presents how much of the variance in the dependent variable employees' job satisfaction is explained by the model.

Table-9 : Model Summary of ISC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.786[a]	.618	.605	.42257	2.108

a. Predictors: (Constant), Empathy, Assurance, Tangibility, reliability, responsiveness
b. Dependent Variable: job satisfaction

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The Results of regression analysis against employees' job satisfaction can be seen in table 15. The result shows that internal service climate has the power to explain employees' job satisfaction. In this case the results of correlation of internal service climate and employees' job satisfaction and adjusted R Square (0.605) were taken into consideration. The regression analysis model summary indicates that internal service climate which is entered into the regression model on SPSS has relationship with employees' job satisfaction with correlation coefficient of 0.786. The adjusted coefficient of determination (R^2) 0.605 indicates the average effect/variability of internal service climate on employees' job satisfaction.

Therefore, it is pointed out that 60.5 percent of internal service climate can explain the dependent variable that is employees' job satisfaction. As it is indicated in the ANOVA table, the total internal service climate is considered as predictors of employees' job satisfaction and reported high level of significance $p<0.01$. And also the adjusted R square value of 0.605 confirming that, 60.5 percent of the variation in employees' job satisfaction is explained by internal service climate. Internal service climate as used for prediction was found to be significantly related to employees' job satisfaction as the p-value is less than 0.01.

Table-10 : Coefficients of Internal Service Climate

Model	Un-standardized Coefficients		standardized Coefficients		
	B	Sta. error	Beta	T	Sig.
(Constant)	.283	.271		1.047	.297
Reliability	.370	.109	.343	3.407	.001
Assurance	.311	.076	.338	4.097	.000
Tangibility	.022	.062	.032	.364	.032
Empathy	.161	.072	.187	2.232	.027
Responsiveness	.032	.052	0.068	1.356	.002

a. Dependent Variable: job satisfaction

By looking at the Sig.-value in Table 10 it is possible to interpret whether the particular independent variable has a significant relationship with the dependent variable employees' job satisfaction. The relationship is significant if the Sig.-value is not larger than 0.05. The results show that there is a significant relationship for reliability (0.001), assurance (0.000), tangibility (0.032), empathy (0.027) and responsiveness (0.002) this means that the variables reliability, assurance, tangibility, empathy and responsiveness are good predictors of the dependent variable which is employees' job satisfaction.

The multiple regression result table 3 indicates that ISC dimensions (reliability, assurance, tangibility, empathy and responsiveness) have positive and significant influence on employees' job satisfaction. The value of (β= 0.343., 0.338, 0.032, 0.187, and 0.068) respectively show that there is a positive direction and its influence is significant at $p< 0.05$. Hence the above proposed hypothesis is accepted.

Furthermore, the study aims to identify which of the variables contributed the most to prediction of the dependent variable. This information can be investigated via Standardized coefficient (Beta in Table 16). The standardized coefficients mean that "values for each of the different variables have been converted to the same scale so they can be compared (Pallant, 2010). In this study the highest Beta value is 0.343 for reliability, and second highest is 0.338 for assurance. Both independent variables are statistically significant since the Sig. value is less than 0.01. These results indicate that the variables reliability and assurance make the strongest unique contribution in explaining the dependent variable employees' job satisfaction.

These results enable to conclude that the model explains 60.5 percent of the variance in employees' job satisfaction. The largest unique contribution is provided by the variables reliability, empathy and assurance. Thus, these variables represent good predictors of the dependent variable.

XII. Conclusion

Based on the findings of this study we can conclude as follows; the finding indicates that, on internal service climate employees' levels of response or agreement fall in the range of agree level. So, the researcher can conclude that the higher level of internal service climate perceived by the employees will result higher level of employees' job satisfaction on working environment in the bank and vice versa.

In general, People working in the bank are satisfied with their jobs but, there are some inconvenience regarding gaining recognition, creativeness of the job, routines and tiresome of their jobs (work within the bank) and promotion.

With regard to the Pearson correlation analysis, it can be clearly seen that the five ISC dimensions

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namely (Reliability, assurance, empathy, tangibility, responsiveness) are positively and significantly correlated to employees' job satisfaction in CBE.

On the regression analysis part, it is clearly shown that ISC explain employees' job satisfaction. ISC model summery explains 60.5 percent of the variance in employees' job satisfaction. The largest unique contribution is provided by the variables reliability and assurance. Thus, these variables represent good predictors of the dependent variable.

XIII. Recommendations

In light of the findings and conclusions made above, the following possible recommendations are suggested as being valuable to CBE for improving ISC activities to assure employees' job satisfaction.

- The appearance of the banks physical facilities, equipments and personnel is not more attractive and appealing. So, management of the bank should either maintain the existing technologies performance or change with new technologies. Moreover, the appearance of the company's physical facilities and equipments is not attractive and appealing as it showed. As a result it needs to be arranged properly. Further study should be conducted to make proper appearance.
- Employees' of the bank are not satisfied by the banks giving recognition, creativeness of the job, routines and tiresome of their jobs. Therefore, CBE should invest in its employees, to satisfy them to serve customers best. To satisfy employees and get their commitment, the principal of bank should offer them a challenging work, attractive salary that recognizes the contribution of their effort towards the overall success of the bank.
- According to the response of employees', there is no regular opportunity for employees' advancement both financial and non-financial rewards to motivate them. Promotion criteria's are not clear to employees' and also it was not conducted based on abilities. The researcher of this study suggests that the principals of the bank should develop strategies to meet the career needs of all employees' to encourage their competence and further enhance organizational productivity i.e. sponsoring further education, creating merit and ability based promotion and the management of the bank should communicate with employees' to give clear information about the rules, procedures and practices of promotion in the bank.
- The regression analysis result shows that internal service climate has a power to explain employees' job satisfaction. So, CBE should be focus on ISC dimensions that will help the bank to build and support positive employees' job satisfaction. Since the bank is providing services to customers, it is a must to give high value for employees' job satisfaction. Employees' job satisfaction can be improved by focusing on the ISC. Especially from the ISC the bank should focus on Reliability and Assurance dimensions. The more satisfied employees will perform their work well; as a result banks profit can increase and employees' turnover will be less.
- Furthermore, by considering the scope and limitation of this study, future research might extend to other sectors to asses more general and reliable results about employees' job satisfaction.

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Intergenerational Climate Change Burden Sharing: An Economics of Climate Stability Research Agenda Proposal

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Abstract- The implementation of climate stability accounts for the most challenging contemporary global governance predicament that seems to pit today's generation against future world inhabitants. In a trade-off of economic growth versus sustainability, a broad-based international coalition could establish climate stability. As a novel angle towards climate justice, this paper proposes to search for a well-balanced climate mitigation and adaptation public policy mix guided by micro- and macroeconomic analysis results, and a new way of funding climate change mitigation and adaptation policies through broad-based climate stability bonds that also involve future generations that complement taxation and emission trading system solutions. Contemporary climate stability financing strategies are discussed in order to derive recommendations how market economies can be brought to a path consistent with prosperity and sustainability.

Keywords: climate bonds, climate change, climate change adaptation and mitigation, climate justice, climate stability, intergenerational burden sharing, intertemporal discounting, nonlinear dynamics, social discounting alternatives, public policy.

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Abstract- The implementation of climate stability accounts for the most challenging contemporary global governance predicament that seems to pit today's generation against future world inhabitants. In a trade-off of economic growth versus sustainability, a broad-based international coalition could establish climate stability. As a novel angle towards climate justice, this paper proposes to search for a well-balanced climate mitigation and adaptation public policy mix guided by micro- and macroeconomic analysis results, and a new way of funding climate change mitigation and adaptation policies through broad-based climate stability bonds that also involve future generations that complement taxation and emission trading system solutions. Contemporary climate stability financing strategies are discussed in order to derive recommendations how market economies can be brought to a path consistent with prosperity and sustainability.Finding innovative ways how to finance climate abatement over time coupled with future risk prevention as well as adaptation to higher temperatures appears as an innovative and easily-implementable solution to nudge overlapping generations towards climate justice in the sustainability domain.

Keywords: climate bonds, climate change, climate change adaptation and mitigation, climate justice, climate stability, intergenerational burden sharing, intertemporal discounting, nonlinear dynamics, social discounting alternatives, public policy.

I. Introduction

Climate change accounts for one of the most pressing problems in the age of globalization as for exacerbating more risks than ever before in terms of water crises, food shortages, constrained economic growth, weaker social cohesion and increased security risks (Centeno and Tham2012; The World Economic Forum Report 2015). While classic economics portrayed balancing the interests of different generations as ethical problem of competitive markets requiring governance for intergenerational transfers and some economists even opposed discounting of future utilities (Allais 1947; Harrod 1948; Ramsey 1928); climate change has leveraged intergenerational equity as contemporary challenge of modern democracy and temporal justice an ethical obligation for posterity.

In general, resources are balanced across generations by social discounting to weight the well-being of future generations relative to those alive today. Regarding climate justice, current generations are called upon to make sacrifices today for future generations by mobilizing low-carbon energy to cut carbon emissions to avert global warming (Sachs 2014). Climate change mitigation at the expense of lowered economic growth seems to pit the current generation against future ones. Costly climate change abatement prospects are thus hindering currently necessary action on climate change given a shrinking time window prior to reaching tipping points that make global warming irreversible (Oppenheimer, O'Neill, Webster and Agrawal, 2011). As a novel alternative, Sachs (2014) proposes to fund today's climate mitigation through intertemporal fiscal policy, climate bonds financed through taxation faced by future generations. Shifting the ultimate costs of climate change aversion to later generations appears as powerful strategy to instigate immediate climate change mitigation in an overall Pareto improving crisis for all generations.

Mitigation and adaptation policies against climate risk: Recent Intergovernmental Panel on Climate Change (IPCC)research, international conferences on climate change and fund raising activities to combat global warming stress now that it is advisable to pursue both mitigation as well as adaptation policies. While climate stability will require both, climate change mitigation and adaptation, concurrently, no macroeconomic model exists to date that considers both approaches at once. In addition, we lack information on the possible interdependencies, tradeoffs and reciprocal influences between climate change mitigation and adaptation. Therefore, the climate change mitigation and adaptation practices that are already in place – or are planned to be established – that help to buffer climate risk arising from weather extremes such as sea level rise, flooding, severe droughts, desert formation, storms, and hurricanes will be captured and analyzed in order to derive real-world relevant public policy recommendations on climate justice implementation.

Climate justice and burden sharing: While intergenerational burden sharing on climate change is a novel economically superior strategy and real-world relevant emergent risk prevention means (Centeno et al. 2013); we currently lack information on the impact of

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climate mitigation through debt on economic growth and the model's sustainability over time. At a unique time, when 40% of all world's GDP is produced in countries with negative interest rates, the time is ripe to explore the possibilities to finance climate change abatement through green bonds. Starting with a recent paper by Jeffrey Sachs (2014), a novel angle towards climate justice is introduced in order to find a behavioral economics solution to elicit future-oriented loss aversion.

Sachs' (2014) intergenerational burden sharing idea by presenting a 3-model climate change burden sharing through fiscal policy with bond issuing in order to reflect the implementation regarding contemporary finance and growth models with respect for maximizing utility of the model. In an overlapping-generations type model, research should elucidate climate change abatement and mitigation policies to lead to a fairer solution across generations. The current generation mitigates climate change and provides infrastructure against climate risk financed through climate bonds to be paid by future generations. Since for future generations the currently created externalities from economic activities – the effects of $C0_2$ emissions – are removed, this entails that the current generations remain financially as well off as without mitigation while improving environmental well-being of future generations. As Sachs (2014) shows, this intergenerational tax-and-transfer policy turns climate change mitigation and adaptation policy into a Pareto improving strategy. IShifting the costs for climate abatement to the recipients of the benefits of climate stability appears as novel, feasible and easily-implementable solution to nudge many overlapping generations towards future-oriented loss aversion in the sustainability domain.

II. Climate Justice

Society as a whole outlasts individual generations. Pareto optimality for society over time differs from the aggregated individual generations' preferences. As the sum of individual generations' preferences does not necessarily lead to societally favorable outcomes over time (Bürgenmeier 1994; Klaassen and Opschoor 1991), discounting based on individual generations' preferences can lead to an unjust advantage of living generations determining future living conditions (Rawls 1971). In general, intergenerational balance is therefore accomplished through individual saving decisions of the present generation (Bauer 1957). Policies curbing preferences and taxes distributing welfare between the present and future generation may, however, decrease economic growth.

In order to avoid governmental expenditure on climate change hindering economic growth (Barro 1990); Sachs (2014) introduces financing climate change mitigation through debt to be paid back by future generations through taxation as a novel means to amend individual saving preferences in favor of future generations. Sachs (2014) proposes to mitigate climate change by debt to be repaid by tax revenues on labor income in the future.In a 2-period model, one generation works in period 1 and retires in period 2. Part of the disposable wage income is saved for consumption in the second period. CO_2 emission mitigation imposes immediate costs onto current generations and reduces wages. Greenhouse gas concentrations in period 2 are determined by the emissions in period 1. Wages of the young in the second period are reduced by climate change dependent on greenhouse gas levels. Disposable labor income of the young equals market wage net of taxes. Leaving the current generation with unchanged disposable income allocates the burdens of climate change mitigation across generations without the need to trade off one generation's well-being for another's.While today's young generation is left unharmed, the second period young generation is made better off ecologically. Taxes on later generations are justified as for the assumed willingness of future generations to avoid higher costs of climate change prevention and environmental irreversible lock-ins. Overall this tax-and-transfer mitigation policy is thus Pareto improving across generations. All generations are better off with mitigation through climate bonds as compared to the business-as-usual (BAU) non-mitigation scenario (Sachs 2014). While future generations enjoy a favorable climate and averted environmental lock-ins; the current populace does not face drawbacks on economic growth.

Since here borrowing equals loans or issuing of bonds to be paid back by future generations, the government must pay back debt plus interest payments by raising taxes. Countries must check whether fiscal policies are such that they fulfill the inter-temporal budget constraint, whereby per-capita government debt at time zero must equal the discounted stream of future primary surpluses. Sustainability is ensured if the government adjusts the primary surplus to GDP ratio to variations in the debt-GDP ratio – a test independent of the interest rate conditions. Bohn (1998) suggests to test whether the primary deficit-to-GDP ratio is a positive linear function of the debt-to-GDP ratio. Testing a no-Ponzi game condition, public (net) debt at time zero must equal the expected present value of future primary surpluses.

Building on models of economic costs and benefits of public investment in climate change-adaptive infrastructure outlining the trade-off between mitigation and adaptation; research should model real-world climate change mitigation and adaptation trade-offs. The link of climate change mitigation and adaptation initiatives at the regional level helped develop real world-relevant climate change policy prescriptions for

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governments, private sector stakeholders as well as IPCC executives. Using macro- and microeconomic modeling, the outlined costs and benefits of mitigation and adaptation strategies are key in determining security strategies for vulnerable cities, communities and countries and protect them from the variegated climate change risks. Future research endeavors should help multiple stakeholders shape economic growth with respect for sustainable development on the basis of climate change burden sharing through bonds.

III. Climate Justice Financing

In order to implement an intergenerationally-harmonious solution to ensure climate stability, a three-model approach is proposed. Thereby early climate change prevention activities of current generations are instigated by shifting the current costs of climate change abatement to future generations through bonds to be financed by taxing future generations. Though future generations will face some tax, they will also benefit in the sense that the externalities from CO_2 emission and climate change are removed. A simplified model version can be sketched as following.

Model 1 without mitigation effort is called business-as-usual (BAU). The model economy features households with production that choose consumption in order to maximize a discounted stream of utility subject to their budget constraints. Economic households maximize the discounted stream of utility arising from per-capita consumption, C, times the number of household members subject to the budget constraint. Utility is maximized by:

$$V_{max} \int_{t=0}^{T} e^{-\rho} U(C) dt \qquad (1.1)$$

in which ρ is the discount rate defined as

$$\rho = (\bar{\rho} - n) \qquad (1.2)$$

and C consumption and U the utility of the socially optimal solution. The utility function is assumed logarithmic and defined as

$$U(C) = \ln C \qquad (1.3)$$

which results in

$$V_{max} \int_{t=0}^{T} e^{-\rho} L_0 \ln C dt \qquad (1.4)$$

with L_0 being the labor supply at time $t = 0$ (Greiner, Grüne and Semmler2009).

Economic activities generate emissions of greenhouse gases, as a by-product of capital used in production and expressed in CO_2 equivalents. Environmental economics implies that a higher capital stock goes along with higher emissions (Hettich 2000; Smulders 1995). Emissions of greenhouse gases indirectly affect the climate of the earth leading to higher surface temperature and weather extremes, like flooding, heat waves, storms, desert formation and so on.

In the model 1, the BAU approach, no climate change mitigation effort A is employed. It is a laissez-faire solution, in which there is environmental damage and no climate change mitigation. The evolution of per-capita capital over time is thereby determined by the following differential equation that gives the budget constraint of a household:

$$\dot{K} = D * Y - C - (\delta + n)K, \; K(0) = K_0 \qquad (1.5)$$

with the per-capita production Y accounting for environmental damage D being reduced by consumption C and per-capita capital K accounting for the depreciation of capital δ and population growth n.

In the BAU model, there are no climate change abatement activities. Yet, environmental damage reduces output by

$$D(\cdot) = (a_1 * M^2 + 1)^{-\Psi}, \qquad (1.6)$$

with $a_1 > 0$, being a function that negatively depends on the temperature on earth as deviations from the equilibrium average surface temperature have feedback effects that influence the reflection of incoming energy (e.g., snow and ice reduction and water evaporation lead to a smaller amount of solar radiation tending to increase the earth temperature even further), $\Psi > 0$ and M being the greenhouse gas concentration in the atmosphere (Henderson-Sellers and McGuffie 1987; Nordhaus 2008; Schmitz 1991). The effect of emissions to raise the greenhouse gas concentration, M, in the atmosphere is determined by

$$\dot{M} = \beta E - \mu M \qquad (1.7)$$

in which emissions E factored by $\beta \in (0, 1)$, which is the part of greenhouse gas emissions that is not taken up by oceans, are reduced by $\mu \in (0, 1)$ as the inverse of the atmospheric lifetime of greenhouse gases or decay rate of greenhouse gases in the atmosphere assumed at 0.1 multiplied by climate change mitigation efforts M (Intergovernmental Panel on Climate Change 2001). According to the IPCC, β is 0.49 for the time period 1990 to 1999 for CO_2 emissions (IPCC 2001).

The greenhouse gas emissions are described by

$$E = (aK)^{\gamma} \left(\frac{1}{dA + p}\right)^{\gamma} \qquad (1.8)$$

with K being the stock of capital, $\gamma > 0$ representing the exponential growth rate in the emission function and the parameter $a > 0$ as constants. Emissions are a function of per-capita capital, K, relative to per-capita climate change abatement activities A as indicated by the efficiency factor $\left(\frac{1}{dA + p}\right)^{\gamma}$, whereby d and p are parameters (Greiner et al. 2009; Greiner, Grüne and Semmler 2012). During BAU, the abatement A is 0. The technology index a describes how polluting a given

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technology is insofar as the larger a is given a stock of capital and abatement, the higher the emission is, which implies a relatively polluting technology (Greiner et al. 2009, 2012).

In contrast to the BAU scenario, *Model version 2* proposes an externality control to mitigate climate change through bonds extending Sachs (2014) and Greiner et al. (2012). In order to overcome output decline in the wake of externality control and the need for capital stock to produce renewable energy, social expenditure improving welfare regarding climate change is considered by issuing climate change mitigation bonds. Instead of assuming a lump-sum tax or a tax on consumption used to finance abatement spending, climate change burden sharing debt bonds are thereby issued by current generations, who are immediately compensated for their climate change abatement costs, to be paid off by taxing future generations. In model 2 the government sells climate change mitigation bonds to reimburse the abatement costs A from period 1 to N, when climate change abatement bond issuing stops and climate change mitigation bond repayment sets in through taxation in model 3. Overall, there is environmental damage but mitigation that is reimbursed to be paid back by later generations.

As in model 1, the greenhouse gas emission M is determined by (1.7). In K (1.5) the production function Y denoting per-capita output is given by

$$Y = \widetilde{A}K^{\alpha}, \tag{1.9}$$

with $\alpha \in (0,1)$ being the capital share and $\widetilde{A}$ being an efficiency index constant normalized to 1. The greenhouse gas emissions are, as in Model 1, described by (3.8) but with A>0.

In model 2 bonds are issued from period 1 up to period N arising

$$\dot{B} = r * B + gB(0) \tag{1.10}$$

public debt g, where r is the interest rate paid on climate change abatement bonds. B(0) denotes the starting point of public debt at time 0. We now have a model with three state variables and the abatement cost being reimbursed by the issuing of public bonds. Note that in this earlier period the government subsidizes early generations to compensate for the upfront costs of climate change mitigation. The government reimburses climate change aversion up to point N until a regime-change switching, when taxes become positive and later generations pay for earlier climate change abatement through taxation. The later generations are assumed to be willing to pay to avoid the higher costs of climate change relative to a BAU path.

In *Model 3*, when no further climate change abatement costs exist and the debt of bonds is to be repaid from period N on, after switching to the model 3, we then have in addition to equation (1.7):

$$\dot{B} = r * B - T_N \tag{1.11}$$

where by $T_N = \tau Y_N$ is used for the repayment of bonds.

From period N on the capital stock over time, K, is also reduced by T_N in

$$\dot{K} = Y(1 - \tau_N) - C - (\delta + n)K \tag{1.12}$$

Note that in the model 3 neither an externality effect, D (·), nor climate change abatement cost, A, are present. There is no environmental damage but taxation for climate change abatement bonds repayment. Only the previously raised bonds of equation (1.10) will have to be repaid by the generation existing from period N on. These future generations will benefit from the absence of damages from externalities of previous periods. The negative externalities are removed by agents from the previous periods.

Solving the economic growth versus sustainability predicament that pits today's against future generations based on Jeffrey Sachs' (2014) a novel angle towards social environmental justice is proposed. An overlapping-generations model coupled with continuous time will study climate change abatement and propose climate change mitigation policies as fairer and socially more just climate stability solution across generations. In the model, the current generation mitigates global warming through climate stability bonds to be financed by future generations. While the current generation remains financially as well off as without mitigation, the future climate stability for posterior generations is ensured and thus well-being improved. The theoretical model and solution techniques thereby leads to an innovative and feasibly-implementable climate change growth model that can nudge overlapping generations towards future-oriented loss aversion in the sustainability domain. Concretely, climate change bonds help instigate action now for current climate change mitigation and future irreversible environmental damage reduction through bonds repayments in the future.

Unsolved remain practical and ethical questions regarding the fairness and economic viability to let future generations pay for climate change stability. While prevention is argued to face more resistance than clean-up of damages in public given a loss averse world, the rational is to avert future environmental lock-ins and irreversible global warming tipping points at the expense of reversible over indebtedness (Kahneman and Tversky 1979). While capital is a replaceable asset and over indebtedness raises questions of temporal governmental austerity constraints and economic soft or hard landing scenarios, an irreversible global temperature rise and climate imbalances would result in unforeseeable threats to future generations. Imposing the financial costs of climate mitigation onto future world inhabitants for the trade-off of a decent world

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temperature may thus be justified in the light of the complete replaceability of capital and its non-perishable nature in contrast to natural tipping points and irreversibility of climate change that have been outlined by climate change experts (Oppenheimer et al. 2011). Avoiding to pit one generation after the other, earlier generations can enjoy economic growth, while their descendants will benefit from a favorable climate mitigation policies and infrastructure.

IV. Climate Justice Policy Mix

Recent IPCC research, international conferences on climate change and global warming abatement stress the currently most urgent need for climate change mitigation and adaptation policies.Intergenerational climate change burden sharing appears as a real-world relevant emergent risk prevention strategy. A currently-economically unhindered generation implementing climate change prevention immediately is believed to live in harmony with its posterity as for ensuring their descendants to continuously enjoy environmentally stable beneficial world conditions. The burden of climate change mitigation is unevenly heavy on current generations. Intertemporal burden sharing may thus be integrated into a model of infrastructure against climate risk comprising of a harmonious climate change mitigation and adaptation mix.

Climate change presents specific risks and challenges associated with system failure. The very logic of increasing globalization carries problems that demand for a redesigning of governance structures and institutional arrangements that reduce the probability of such dangers arising (Centeno et al. 2013). For this, we first need to understand the nature of the danger. Fragile environmental conditions due to a missing information of systemic risks of climate change underline the importance of a whole-rounded understanding of climate change mitigation and adaptation to overcome future socio-economic losses and avert irreversible tipping points.

Up to date there is no comprehensive definition of climate change mitigation and adaptation efforts as well as no information on the interdependencies of these efforts. As a real-world relevant means to prepare mankind in the light of global warming, we first need a more stakeholder-specific view of what climate change risks mean in order to derive recommendations on what institutions and how these climate stability regimes could harmoniously implement climate change mitigation and climate adaptation concurrently on a global basis.

A further literature review and studies should be undertaken on the current discussion on sustainable finance and the diverse methods of funding of mitigation and adaptation policies. Particular emphasis will be given to the already existing literature, experiences and practices of issuing climate bonds.

V. Discussion

A preliminary literature review revealed a rising but limited scientific investigation of climate stability solutions as well as climate change mitigation and adaptation strategies. Holistic systemic risk studies in the climate justice domain are rare. Addressing these detected deficiencies and in order to gain a multi-faceted risk description of climate stability upfront, an extensive literature review could innovatively encompass different climate stability risk levels in order to prepare for a well-tempered climate stability policy mix recommendations.

Future research may thus explore how to avert the global risk of climate change by grounding the concept theoretically and macroeconomic models in order to derive climate change mitigation and adaptation recommendations. One may capture systemic risks emerging in human-made systems that were caused unintentionally but impose endogenous threats to mankind. Thereby society may better understand the structure, nature, and challenges of these complex interaction and feedback systems of climate stability, climate change mitigation and adaptation choices. Climate change risk mitigation and adaptation means should be derived on the micro level between individuals and on the macro level through systemic risk analysis that extends among countries. After a clear definition and delineation of the concepts climate change risk, climate stability, climate change mitigation and adaptation, interaction effects of these concepts should be studied. The complexity and number of interactions will also require a qualitative analysis how to study this novel phenomenon. Stakeholder viewpoints will depict a variety of climate change mitigation and adaptation strategies within large networks and institutional frameworks. The underlying complexity but also threshold and feedback effects that multiply or even exponentially magnify the risk of climate change or could implement climate stability will qualitatively be addressed. By also capturing and mapping what regulatory and policy solution exist throughout various regulatory regimes in response to climate crises, recommendations how to create more robust environmental climate systems will be retrieved. The planned analyses will involve the climate change monitoring, inspection, and surveillance as well as climate change adaptation. The broad and diverse spectrum of climate change preferences described and empirically captured will lead to public policy recommendations for the secure implementation and meaningful enforcement of climate stability regulations.

The future research outlooks may combine theoretical and empirical research featuring qualitative

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and quantitative methodology. After a literature review of climate change risk, climate justice and climate change mitigation and adaptation strategies, quantitative research targets at gaining an in-depth understanding of climate change risk mitigation, climate change stability implementation and climate adaptation in the international arena. Quantitative market analyses aim at capturing international climate change mitigation and adaptation interdependencies.

Overall future open research questions should investigate the nature of systemic risk in the environmental sustainability domain and propose to study solutions to ensure climate stability over time. The structure of increasingly fragile environmental conditions could be captured in order to derive real-world relevant implication show to improve environmental systems through the understanding of climate change mitigation and adaptation as well as the interdependency of these sustainability approaches. Thereby future research projects could comprise of a literature review, qualitative examination of climate risk mitigation and quantitative modelling of climate change risks prevention means.

Future research should strengthen the research and design of climate stability, encourage interdisciplinary exchange on the contemporary complex climate agenda in strategic partnerships, as well raise awareness and engage the broader international public on multiple climate stability regimes.

As a first step, preliminary research may provide a climate stability risk overview. The field-specific perspectives include nomenclature creation, literature reviews, quantitative and qualitative methods, and public policy information of experts and institutions. Thereby the goal should be to develop our understanding of climate change risk through the analysis of specific climate stability threats. The task should be approached by case studies and expert interviews with the goal of developing a multidisciplinary methodological analysis of global climate risks to be proposed to be alleviated through financing solutions as well as recommendations of harmonious climate change mitigation and climate stability adaptation strategies.

As our knowledge of climate change mitigation and adaptation interdependencies remains an open research gap important to be investigated in the eye of climate stability threats with enormous global impact. As we think about this topic, no single vantage point is sufficient by itself, and a genuine understanding of the problems and the possible solutions will require knowledge, expertise, and experience from multiple fields. The research endeavors should begin by analyzing climate change risks inherent in global environmental conditions.

Qualitative research aims at gaining climate change burden sharing strategies with focus on climate stability funding coupled with quantitative research focusing on climate change mitigation and adaptation strategies and interdependencies.Community research will present field-specific perspectives on systemic risk mitigation in the finance sector. Expert interviews will allow retrieving aspect of climate change bond strategies that stakeholders find most relevant. Case studies on global climate risk mitigation will portray climate change abatement with attention to particular stakeholder perspectives in order to retrieve a real-world relevant climate stability strategy.

A stakeholder-nuanced literature review could coverpublic and private, organizational and societal stakeholders to retrieve notions on global warming risks and climate change mitigation and adaptation in the international arena with a special focus on climate stability funding as well as bond solutions as innovative solutions to carbon trading schemes and carbon taxation. Expert interviews could gain a stakeholder-specific definition of climate change, climate risk, climate mitigation and adaptation as well as climate change bond strategies in the finance sector in order to collect information on climate change risk mitigation and adaptation strategies with a special emphasis on the finance sector. The acquired information will present stakeholder-specific contemporary notions of climate change, climate change mitigation and adaptation efforts as well as their interdependencies.

Revealing the common sense, but also stakeholder-specific nuances of climate change risk perceptions with a special focus on climate change mitigation solutions of the finance sector offers an invaluable opportunity to highlight unknown climate stability implementation strategies. This working part should also include a meta-analysis of risk and its various meanings held by different constituency groups in order to provide the basis for global governance and public policy recommendations how to mitigate and adapt to global warming.

The knowledge and understanding of theories and methodology is meant to evolve over the course of the first year in order to help synthesize and assimilate the findings. A vital research exchange and scholar transfer at conferences and workshops – featuring external quality control and results presentations – will help discuss risk definitions with colleagues prior to continuing to develop ideas and combine the lessons learned in the community. The information retrieved will also help create a coherent set of papers on systemic climate change risks, mitigation and adaptation as well as policy reflecting the different academic disciplines and viewpoints but also allowing to flash out a set of papers to address unknown facets of global mitigation and adaptation interdependencies.

Intergenerational climate change burden sharing through intergenerational fiscal policies and sustainable finance methods, such as climate bonds, is a novel approach to implement intergenerational climate justice. In an overlapping-generations model paying

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attention to climate stability and economic growth, climate change mitigation is proposed to be financed through bonds that allow current world inhabitants to remain economically prosperous, while future generations benefit from ecological stability. This intergenerational equity implementation turns climate change mitigation into a Pareto improving strategy. Future research could target at analyzing the dynamics of this climate change burden sharing model capturing the social maximization of the optimal policy implementation. The prospective findings would open up avenues for climate justice research – such as, for instance, investigating whether it is ethical to impose financial debt onto future generations for the benefit of potential future climate stability.

The global systemic climate change risk analysis may target global networks and flows in the fragility of the global environmental systems. Thereby, a further in-depth scrutiny of stakeholder-specific perceptions of systemic risks in the climate justice domain will be sought.Specific case studies could survey the current scholarship on current climate stability policies (e.g., cap & trade, carbon tax, green energy) as well as climate change mitigation and adaptation strategies in order to prepare multidisciplinary theories and methodologies of systemic climate risk and climate stability analysis in the following.

Climate stability emerges in the wake of social, environmental and political efforts in the international arena.As the complexity of efforts to interactions makes any kind of conventional analysis impossible; complementary research should explore climate change risk mitigation and adaptation efforts and their interdependencies by the help of quantitative governance databases. Mapping crisis risk mitigation policies and practices on an international scale with large-scale mapping globalization methods will help outline contrasts in risk mitigation strategies and harmoniously couple these efforts with climate change adaptation strategies. Comparisons of climate change risk reduction means on the international level will help derive insights for global governance experts on how to implement climate justice.

In addition to the qualitative investigation, systemic climate change risk market data should be collected via international online market databases (e.g., COMPUSTAT) for investigations of global outlooks in order to retrieve cutting-edge information on contemporary climate change risk mitigation and adaptation approaches. The data should be quantitatively analyzed by descriptive and multivariate methods in order to scrutinize the international climate risk mitigation and adaptation means. Network analyses will capture climate mitigation and adaptation differences to derive climate justice implementation recommendations.

In order to unravel climate change risk mitigation and adaptation success factors, economic market data could be retrieved from international online market databases (e.g., COMPUSTAT) to be analyzed by descriptive and multivariate methods in order to derive an online interactive computer simulation tool.Using Mapping Globalization tools such as gap minder, network analysis will allow investigating risk mitigation factors and climate adaptation interdependencies following the greater goal to outline prescriptive public policies to enhance climate stability. The analysis of climate change risk mitigation means will help develop recommendations on regulatory schemes including carbon trading and taxation. Coupled with the study of climate change adaptation strategies and climate change burden sharing finance strategies by institutions, industry actors and policy makers, the results will lead to practical guidelines on how to implement environmental sustainability.

The gained insight on climate mitigation and adaptation as well as the expert discussions and scholarly exchange on how to prevent systemic risks should be disseminatedin an open access interactive online climate change simulation to map the contemporary climate stability efforts and regimes on a global scale. Scholarly products will also include a website, journal articles, and contributions to an edited book that will serve to publicize the findings and provide a possible avenue for future work.

Overall, the research should will innovatively develop new interpretations, understandings and concepts of climate risks but also help deriving balanced approaches to implement climate stability and adapt to global warming. In compiling scholarship and theories on risk mitigation strategies in the climate action domain as well as by bringing together experts on climate risk from Europe and North America coupled with the financial sector insights on how to finance climate stability, the a central reference point and resources on aggregate information on the implementation and sophistication of climate justice will be retrieved.

All these endeavors will elevate the importance of climate justice scholarship whilst deriving implications for climate stability. Emphasizing areas where to apply climate mitigation and where to promote climate adaptation strategies will help deriving practical implications for the private industry and public policy sector. Understanding the different climate risk attitudes but also shedding light on previously unknown climate mitigation and adaptation interdependencies will aid environmental sustainability to ensure a future mankind. For practitioners the results will help lowering institutional downfalls of increasingly interconnected and fragile global networks. For academia, the interdisciplinary research could spearhead information on climate justice in academic journal articles, literature

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compilations and documentaries and other resources on systemic risk with short-term innovative and long-term historic value.Policy makers will directly benefit by policy briefs alongside the scientific publication dedicated to the development and implementation of novel approaches to face climate change. As a practical outcome, a climate change online simulation interactive graphic could help individuals visually understand how climate change mitigation and adaptation regimes work and interact with another. This online tool is targeted at further aiding the dissemination of the findings on a global scale. The graphic will create social media presence to help individuals visually map and understand mitigation and adaptation patterns and how these model approaches can be harmonized for the greater good. The tool will grant the general public to intellectually engage with a global network of scholarly insights on climate change regimes in order to form a critical opinion and make better informed decisions. The public will thereby be enabled to engage in the broader discussion about social justice and sustainable development. All these research endeavors are aimed at supporting individual academic scholarship, advances the scientific field and fosters dialogue for new knowledge creation and creative solution finding on one of the most complex contemporary challenges for mankind. Overall, research in this novel domain may embark on alleviating the most pressing contemporary global challenges will aid to bring together public, private and academic leaders breaking down barriers between nations and disciplines in solving global predicaments for the common greater good.

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A Study on Business Development Support Services Available for Women Entrepreneurs in Bangladesh

By A.B.M Siddique

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Abstract- Women's economic empowerment is very much important part of economic development discourse in any development undertaking of a nation. Women empowerment depends on taking part in various development activities. Therefore, the involvement of women in various entrepreneurial activities has empowered them in social, economic and cultural fields. Despite recent progress in the advancement and empowerment, women in Bangladesh still remain vulnerable to poverty and social deprivations. Women entrepreneurs are in a less favorable position compared to men in case of accessing for example commercial credit from formal financial service providers, more lucrative markets, rather than the traditional local markets, technology and information to establish and grow their businesses, national incentives in small enterprise development through gender blind private sector development and fiscal policies and legislation and training and education for small enterprise development. In such a context, this paper attempts to investigate, evaluate and analyze the available support services for developing women entrepreneurship in Bangladesh.

Keywords: women entrepreneurship, support services, government policies, NGO.

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A Study on Business Development Support Services Available for Women Entrepreneurs in Bangladesh

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Abstract- Women's economic empowerment is very much important part of economic development discourse in any development undertaking of a nation. Women empowerment depends on taking part in various development activities. Therefore, the involvement of women in various entrepreneurial activities has empowered them in social, economic and cultural fields. Despite recent progress in the advancement and empowerment, women in Bangladesh still remain vulnerable to poverty and social deprivations. Women entrepreneurs are in a less favorable position compared to men in case of accessing for example commercial credit from formal financial service providers, more lucrative markets, rather than the traditional local markets, technology and information to establish and grow their businesses, national incentives in small enterprise development through gender blind private sector development and fiscal policies and legislation and training and education for small enterprise development. In such a context, this paper attempts to investigate, evaluate and analyze the available support services for developing women entrepreneurship in Bangladesh. The paper also focuses on some issues of concern and challenges of women entrepreneurship development in Bangladesh and finally, provides some strategy recommendations.

Keywords: women entrepreneurship, support services, government policies, NGO.

I. Introduction

Contribution of women in the economy is very important for the growth of socio-economic environment of Bangladesh. Without a meaningful and active participation of women, half of the total population, in regular economic activities, a dynamic and sustainable economy is impossible. In view of the need to bring the rural womenfolk in the development stream of the country, both the Government, the NGOs and other related agencies have provided ample opportunities to promote entrepreneurial skill among women. Income-generating activities, credit facilities, skill training, market opportunities have all combined to pave the way for the emergence of entrepreneurial development among women in rural Bangladesh. Bangladesh has undertaken systematic reforms across all sectors in the last decade with an emphasis on the initiatives to increase women's participation through laws, international conventions, and affirmative actions to meet quotas to ensure women's participation (Groundwork, 2002). It appears that women have brought a social and economic change; and opened up a new dimension in the business area through their participation in different socio-economic activities in Bangladesh.

a) *Statement of the Problem*

Mainstreaming women in industrial activities can substantially contribute towards economic growth and their empowerment. In order to support women to release their creative potentials as entrepreneurs innovative and specialized support services are needed. Although some specialized funds and programs have been undertaken to facilitate credit towards small businesses with more relaxed conditions but in practice, in most of the cases, entrepreneurs are required to offer collateral to guarantee loan repayment. Majority of the women do not possess any assets and cannot formally offer the necessary securities against loans. Due to the complexities in the social environment and administrative structure, women's entrepreneurship in Bangladesh is more challenging. Many social and operational constraints continue to restrict women from starting and running economic enterprises. But the development of women's entrepreneurship can offer excellent opportunities for development of one half of the population and for overall socio-economic progress of the country.

b) *Objectives of the Study*

The purpose of the study is to investigate the available support services of women entrepreneurship to ensure its growth and development in Bangladesh. To achieve this objective the following specific objectives are outlined:

a) To study the available support services of women entrepreneurs in Bangladesh.
b) To explore the constraints and challenges faced by women entrepreneurs.
c) To suggest some policy recommendations to overcome these constraints.

c) *Methodology of the Study*

In light of the objectives of the study, the paper has been designed to illustrate the available support

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services as well as their impact and effectiveness of women entrepreneurship in Bangladesh. To this end an extensive literature survey has been conducted. The study is based largely on secondary data from published sources including websites of different organizations. Data and information from secondary sources were collected by consulting various relevant journals, studies conducted by various donor and development agencies, and publications of Asian Development Bank, International Labor Organization, Bank of Small Industries and Commerce, Bangladesh Bureau of Statistics etc.

II. Support Services for Women Entrepreneurs in Bangladesh

The importance of women entrepreneurs in the national development process has been acknowledged by successive governments and steps initiated to realize these objectives. There are following specific areas where women entrepreneurs need supportive assistance:

- Legal assistance includes transparent regulation for getting Trade license etc. as well as other processes.
- Financing helps to reduce interest rate, easy access to loan, and Guarantor free loan for women entrepreneurs.
- Marketing assistance should be built among people to use local products and market should be created abroad through fair and other promotional campaigns.
- Technology includes continuous product/service quality control, quality enhancement through adopting new technology, tax reduction on imported new machinery etc.
- Business management includes a range of activities like HR, employee handling, customer management, record keeping, costing, inventory management, procurement, strategic positioning and so on.

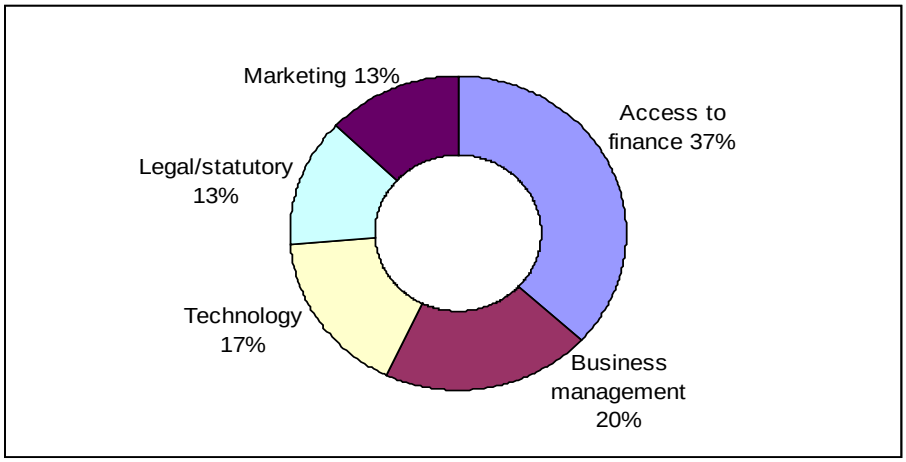

Figure 1 : Type of assistance required

(Source: Morshed, 2008, P.22)

The support services provided by various financial and credit institutions as well as by some public and private institutions have been examined in this section.

a) Policies and Programs Encouraging Supporting Women Entrepreneurs

The Government has acknowledged the importance of mainstreaming women in the national development process, and has initiated steps towards realizing this objective. Consequently, under successive Five Year Plans, the Ministry of Women's and Children's Affairs and other line ministries took up appropriate programs and projects under the coverage of sectoral allocations. In the Fifth Five Year Plan (1997-2002) as many as 24 goals and objectives are set for development of women and children in the country. The Government of Bangladesh has set distinct strategies in its National Action Plan (NAP) for the development of the women entrepreneurship:

- Adoption of a comprehensive sustainable industrial policy that will promote equity for women and men;
- Ensure women's easy access to markets;
- Develop entrepreneurial skills of the women;
- Provide infrastructure facilities for women entrepreneurs;
- Support research, evaluation and action oriented programs of industry particularly for women engaged in the industrial sector.

The SME Foundation has been recommended a gender action plan in September 2007. The Gender Action Plan (2008-2012) extended business support services towards SME women entrepreneurs by following activities:

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- Organize National and International trade fair for women entrepreneurs.
- Advocate for insurance facilities for SME.
- Advocate for reducing custom and excise duties for SME women entrepreneurs.

These goals and objectives, if implemented properly will definitely contribute with the participation of women in every sphere of our national life.

The Government of Bangladesh's Industrial Policy 2005 stipulates several useful strategies under micro level preparation to broaden the participation of women entrepreneurs, such as:

- Identifying women entrepreneurs capable of running independent and businesses.
- Designing various incentive packages.
- Reserving plots for women entrepreneurs in industrial parks in all divisional towns.
- Ensuring participation of women entrepreneurs in policymaking, financing, and investment.
- Giving pre-investment advice and assistance.
- Establishing a separate bank to ensure easy access to industrial credit, equity capital, venture capital, and working capital, collateral free loans.
- Providing financial support and in cases arranging necessary capital.

Export Promotion Strategy paper 2006-2009 has been outlined a number of strategies:

- Promoting labor-intensive (especially female labor) export-oriented production.
- Encouraging female entrepreneurs in the export sector.
- Encouraging them invent new production and product diversification.
- Honoring best female entrepreneurs by awarding Annual Export Trophy.

Some other important policies taken by the Government are enumerated as follows:

b) Supporting Services of Financial and Credit Institutions

Generally, financial institutions and banks extend credit for women under micro-credit program for poverty reduction. The interest rates of these credit vary based on the cost of the fund. For this purpose, mainly donor supported project funds are used, though some funds are also provided by Bangladesh Bank. The Bangladesh Bank directs the commercial banks to lend at least 15 percent of their lending capital for the industrial sector, while 5 percent are expected to be spent for the small scale industry (SCI) sector. Furthermore, as pointed out by an updated paper by the Dhaka Chamber of Commerce and Industry (DCCI) (p. 10), other than for poverty reduction project loan, there is no special regulation for credit for women entrepreneurs. These loans are often operated through NGOs or development agencies. Men mainly access the investment in the industrial sector. Some banks have ladies branches. But the objective of the activities is to mobilize savings and not encourage investments. Most of these branches incur loss, because they function as deposit collectors rather than lending institutions.

c) Supporting Services of Public and Private Institutions and Agencies

i. *Public/Government Institutions*

a. *Bangladesh Small and Cottage Industries Corporation (BSCIC):* The main objectives of BSCIC are to strengthen the small and cottage industry (SCI) sector by providing support services, including infrastructural facilities; pre-investment counseling; supply of techno economic information; credit arrangement; infrastructural facilities; management and skill development training; arranging for raw materials; diagnostic studies; market studies; subcontracting arrangements; inter-organizational coordination; and product development to small and tiny entrepreneurs. The following table shows a brief summary of statistics on the small and cottage industry (SCI) sector:

Table – 1 : Statistics on SCI

Salient features of SCI in Bangladesh	
Number of small industries	: 66,891
Number of cottage industries	: 6,16,470
Number of employment in the SCI	: 31.19 lakh

Source: BSCIC website.

b. Women Entrepreneurship Development Program (WEDP): The WEDP, initiated by the BSCIC with USAID assistance, is concerned with various activities, such as scouting for potential female entrepreneurs; providing project appraisals on their behalf; pre-investment counseling; loan arrangements for fixed and working capital; post-investment counseling and regular supervision; supply of modern designs and prototypes; special management and skill improvement training; and, where necessary, marketing and technical assistance.

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c. *Bangladesh Rural Development Board (BRDB):* BRDB provides essential support services to both the landless and assetless rural women and men. There are two self-employment programs provided by BRDB: Bittaheen Samabaya Samity (BSS), for assetless persons; and Mahila Bittaheen Samabaya Samity (MBSS), for poor women.

d. *Bangladesh Management Development Centre (BMDC):* The BMDC provide various support services for developing and improving skills and techniques at various level of management related to starting a small business, establishing a new industry, and entrepreneurship development for women.

e. *Bureau of Manpower, Employment and Training (BMET):* The BMET helps to promote entrepreneurship through among educated youths, both women and men, and among skilled Bangladeshi workers returning from abroad. BMET is responsible for identifying beneficiaries, forming groups, offering motivational training, and creating group savings.

f. *Directorate For Women's Affairs (DWA):* The DWA provides several development projects related to the agriculture training centre for women in Bangladesh; women's vocational training for population activities; technologies for rural employment with special reference to women; and the strengthening of national training and development academy.

g. *Department of Youth Development (DYD):* The DYD offers training to poor and unemployed youth in rural and urban areas in various trades and income-generating activities such as livestock, poultry, pisciculture, computer use, repair of electrical equipment, electrical and house wiring, refrigeration, and air-conditioning.

h. *Bangladesh Handloom Board (BHB):* Several activities are performed by BHB such as identifying sectoral constraints and promotional needs; supply of necessary raw materials to weavers at reasonable prices; and supply of other inputs such as dyes, chemicals. It also provides credit facilities; training and research support; depots and common facility centers, techno economic information; market promotion at home and abroad; and extension services.

i. *Other government organizations:* Other government organizations offering support services are Bangladesh Technical Assistance Centre (BITAC) for technical assistance; Power Development Board (PDB); Rural Electrification Board (REB) for electricity; Titas Gas Transmission and Distribution (TGTD) for gas; Water and Sewerage Authority (WASA) for water etc.

ii. *Private Institutions and Agencies*

a. *Micro-Industries Development Assistance and Services (MIDAS):* MIDAS provides following functions for the promotion of micro industries:

- Collection and dissemination of information on small and micro enterprises,
- Carrying out socio-economic studies and research,
- Identifying industrial projects of innovative nature,
- Promoting women entrepreneurship, providing technical, and
- Managerial assistance in the from of counseling, and training to existing and potential entrepreneurs.

b. *Bangladesh Rural Advancement Committee (BRAC):* BRAC operates on the basis of two major goals, such as- poverty alleviation and empowerment of the poor. These programs cover 69,421 villages, benefiting more than 120,000 people, the majority of whom are women (BRAC website). BRAC provides training facilities in the areas of human development and management and occupational skill development.

c. *Gana Sastha Kendra (GK):* The GK has been conducted women's emancipation programs on the basis of following objectives:

- To establish the rights of women by promoting awareness building and changing women's status in society, and
- To empower the poor by promoting education, particularly among poor women and children.

d. *Grameen Bank:* The major activities financed by Gremeen Bank are milk cows, paddy husking, cattle fattening, seasonal crop trading, and grocery shops. Every week, Grameen Bank's 12,000 staff members meet 3.2 million borrowers in 45,000 different villages spread around Bangladesh to deliver individualized bank services (Yunus, 2007).

e. *Bank of Small Industries and Commerce (BD) Ltd. (BASIC):* The main objective of BASIC is to meet the financial needs of small enterprises.

f. *Business Advisory Services Centre (BASC):* The major objectives of BASC is to promote growth by providing technology and market information, training, consultancy, and advisory services for business development.

g. *National Association of Small and Cottage Industries of Bangladesh (NASCIB):* NASCIB offers a range of support services to its members including credit availability; infrastructural support; SCI sector policy formulation; technological support; marketing assistance; training; database activity; and information dissemination.

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h. *Bangladesh Employers' Association (BEA)—now known as Bangladesh Employers' Federation (BEF):* The main objective of BEA is to provide consultancy, training, and related services to small and medium-scale enterprises in order to improve their overall productivity.

i. *Women Entrepreneurs' Association (WEA) Bangladesh:* The main objective of WEA is to create awareness and an enabling environment for women entrepreneurship development by providing members with linkage of support service organizations; promoting female entrepreneur products; sharing successful experiences of entrepreneurs at home and abroad; training and consultancy services and dissemination of information concerning available support services (training, credit, marketing channels, technology, etc.); liaison with similar organizations in other countries; and research on related issues.

j. *Jatiyo Mohila Sangstha (JMS):* The main objective of JMS is to protect the rights of women and children and empowerment of women. However, it has undertaken various skill development training and micro-credit operations, which support entrepreneurship development of the women population of the country.

d) Impact and Effectiveness of Current Support Services

Credit-based self-employment programs undertaken by both government agencies and NGOs have proliferated rapidly. A study conducted by Special Employment Creation Schemes (SECS) on 140 organizations indicates that, despite this rapid increase, total coverage remains small to meet the extent of poverty needing attention. Research into the major SECS shows that less than 5 per cent of the target population are covered (UNDP, 1993). Since a large number of borrowers receive repeat loans, the net additional increase in self-employment could even be much smaller. Furthermore, even though reports indicate improvements in income and living standards among targeted households, many of these families remain below the poverty threshold. Thus the impact of current support services taken by the Government and NGOs are not praiseworthy for ensuring rapid growth of women entrepreneurship development. A study completed by Dr. Jahangir Hossain Sardar (1995) indicates that support services have had some positive effect on the growth of small firms. It shows a significantly higher performance by assisted firms than similar non-assisted enterprises. Ideally, programs should be home-grown and driven by Bangladeshi perceptions of what is needed, rather than being excessively donor driven, as is now the case with most government programs (Hye, 1996).

III. Constraints and Some Challenges Faced by Women Entrepreneurs in Bangladesh

There are a number of constraints faced by women entrepreneurs in Bangladesh as summarized in following categories:

Gender specific constrains: Women entrepreneurs face some constraints due to the gendered access to resources that has been added a new dimension of difficulties for women entrepreneurs. The following figure explains the issue of gender and how this has an immediate influence on access to resources:

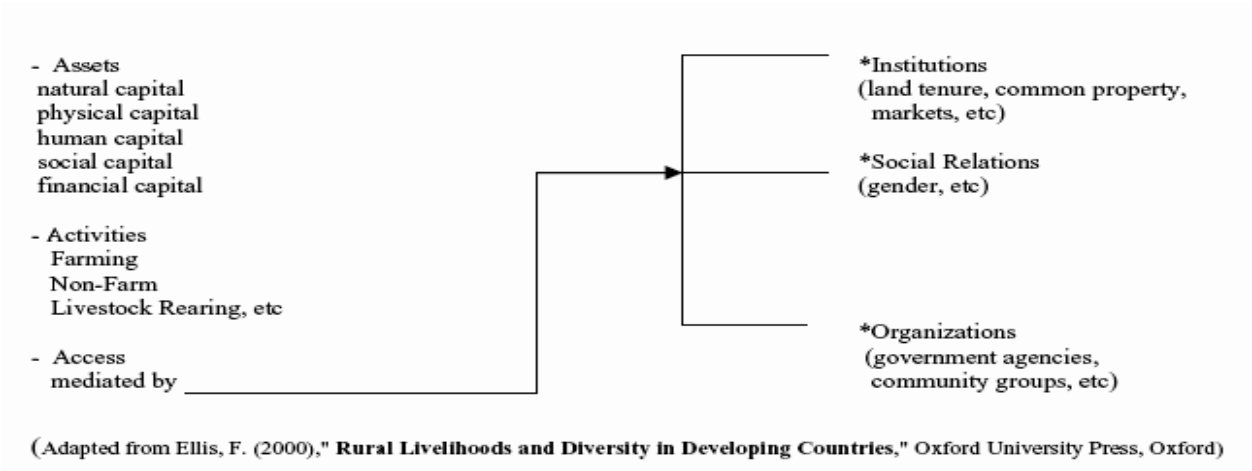

Figure 2 : Gender specific constraints

Access to finance: In South Asia, women are almost invisible to formal financial institutions- they receive less than 10 percent of commercial credits (Haq, 2000). "Seed Working Paper No. 14", by Nilufer Ahmed Karim made for ILO was based on the findings of the most comprehensive study done till the date by ILO (1995) with a sample size of 500 entrepreneurs (374 women and 126 male). 6% got loans from family members,

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o.5% got loans from commercial banks. 0.3% got loans from national banks, 61% got loans from NGOs. About 43% of women entrepreneurs are not aware of credit facilities granted to women entrepreneurs. Inadequate financing was ranked first by 76% of women entrepreneur (92% rural and 69% urban).

Access to financial institutions: Rural women entrepreneurs face considerable hardships in accessing finance. Because, they are outside the radar of formal financial institutions, despite several Government instructions to open up for the marginal clients.

Lack of awareness of facilities and support services: Women entrepreneurs in rural area are unaware of available support services and the procedures for getting it. Mechanisms for disseminating information on investment opportunities and the types and sources of assistance available are inadequate (Karim, 2001).

Lack of institutional support facilities: Different public institutions in Bangladesh are characterized by corruption, large-scale inefficiencies, lack of initiative, and ineffective decision-making (ADB 1997). Banks, furthermore, are not structured in such a way as to reach a target clientele without capital or assets (Karim, 1995). Lack of social capital: Due to lack of social capital, poor people at the rural area do not have the social networks and this deprives the target groups of a key linkage with business partners which could otherwise have provided valuable assistance regarding different aspects of business development.

IV. Conclusion and Policy Recommendations

Entrepreneurship is the key to the creation of new enterprises that energize and revitalize the economy. Entrepreneurship serves as the catalyst in the process of industrialization and economic growth. Women entrepreneurs can play a vital role in combating rural poverty. The emergence and development of women entrepreneurship largely depends on the supporting conditions of different factors such as economic, social, cultural, and psychological. To improve the socio-economic status of the women in Bangladesh it is necessary to formulate appropriate policies, take necessary actions and introduce effective measures to integrate the women in the mainstream of the development process. Therefore, the following recommendations may be considered worthwhile:

i. Financial Policies and Strategies: In respect of the policy, strategy and function of Bangladesh Bank and Commercial Banks following recommendations may be made:

- Identification of viable women entrepreneurs.
- Establishing credit guarantee scheme for women entrepreneurs.
- Sinking interest rate for loans for women entrepreneurs.
- Setting up special window for financing women entrepreneurs.
- Pre- and post investment counseling for women entrepreneurs for credit.
- Allocation of women share in equity development and fund.
- Preferential treatment of the women entrepreneurs by credit in thrust sectors.
- Monitoring of credit disbursement for women entrepreneurs.
- Maintaining gender based data on credit disbursement and dissemination information on credit opportunities.
- One stop service should be created in the Commerce Ministry exclusively for the women entrepreneurs for facilitating investment and business.
- Establishing a women bank.
- Enabling credit for the women without collateral.

ii. *Counselling and support services:* There are following counseling and support services to facilitate women entrepreneurship in Bangladesh:

- Credit programs need to be linked with entrepreneurship development training programs.
- Lending procedures must be simplified, with minimum documentation formalities.
- Special provisions should be made for female entrepreneurs.

iii. *Other Suggestions:* There are following other recommendations for facilitating women entrepreneurship:

- Tax holiday for women entrepreneurs should extended further and made more supportive for them.
- Gift Tax should be dismantled in the case of women beneficiaries.
- Either the registration procedure for import and export business should be simplified and made women friendly or completely dismantled.
- All anomalies in custom procedure must be removed and women friendly.
- Tariff for women entrepreneurs should be abolished.
- Value Added Tax (VAT) for women entrepreneurs should be abolished.

Therefore, Government and private sector interventions have generally accelerated income generating activities of women both in the urban and rural areas with entrepreneurship development. Such kind of support services, policies, and strategies help to

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change the scenario of Bangladesh especially for the women who have gathered courage to break barriers and enter the off-house working force as entrepreneurs and workers - a situation not appropriate for women or accepted by the society in the past.

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Cancellation of ATM Withdrawal Charges and the Cash Policy in Nigeria

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Cancellation of ATM Withdrawal Charges and the Cash Policy in Nigeria

Alley, Ibrahim Saliu [α], Adebayo, L. A. [σ], Oligbi, Blessing [ρ] & Lawal, Amdalat. T [ω]

Abstract- The cancellation of the N100 charge per unit withdrawal from ATM on December 17, 2012 in Nigeria has the capacity to reduce cash demand, in line with the prediction of the Tobin-Baumol model of cash inventory/money demand. This possible effect of the cancellation policy on effectiveness of the Central Bank of Nigeria's (CBN) Cash Policy in terms of cash demand reduction is yet to be thoroughly examined and documented in the literature. This study fills the gap by examining the effects of the policy that cancelled the ATM withdrawal charges on cash demand and effectiveness of the Cash Policy, using data collected from 200 bank customers in Osogbo, Osun state. The results show that the cancellation policy reduced idle cash balances as people felt free to withdraw as many times as desired since there was no penalty on frequent withdrawals. The study thus concluded that the cancellation of ATM charges and the engendered reduction in cash demand may enhance the Cash Policy, while the policy that re-imposed penal charges may undermine it.

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I. Introduction

Most of the financial transactions in Nigeria are carried out in cash, and the consequence is that the cash demand by the populace is huge. The cost of satisfying this demand, borne by the monetary authority in the country, has been stupendously high. As a means to solving this high cost of cash management, and other attendant problems of cash dominated transactions, the Central Bank of Nigeria formulated a cash policy limiting the amount of cash withdrawal from commercial banks by individuals and corporate bodies to a specified maximum. The policy which was test run in some states of the country in 2012 is now fully in place in the country.

One of the strategies to discourage the public from using more of cash in their transactions was cancellation of charges on ATM removal, also in 2012. Prior to the cancellation, each withdrawal of cash attracted a charge of N100. The cost of this charge on withdrawal is inversely related to the amount of withdrawn. For instance, cost of withdrawal is 10% if N1, 000.00 is withdrawn from the ATM; and it is 0.5% when the maximum amount of N20, 000.00 per unit of withdrawal is taken from the ATM. The decline in this charge with rise in amount withdrawn may encourage people to withdraw huge amount per unit of withdrawal to minimize cost, even if they do not need as much as the huge amount withdrawn at that point in time.

The policy that removed the charge on withdrawal thus aimed to eliminate this incentive, and consequently endear the public to keep more of their money in deposit rather than cash. Once the cost of cash-deposit interchange is nil, the economic agent is indifferent as to what form does she keep her money.

The policy was however reversed in 2014 and a charged of N65 was imposed on interbank ATM withdrawal once a customer does more than three interbank withdrawals in a month. While the supply side (the cost of rendering the ATM services) consideration motivated the policy reversal, little attention was paid to the demand side in term of the effectiveness of the charge-removal policy in reducing cash demand. This study thus fills this gap, and documents in the literature the effects of the cancellation of N100 ATM withdrawal charge on cash policy in Nigeria between the period 2012 and 2014. It sets to evaluate the impact of removal of ATM charges on customers demand for cash and, in extension, examine the effect of the policy on realization of CBN's cash policy objectives.

The paper is organized in five sections. With introduction presented section 1 above, section 2 follows with discussion of the relevant literature, ranging from the theoretical perspectives to the empirical evidences. Section 3 presents the methodology, highlighting the theoretical framework adopted and the analytical techniques adopted. Discussion of the results is presented in section 4 while section 5 concludes.

II. Literature Review

Economic agents demand for cash mainly to finance their transactions. This demand for cash balances has been studied in various theoretical models. A most fascinating among the models is the Tobin-Baumol cash inventory model (developed by Baumol (1952) and Tobin (1956)). This model is very relevant to cash demand when there involves some cost in interchanging money balances between cash and deposit. The theory predicts that money demand or the inventory of cash held is inversely related interest rates or return in keeping money at the bank (as deposit) and

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directly related to transaction volume *c*, price level *P* and cost of withdrawal δ as presented below:

$$M = \sqrt{\frac{c\delta}{R}} \cdot P$$

The model above shows that the higher the cost of withdrawal, the higher the amount of cash withdrawn and held as a means to minimizing unit cost of currency/cash withdrawal.

Other theoretical models of money (not necessarily cash) demand such as the Keynesian money demand model and the Monetarist model of money demand also relate the demand to transaction volumes, income and interest rates but are silent on the transaction cost of interchanging wealth forms.

Given that the cost of withdrawal is directly proportional to cash inventory held, reducing the cost would invariably lead to cash inventory and would be a useful strategy in cash policy that aim to reduce volume of cash in the economy for several policy objectives ranging from reducing cost of cash management, cash-related crimes etc.

The cost of cash production and management in Nigeria has been huge. According to Mohammed (2011), the average cost of producing a Naira note is about N4. Invariably, it cost N4billion to mint N1billion notes! In addition, there exists the incidental cost of maintaining the notes such that they could remain intact, despite the abuse it id of the subjected to.

With cashless policy, this cost could be averted as exchange could take place via other alternatives to cash-based payments such as e-banking and point of sale (POS) terminals. This has great benefits to banks and merchants include larger customer coverage, reduction in cost of operations, international products and services promotion and branding, increase in customer satisfaction and personalized relationship with customers, and easier documentation and transaction tracking.

a) Benefits of ATM and EPS in a Cashless Economy

Electronic Payments as argued by (Cobb, 2005) have a significant number of economic benefits apart from their convenience and safety. These benefits when maximized can go a long way in contributing immensely to economic development of a nation. Automated electronic payments help deepen bank deposits thereby increasing funds available for commercial loans a driver of all of overall economic activity. According to Cobb (2005), efficient, safe and convenient electronic payments carry with them a significant range of macro-economic benefits. An efficient electronic payments system enhances better control of consumer and business credit and this stimulate higher economic velocity.

The EPS saves the economy a huge cost of cash maintenance ranging from minting to replacement. Once the infrastructure for electronic payment has been built, the costs per-transaction is very low (Cobb, 2005). When cardholders use their cards at the point of sale they are helping to keep money in the banking system. EPS can help displace shadow economies, bring hidden transactions into the banking system and increase transparency, confidence and participation in the financial system. According to Al Shaikh (2005), there is a correlation between increase in point of sales volumes and rise in demand deposits. Automated electronic payments act as a gateway into the banking sector and as a powerful engine for growth. Such payments draw cash out of circulation and into the bank accounts, providing low cost funds that can be used to support bank lending for investment a driver of overall economic activity. The process creates greater transparency and accountability, leading to greater efficiency and better economic performance (Al Shaikh, 2005). Similarly, Hord (2005) posits that electronic payment is very convenient for the consumer. Moreover, the more payments that is processed electronically, the less money is spent on paper and postage. Offering electronic payment can also help businesses improve customer retention. A customer is more likely to return to the same e-commerce site where his or her information has already been entered and stored (Hord, 2005).

One of the features of the EPS is the interconnectivity of the ATM across different banks, offering a bank customer the opportunity of withdrawing her funds from another bank's ATM. Matutes and Padilla (1994) in a seminal paper discuss factors that encourage a bank to share ATMs with other banks. In the study's model a three-bank market, in which the banks are located around a circle, was considered. Within the model, there are both advantages to a bank sharing ATMs with another bank. The advantage is that a bank's customers will tend to accept a lower return on their deposits, as sharing lowers the customer's expected transportation costs. Matutes and Padilla (1994) make a significant extension of their basic model to consider the imposition of an interchange fee. The interchange fee reduces the effect of increased substitutability among banks. The interchange fee reduces competition as banks' are less willing to bid to attract depositors, because withdrawal increases cost a bank pays for interchange fees.

Santomero and Seater (1996) and many others present models that identify conditions under which alternative electronic payments substitute for currency. Most of these models indicate that there is at least the possibility for electronic substitutes for currency to emerge and flourish on a large scale, depending on the characteristic of the various technologies as well as the characteristics of the potential users.

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In examining the cost implications of cashless banking instruments, Gresvik and Owre (2002) studied how much it costs Norwegian banks to process various payment instruments. It finds that payment cards used for cash withdrawals at ATMs cost considerably more since the transactions involve cash replenishment, maintenance and security costs. However, the cost of using cheques for cash withdrawals was found to be three times more expensive than cash withdrawals at ATMs. Cross country studies such as Humphrey et al (1996) analyzed patterns in the use of cash and other e-payment instruments in 14 developed countries, including the US. Whilst treating payment instruments as if they were traditional goods, the authors construct measures of the cost (analogous to prices) of various payment methods in order to study whether differences in cashless instrument usage across countries can be explained by differences in the relative prices of such instruments. The result showed that such price differences failed to determine the usage of e-banking instruments. Carrow and Staten (2000) posit that the convenience of using a particular instrument, a factor that is not often measured, may outweigh the price differences that users face.

On the other hand, Brits and Winder (2005) argue that this increased usage of electronic payments is strongly related to customers' awareness of the cost involved in using these different means of payment where electronic payments have low costs.

b) EPS and Monetary Policy

Berentsen (1998) considers the impact that the substitution of smart cards for currency has on monetary policy, arguing that although electronic substitutes for currency would become widespread, monetary policy will continue to work as before because this currency substitution would leave the demand for central Bank reserves largely intact. Goodhart (2000) discusses how monetary control would work in an economy in which Central Bank currency has been partially or completely replaced by electronic substitutes.

Distinguishing between monetary control and monetary autonomy, Cohen (2001) argues that the introduction of electronic currency substitutes would not reduce monetary control, but may reduce monetary autonomy. On the in other hand, Kobrin (1997) argues that electronic currency substitutes are part of a general process of technological advance and globalization that are rendering national monetary authorities impotent and obsolete.

Lee and Longe-Akindemowo (1999) argued that both the financial markets systemic risk and consumer protection necessitate regulation of electronic currency substitutes. Several other authors including Freedman (2000) have argued that the state can always use its power to regulate electronic money providers if they prove to be detrimental to monetary policy or financial stability. Helleiner (1998) makes the case that such coercive power would still be effective in a world of electronic banking. Tanaka (1996) on the other hand, proposes the establishment of a monetary authority in cyberspace that will control electronic currency substitutes. Friedman (1999) point out that electronic banking presents the possibility of an entire alternative payment system not under the control of the Central Banks.

Examining whether EPS undermine Central Banks' control over monetary policy effectiveness, Claudia and De Grauwe (2001) suggested that central banks gradually lose their monopoly position in the provision of liquidity. On the contrary, Marco and Bandiera (2004) argue that increased usage of cashless banking instruments strengthens monetary policy effectiveness and that the current level of e-money usage does not pose a threat to the stability of the financial system. However, they conclude that central banks can lose control over monetary policy if the government does not run a responsible fiscal policy.

c) Summary

The foregoing has presented both the theoretical and empirical arguments for EPS, and for bringing its cost of use to minimum possible. Little attention has however been paid to effects of cancelling ATM withdrawal charges on cash policy in Nigeria. This study thus examineS the effects of this cancellation on money (cash) demand and effectiveness of cash policy in Nigeria.

III. Methodology

This study employed questionnaires to elicit ATM users' view of the impact of the policy that cancelled ATM withdrawal charges cash policy in Nigeria, with special focus on how it affect their demand for cash balances and frequency of withdrawal.

A total of 250 questionnaires were administered to banks customers cutting across many walks of life. The questionnaire as the research instrument used is considered appropriate because it covers the scope implied by the subject and thus has content validity. The study however was able to register 200 respondents.

a) Theoretical Framework

The analysis of the effects of the policy that cancelled ATM withdrawal charges on cash policy was situated in the Tobin-Baumol model which established that demand (inventory) for cash as an item needed for transactions is influenced by direct cost of transferring a financial asset from one form (deposit) to another (cash). The details of this model are presented in section 2 above.

b) Analytical Techniques

The data collected was then analyzed using the Statistical Packages for Social Sciences (SPSS). The

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method implemented for the presentation of data includes the use of tables, percentages and means. The hypotheses formulated were tested using chi-square inferential (χ^2) statistics.

IV. Results

Prior to presenting the results of the analysis on the core issue, demographic characteristics of the respondents who serve as the data generating units are first discussed. This is important as the information supplied is influenced by the characteristics of the respondents.

a) Demographic Profile of the Respondents

The demographic profile of the respondent reveals that many of the users of EPS, especially the ATM are young, literate and employed (see table 1A-3A of the appendix). 66% of the respondents were below age 30 while 92% were below age 50. This shows that active segment of the population whose demand for cash must be driven by transactions needed to support themselves uses the ATM. 64.5%, 25.5% and 10% of the respondents are civil servant, traders and students respectively. The employment status of the majority of the respondents shows that they may be sensitive to time costs entailed in using the ATM. Moreover, 92% of the respondent has at least BSc or HND, giving confidence that the respondents are knowledgeable enough to supply precise information on the subject investigated.

b) ATM Charges Cancellation and Customer's demand for cash

The results of the analysed data showed that 72% of the banks customers under study agreed that the removal of ATM charges on withdrawal encouraged frequent withdrawal (table 1).

Table 1: Cancelation of ATM withdrawal charges and frequency of withdrawal

Question: Did cancellation of N100 charges on withdrawal from ATM encourage frequent withdrawal?

Response	Frequency	Percentages
No	56	28
Yes	144	72
Total	200	100%
χ^2 statistic	38.72	
Prob(χ^2)	0.000	

Sources: Author's calculation, using data from the questionnaire

This result can be generalised on the basis of the inferential statistics (χ^2). The null hypothesis that the cancellation of withdrawal charges did not encouraged frequent withdrawal was rejected as the actual χ^2 of 38.7 is greater than the critical value of 3.8.

Analysis of idle cash balances held by the bank customers showed that the cancellation of ATM withdrawal charges reduced the cash balances held. 60% of the customer agreed that the cash balances held reduced with the cancellation of the ATM withdrawal charges.

Table 2 : Cancelation of ATM withdrawal charges and Cash Balances

Question: Did cancellation of ATM withdrawal charges reduce idle cash balance held?

Response	Frequency	Percentages
No	80	40
Yes	120	60
Total	200	100%
χ^2 statistic	8.000	
Prob(χ^2)	0.000	

Sources: Author's calculation, using data from the questionnaire

The null hypothesis that the cancellation of the charges did not reduce idle cash balances held was rejected since the actual χ^2 of 8.0 is greater than the critical value of 3.8. On this basis, it can be generalised that the cancellation of the ATM withdrawal charges reduced idle cash balances held by bank customers.

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V. Conclusion

This study examined the effects of the cancellation of the ATM withdrawal charges in 2012 on the effectiveness of cash policy in Nigeria, using responses of bank customers in Osogbo (the capital of Osun State), which serves as the case for study. The policy that cancelled the charges on ATM withdrawal enhanced the cash policy which meant to reduce the cash demand in Nigeria, and hence reduced the transactional pressure on the currency and the cost of managing the cash demand.

The mechanisms through which the ATM charges cancellation policy affect the cash policy was the reduction in idle cash balances held by the banking public as they are able, and encouraged, to withdraw money from the ATM, even on inter-bank transactions, as many times as desired without any penalty or charges. With less cash balances, many of their transactions that can be supported by EPS (e.g. payment for communication airtime recharge and settlements of bills like PHCN, DSTV) are routed through this payment means, and this reduced pressure on cash and the cost of its management.

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Table 1A : Distribution of Respondents' Age

AGE	FREQUENCY	PERCENTAGE
below 30	132	66
31-50	53	26.5
51-above	15	7.5
Total	200	100

Sources: Author's calculation, using data from the questionnaire

Table 2A : Distribution of respondent's occupation

OCCUPATION	FREQUENCY	PERCENTAGE
Student	20	10
Civil servant	129	64.5
Trader and other	51	25.5
Total	200	100

Sources: Author's calculation, using data from the questionnaire

Table 3A : Respondent's highest educational qualification

QUALIFICATIONS	FREQUENCY	PERCENTAGE
Master degree	65	32.5
BSc \HND	118	59
Professional qualification	17	8.5
Total	200	100

Sources: Author's calculation, using data from the questionnaire

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An Empirical Analysis of the Impacts of LIBOR Changes on the Volumes of Global Seaborne Trade and the Growth of World Gross Domestic Product - Cointegration and Causal Nexuses -

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Abstract- Ship finance (SF), global seaborne trade (WST), world gross domestic product (WGDP) and, the London Interbank Offered Rate (LIBOR) really are the fascinating issues to the ship owners, financial institutes, bankers, banking risk managers and, maritime researchers. The remarkable developments of global shipbuilding and sea transportation are important and significantly created more productivities and businesses to the world economy today compared to last 20th century, special in the containerization, oil tankers, liquefied petroleum gas (LPG), liquefied natural gas (LNG), dry bulk carriers and others. The ship investors normally require the large amount of capital and always seek for the suitable financial sources.

Keywords: Seaborne trade, ship finance, Maritime fleet, Libor, Johansen and Juselius cointegration, VECM, Granger causality.

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Duc Cong VU [α], Kihwan LEE [σ] & Hoang Long VU [ρ]

Abstract- Ship finance (SF), global seaborne trade (WST), world gross domestic product (WGDP) and, the London Interbank Offered Rate (LIBOR) really are the fascinating issues to the ship owners, financial institutes, bankers, banking risk managers and, maritime researchers. The remarkable developments of global shipbuilding and sea transportation are important and significantly created more productivities and businesses to the world economy today compared to last 20th century, special in the containerization, oil tankers, liquefied petroleum gas (LPG), liquefied natural gas (LNG), dry bulk carriers and others. The ship investors normally require the large amount of capital and always seek for the suitable financial sources. The research is aimed at empirical analysis examining the distinguished and internally causal nexuses of the WST, WGDP, LIBOR and the world merchant fleets (WMF) when these four separate factors are jointly acted into one synchronous linear autoregressive model during the 1980-2015 period. We could see how the real active powers of each factor are and, how the internal relationships of maritime supply and demand and how the activities of long run and short run equilibrium relationships in the model by employing Johansen and Juselius (1990) cointegration, vector error correction models (VECM) and Granger causality tests.

Keywords: Seaborne trade, ship finance, Maritime fleet, Libor, Johansen and Juselius cointegration, VECM, Granger causality.

I. Introduction

As globally statistical recorded, over 90% of world trade (WT) is carried by the international maritime fleets with low and decreasing ocean freight costs. Global seaborne trade (WST) is expected to be expanded continually to bring the benefits for international consumers. There are more than 90,000 merchant ships which are registered in over 150 nations and trading internationally and transporting every kind of cargoes. In maritime industrial fields, most of the shipping companies, the cargo owners, the shipbuilders the port authorities are very concerned to seek for the healthy and stable sources of cash flows and how to successfully establish the regularly profitable charter routines in order to have the higher returns of gigantic amounts invested into their fleets, or to develop the modern ports to attract cargoes by offering the advanced cargo handling facilities to the vessels. The sources of ship finance loans are a large required funds which are normally derived and needed from joint stock limited companies, from the individuals who own and control it (individuals are legally shared), from equity capitals, from public issuing of corporate bonds or from funds are loaned by merchant banks, from sales and lease-back, from sales to another flag, from 2nd hand vessels considerations and also from saving taxations. Among the sources of shipping finance, borrowings from commercial banks shows more than 50%.

The ship investors normally require the sources of large amount of capital – sometimes accounts for up to 80% of the costs of acquiring and operation of a bulk carrier - from the financial institutes or from the bankers who always like very much the predictable earnings, transparent corporate accounts and, consistent growth and high yields of that shipping company. However there are no many shipping companies which are fully qualified with these critical requirement. Each of new building vessels could cost more than thirty to few hundred millions US dollars and its time life is utilized around 15 economic years thus, the ship investors are very much concerned how they can fully utilize their profitably operating fleets which are heavily dependent on the regularly routine charters and combined full trading volumes of cargoes on boards. The crucial issues that the ship investors, bankers, and port operators may expect to see whether there are any interactional causal nexuses between the WGDP to the WST, to the WMF, and to the LIBOR and vice versa? Are all of these separate factors endogenously or exogenously impacted each other? If WST is increased, then would this be the reason to the increasing WMF, and then transforming to the volatilities of WLIR and, if they are so how do they work? The empirical analysis of those issues is ingeniously deciphered by Johansen

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cointegrating equations, VECM and Granger causality tests and if the findings which are resulted from plausible deciphers, hopefully would be satisfied and contributed anything to the future strategies of the ship-owners, port authorities and bankers.

The remainder of this research is divided into: section (2) briefly reviews all the literatures on the Johansen cointegrating equations, VECM in long run and short run and, Granger causality tests, section (3) presents all data and applied methodologies, section (4) will analyze and explain the empirical findings through examining how those factors are dealt and impacted with and conclusion in section (5).

II. Literature Reviews

a) Ship finance loans to maritime fleets

For the development of maritime industries, the requirement of ship finance is the crucial condition and is related to its capital costs in their sizes because a container ship represents an initial capital outlay of more than US$ 80 million while others like LNG tankers or new technological designs are more expensive. The ship finance is prominently playing the crucial roles that are contributed to maritime industries. It could be stated as shipyard credits, leasing agreement, and special national funds set up for shipping or shipbuilding development. In the study of Minsky's financial instability hypothesis and the leverage cycle, by linear modeling of financial institutions and banks for fund raising, Tsomocos et al., (2011) found that in the initial period banks do not choose to invest any capital in the risky project, and the same holds for the intermediate period when a bad state realize. However once expectations are updated upwards, say, the economy moves to the good state in the intermediate period, then bank starts investing into riskier projects. That is meant when the expectations are boosted and financial institutions find it profitable, then the creditors are willing to provide ship-owners with funds and bank portfolios consists of relatively riskier projects. Currey (2004), in his note exploration on ongoing Marco-level changes at the WB, denoted that the World Bank Group (WBG) funding to support the private sector has increased dramatically, both in absolute terms and relative to overall spending, and in 2013, the International Finance Corporation (IFC) accounted for 35% of WBG commitments, compared with 18% in 2009 and only 13% in 2000.

Wijnbergen (1988) applied the general equilibrium models through financial variables of revenue, expenditure, relative prices, interest, and data of OECD and LIBOR etc. for period 1979-1982, and 1982 onwards to test for the debt neutrality, fiscal deficits, interest rates, and the global effects on the inter-temporal and intra-temporal trade of various fiscal policy measure and interventions in commodity trade. He showed that almost all of the increase in real interest rates can be ascribed to the pressure on world saving exerted by increased fiscal expenditure and the fact that increase was deficit financed, and an increase in the world interest rate to restore global current account balance. In the crisis period the ship-owner should be much care of margin conditions and cost of capital when getting the loan from financial institutions. Coffey et al. (2009) empirically analyzed the data of LIBOR and other currencies for supplying dollars in their studying of capital constraints, counterparty risk and deviation from covered interest rate parity (CIP) by using linear regression model, saying that the proxy for margin conditions and cost of capital are significant determinants of the basic, especially during the crisis period. According to the study of Gratsos (2013), the cost efficiency of shipping is related to the dry bulk shipping's cost efficiency improved about 33% over the last 31 years through larger, more cost efficient ships, and the average size of the fleet grew from 35,500 DWT in 1981 to 70,600 DWT in 2012, in order to improve cost efficiency, ship sizes are constantly increasing. All ship categories suffer bracket creep and parcel trade in bigger bulk carriers improves cost competitiveness, the smaller, more flexible ships attain a measure of cost efficiency by reducing the ballast leg (triangulation).

Regarding to the loan supplying to the maritime fleets, Heiberg (2012) proved that bank commitments are probably in the region of US$ 400 to US$450 billion, as an aggregate value of the world fleet including specialized ships such as chemical tankers, gas tankers, and offshore units and it is likely that this is shrinking because some banks wish to reduce exposure, and also over the next couple of years loan repayment will probably be in the range of US$ 70 billion per annum of which US$ 40 billion is likely to be committed by the banks to the new business, and however export credit agencies are expected to be part of the funding equation, although they will probably have a greater impact on the offshore side than the shipping side. Between 2010 and 2012, increased financial constraints was highlighted as one of the most significant changes to the business by 40% of the shipping respondents and overcapacity of supply was also highlighted by shipping respondents and London was selected as the financial center best to meet the needs by 40% of shipping respondents with New York and Singapore joint second. There are 36% of shipping respondents are using or considering new sources of finance, and structured finance was most favored (26%), new private equity (23%), and export credit (20%), (www.shippingresearch.worldpress.com).

Concerning to the bank's strategies for ship financing, as reported in Stopford (2009), the shipping has distinctive characteristics which make financing different from other asset-based industries such as real estate and aircraft whereas bankers like predictable earnings, well-defined corporate structures, high levels

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of disclosure and well-defined ownership, whilst investors look for consistent growth and high yields, however many shipping companies do not meet those criteria. Providing finances to the borrowers, high risks are always occurred even though the banks normally play a critical role in international trade by providing trade financial products that reduce the risk of exporting, however to the situation of surplus new shipbuilding when the market are down, the high risk are still the crucial issues and seriously concerned. However, in the KMPG's research (2011) it was asserted that German banks have taken a leading role in the financing of global shipping, even in the recent years of the crisis German banks have provided equity interim financing up to 10% loan financing for ordered ships and working capital financing and financing of operation cost (OPEX), the fundamentally finance changed shipping financing conditions require action by shipping companies and they must develop individual tailored solutions to secure new capital and to fund new builds.

Niepmann, et al. (2014) employed double residual estimators into linear regression testing models with all joint variables of documentary collection (DC), letter of credit (LC), expected profits from cash in advance, open account, destination country risk, transaction size, log GDP per capita, log financial development, long distance, and log exports denoted that increasing in the cost of trade finance that may come from increased due diligence requirement and new rules on capital and leverage have the potential to impact real economic activity not only in the United States but also abroad, and policymakers have interpreted the low usage of trade finance for shipments to less-developed economies as evidence of a gap in the provision of trade finance by commercial banks. The sources of ship finance and other relevant expenditures of shipping activities are the crucial issues, and for most ship investors' forecasting is not optional.

As Stopford (2009) reckons that in order to earn better, the more anticipate in to the future the more profit they can make, thus the ship investors should have the accurate forecasting model through the forecasting steps of economic assumptions, the seaborne trade, the average haul, the ship demand, the ship productivity, the shipping supply, the balance of supply and demand, and the freight rates by employing linear regression relationship models. For instant, employing the linear relationship regression models for testing the moving together in a linear way between seaborne trade (ST) and gross domestic product (GDP) from 1995-2005, based on the actual result of 1982-1995, he predicted that there exist the casual nexuses between two variables of ST and GDP with the result of R2 = 99%, whereas R2 = 98.9% in cargo trade, and R2=94.3% in oil trade. However, standing on the different point of views when empirically analyzes the causal effects between the trade volume (seaborne trade) and volatility in the shipping forward freight market of dry bulk vessels of Capesize (172K metric tons DWT), Panamax (74K metric tons DWT) and, Supramax (52K metric tons DWT) by using vector autoregressive (VAR) model, exponential GARCH model, and EGARCH-X model, Alizadeh (2012) denoted that there is no evidence of causality from volume to price changes, and result from the asymmetric conditional volatility models indicate the asymmetric response of forward freight agreement (FFA) price volatility to shocks in the market and there is a positive relationship between trading volume (seaborne) and price volatility only.

Bulut (2011) using vector autoregressive modelling, unit root and Granger casualty tests for the analysis of the causal nexuses of freight rate and dry bulk carriers of Handymax (HM) and Panama (PM) sizes ships to affect the profits of ship-owners and shipping companies in period from 2000- 2009 in the WMF and WST, he proved the trends of maritime industry, as a key effect of economic globalization is the continuing increase in maritime trade and traffic and in the near future, global port operators are seen to continue to expand to new geographic areas and will maximize the use of technology to create worldwide port networks that can offer consistent levels of services and modes of operation, since capital investment into marine will be high thus only the most powerful enterprises with significant financial resources will remain in these alliances.

b) World merchant fleets (WMF) to WST and WGDP

The maritime industry and maritime merchant fleet which is a subsector of the transport sector - dominated by North America, Europe and Asia - globally accounts for over 90% of transportation requirement of the world, and the roles of WMF to the development of WST, as Selen (2009), trade is a vehicle of growth, and maritime transport is an instrument for bridging markets and is a catalyst of world trade and this has been lasted for thousands of years. The significant contribution of WMF to the WST, between 2010 and 2012 by 40% of the shipping respondents and overcapacity of supply was also highlighted by shipping respondents as OECD report. The development of global trade is a specific driver of maritime and air freight transport volumes and in which maritime transport is the backbone of international trade with over 90% of world cargo by volume transported by sea, the WST measured in tons loaded grew 4% to 9.2 billion tons in 2013, or 11% above the pre-crisis peak in 2008 (UNTACD). And in ton-miles, maritime transport grew by 4% reaching 46 billion ton-miles; the total amount of goods unloaded (in tons) in developing countries reached 28% above pre-crisis 2008 peak in 2012 while in the developed economies volumes were still 8% below their 2008 peak. Container volumes continued to grow at all ports except for Hong Kong where traffic fell for the second

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consecutive year as a result of increasing competition from rival ports in southern China and the Pearl River Delta area and shift in ocean carrier alliances (OECD, 2015). The tankers, bulk carriers and container ships are the most important means of maritime transportation and carry billions of tons cargoes and bringing vast improvements in efficiency.

From 1950 – 2005, Stopford (2009) denoted that the seaborne trade had the central place in the twenty first century and grew from 0.55 billion tons to 7.2 billion tons, showing average 4.8% per annum. Det Norske Veritas AS (DNV, 2012) had predicted the trends of oil tanker from 2012-2020 which is dependent heavily on oil prices, then 7-8% that is equivalent to 8-33 million tons of LNG new building will be able to run on, the bulk carrier will be grown less than 5% per year and still be under pressure for several years to come as the result of the current oversupply. The container ship is seen as "the closets to the consumer" and demand is strongly driven by the GDP growth and, not least, changes in per capita income in regions and large countries and the number of 4,000-8,000 TEU vessel will be increased while vessels smaller than 1,000TEU are likely to represent a smaller share of the market in 2020 than they do today. The maritime sector is of critical significance to any economy and is the main means for transporting goods internationally, and many cities rely on their ports as a major source of revenue. Maritime activities are expanding, for example, the European Union's (EU's) maritime regions accounting for about 40% its GDP. (www.myfinancialintelligence.com).

Huang et al. (2015) using two models of linear regressions, one for trip generation and one for gravity for trip distribution between exported countries and imported countries to test and found that, it captured up to 72% of variation in trade volumes while the gravity model achieved an accuracy of 84%, and also revealed that socio-economic and demographic indicators that affect import and export containerized trade volumes were identified with R2 = 79.80%. Corbett (2008) asserted the global goods movement is a critical element in the global freight transportation system that includes ocean and coastal routes, a primary example is containerized short-sea shipping where the shipper or logistics provider has some degree of choice how to move freight between locations. Talking to the crucial roles of MF as facilitator of WT and WST, Heiberg (2012) critically analyzed that if just compares with 1950s, the WST comprised about 0.5 billion metric tons whereas today it has expanded to about 9 billion metric tons, thus ST has ground about 18-fold while GDP has grown roughly eight or nine-fold in the same period. In value terms, ST accounts for about 60% of WT, and the value of all of WT today is about US$ 15 trillion, of which US$ 9 trillion by sea. Also as Heiberg, over last 60 years the seaborne container trade has grown from zero (0) to about 1.5 billion metric tons, and in 2010 the global value of seaborne container trade is estimated about US$ 5.6 trillion which is about 60% of the WST. Rua (2014) using the econometric models for the period 1956 to 2008 - consisted of the adoption year for 145 countries and data on containerized and general cargo trade for 684 ports in 127 countries to see the crucial impacts and diffusion of containerization - adoption and usage to the firm's fixed costs, empirical investigation and finding that the usage of containerization increases with firm's fixed costs and the size and average income of the container network, and the adoption depends on expected future usage, adoptions costs, and trade with United States, the first and largest user of containerization. Analyzing the types of cargoes (dry bulk cargo, liquid bulk cargo, and general cargo), types of ships (dry bulk carrier, tanker, LNG/LPG, combined carrier, container, RO/RO, and reefer), trade routes (Mediterranean Sea, Caribbean Sea, etc.), and type and duration of charters (voyage, time, bareboat and contract of affreightment charter) by using the spearman rank correlation coefficient to measure the degree of association between ST (in million ton) and freight rate, Anyanwu (2013) showed that there is a positive association between freight rate and fleet size with the correlation coefficient of 0.660 and this is implied as seaborne volume grows thus, the ship-owners need to adjust their fleet size to meet the market demand.

In maritime industries, containerization is getting more important than decade years in sizes and increased deadweight (DWT) to meet the rapid growth of international trade. Gosasang et al. (2012) deployed the parameters multilayer perceptrons (MLP) neutral network models, root mean squared error (RMSE), mean absolute error (MAE) together with linear regression models to test the correlation coefficients of containerization output at four major Thai land ports (Bangkok, Private Wharves along the Chap Pharaya River, Laem Chabang and, Songkhla) for the period 2001-2011. Gosasang et al. found that despite of other related factors of industrial production, inflation rate, interest rate, exchange rate, oil prices, etc. the containerization situation now is significantly contributed to the import and export of cargoes in and out Thailand. According to the research of Rodrigue (2016), as of 200, the seaborne trade accounted for 89.6% of global trade in terms of volume and 70.1% in terms of value. Wignall et al. (2014) examined and found that the international trade by volume in South Asia, Southeast Asia is transported by sea in three forms of container, dry bulk, and liquid bulk and sea transport has a large cost per ton kilometer advantage over the other modes of transport and will not be eroded significantly over next 20 years.

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III. Data Collections and Methodologies

a) Data collection

This research employs the time series from 1980- 2015 period for the numbers of merchant fleets by flag or registration by the type of merchant ships such as bulk carrier, container ships, oil tankers, general cargo, other ships, total ships in deadweight tons volumes (DWT) from UNTACD. The data of WGDP and WST from 1980- 2014 period are derived from World Bank (WB), the interest rates of period from 1986-2015 are employed from London Interbank Offered Rate (LIBOR). Those separate factors will be applied together as the joined variables in one synchronic model.

b) Methodologies

i. *Co-integration and Unit root Tests*

As Johansen (1988), Johansen and Juselius (1990) maximum likelihood method is a procedure for testing cointegration of several, say k, *I*(1) time series to obtain the number of cointegrating vector and this test permits more than one cointegrating relationship so is more generally applicable than Engle and Granger (1987) test which is based on Dickey and Fuller (1979) test for unit roots in the residuals from a single (estimated) cointegrating relationship. It provides two different types likelihood ratio tests, one is trace and other on the max eigenvalue, and the inferences might be a little bit different. The Johansen and Juselius cointegrating model is given below:

$$\Delta X_t = \sum_{i=1}^{p=1} \Gamma_j \Delta X_{t-1} + \Pi X_{t-1} + \varepsilon_{t,} \ldots \quad (1)$$

In the cointegrating tests, vector error correction model has information about the existence of short and long run equilibrium relationships and their adjustments to change into *X*t via the estimated parameters Γ j and Π respectively, whereas *X*t is (*2x1*) vector of jointly variables respectively, and Δ is stood for symbol of different operators whilst εt is stood for (*2x1*) vector of residuals. The expression of ΠX_{t-1} is the error correction term and Π can be factored into separate matrices α and β such as $\Pi = (\alpha\beta)'$, where β' is denoted for the vector of cointegrating parameters then α' is for the vector correction coefficient measuring the speed of convergence to the long run steady states. When the multi-variables are jointly in the linear synchronic model, we could find the cointegrating relationships after being run by Johansen-Juselius test, they will share a common stochastic trends and will grow proportionally together in the long-run relationships. The joint variables are theoretically cointegrated in the linear autoregressive synchronicity just imply the existence of internally casual nexuses of variables only, but it fails to show the directions of causal relationships.

To establish the order of integration of the jointly variables, the conventional unit root test as augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests, and normally a variable is considered to be integrated of order *d*, is written as *I*(d) is turned out to be stationary after differencing at *d* times, and when being cointegrated, it is order at *1* (Asteriou and Hall, 2007), and is demoted as below for the time series *Y*t (H_0: ϑ=0):

$$\Delta Y_t = \beta_0 + \vartheta Y_{t-1} + \sum_{i=1}^{p} \lambda_i \Delta Y_{t-i} + \varepsilon_t \quad (2)$$

ii. *Granger causality test*

The Granger causality test is defined as the core meanings of directions of causal relationships which will be a short run exogeneity as shown by the significance of ΔY_{t-1}, and in the long run exogeneity as shown by the significance of error correction term. The results are then felt in one of the following cases, if $\boldsymbol{\delta i} \neq 0$ and gets significant meanings, but $\boldsymbol{\rho i}$ is negatively significant meanings, then we could conclude that the active moving of variable *X* is just causing of causal moving of *Y* (uni-directional causality), if $\boldsymbol{\delta i}$ is negatively significant meanings, but $\boldsymbol{\rho i} \neq 0$ with actively significant meanings then the conclusion is being said the variable *X* is impacted by the active changing of variable *Y* (uni-directional causality), if $\boldsymbol{\delta i}$ and $\boldsymbol{\rho i}$ are all$\neq$ 0 but get significant meanings then the conclusion is being told there is occurrence of the internally active causality vice versa of both variables of *X* and *Y* (bi-directional causality), and if $\boldsymbol{\delta i}$ and $\boldsymbol{\rho i}$ are all negatively significant meanings then the saying that both variables of *X* and *Y* are independent is finally given result (Vu et al. 2016). Hiemstra et al. (1994) suggest that the research should consider nonlinear theoretical mechanisms and empirical regularities when devising and evaluating models of the joint dynamics stock prices and trading volume. Neither this variable internally and directly impacts nor other, but both of variables are all moving and possibly impacted by the external variables. The testing are generally denoted as:

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$$\begin{cases} \Delta Y_t = \alpha_0 + \sum_{i=1}^{k} \beta_i \Delta Y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta X_{t-1} + \varepsilon_t & (3) \\ \Delta X_t = \alpha_1 + \sum_{i=1}^{k} \phi_i \Delta X_{t-1} + \sum_{i=1}^{k} \rho_i \Delta Y_{t-1} + \nu_t & (4) \end{cases}$$

Where α^0, α^1, β^i, ϕ^i, δ^i and ρ^i are coefficients, ε^t and ν^t are residuals and ΔX_t, ΔY_t are dependent and explanatory variables at *t,* ΔY_{t-1} and ΔX_{t-1} are variables at one period time. The selected number of lags are usually chosen when using an information criterion, such as the Akaike information criterion (AIC) or Schwarz Bayesian criterion (SBC). Any particular lagged value of one of the variables is retained in the regression if the cause happens prior to its effect, it is significant according to a *t*-test, and if the cause has unique information about the future values of its effect and the other lagged values of the variable jointly add explanatory power to the model according to an *F*-test.

iii. *Vector error correction model (VECM)*

Ericsson et al (2000) asked for the attention to the distribution of error correction tests of cointegration in the long-run relationship is regarded as a steady-state equilibrium, whereas the short-run relationship is evaluated by the magnitude of the deviation from equilibrium. The VECM is just a special case of vector autoregressive (VAR) for variables that are stationary in their differences (i.e., *I*(i)) and VEC can also take into account any cointegrating relationships among the jointly variables.

The VECM can avoid the shortcoming of the VAR based model in distinguishing between a long run and short run relationship among the jointly variables. When the joint variables of a VAR are cointegrated, VECM can be then commonly denoted as:

$$\Delta Y_t = \beta_{y0} + \beta_{y1}\Delta Y_{t-1} + \ldots + \beta_{yp}\Delta Y_{t-p} + \lambda_{y1}\Delta X_{t-1} + \ldots + \lambda_{yp}\Delta X_{t-p} - \lambda_y(y_{t-1} - \alpha_0 - \alpha_1 x_{t-1}) + \nu_t^y \ldots.(5)$$

$$\Delta X_t = \beta_{x0} + \beta_{x1}\Delta Y_{t-1} + \ldots + \beta_{xp}\Delta Y_{t-p} + \lambda_{x1}\Delta X_{t-1} + \ldots + \lambda_{xp}\Delta X_{t-p} - \lambda_x(y_{t-1} - \alpha_0 - \alpha_1 x_{t-1}) + \nu_t^x \ldots.(6)$$

$$\Delta Y_t = \sum_{i=1}^{p=1} \beta_i \Delta Y_{t-i} + \sum_{i=1}^{p=1} \alpha_i \Delta X_{t-i} + Z1 * EC1_{t-1} + \varepsilon_{1t} \ldots(7)$$

$$\Delta X_t = \sum_{i=1}^{p=1} \varphi_i \Delta X_{t-i} + \sum_{i=1}^{p=1} \pi_i \Delta Y_{t-i} + Z2 * EC2_{t-1} + \varepsilon_{2t} \ldots(8)$$

Where in (5), (6), $y_t = \alpha_0 + \alpha_1 x_1$ is the long run cointegrating relationship between two variables and λ_y and λ_x are the error correction parameters that measure how *y* and *x* react to deviation from long run equilibrium. If in (7), (8) β_i, φ_i, α_i, and π_i are short run coefficients, Z_1 and Z_2 are error correction coefficients whereas $EC1_{t-1}$ & $EC2_{t-1}$ are denoted as the equilibrium error lagged values one period derived from residuals of threshold conintegrating equations regression of jointed variable vectors, and same time the procedures of optimum lag length criteria of VAR model based on the AIC or SC are specified as well.

When VECM has more than two variables, it is considered to the possibility that more than one cointegrating relationship is existed among the joint variables and with VECM, then we can examine the relationship of this joint variable is weak Granger causality compared with others and vice versa. When the short run relationship between this variable to other counter variable is found which is based on the normal *F* Wald test of the joint significant coefficients, on the lagged terms in the unrestricted models as the null hypothesis and its alternative, then it is considered as weak Granger causality. The long run relationship is tested by the speed of adjustment of coefficients and based on the *t* statistic of the error correction terms.

iv. *Selected Joint Variables Model*

In this paper, the examining of all joint multi-variables is tested on the denoting of cointegration equations by Johansen and Juselius, VECM models and Granger causality in a linear regressive synchronic models are deployed respectively, as:

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$$\Delta WST_t = \sum_{i=1}^{k=1} \alpha_i \Delta WST_{t-1} + \sum_{i=1}^{k=1} \beta_i \Delta WGDP_{t-1} + \sum_{i=1}^{k=1} \phi_i \Delta LIBOR_{t-1} + \sum_{i=1}^{k=1} \gamma_i \Delta WMF_{t-1} + Z1 * EC1_{t-1} + \varepsilon_{1t} \ldots (9)$$

$$\Delta WGDP_t = \sum_{i=1}^{k=1} \lambda_i \Delta WGDP_{t-1} + \sum_{i=1}^{k=1} \varphi_i \Delta WST_{t-1} + \sum_{i=1}^{k=1} \delta_i \Delta LIBOR_{t-1} + \sum_{i=1}^{k=1} \vartheta_i \Delta WMF_{t-1} + Z2 * EC2_{t-1} + \varepsilon_{2t} \ldots (10)$$

$$\Delta LIBOR_t = \sum_{i=1}^{k=1} \mu_i \Delta LIBOR_{t-1} + \sum_{i=1}^{k=1} \nu_i \Delta WST_{t-1} + \sum_{i=1}^{k=1} \varsigma_i \Delta WGDP_{t-1} + \sum_{i=1}^{k=1} \omega_i \Delta WMF_{t-1} + Z3 * EC3_{t-1} + \varepsilon_{3t} \ldots (11)$$

$$\Delta WMF_t = \sum_{i=1}^{k=1} \tau_i \Delta WMF_{t-1} + \sum_{i=1}^{k=1} \xi_i \Delta WST_{t-1} + \sum_{i=1}^{k=1} \psi_i \Delta WGDP_{t-1} + \sum_{i=1}^{k=1} \tau_i \Delta LIBOR_{t-1} + Z4 * EC4_{t-1} + \varepsilon_{4t} \ldots (12)$$

When WST, WGDP, LIBOR and WMF are denoted for global seaborne trade, world gross domestic product, London Interbank Offered Rate and, world maritime fleet respectively. The symbols of $(\alpha_i),(\beta_i),(\phi_i),(\gamma_i),(\lambda_i),(\varphi_i),(\delta_i),(\vartheta_i),(\mu_i),(\nu_i),(\zeta_i),(\upsilon_i),(\omega_i),(\xi_i),(\psi_i),(\tau_i)$ are depicted for the short run coefficients, and $\varepsilon 1t$, $\varepsilon_{2t},\varepsilon_{3t},\varepsilon_{4t}$ stand for the residuals of the jointed variables whilst the $EC1_{t-1}$, $EC2_{t-1}$, $EC3_{t-1}$, $EC4_{t-1}$ are derived from the long run cointegration relationship and measure the magnitude of the past disequilibrium and denoted as lagged values of residual cointegrating regression models.

IV. Empirical Results

a) Unit root test

Johansen and Juselius, and Granger argues that the fundamental condition for cointegration of each of variables in the joint synchronic model has to be integrated of the same order thus, the selected joint variables have to be stationary absolutely thus the joint variables WST, WGDP, LIBOR and, WMF for the period 1980-2015 are tested by Dickey and Fuller (ADF), and Phillip Perrons (PP) in the different levels at level, trend and intercept at 1%, 5% and 10% respectively for all joint variables such as WST, WGDP, LIBOR, WMF and, resid in the selected synchronic models and obtained results unit root tests depicted the values of all joint variables are stationary included residual as threshold co-integration is at level, in Table 1:

Table 1: Unit root test by ADF and PP

Variables	ADF				PP			
	1%	5%	10%	P	1%	5%	10%	P
WST1**	-4.262735	-3.552973	-3.209642	0.0002	-4.262735	-3.552973	-3.209642	0.0000
WGDP*	-4.262735	-3.552973	-3.209642	0.0000	-4.262735	-3.552973	-3.209642	0.0000
LIBOR1**	-4.467895	-3.644963	-3.261452	0.0046	-4.323979	-3.580623	-3.225334	0.0040
WMF1**	-4.252879	-3.548490	-3.207094	0.0000	-4.252879	-3.548490	-3.207094	0.0000
εt***	-3.689194	-2.971853	-2.625121	0.0017	-3.689194	-2.971853	-2.625121	0.0017

(*) At level, trend and intercept, (**) at 1st difference, trend and intercept, (***) Resid at level

b) Johansen and Juselius cointegration test

Johansen and Juselius cointegrating test requests all the joint variables such as WST1, WGDP1, LIBOR1 and WMF1 are at level, or first differences when they are in the trace values and max-eigenvalue tests with the results of null hypothesis H_0 are not cointegrated and the alternatives is H_1. The AIC is used to determine the optimum lag length and the number of cointegrating vectors are denoted by r_0 with the trace test is calculated as the null hypothesis H_0: $r_0 \leq r$, and the alternative hypothesis H_1: $r_0 > r$. The max-eigenvalue test is proved the null hypothesis H_0: $r_0 = r$. The Johansen and Juselius cointegrating tests for all joint variables in three models (*model 2, 3 and, 4*) of rank tests, trace and max-eigenvalue and are presented in Table 2.

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Table 2 : Johansen & Juselius cointegration results of joint variables in synchronic model

	Unrestriced cointegration Trace			Unrestricted cointegration Max-eigenvalue		
Model 2- Intercept (no trend) in CE, no intercept in VAR						
Cointegration	Eigenvalue	Trace statistic	5% critical value	Eigenvalue	Max-eigen statistic	5% criticcal value
None	0.651151	74.23390	54.07904	0.651151	28.43416	28.58808
At most 1	0.559985	45.79975	35.19275	0.559985	22.16557	22.29962
At most 2	0.473129	23.63417	20.26184	0.473129	17.30158	15.89210
At most 3	0.209066	6.332591	9.164546	0.209066	6.332591	9.164546
Model 3 - Intercept in CE/VAR, no trend in CE/VAR						
None	0.649072	56.92611	47.85613	0.649072	28.27370	27.58434
At most 1	0.503590	28.65241	29.79707	0.503590	18.90952	21.13162
At most 2	0.210171	9.742888	15.49471	0.210171	6.370361	14.26460
At most 3	0.117422	3.373527	3.841466	0.117422	3.372527	3.841466
Model 4 - Intercept and trend in CE- no intercept in VAR						
None	0.681706	82.15314	63.8761	0.681706	30.90904	32.11832
At most 1	0.635778	51.24411	42.91525	0.625778	27.26979	25.82321
At most 2	0.491479	23.97432	25.87211	0.491479	18.25871	19.38704
At most 3	0.190784	5.715614	12.51798	0.190784	5.715614	12.51798

The above results from tests indicate the null hypotheses for trace and max-eigenvalue statistics could be rejected at the 5% level of significance when $r_0 \leq 0$ and $r_0 = 0$, respectively and accept the alternative. In model 2, as results at 5% critical values are very much significant in *none*, *at most 1, 2* in trace statistic, means that denotes rejection of the hypothesis at the 0.05 level thus we can reject the null hypothesis but accept the alternative whilst the null hypothesis in max-eigenvalue of *none*, *at most* 1, 2 are cointegrated whilst *at most 3* indicates no cointegration at the 5% level thus, it is available to reject hypothesis with the meaning that there are cointegrated equations in the model with the long run causalities of these joint variables between WST1 to LIBOR1 and ,WMF1 whilst to WGDP1 is a short run relationship.

The obtained results in *model 3*, *model 4* at 5% critical value are significant at *none, at most 1, 2* hence, it is allowed to reject H0 and accept the alternative hypothesis. In other words the obtained results of the joint variables in selected synchronic models are tested by Johansen & Juselius to be cointegrated for WST1, LIBOR1 and WMF1 and it is believed that they share a common stochastic trend and will grow proportionally as moving together in the long run causalities, except the appearance of short run causalities between WST1 and WGDP1.

c) Granger causality test

This advantageous test is crystalliferous to indicate the directions of causal relationship of all joint variables as unidirectional or bidirectional causality. The selected synchronic model with jointed multi-variables must be in stationary before Granger casualty test, the unit root test resulted on variable WGDP at level is significant and stationary and better in AIC (*3.4512*), however in order to have same order in this synchronicity, WGDP is intentionally changed to *1st* differences (WGDP1) as other joint variables with higher *R* square value and more significant than at level (*P: 0.0000, R2=63.97*%). Besides it is assumed that residuals are correlated and do not lead to spurious issue is appeared if those are stationary too. The H_0 of test is no causal nexuses among the joint variables, and H_1 is the alternative to H_0. The obtainable Granger causality tests are seen on the table (3) taking us to the conclusion of long run relationship between WST1 to LIBOR1 for all the times series of the studied period, however it is short run with WMF1 at lag 3, whilst WGDP1 seems to be short run for all the times when joints with WST1, LIBOR1 and WMF1 variables in the synchronic model. On the contrary, every WGDP1 or WMF1 does not cause WST1, LIBOR1, WMF1, WST1, WGDP1 and LIBOR1 respectively but only the appearances of short run relationships are seen, for instant when WGDP1 is joined with WST1, LIBOR1 and WMF1 respectively, and in lag 3 it is seen as weakest.

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Table 3 : Granger causality test

Casual relationship	Lag	WST1			WGDP1			LIBOR1			WMF1		
		WGDP1	*LIBOR1*	*WMF1*	*WST1*	*LIBOR1*	*WMF1*	*WST1*	*WGDP1*	*WMF1*	*WST1*	*WGDP1*	*LIBOR1*
***F* - Stat.**	1	1.008	5.382	12.402	0.475	1.397	0.129	0.817	0.074	2.661	0.001	0.760	1.344
		[0.3231]	[0.0288]	[0.0014]	[0.4956]	[0.2483]	[0.7216]	[0.3744]	[0.7868]	[0.1149]	[0.9672]	[0.3897]	[0.2569]
	2	0.647	7.624	3.564	0.403	0.283	0.168	3.775	3.879	1.026	0.075	0.605	3.364
		[0.5311]	[0.0030]	[0.0418]	[0.6720]	[0.7561]	[0.8459]	[0.0389]	[0.0360]	[0.373]	[0.9279]	[0.5528]	[0.0523]
	3	1.130	6.699	1.788	0.355	0.248	0.126	2.128	1.767	0.764	2.388	0.764	1.641
		[0.3556]	[0.0028]	[0.175]	[0.7858]	[0.8617]	0.9437]	[0.1304]	[0.1876]	[0.5249]	[0.0928]	[0.5249]	[0.2115]

Note: Numbers in [.] are P-values

d) Vector Error Correction Model (VECM)

When use VECMs, we should consider two critical alternatives, firstly it is acknowledged if the first differences of the joint variables in the synchronicity exhibits deterministic trend and, secondly it is specified the optimum and criteria lag length of the VAR model. In the selected synchronic model with all joint variables of WST1, WGDP1, LIBOR1 and WMF1, the status of dependent and independent are intentionally changed firstly by WST1, then turn to WGDP1, LIBOR1 and finally by WMF1 respectively by employing VAR models, error correction mechanism and system equations in Table (4). The tests of the realities and responses of every variables in the synchronicity to any deviation of long run equilibrium or short run disequilibrium for the t_{-1} period to other variables are depicted.

Table 4 : VECM and Error correction terms employed VAR, system eq.

VECM/EC	WST1			WGDP1			LIBOR1			WMF1		
	WGDP1	*LIBOR1*	*WMF1*	*WST1*	*LIBOR1*	*WMF1*	*WST1*	*WGDP1*	*WMF1*	*WST1*	*WGDP1*	*LIBOR1*
Coef.	-0.000296	-0.000291	13.392490	-169.6712	-0.463085	21315.68	-268.2309	-0.743843	33697.67	0.000130	3.62E-07	3.56E-07
t-Stat	-2.852080	-4.411540	0.434410	-1.726730	-4.411540	0.434410	-1.726730	-2.852080	0.434410	1.726730	2.852080	4.411540
Prob.	0.1035			0.0115			0.0004			0.6500		
R^2	50.35%			61.83%			68.97%			37.93%		
DW	2.0035			2.1462			1.7284			2.0821		
Result*	Joint variables WGDP1, LIBOR1, WMF1 have weak relationships to WST1			Joint variables WGDP1, LIBOR1, WMF1 have reasonable relationships to WST1			Joint variables WGDP1, LIBOR1, WMF1 have strong relationships to WST1			Joint variables WGDP1, LIBOR1 and WMF1 are negative to WST1		

From the above obtained results, it is asserted there exists the long-run relationship between cointegrated variables such as LIBOR1 and WST1, WGDP1 and WMF1 is strong and better selected model. This frankly refuses debates or justifications of global seaborne trade strongly led growth hypothesis of world GDP, Libor interest rates and world merchant fleets as well. It is clearly shown there is no long run relationship from global seaborne trade, world GDP and Libor to world merchant fleets. Standing on the reality and also theory, we can acknowledge how the financial roles and sounds of Libor interest rate is strongly affected to global seaborne trade, to merchant fleets and creates the better development of world GDP for all the times. The important equations of having the accurate appraisals on the causal relationships of every variables in the synchronicity when they are in the long run exogenity or short run exogeneity to others by viewing the disturbances of residual error correlation. The statuses of these are tested by Wald, Breusch-Godfrey at lag (2), Breusch-Pagan-Godfrey, and histogram to determine as if any disturbing activities of residual error if short run and long run relationships are derived from the cointegration and VECM tests are in table (5).

Table 5 : Residual errors equations in long run and short run relationships tests

Residual error tests		WST1			WGDP1			LIBOR1			WMF1		
		WGDP1	*LIBOR1*	*WMF1*	*WST1*	*LIBOR1*	*WMF1*	*WST1*	*WGPD1*	*WMF1*	*WST1*	*WGDP1*	*LIBOR1*
Wald	χ 2	0.7995	5.9482	9.6127	0.7826	6.4503	0.1326	9.4254	3.7396	0.5916	0.0690	0.2918	3.1192
	Pro.	0.6705	0.0511	0.0082	0.6762	0.0397	0.9358	0.0090	0.1541	0.7439	0.9661	0.8642	0.2102
Breusch-Godfrey (lag2)	Obs*R2	0.553365			0.80413			2.4053			1.4766		
	P(χ 2)	0.7583			0.6689			0.3004			0.4779		
Breusch-Pagan-Godfrey	Obs*R2	8.595803			16.07091			10.81975			10.74824		
	P(χ 2)	0.7370			0.1880			0.5444			0.5506		
Histogram	J.B	2.729			1.664			0.689			30.066		
	Pro.	0.2555			0.4351			0.7083			0.0000		

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As the residual unit root test is early asserted that it is stationary thus the spurious is not concerned in this synchronic model. Then in above table (5) only the activities of residuals in the cointegrated joint variables are concerned and proactively detected in Wald tests which are strongly determined the prominent functions of long run relationships of world merchant fleets to global seaborne trade as χ^2 (9.6127) and *P-value* (0.0082), and the roles of world merchant fleets to global seaborne trade, the Libor interest rates to world GDP and global seaborne trade to Libor as χ^2 and *P-values* (as 9.6127, 0.0082; 6.4503, 0.0397; 9.4254, 0.0090) respectively, and beyond these cases are depicted as the short-run relationships. The Breusch-Godfrey (BG) is run at lag 2 tells that there is no serial correlation in those selected synchronic models thus null hypothesis is rejected and models are acceptable. Incorporating with the BG, Breusch-Pagan- Godfrey (BPG) and histogram normality tests are employed to determine the disturbances of heteroskedascity and normal distributions of joint variables in the VAR models, if any. The obtainable results from the above tests are declined the disturbing roles of heteroskedasticity activities whereas denote only the synchronic model in which joint variables such as global seaborne trade, world GDP and Libor interest rate to world merchant fleets is not normal distribution (JB=30.066) which is really not desirable.

V. Conclusion

According to Stopford (2009), the merchant shipping accounts for roughly a third of the total maritime activity and owner-ship is a major commercial issue in the shipping market and besides, the seaborne commodity trades have been fallen into short-term and long-term in which short-term volatility as seasonality which has a disproportionate effect on spot market whereas the long-term trends is identified by economic characteristics of the industries which produce and consume the traded commodities.

The creditors such as bankers, financial institutions, the banking risk managers, financial policymakers, chief finance officers (CFO) are ready to move and provide financial leverage to ship-owners with high risks and expect to get higher returns, however the debates of how to make the accurate appraisals and how to mitigate the risky projects in the current market volatility are still not determined yet and hung on, because the biggest concerns of which the interactional effectiveness and realities between the causal nexuses of global seaborne trade, world GDP, Libor (just standing as one of the representative symbol to other banks) and world merchant fleets in the international maritime transports are, prior to spreading out their sources of finances. This research investigates the causal long-run and short-run relationships of global seaborne trade, world GPD, Libor interest rates and, world merchant fleets when those are jointly cointegrated in linear regression of the selected synchronic models during the 1980-2015 period. The various cointegration testing approaches are applied and the empirical findings suggest the existences of the long run and short run causalities of every variables in the ship finances and maritime fields. The findings from the research could hopefully be utilized by the financial organizations, the financial policymakers, ship-owners, seaport authorities, and risk managers for their future making financing strategies.

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Note :

"

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3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

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- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

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The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

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Approach:

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- If use of a definite type of tools.
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Approach:

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The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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