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ECONOMIC DEPENDENCY AND POVERTY: A QUANTITATIVE TEST FOR MODERNIZATION AND DEPENDENCY THEORY

DAYYAB GILLANI*

Abstract. This paper attempts to analyze the impact of economic dependency on poverty by using the quantitative method of analysis. It takes up two theoretical positions, modernization and dependency theory and evaluates their respective impact on poverty. It primarily aims to show that the various assertions of dependency theory provide a sound and cogent explanation for poverty. The paper identifies five independent variables in the light of dependency theory and measures their respective and collective impact on Human Development Index (HDI), which is selected as the dependent variable to account for poverty measurement. It utilizes Pearson correlation and linear regression to test the level of association between the selected variables. The results from the quantitative analysis are then weighed against the two theoretical positions.

Keywords: Dependency Theory, Poverty, Modernization Theory, Human Development Index, Pearson Correlation, Linear Regression, Quantitative Methods

JEL Classification: C20, I32, O15, D63

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*The author is an Assistant Professor at Department of Political Science, University of the Punjab, Lahore – Pakistan.
Corresponding author's e-mail: dayyabgillani.polsc@pu.edu.pk

This article has been adopted from a research paper that was undertaken doing my Masters at the University of Warwick. It has, however, not been published before.

I. INTRODUCTION

The relative difference between the growth and progress of countries has long been a case of exhaustive academic debate. There are numerous schools of thoughts and abundant theoretical positions that try to explain this verity. The primary concern of all such approaches is to explain the economic disparity that exists between countries and within them. One of the most important academic concern, especially since the later half of the 20th century has been the issue of underdeveloped countries and subsequent poverty. Academics have tried to identify the causes of inequality between countries and global poverty. In this vein, two different schools of thoughts, economic dependency and modernization are particularly important.

The modernization thesis takes its queue from the liberal theoretical tradition and its core assumptions regarding the centrality of representative democracy and free trade (Ryan, 2017: 361-364). According to Modernists, the problems of underdevelopment and poverty can be overcome through democratization and liberal economic policies. This school of thought urges the underdeveloped countries to follow the development model of Western liberal democracies in both letter and spirit. By following the development trajectory of the Western world, it is believed that the developing countries can ultimately also replicate their success (See e.g. Marsh, 2014).

The dependency theory on the other hand primarily takes its inspiration from the Marxist school of thought (Ghosh, 2001: 2). Since Marxism and Liberalism are somewhat antithesis of one another, the dependency theory therefore strongly opposes the modernist position. As opposed to Modernists they mainly argue that the world capitalist system with its developed core and dependent peripheries is primarily responsible for underdevelopment and in extension poverty (Laclau, 2012). The dependency theorists thus tend to be profoundly critical of the modernist agenda and are deeply skeptical of the so-called development path paved so generously by the developed world.

As this article primarily seeks to investigate the relationship between economic dependency and poverty, it will therefore rely heavily on these two aforementioned schools of thought. The choice of variables, both

dependent and independent, has similarly been determined by the dictates and demands of dependency and modernist traditions respectively.

The first part of the paper scrutinizes the notion of poverty, its meaning, underpinnings and conflicting understandings. It will then be followed by a theoretical discussion that will analyze the dependency and modernization theory in detail and how they help account for relative poverty in the world. Based on this conceptual and theoretical analysis, the paper will take up the variable of Human development Index (HDI) as a measure of poverty, which will subsequently be treated as a dependent variable in the following quantitative analysis.

The paper mainly attempts to test the core assumptions of dependency theory regarding poverty. Although it would have been ideal to have some liberal economy variable for accurate measurement of the impact of modernization on poverty, but due to unavailability of appropriate variables, proxy variables will alternatively be utilized. Thus, to account for both dependency and modernization theory, five independent variables; foreign debt, export of goods and services, corruption, GINI coefficient and category of democracy have carefully been selected from the global indicators dataset.

The later part of the paper will conduct a univariate, bivariate and multivariate analysis. All the selected variables will be briefly described at the univariate level; the correlations of independent variables with the dependent variable will be examined at the bivariate level and finally all the variables will be subjected to a regression analysis and the model will then be evaluated at the multivariate level. This quantitative methodology will hopefully not only explain relative poverty but will also help clarify the corresponding relevance of modernization and dependency theory.

II. UNDERSTANDING POVERTY: MEANING & THEORETICAL ANALYSIS

DEFINITION & MEANING

'Global poverty has proved not to be a well-structured problem, which can be understood through intellectual cogitation and then remedied, but an ill structured mess.' (Hulme, 2010: 51)

Despite everyday usage of the term 'poverty', it's real meaning stays ambiguous and is highly contested. The meaning and understanding of poverty is inextricably bound up with exhaustive never ending debates (Alcock, 2006: 4-7). From the constructivist point of view, poverty is simply a social construction, which has different meanings for different societies. As Lister points out, 'there is no single concept of poverty that stands outside history and culture. It is a construction of specific societies.' (Lister, 2004: 3)

At the outset, however, the notion of poverty can be analyzed at two distinct levels; absolute and relative. The earliest definitions of poverty, developed particularly in the late 19th and early 20th century were absolutist in character. Booth and Rowntree, often regarded as pioneers of modern poverty research, defined and explained poverty in absolutist terms. At the most basic level, absolute poverty is defined in terms of survival. In the words of Joseph and Sumption, 'A family is poor if it cannot afford to eat' (1979: 27). Thus, food and nutrition, sufficient to meet basic physical needs is central to all absolutist definitions of poverty. All such definitions can be regarded as narrow and one-dimensional which have the distinct advantage of being measurable. However, they have been strongly criticized for being too narrow and treating people 'as if they were cattle or livestock-being reared, but not part of society' (Hulme, 2010: 55).

In the later half of the 20th century, scholars and academicians began to question the conventional wisdom of absolutist interpretation of poverty. It was argued that poverty is not merely lack of food and nutrition but in fact a lot more. Human Beings are social actors who have certain responsibilities as members of the society. At the heart of it, relative poverty entails that if any member of the human society is unable to perform the most basic social functions, which are considered pre-requisite for all social actors, then such an individual should be considered poor. In this context, the work of Amartya Sen is of considerable importance. For Sen, the poor are those 'whose basic capabilities are so constrained that they cannot achieve a minimum set of functioning they value' (Hulme, 2010: 59), such as food, education, clean water etc. Sen's work was instrumental in the construction of the influential 'theory of human needs' by Doyal and Gough (Lister, 2004: 31).

Doyal and Gough articulated a universalistic understanding of human needs, which is sensitive to social, cultural and historical context. They identify a set of pre-requisites, which are universally essential for 'participation in a social form of life' (Gough, 1992: 8). The set pre-requisites are quite useful because they are necessary in all cultures. The work of Sen, Doyal and Gough is very helpful as it reconciles the absolute and relative approaches to poverty. It is this integrated approach that will be utilized in the quantitative analysis of poverty.

THEORETICAL ANALYSIS

Before moving on to quantitative analysis, it is imperative first to examine different theoretical positions concerning the causes of poverty. In the post WW2 period, there was growing interest in understanding the causes and underlying reasons of poverty. During 1950s and 60s, the modernization theory was the dominant approach to understanding poverty. It posited that the lack of development in the Third World Countries was because of economic backwardness and traditional social structures. It was argued by the modernists that once these countries catch up with 'the mass industrialized world- technologically, institutionally, socially- mass affluence would eradicate poverty everywhere' (Hulme, 2010: 64). By late 1960s, when modernization failed to deliver on its promise, the modernists were challenged by neo-Marxists and dependency theorists.

The theory of dependency (basically Marxian in character) is based on the concept of exploitation of the weaker or less developed countries (LDCs) by the capitalist developed countries (DCs). The theory identifies two distinct and entirely different systems. One is the macrocosmic or the core system, which is economically and militarily more stronger and better organized. On the other hand, the second system, the microcosmic or periphery is less organized, weak and dependent on the core. The theory makes a case for a 'two-system zero-sum game' where the gain of one system (core) is the equivalent loss of the other system (periphery) (Ghosh, 2001: 3).

Paul Baron is perhaps the first writer to comprehensively develop a theory of dependency based on the Marxist tradition (op, cit). Baron points out that the development of western capitalism owes much to the

exploitation of the LDCs. He believes that the extracted profit from the LDCs is sent back to the home country, whereas most of the money that is earned by the LDCs is spent on food and other basic needs and hardly any capital is left for investment and development. According to him the capitalist system is a serious hindrance in the way of successful development of the underdeveloped world (Baron, 1973: 80-90). Baron forwarded the idea of 'potential economic surplus', the realization of which is imperative for the development of LDCs. In his opinion, there is plenty of potential economic surplus available in underdeveloped countries. The problem, however, is that it is not being utilized properly and is being exploited by the core countries.

Andre Gunder Frank is important in any discussion of dependency theory. He not only extended the work of Baron but also laid a solid foundation of the dependency theory. From the point of view of this paper, Frank is particularly important, as most of the quantitative analysis will be based on his work. According to Frank, underdevelopment is not a stage through which all countries pass. It is not something original or traditional which is universally applicable to all countries. He points out that the developed countries were never underdeveloped, though they had been undeveloped. Frank argues that neither the past nor the present of the underdeveloped countries resembles the past of now developed countries. Thus, for Frank, development and underdevelopment are the opposite sides of the same system, i.e. the capitalist system (Frank, 1967: 5-11). And since development at the core requires underdevelopment in the periphery therefore the LDCs stay impoverished. Frank believes that national bourgeoisie or the ruling elite in the underdeveloped countries is helping the developed countries in maintaining the system of underdevelopment. He argues that the local bourgeoisie want to retain their position of dominance in the LDC and therefore they join hands with the DCs in exploiting their own countries. It is for these reasons that Frank regards the local bourgeoisie or the ruling elites as the real and immediate enemy of the underdeveloped countries (Frank, 1967).

The dependency theorists believe that it is these very conditions of underdevelopment, caused by the system of world capitalism, which are responsible for global poverty. The solutions presented by Baron, Frank and other dependency theorists, such as social revolutions in LDCs seem quite radical and at times even impractical. As a result, by the late 1970s,

the neo-liberalists challenged the dependency theorists and became dominant both intellectually and politically.

Neo-Liberals argued that LDCs were poor because of ineffective public institutions and policies. They believed that poverty could be eliminated once the economies of LDCs were liberalized and opened up to international trade and competition (Hass, 1992: 1-35). This implies that underdeveloped countries need to first establish liberal democratic institutions that would then subsequently reduce the levels of poverty. This school of thought has since been the dominant position in leading world universities and global organizations such as the World Bank and IMF (Hulme 2010: 64).

Before formally starting the bivariate and multivariate analysis to test these theoretical positions, it is important to first propose the hypotheses and conduct a univariate analysis.

HYPOTHESES

This research intends to propose and test the following hypotheses:

- Poverty is positively influenced by higher levels of foreign debt.
- Poverty is positively influenced by higher levels of corruption.
- Poverty increases with inequality in a society.
- Poverty is positively influenced by higher levels of democracy.

III. UNIVARIATE ANALYSIS

THE DEPENDENT VARIABLE

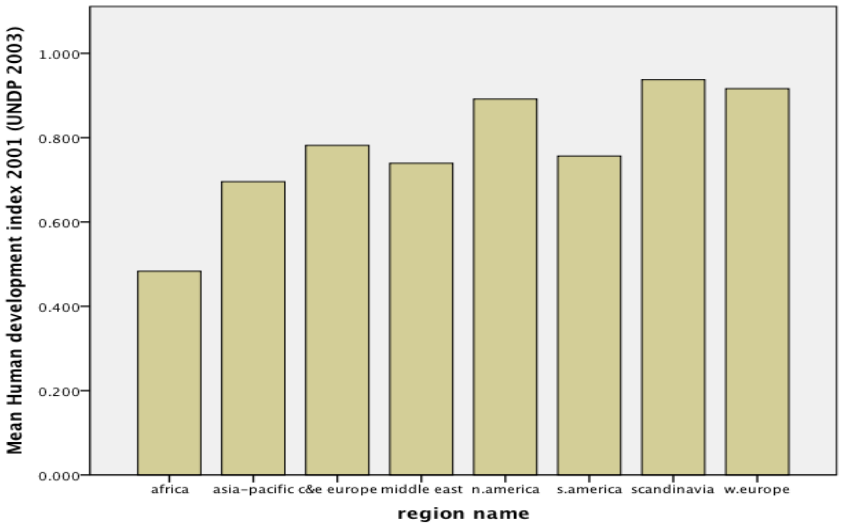
As discussed earlier, poverty is a very complex term to define. Even more so, it is much harder to measure. However, as noted in the beginning, this paper will be using an integrated meaning of absolute poverty as identified by Sen, Doyal and Gough. There are two main measures to gauge poverty, namely, the Human development Index (HDI) and Human poverty Index (HPI), which were developed in 1990 and 1997 by Amartya Sen in collaboration with UNDP (Hulme, 2010: 60).

The HDI measure uses three main indicators, life expectancy, education attainment and average income. The HPI measure tends to measure relative poverty in the developed countries and is therefore not appropriate to measure the integrated meaning of poverty. The HDI measure takes more of a multi-dimensional approach and integrates the absolute and relative aspects of poverty. Its main indicators are; percentage of people expected to die before the age of 40, percentage of adults who are illiterate, percentage of underweight children under five, percentage of people without access to health services and safe water (Hulme, 2010: 61).

The HDI measure is used more frequently in data analysis and is preferred over the HPI measure. The focus here therefore will primarily be on the HDI variable since the primary intention of this paper is to measure all aspects of poverty. 'The Human Development Index 2001 (UNDP 2004)' variable from the global indicators data will be utilized to measure poverty and will be treated as a dependent variable. The 'HDI Index 2001' is based on 170 countries. Figure 1 shows levels of Human development Index according to regions.

Figure 1

Human Development Index



THE INDEPENDENT VARIABLES

This paper attempts to analyze the impact of five key variables on poverty. These five independent variables have been chosen carefully to account for different theoretical positions that have earlier been identified. Variables such as life expectancy, literacy, malnutrition, health services etc. are important measures of poverty, however, they have been excluded from this analysis as the dependent variable HDI already measures them (as identified above). Instead, the focus will be on such variables that will help support/oppose the concerned theoretical positions and hypotheses. The independent variables used in this research are:

Foreign Debt

Foreign debt or external debt is the amount of debt/capital that a country owes to its creditors outside the country. It is often argued by analysts that foreign debt has a strong indirect impact on poverty as many underdeveloped countries 'devote greater resources to debt payments than to education and health' (UNDP report on debt management, 1997). 'Contrary to modernization theorists, dependency theorists regard foreign debt/aid as another form of economic dependency, because the LDCs must follow the dictates of countries and institutions that loan them capital' (Shen and Williamson, 1999: 200-1).

The dependency theorists argue that it is a tool used by the core countries to retain their dominant position over the peripheries and keep them integrated into the capitalist system. As Frank argues, 'The debt is an instrument of neo-colonization and drain of "surplus" from part of the South' (Frank, 1996: 20). If the logic of dependency theorists is correct, then we will find that foreign debt has a negative impact on the dependent variable. According to dependency theorists, greater foreign debt will also consequently have a negative impact on poverty. This supposition, which is in fact part of our hypothesis, will be tested later using Pearson's correlation and regression. The variable, 'external debt service as percentage of GNP 1997', from the global indicators data will be utilized for measuring foreign debt. This variable is an interval ratio and has 136 cases.

Export of Goods and Services

'Exports of goods and services represent the value of all goods and other market services provided to the rest of the world' (World Bank, National Accounts Data). It is an important indicator of a country's progress and development. This variable has primarily been chosen because it is an import measure of the progress of underdeveloped countries. The inference drawn from this variable is straightforward; the greater the level of export of goods and services, the greater the economic development and hence lesser poverty.

If the logic of modernization and neoclassical economic theorists is correct then the underdeveloped countries that have been pursuing a liberal economic policy, should be expected to yield greater number of export of goods and services. On the other hand, the dependency theorists argue that the underdeveloped countries that are part of the capitalist system, depend upon the developed countries for the export of goods and services, hence their own export of goods will never increase substantially as long as they are part of the capitalist system.

Thus, if the dependency theorists are correct, then we will find very less level of export of goods and services by underdeveloped countries, which will consequently cause greater level of poverty. The variable 'export of goods and services (as percentage of GDP 2002, UNDP 2004)', from the global indicators data will be utilized for this purpose. This variable is interval ratio and has 166 cases.

Corruption

Corruption is the illegitimate use of legislative powers by the ruling elite for personal gains. 'Corruption is an important indicator of the performance of a political system' (Anderson and Tverdova, 2003). Traditionally corruption challenges have been seen as daunting, particularly in the poorer countries (Kaufmann, 2004). For dependency theorists, and for Gunder Frank in particular, the ruling elites of the underdeveloped countries are the immediate enemy since they join hands with the core countries in exploiting their own countries (as discussed earlier).

Corruption is a strong variable to measure the loyalties of the ruling elite. Furthermore, a positive relationship between corruption and the dependent variable would imply greater levels of poverty. If the dependency theorists are correct then we will find a rise of corruption in the underdeveloped countries, which consequently also causes greater level of poverty. The variable, 'Kaufmann corruption 2002', from the global indicators data will be utilized for this purpose. This variable is interval ratio and has 186 cases.

GINI Coefficient

The GINI coefficient is a variable that measures the degree of inequality in the distribution of income in a given society. It is a powerful tool to compare and contrast various societies. This variable is the most widely used measure of inequality in the distribution of household income (Office for National Statistics, UK). Thus, it will be very critical to this research, as it will measure the inequalities that exist in societies.

If the dependency theorists are right then we will find a negative relation between GINI coefficient and the dependent variable. The variable 'GINI coefficient (UNDP 2004)' from the global indicators data will be utilized for this purpose. This is an interval ratio variable based on 126 countries.

Category of Democracy

Category of democracy aims at measuring the state of democracy in countries around the world. This variable has primarily been chosen to test for the modernists and neo-modernist assertion. The modernists and neo-modernists frequently associate human development with democracy. They believe that higher levels of democracy can help curb poverty.

The dependency theorists, on the other hand, tend to associate democracy in underdeveloped countries with conditions of dependency. Thus, the dependency theorists would argue that poverty should be directly associated with democracy. This variable will be used to test the fourth proposed hypothesis. The variable 'freedom house category of

democracy 2002' from the global indicators data will be utilized for this purpose. It is an ordinal level variable with 191 cases.

IV. BIVARIATE ANALYSIS

One-way ANOVA test was conducted in order to measure the relationship between Mean HDI and freedom house category of democracy. The results of the test confirm that there is a significant difference between the mean HDI of different categories of democracy (the statistic falls in the critical region with an F obtained of 27.197 and an F critical of 2.99). A post-hoc analysis demonstrates the most significant differences are between 'Free' countries on the one hand, and 'Not Free' and 'Partly Free' on the other (See Appendix Table 1.A and 1.B).

Table 1 shows the results of bivariate analysis. The GINI coefficient has a strong negative correlation (-0.399, $p<0.01$) with HDI, indicating that the greater the level of inequality in a society, the greater the level of poverty (since lower level of HDI implies higher level of poverty). The GINI coefficient is particularly high in developing and underdeveloped countries (see Appendix, Figure. 1.A). This finding is consistent with dependency theory, particularly with Frank's argument that the immediate enemy of the developing country is the local elite who enjoy a status of dominance in the society (op, cit). Thus, the correlation shows that the dominant status of elite (inequality) is associated with low levels of human development and in extension poverty.

Corruption has the strongest, positive correlation with HDI (0.691, $p<0.01$) of all of the predictors[1]. As the level of corruption in a country increases, the level of human development concomitantly decreases. This result is consistent with dependency theory, which suggests that high levels of corruption, particularly in underdeveloped and developing countries (see Appendix, Figure. 2.A) will result in high level of poverty. Frank's argument that the elite in the developing and underdeveloped countries are corrupt and collaborate with developed countries to exploit

[1] Note that the variable Kaufmann corruption 2002 has the lowest value of -1.89 (least corrupt) and highest value of 2.39 (most corrupt). Which means that even if the variables are apparently positively correlated, the relationship is actually negative.

their own countries appears to hold as level of corruption in developing and underdeveloped countries is relatively high and the association between corruption and human development is negative.

The bivariate analysis also shows that external debt is negatively correlated with the dependent variable (-0.380, $p<0.01$). Higher levels of external foreign debt are strongly associated with lower levels of human development. External debt, which is particularly high for underdeveloped and developing countries (see Appendix, Figure. 3.A), results in lower levels of human development and higher levels of poverty. This correlation is also consistent with dependency theory, which associates high levels of foreign debt with greater levels of poverty.

The analysis also shows a positive correlation between exports of goods and services and HDI (0.366, $p<0.01$). This implies that higher levels of exports are positively correlated with human development. However, the histogram (see appendix, Fig. 4.A) reveals a sharp contrast between the exports of goods by underdeveloped and developed countries. This correlation result is also consistent with dependency theory.

The correlation between category of democracy and HDI is significant and negative (-0.449,$p<0.01$).[2] This implies that higher levels of democracy are associated with higher levels of human development. This association is not consistent with the dependency theory and instead supports the modernist's assumption that greater levels of democracy result in greater levels of human development that consequently help to curb poverty (op, cit). (Scatter grams, with regression lines have been included in the appendix to visually show the relation and direction of association between HDI and all independent interval ratio variables).

This is, however, a simple bivariate correlation. The next section, multivariate analysis, will be able to analyze how all the variables come together and will also check the strength of the overall model.

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[2] The category of democracy variable has a minimum value of 1 (free) and maximum value of 3 (not free). Thus, a negative correlation implies a positive correlation with human development index.

TABLE 1

Correlations

Correlations

		Human development index 2001 (UNDP 2003)	GINI coefficient (UNDP 2004)	kaufmann corruption 2002	external debt, as % of gnp, 1997	Exports of goods and services (% of GDP) 2002 (UNDP 2004)	freedom house category of democracy 2002
Human development index 2001 (UNDP 2003)	Pearson Correlation	1	-.399**	.691**	-.380**	.336**	-.449**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	170	126	170	134	158	170
GINI coefficient (UNDP 2004)	Pearson Correlation	-.399**	1	-.303**	.091	-.153	.037
	Sig. (2-tailed)	.000		.001	.366	.090	.679
	N	126	126	126	101	123	126
kaufmann corruption 2002	Pearson Correlation	.691**	-.303**	1	-.187*	.264**	-.549**
	Sig. (2-tailed)	.000	.001		.029	.001	.000
	N	170	126	186	136	165	186
external debt, as % of gnp, 1997	Pearson Correlation	-.380**	.091	-.187*	1	.022	.060
	Sig. (2-tailed)	.000	.366	.029		.806	.489
	N	134	101	136	136	131	136
Exports of goods and services (% of GDP) 2002 (UNDP 2004)	Pearson Correlation	.336**	-.153	.264**	.022	1	-.105
	Sig. (2-tailed)	.000	.090	.001	.806		.180
	N	158	123	165	131	166	166
freedom house category of democracy 2002	Pearson Correlation	-.449**	.037	-.549**	.060	-.105	1
	Sig. (2-tailed)	.000	.679	.000	.489	.180	
	N	170	126	186	136	166	191

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

V. MULTIVARIATE ANALYSIS & FINDINGS

Having examined the bivariate correlations between the independent variables and the dependent, we will now move on to the multivariate analysis.

In Model 1, the HDI variable has been regressed with Freedom house category of democracy, External debt, Kaufman Corruption, Exports of goods and services and GINI coefficient (UNDP 2004).

However, for more meaningful coefficient values, external debt has been recorded as % of GNP 1997 and Exports of goods and services as percent of GDP (UNDP2004) by dividing them by 100. This was done to enable better coefficient values since the HDI itself is in decimal points.[3] Moreover, the GINI coefficient was also in percentage points, hence by dividing it by 100,it transformed into a standardized scale similar to the other variables. Although the P-Values, correlations and T-statistic would remain the same even if regressed with the original values, the coefficients values could be difficult to predict. By changing these three

[3] The new names of the variables in the forthcoming model are "external.debt.share.GNP" and "Exports.share.GDP.2002" respectively.

variables, i.e. by leveling all variables in decimal points, the coefficient results would yield change in decimal points in respect to the HDI without affecting the signs and significance of variables.

Model 1

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.846	.072		11.802	.000
	freedom house category of democracy 2002	-.041	.019	-.191	-2.115	.037
	external.debt.share.GNP	-.117	.020	-.432	-5.793	.000
	kaufmann corruption 2002	.039	.026	.139	1.481	.142
	Exports.share.GDP2002	.255	.065	.302	3.892	.000
	Gini.share.2004	-.289	.119	-.183	-2.435	.017

a. Dependent Variable: Human development index 2001 (UNDP 2003)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.711[a]	.505	.478	.119358

a. Predictors: (Constant), Gini.share.2004, kaufmann corruption 2002, external.debt.share.GNP, Exports.share. GDP2002, freedom house category of democracy 2002

Descriptive Statistics

	Mean	Std. Deviation	N
Human development index 2001 (UNDP 2003)	.64772	.165276	99
freedom house category of democracy 2002	1.87	.765	99
external.debt.share.GNP	.6797	.61240	99
kaufmann corruption 2002	-.4138	.58736	99
Exports.share.GDP2002	.3753	.19604	99
Gini.share.2004	.4208	.10434	99

The above results of Model 1 ascertain our hypothesis particularly with respect to the dependency theory, where all variables but one (which will be discussed later) are highly significant in explaining the HDI (dependent).

Moreover, the model's R-square is 0.505, which means that the variables used in this model explain about 50.5% of the variation in the Human Development Index (there are a total of 99 observations in the regression).

The use of the variable "freedom house category of democracy" as a proxy for the explanation of how democratic values impact the level of HDI in the above regression shows us that there is a negative relation (holding other factors constant). This could be interpreted that a unit increase in the value of "freedom house category" (which means that when the country is less democratic) decreases the HDI by 0.041 points, which supports the modernist position.

The coefficient of External debt share shows that holding other factors constant, a point increase in the external debt of nations decreases the human development index on average. This variable is highly significant as there is high T-statistic and low probability of rejection of the suggested hypothesis.

Similarly interpreting the other variables, a unit increase in the exports of goods and services of countries (as % of GDP) increases the HDI, suggesting a clear positive relation between both (holding others constant). The coefficient of the "GINI Coefficient" has yielded a negative association with the HDI as well, since it is measured in terms of 0 being perfect equality and 1 being a perfectly unequal country. The findings of both these variables are consistent with the dependency theory assumptions. In brief, all variables in this model are significant at the 95% level except Kaufman corruption. Thus, we can say that the association between the dependent and independent variables is statistically significant at 95% level as per their respective P-Values.

Despite the fact that the Kaufman corruption variable has a positive relationship with the dependent variable (in accordance with theory), we observe that the significance level does not even meet the 90% level criteria in the above model. However, by changing the specification of

the model i.e. excluding the GINI coefficient from the independent variables, we observe that all variables now show consistent signs. As a result, the Kaufman corruption variable becomes highly significant. The numbers of observations also increase from 99 to 129, whereas the R-square falls by a mere 0.059 points to 0.446. This means that Model 2 explains the variation in the HDI by 44.6%. Though, the removal of GINI coefficient lowers the R square, the model remains statistically significant at 95% level and the signs of the coefficients also remain the same for the rest of the variables, hence posing no change in interpretations from the previous model. Hence as explained, these two multivariate models (apart from the democracy variable) also clearly vindicate the position taken by the Dependency theorist.

Model 2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.696	.038		18.202	.000
	freedom house category of democracy 2002	-.042	.016	-.202	-2.623	.010
	external.debt.share.GNP	-.068	.014	-.340	-4.949	.000
	kaufmann corruption 2002	.054	.022	.210	2.503	.014
	Exports.share.GDP2002	.256	.056	.329	4.569	.000

a. Dependent Variable: Human development index 2001 (UNDP 2003)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.668[a]	.446	.428	.124095

a. Predictors: (Constant), Exports.share.GDP2002, external. debt.share.GNP, freedom house category of democracy 2002, kaufmann corruption 2002

Descriptive Statistics

	Mean	Std. Deviation	N
Human development index 2001 (UNDP 2003)	.64527	.164112	129
freedom house category of democracy 2002	1.91	.791	129
external.debt.share.GNP	.7541	.82360	129
kaufmann corruption 2002	-.3541	.63297	129
Exports.share.GDP2002	.3917	.21151	129

Although the GINI coefficient variable is significant and has a negative correlation with the HDI variable (i.e. it is consistent with dependency theory), it is not consistent with the Kaufman corruption variable in model 1. And so, in Model 2 when we exclude GINI share, the Kaufman corruption variable becomes significant. This may be due the 'multi- co linearity' between them, which distorts the results.

Similarly, if we remove Kaufman corruption from our analysis, we can see (below in Model 3), that the model satisfies or is significant at the 95% level for all variables and all the variables are consistent with the prior results as well. This also verifies our presumption that these both variables may have multi-co linearity between them. Moreover, the R square in this case explains 49.3% of the variation in the dependent variable, which is also credible. The numbers of Observations remain 99 in Model 3 because the GINI share has higher missing values.

Model 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.854	.072		11.866	.000
	freedom house category of democracy 2002	-.057	.016	-.265	-3.518	.001
	external.debt.share.GNP	-.121	.020	-.447	-6.018	.000
	Exports.share.GDP2002	.283	.063	.335	4.489	.000
	Gini.share.2004	-.293	.120	-.185	-2.452	.016

a. Dependent Variable: Human development index 2001 (UNDP 2003)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.702[a]	.493	.472	.120112

a. Predictors: (Constant), Gini.share.2004, external.debt.share.GNP, Exports.share.GDP2002, freedom house category of democracy 2002

Descriptive Statistics

	Mean	Std. Deviation	N
Human development index 2001 (UNDP 2003)	.64772	.165276	99
freedom house category of democracy 2002	1.87	.765	99
external.debt.share.GNP	.6797	.61240	99
Exports.share.GDP2002	.3753	.19604	99
Gini.share.2004	.4208	.10434	99

VI. RESEARCH LIMITATIONS AND FUTURE RECOMMENDATIONS

The findings of the bivariate and the multivariate analysis support the first three proposed hypotheses. The fourth hypothesis, however, is not supported. Thus, high levels of corruption, fewer exports, higher level of inequality and foreign debts contribute towards explaining human development and in extension, higher levels of poverty. The paper will therefore reject the first three null hypotheses and accept the last one.

This research can be significantly improved if it were to incorporate appropriate 'region variables'. Unfortunately, with the available data, it was not possible to use any 'region variable' as all such variables are not ranked in any specific order, so the results are on average across all nations. Any future analysis, for better and more accurate results, should therefore include such a variable.

Lastly, the full impact of dependency theory can more accurately be gauged with variables that can measure 'liberal economic policies' of the countries. Due to limitations of data sources, the paper relied on proxy variables such as 'exports of goods' and 'foreign debt' but they cannot be considered as the best measures of liberal democratic policies. Thus, a future research along these lines should include appropriate region and liberal economy measures.

VII. CONCLUSION

The paper has attempted to measure the impact of dependency theory on poverty. It used the human development index as a proxy variable to measure poverty. Although the correlations and regression results support

the primary stance of dependency theory, the results however are not entirely conclusive. Furthermore, the democracy variable has yielded support for the core assumption of the modernist position at both the bivariate and multivariate level and thus appears to somewhat undermine the dependency theory.

Despite the fact that the results are not overly convincing, they still demonstrate strong relevance of dependency theory. The negative association of the GINI coefficient with human development supports Frank's argument of huge inequality in the developing and underdeveloped countries. Likewise, positive correlation between high levels of corruption and human development suggests that the ruling class in the developing world is corrupt and is exploiting ordinary citizens. High levels of foreign debt have revealed a negative impact on human development, which is consistent with the core tenets of the dependency theory. The democracy variable is the only standout variable that contradicts dependency theory and supports the modernist's claim that higher levels of democracy will subsequently improve human development and reduce poverty.

Thus, based on this comprehensive yet not exhaustive quantitative analysis, it can be postulated that the dependency theory still has strong relevance as it does significantly help explain the lack of human development and global poverty across the world. It not only remains a dominant approach in explaining global disparities and inequalities but also crucially helps in identifying the shortcomings and limitations of the liberal and modernist positions.

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APPENDIX

Table 1 A

ANOVA for HDI and FH Category of Democracy

Human development index 2001 (UNDP 2003)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.387	2	.693	28.986	.000
Within Groups	3.995	167	.024		
Total	5.382	169			

Table 1 B

Post hoc Analysis of HDI and FH Category of Democracy

Human Development Index 2001 (UNDP 2003)

(I) freedom house category of democracy 2002		(J) freedom house category of democracy 2002		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
dimension2	Free	dimension3	Not Free	.182730*	.027911	.000	.12763	.23783
			Partly F	.180899*	.029586	.000	.12249	.23931
	Not Free	dimension3	Free	-.182730*	.027911	.000	-.23783	-.12763
			Partly F	-.001831	.031881	.954	-.06477	.06111
	Partly F	dimension3	Free	-.180899*	.029586	.000	-.23931	-.12249
			Not Free	.001831	.031881	.954	-.06111	.06477
*. The mean difference is significant at the 0.05 level.								

Figure 1 A

GINI Coefficient (UNDP 2004) across Regions

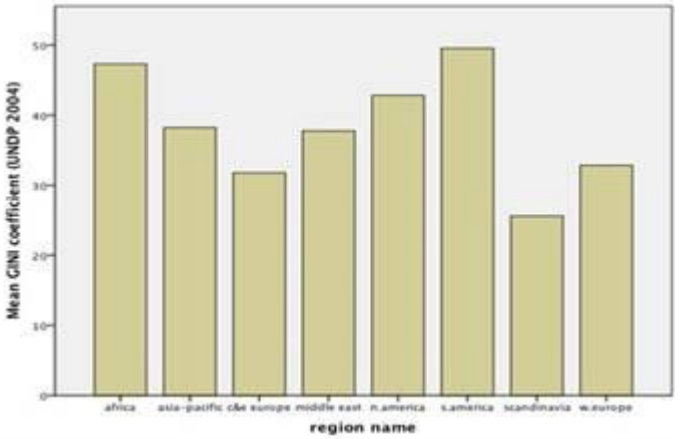

Figure 1 B

Scattergram for HDI and GINI Coefficient

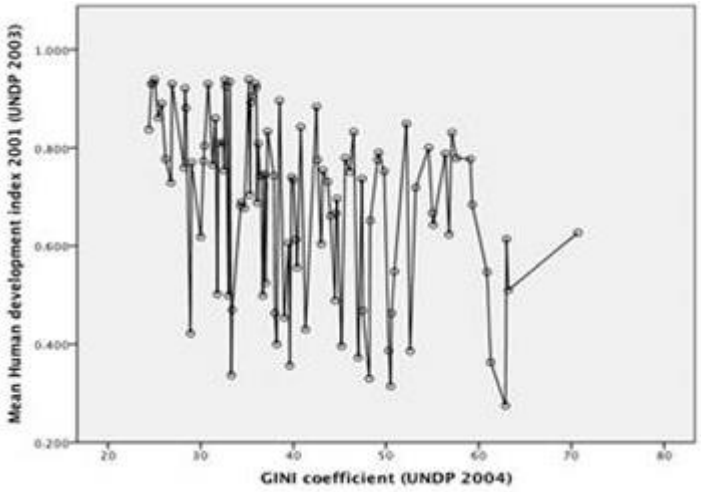

Figure 2 A

Kaufmann Corruption Variable 2002 across Regions

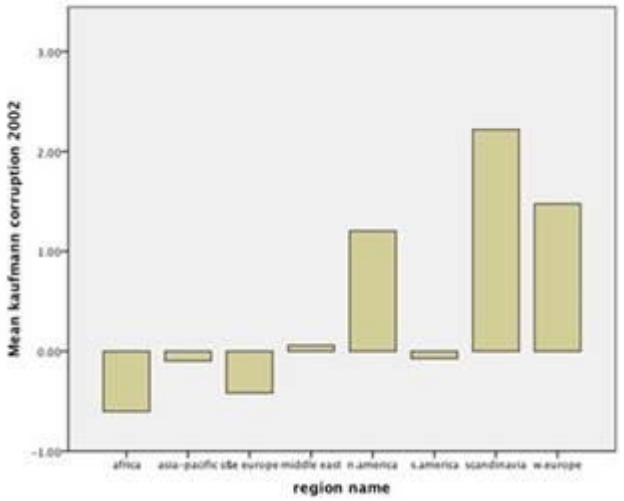

Figure 2 B

Scattergram for HDI and Kaufmann Corruption

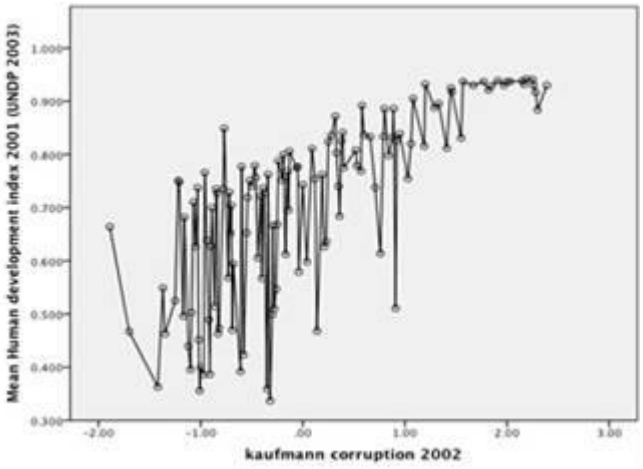

Figure 3 A

Mean External Debt as Percentage of GNP 1997 across Regions

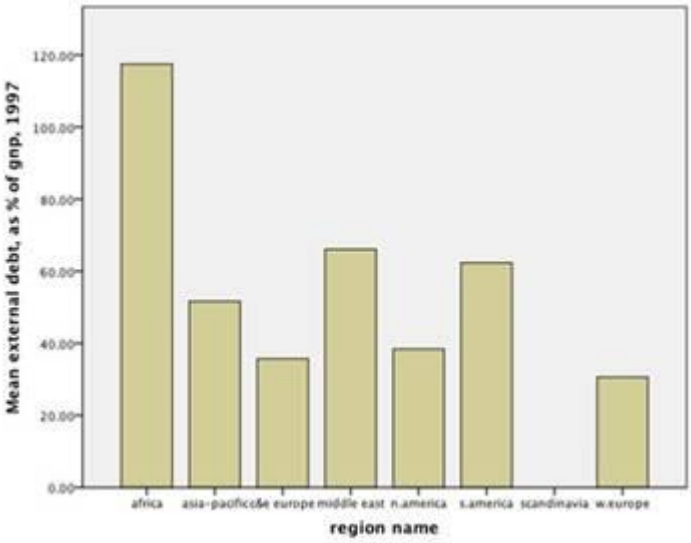

Figure 3 B

Scattergram for HDI and external debt

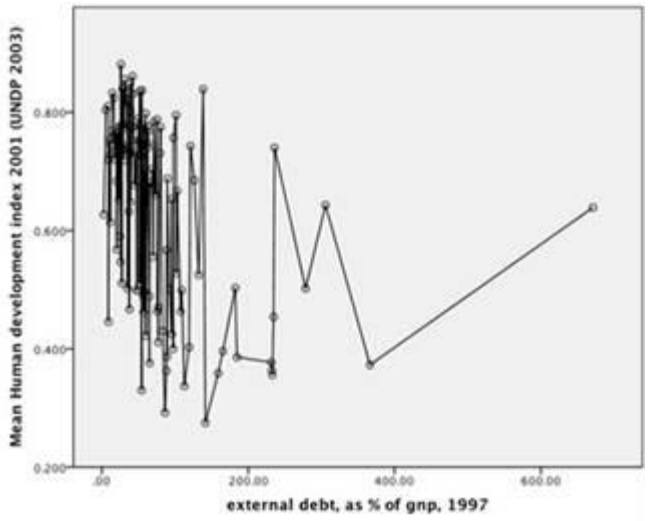

Figure 4 A

Export of Goods and Services (% of GDP) 2002 across Regions

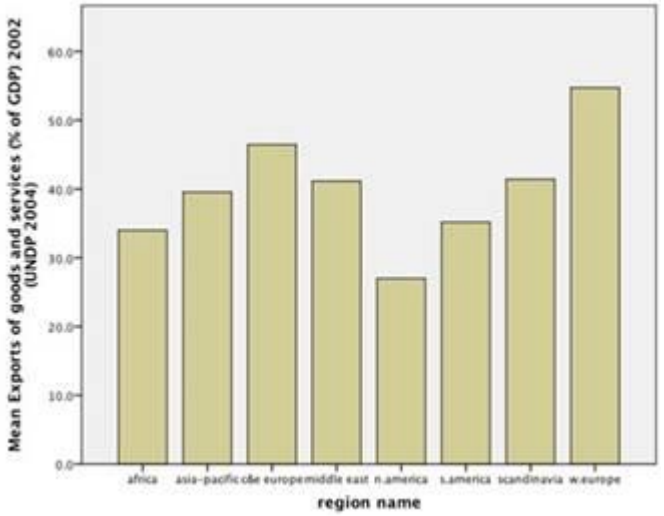

Figure 4 B

Scattergram for HDI and Export of Goods