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A Mathematical Model of the Problem of Poverty: A Proposal of Understanding as a Social and Universal Phenomenon

KEYWORDS poverty, incomes, spending, price-level.

Phd. Oscar González Muñoz
Académico de la Universidad Veracruzana. México.

Phd. Milagros Cano Flores
Académico de la Universidad Veracruzana. México.

ABSTRACT *The theory of poverty-usually aided by the contributions of Amartya Sen has suggested that reducing precarious level of the population living in societies is based on the analysis of the rights granted. Becoming so, to the ownership of property in exchanged of resources like a welfare reference.*

However, the phenomenon of poverty is a social condition under economic approach has been studied through valuations of income and assessment of the consumption capacity through the proceeds. So we must recognize that an important factor in consumption and poverty reduction is achieved through the identification of conditions that generate and depend on income. It is for this reason that poverty as a condition that could be reduced by increasing the level of income should be analyzed from the scope of an increase in the price level.

II. POVERTY: AUNIVERSALDEFINITION
According to the modern theory of poverty headed by Sen (1978), referring to the Universal Declaration of Human Rights (1948), the limited amount of goods that denote poverty, and restrict access to certain capabilities of basic needs such as a Basic Food Basket (CBA), are not achieved only by essentially economic conditions such as income and employment. Other factors such as ideology, personality, individual freedoms and values, which recognizes as entitlements that can generate resources to call attention needs capabilities. Allowing understand poverty absolutely and relatively.

Sen (1978) defines absolute poverty by the level of deprivation that threatens the maintenance of mere physical existence and result in manifestations of starvation, malnutrition and visible hardship without having to inquire first an overview on . While the idea of relative poverty complements and does not replace the absolutist approach to poverty, that is, relative poverty occurs among the feelings of having less as soon as they have others, that is, according to media obtained compared with others.

However, analyzing the level of deprivation in accordance with the provisions of Sen in 1978, it involves two appraisals; that obtained when no resources to meet minimum inalienable satisfactions; and that where goods in possession, express inequality compared to what others fail. That is, absolute poverty, about the shortcomings that prevent the generation of assets, possessions and rights considered converted into assets; and relative, it is a condition achieved based on the perception of proceeds.

In short, absolute poverty -ofSen1978, it replaces theconceptofpovertybroughtthe classical school, referring to the conditions oflack of goodsthat areinalienable.Such asdisruptthe physical existenceand represent theset of assetsforother needsor capabilities. Whilerelative povertyis aparticularsituationperceived andthought structureshave moreor lessover others.

III. RECOGNIZING THE PROBLEM OF POVERTY FROM AN ECONOMIC APPROACH
In 1981 and 1984, Sen considered one of the entitlements that allow to obtain certain goods,to meet needs in reference to capabilities are recognized freedoms of citizens. Through these, things are obtained by virtue of the rights and those resources are exploited in order to over come short ages levels. That is, he attributes this, in order to pursue the companies to achieve higher levels of economic grown and change.

Gonzalez (2013) and Gonzalez (April, 2015) the level of welfare and spending, can be expressed by a linear function and understood by a function that denoting the welfare entitlements(F), the rule of correspondence between on the number

of goods obtained through rights from y1 to yn, they would be represented by a set of benefit sin F=(y1....yn) function. So the function F represents the level of consumer income and from the set of goods(y1) to (n) and through the price level p. While the level of entitlements would be expressed by the level of welfare in a F= (y, p) function. That is,the income earned in recognition of the rights, is affected by a spending level p in prices to reach a level of well F, generating function based utility((i), p). So that the benefit depends on income per persons pending reached, in a price level p.

To prove this, the correspondence between the income per capita and function, and price level P, which would be an argument in improving the per capita income, the procedure of partial derivatives is used. Generating a mathematical model to estimate the degree of change in a variable, given the changes in x, expressed as a function of per capita income Y = F (x, y).

The proposed model shows that the increases on a curve called S in the plane (x, y) are expressed as increases in income and, through the tangential and normal components. Therefore, S demonstrates the sensitivity of income to certain factors such as price levels and through the following assumptions:

(1) The income Y is a continuous function that expresses the improvement in the level of income through a welfare function reflecting a decrease in the levels of per-

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ceived deficiencies per capita.

(2) x = f (x) and y = g (y) are parametric equations of income, where x = f (x) represents the elasticity in spending compared to the price level as y = g (y) rate growth in per capita income.

(3) S is the curve that is achieved by the level of satisfaction obtained from understanding the income level reached. Thus, when this increases -the point P is generated (x, y) and expressthe elastic relationship between per capita income level being achieved through changes in the price level.

Therefore, in the S curve, an increase in income generates a point P given the increases in income elasticitieswith respect to per capita spending as certain price levels, and net changes due to disposable income y = g (y). Expressing meanwhile, real income function (1):

(1)

$$\xi_{t+1} = f(x)i + g(y)j$$

Given the stability factor is considered that an improvement in the level of per capita income will increase the rate of change of revenue in relation to the level of being subject to or the price, that is. So, the level of per capita income earned in changes in the level of welfare. This implies that the S curve grows as the increase in disposable income with respect to changes in the expenditure subject to a price level, namely. See equation (2):

(2)

$$f'(1-\alpha) + g'(1-\alpha) = D\xi_{(1-\alpha)}$$

From equation (19), an increase of disposable income, due to an increase in the income elasticity with respect to expenditure, corresponding therefore the derivative of an effect on the S curve as expressed in equation (3):

(3)

$$D_{(\alpha-1)}\xi_t\,(1-\alpha) = D_{(\alpha-1)}S(1-\alpha)$$

Replacing the S curve increases in, from (1), (2) and (3) we have (4):

(4)

$$D_{(1-\alpha)}\xi_t\,(1-\alpha) = f(1-\alpha) + g(1-\alpha)$$

Therefore, increases in per capita income are expressed in terms of increased income elasticity relative to per capita expenditure with a price level, plus the rate of growth of income earned. That is, increases in per capita income achieved an increase in welfare when spending increases resulting from price levels are achieved, along with real income increases.

According to Sen (2000) individuals can actually configure their own destiny and help each other. They need not be thought of as passive recipients of benefits of cunning development programs. They themselves must participate in the process of creation and implementation of plans for social justice. So there are powerful reasons to recognize the positive role of free and sustainable agency, and even constructive impatience.

In the same way that in 2000, Sen attributed the individual the freedom to develop motor skills and achieve socially fair, Rawls (2006) recognizes the role of the person as a generator of freedoms and adds the reallocation of assets for the benefit of the less fortunate to build what socially just a reflection of freedom "... Although Rawls (1971) had not referred to the definition of the phenomenon of poverty of inequality -but, attributed this problem to the lack of unequal justice, which should favor the positions of the least advantaged in society. Therefore, Rawls (2006) cited by Wolff (1981), and Walzer (1983) (1993) had considered that generating greater benefits to the less fortunate, is based on recognizing the gaps through institutional practices that are intended to offer positions, functions, powers, responsibilities, rights and duties, in an attempt to generate equality. That is, generating greater benefits for the poorest implies a differentiated system of justice that includes a new order of privileges for the least achieved. As aevidence of the constant struggle to try to fix the inequity. Accepting privileges, as social property subject to be distributed among those considered socially disadvantaged.

IV. CONCLUSIONS

Started in the analysis of poverty as a social condition, this paper provides insight this concept from a social and economic vision to enable reduction. Therefore, this paper analyzes the conditions that reduce the level of poverty from a the or etical and dynamic approach to its reduction. That is, according to the management of growth, this paper analyzes the conditions that deprive the condition of poverty and social vulnerability.

Thus, the concept of poverty identified from the contribution of Amartya Sen, results in a set of limited resources conditions that allow the exchange of valuables. While from an economic view, poverty is not only reduced to a universal condition of rights, but through a comprehensive view of economic policy with strict control of the price level. So the proposed model states that increases in income levels, as a means to reduce the level of poverty requires controls on the price level. Thus, the proposed analysis brings together the contributions of Amartya Sen and from an economic perspective, combining the contribution of social distribution, with abstract show increases in income.

REFERENCE

AGNU Asamblea General de las Naciones Unidas. Resolución 217 A (III) Declaración Universal de los Derechos Humanos del 10 de diciembre de 1948, París, Francia. | González, M.O. (2013). Los cambios en los niveles de gasto per cápita en México: | Un referente de condiciones de bienestar (2000-2006). Revista Ciencia Administrativa. pp.71-75 | González M.O. (April, 2015);; Poverty: an outline of policies of poverty in Mexico andLatin America (2000-2006Journal of Social Sciences (COES&RJ-JSS),Vol. 4, No. 2, pp:745-754. | Rawls, J. (2006). El derecho de gentes. España: Paidós pp. 67-68. | Rawls, J. (1971). A Theory of Justice. U.S.A.: Belknap Harvard University Press. | Sen, A. (1978). Three notes of concept of poberty, Documento de trabajo de investigación del Programa Mundial del Empleo, WEP22-239 ILO, Genova. pp.133. | Sen, A. (2000). Desarrollo como Libertad. España: Editorial Planeta p. 28. | Walzer, M. (1983).Spheres of justice.A defense of pluralism and equality, Basic Books, Nueva York.Versión en castellano: (1987) Las esferas de la justicia. Una defensa del pluralismo y la igualdad, traducción H. Rubio, colección Política y Derecho, México: Ed. FCE. | Walzer, M. (1993). Las esferas de la justicia. Una defensa del pluralismo y la ignorancia. México: FCE, p. 24. | Wolff, R. (1981). Para comprender a Rawls: una reconstrucción y una crítica de la teoría de la justicia,México: FCE. pp. 221-226. | Sen, A. K. (1981). Poverty and Famines: An Essay on Entitlement and Deprivation. Oxford: Clarendon. | Sen, A. K. (1984) .Rights and Capabilities'.Resources, Values and Development.A. K. Sen. Oxford: Blackwell. | Jorgenson, D. W. (2003). Information Technology and the G7 Economies. World Economics, 4(4). |