A Simple Complementary Development Mechanics for African Countries

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Abstract

This paper provides a simple development mechanism for African nations, where economic development is low due to not only low level of physical capital but also poor social capital that leads to lot of conflicts. The study suggests for development of social capital, which is a broader concept containing the social norms and networks that generate shared understandings, trust and reciprocity, which underpin co-operation and collective action for mutual benefits that creates the base for economic prosperity. Social capital like trust could be accumulated when people interact in a purposeful manner with each other in workplaces, associations and range of informal and formal meeting places. These social activities increase with development of human capital through schooling. Educated individuals are interested in dialogue and conversation, which enables people to build societies, to commit them each other, and thereby to knit the social fabric and allow nation to advance smoothly. This study deals with the building of bridging and linking social capital through human capital formation that is created from productive consumption. This paper develops mechanism through which such social capital forms and contributes to economic growth in endogenous growth framework. Poor African countries can overcome low level equilibrium trap with creating social capital.

JEL *Classifications*: Z_{130}, J_{240}, O_{150}.

Key Words: Social Capital, productive consumption, reciprocity, human capital, economic development, low level equilibrium trap.

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1. Introduction

Most of the South and Western Sub-Saharan African countries are rich in natural resources but poor in terms of income. Why are they poor? Is it due to lack of capital only? This paper provides a simple development mechanism for African nations, where economic development is low due to low level of physical capital as well as low human and social capital also. African nations suffer due to lot of conflicts that crowd out development funds. This paper suggests an alternative complementary development mechanism for African nations with newly developed idea of social capital in the channel of human capital formation through productive consumption. Here, education is the key factor, which generates sociable human capital. This sociable human capital creates bridging and linking social capital. This study deals with the building of bridging or/and linking social capital through human capital formation in the schooling system. Productive consumption is that consumption or *expenditure which improves efficiency and productivity such as expenditure on food for productive health or/and education (or schooling) for skill and productivity.* The paper suggests that the tendency for mutual co-operation with heterogonous groups or/and collective action for mutual benefits emerges among educated individuals that actually creates the base for economic prosperity. This paper suggests complementary development mechanism through which poor African nations might overcome low level equilibrium trap with helping each other. This cooperative action is more relevant in the present world too.

In the last part of the 20th century, economists tend to show more interested in the role of social factor as an explanation for why some regions/countries are rich and others remain poor (Putnam et al. 1993). Recently few studies have investigated the impact of social

factors, which includes social structure based on trustworthiness, norms, regulation, cooperation and networks with the related idea of social capital[1]. The study suggest that the non-economic or social factors such as culture, social norms and regulations, which may act as a pivotal role for promotion of economic growth and development.

The last few decades' development doctrines mainly focused on the economic factors promoting economic growth. They have neglected the role of social factors, which may act as crucial role for improvement of 'social capability' that might create the base for economic performance. This paper overviews the development doctrines and suggests a simple development mechanics for the under developed world by building 'social capability' and/or expanding 'social capacity'.

1.1 Overview the development doctrines

The economic development of the less developed country begins after the Second World War. Truly, the 50's decade should be marked as the beginning era of development doctrines. 'It marked the beginning of serious interest among scholars and policy makers in studying and understanding better the development process as a basis for designing appropriate development policies' (Thorbecke 2006). Economic growth becomes the main policy objective in the under developed countries. The major development theories and concepts such as 'big push', 'balanced growth', 'take off into sustainable growth' and 'critical minimum effort thesis' etc prevails in 1950s. The major theoretical contributions which guided the under developed world during 1950's were

[1]Bourdieu (1980, 1986), Coleman (1988, 1990) and Putnam (1993, 1995, 2000) are credited for introducing and popularizing the concept of social capital. See also Lin 2001; Ostrom 2000; Cohen and Prusak 2001; Rose 2000; Bertrand and Mullainathan 2000; Beugelsdijk and Smulders 2004; Glaeser et al. 2000; Knack et al. 1997; Tau 2003; etc.

conceived within a one-sector, aggregate framework and emphasized the role of investment in modern activities, which was the prime mover of growth. Other economic and social objectives were thought to be complementary to economic growth. Results were obviously unsatisfactory. In the 1980s, it is observed that low human capital endowment is the main obstacle to the economic development. Lucas (1988) and Romer (1990) identify the role of human capital as a prime mover of economic development. The societal production function was magnified by human capital and knowledge leading to increasing returns. This externality means that the marginal social productivity of investment in human capital being larger than that of marginal private productivity. This suggests that market is likely to under produce human capital and this provides a rationale for the role of the government in education and training. Social capital with the complementarities to the improvement of human capital also emerges in the form of social organization/institution in 1990s to strengthen the market economy making globalization. Thus, the institution emerges to fill up the leakage and to strengthen the market economy. So, the role of institution and social capital focuses on the development doctrines in the last decade (i.e., 1990's) for supporting liberal globalized economy. This paper concretizes this development doctrine making non-economic factors trustworthy for promoting economic development.

Following development doctrines of 1980's and 1990's this study focuses on the improvement of human capital that creates the social capital. Institution is that this social capital actually facilitates and stimulates economic development. The under developed economy can overcome low level equilibrium trap by forming social capital through productive consumption programs. In other words, this paper try to show the

development mechanics of building social capital as the base for economic activities to rescue the third world from their low level equilibrium trap.

1.2 Development Mechanics for African nations

Before explaining formal model, I briefly discuss the idea of social capital and its development mechanics. Social capital exists in the relational bonds of human society. This socialness is the medium in which social capital exists, operates, strengthens or diminishes. The relational structures may vary in duration, density, distance and interconnectedness (McGonigal et al. 2005). However social capital is intrinsic to the relational network that provides a potentially rich environment for economic development. Truly, social capital provides some facilities that activated towards some desired goal. So, it is purposeful and important for economic growth. Economy needs such social capital through investment in certain forms of behaviour and their products, which could be generated in the schooling system. This capital is also sustained, preserved, kept alive and nourished.

Educational[2] institutions not only transmit human capital but also pass on social capital in the form of social norms and rules. It is also true for professional and higher education, which is often cited as a key determinant of social capital[3]. This is well documented in the literature (Putnam (1995), Helliwell and Putnam, (1999), Alesina and La Ferrara (2000), Glaeser et al. (2002), Rupasingha et al. (2006)). However, usually the precise

[2] According to Fukuyama (1995, 1997) 'the area where governments probably have the greatest direct ability to generate social capital is education.'

[3] This also makes sense intuitively: The children who grow up in rich social capital environments may be schooling better. Children who grow up in families that have higher social capital (dinnertime conversations, family picnics, etc.) may be better educated. Communities that have higher social networks such as more parent-teacher associations may have higher school attendance.

mechanism is not very clearly specified[4]. It should often be implicitly observed in the notion that schools impart good standards of behaviour, help to socialize young people and also enable them to engage in society by virtue of being better informed.

Social capital[5] is provided by the school through internal networks of association within the institution and also external networks which bridge to community life and work experience, while also in certain cases linking to intellectual or social contexts or challenges in locations beyond the immediate community, through visits. Schools serve as institutional environments that favour informal associability amongst peers and fellow members. It helps to improve a cooperative tendency that builds up social trust. The trust is typically involved in social capital in schools may be seen and estimated in such factors as belief in self, belief in others and belief in the world. Bryk and Schneider (2002) found that schools with a higher level of trust were more likely to show improvement over time than those with lower levels of trust.

Education's longstanding associations create the platform for interaction between individuals and commit themselves to each other and make direct and indirect contribution to the development of social networks[6] (for example; trust, tolerance and reciprocity that are usually involved). Through dialogue and conversation educated

[4] It should be mentioned that there are other features of education that also need to be taken under consideration. On the one hand, education can create a platform for interaction between individuals that leads to competition rather than cooperation. It can create an elitist class of educated people that enjoy higher social status and are characterized by closed and introvert networks, which do not support the type of mutual understandings and generalized norms that define social capital in this paper.

[5] **Bridging social capital** involves connections between people from diverse contexts. Within schools, bridging capital might be found among cross-curricular groups; between teachers and other professionals or in class mates. **Linking social capital** concerns relationships among people with differential power and allows access to resources, ideas, information and knowledge.

[6] Educational achievement is likely to rise significantly, and the quality of day-to-day interaction is likely to be enhanced by a much greater emphasis on the cultivation of extra-curricula activity involving groups and teams. Thus, encouraging the development of associational life can also make a significant difference to the experience of being in different communities. At individual level social capital also refers to a system

individuals are able to develop cultural environment in which people can work together. Thus, social capital exits as a resource to action, emerging in engagement. Social capital might be viewed as a stock of resources out of which other collective action may be taken to attain mutually beneficial ends. The repeating trustful interactions in the economic activities do sediment in higher levels of generalized trust, which could be treated as input in the aggregate production function for the economy (Crudelia 2006). Social capital contributes to economic growth by focusing the importance of trust and cooperation within firm and industry. Thus, social capital truly greases the wheels that allow nations to advance smoothly and creates the base for economic prosperity. Policy maker[7] of African nations should aim to build up social capital with related ideas of social inclusion and school improvement through productive consumption that increases the productivity of labour that has definite contribution to the output growth, which is revealed, on macroeconomic level.

1.3 Literature

The productive consumption on education[8] stimulates to accumulate human capital through which a base is created for cooperation, which is capable to evolve norms and regulations in the form of social capital formation that lead to economic growth and development (Temple and Johnson (1998), Helliwell and Putnam (1999)). There is considerable evidence that communities with a good stock of social capital are more likely to be benefited from better health in terms of life expectancy and better economic

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of interpersonal networks (Dasgupta 2002), which enhances cooperation and collaboration that helps also to create the economic opportunities.

[7]Putnam's view seems to regard association between people as positive in its own right. Coleman's perspective emphasizes the use of social capital as a precursor of human capital. Bourdieu and Coleman agree that the notion of social capital can be converted into other forms of capital.

[8] Education contributes to economic growth not only by building human capital but by instilling common norms and regulations that increase social cohesion (Gradstein and Justman 2000) also.

performance[9]. Several studies (Bertrand and Mullainathan (2000), Beugelsdijk and Smulders (2004), Bjornskov (2006), Glaeser et al. (2000), Alesina and Ferrara (2002), Miguel (2003), Knack et al. (1997), Sobel (2002), Tau (2003), Temple and Johson (1998), etc.) have discussed about the features of social capital and its contribution to economic growth. Knack and Keefer (1997), Temple and Johnson (1998) provide the evidences that high levels of trust and social participation are positively correlated with economic growth, after controlling other growth promoting factors.

Following Steger (2002) this paper deals with this macroeconomic performance issue by accumulation of social capital which is conjugated with human capital. This study focuses on the complementarities of social inputs with other (human) inputs in the overall growth process. The idea is that social capital creates pave the way for economic development in an under developed economy provided there is a sufficient (quality and quantity) stock of human capital to transmit the norms and networks that support reciprocity and cooperation as an externality[10] to invest in education. Truly, the value of social capital depends on its ability to create an efficient means of production. This is attainable mainly developing social capital through human capital formation in the channel of productive consumption[11]. This brings me to the model.

[9] Social capital is highly correlated with good educational outcomes, good health and good government (Putnam 2000).

[10]Persons with greater skill may raise the productivity of others with whom they interact, and thus, accumulation of social capital may increase total factor productivity in an economy.

[11]Take for example, the expenditure on public schooling, here education is publicly administered as well as publicly financed (Gradstein and Justman 2000) or creating social infrastructures. This consumption expenditure (activities) is classified as productive consumption that helps to develop human capital of a country/region and thereby economic development. Development economists (Steger 2002, Dasgupta and Marjit 2002) recognize the possibility of productive consumption that enables satisfaction of current needs and also increases productivity of labour.

This study is organized as follows: Section 2 builds up a model in the framework of endogenous growth. Section 3 concludes.

2. Model

This section develops a model that analyses how consumption leads human development (or labour efficiency) improves productivity and thereby economic growth and development. Steger (2002) defines capital as the composition of physical and human capital; here I add the social capital to it for wider sense of capital that is discussed later.

2.1 Production

The representative household produces output, *y*, using composite capital, *k* consist of physical, human and social capital[12]. Under AK- type production technology, let the specific intensive production[13] functional form is

$$y = f(k) = Gk, \qquad f' = G,\ f'' = 0 \text{ and } f(0)=0. \tag{1}$$

Where *G* is the average productivity. The assumption of diminishing returns is replaced by constant returns, which is crucial for sustainable growth.

The equation of motion of physical capital, k_p, is

$$\dot{k}_p = Gk - c - \delta_p k_p \tag{2}$$

Where δ_p is the depreciation rate of physical capital, and *c* is consumption.

[12] Physical capital refers to physical tools that enhance productivity, human capital refers to individual's skill and knowledge that enhance productivity but social capital refers to relationship between individuals (i.e., interpersonal networks) which have also effects on productivity (Putnam et al. 1993, 2000). Social capital can be seen as an enabler of the productive use of human and physical capital.

[13] All variables are measured in terms of per capita. For simplicity, here I assume that population growth rate is zero.

2.2 Human Capital

In this study consumption plays a crucial role for acquiring human capital. One part of consumption is used for the development of human capital in terms of health and education that definitely increase the labour productivity. This type of productive consumption improves overall productivity of a nation/region. Following Steger (2002), human capital enhancement function is $h(c)$ with usual properties, i.e., $h_c(c) > 0$ and $h_{cc}(c) < 0$.

The equation of motion of human capital, k_h (let, no depreciation in human capital) is

$$\dot{k}_h = h(c) \qquad (3)$$

Let, c_0 is the subsistence level of consumption and $\dot{k}_h > 0$ when $c > c_0$. The physical capital, k_p, is used to produce consumption goods and its accumulation requires, at least one part, the renunciation of consumption, while human capital, k_h, results from productive consumption (Steger 2002). In this context, I mainly focus on the productive consumption, c, and it is effective only when the consumption exceeds the subsistence level, i.e., $c \geq c_0$. If the consumption is below subsistence level, i.e., $c < c_0$, that does not generate productive human capital, (therefore, $\dot{k}_h = 0$), but human health capital may improves and continue until it attain the standard human capital, $\underline{k_h}$. Malnutrition is the main cause in this phase, i.e., $k_h < \underline{k_h}$ corresponds to $c < c_0$. Crucial assumption in this model is c_0 corresponds to minimum human health capital, $\underline{k_h}$. Productive consumption

generates effective /productive human capital only after fulfilling subsistence level of consumption, $c > c_0$.

2.3 Social Capital

The educational process starts in a school that produces generally more informed individuals who promote social interactions and share the social responsibilities that produce social capital. Educated individuals have a better understanding of the positive impacts of associational activities and collective action on society than do those with less education (Rupasingha et al.2006). It is true that education generates externality that improves overall productivity in the economy[14]. This paper focuses on the case of schooling through which social trust, reciprocity and cooperation evolve and create the basis for social capital formation.

Truly, social capital is embedded in human capital and education fosters its accumulation. Social capital could be accumulated when people interact in a purposeful manner with each other in families, workplaces, associations and range of formal and informal meeting places. This social capital increases with development of human capital through schooling. So, social capital formation should be a function of human capital. It should be mentioned that a minimum bonding social capital exist in every society (it is the main capital in primitive society) with minimum human health capital corresponding nearly subsistence consumption level. Bridging and linking social capital emerges only when human capital is productive and sufficiently exceeds the subsistence level of

[14] Lucas (1988) explains that these externalities are generated in the economy as aggregated human capital.

consumption ($c \geq c_0$). This paper is different from Dinda (2008) in terms of differentiation of social capital formation which is discussed below.

Now, the social capital function can be defined as

$$\phi(k_h) = \begin{cases} \dfrac{\underline{S}k_h}{\underline{S} + k_h} & \text{if } k_h \geq \underline{k_h} \\ \dfrac{1}{2}\underline{S} & \text{if } k_h < \underline{k_h} \end{cases} \quad \text{corresponding to} \quad \begin{cases} c \geq c_0 \\ c < c_0 \end{cases} \tag{4}$$

The equation of motion of social capital, k_s, is

$$\dot{k}_s = \phi(k_h) - \delta_s k_s \equiv \begin{cases} \dfrac{\underline{S}k_h}{\underline{S} + k_h} - \delta_s k_s & \text{if } k_h \geq \underline{k_h} \\ \dfrac{1}{2}\underline{S} - \delta_s k_s & \text{if } k_h < \underline{k_h} \end{cases} \Leftrightarrow \begin{cases} c \geq c_0 \\ c < c_0 \end{cases} \tag{4a}$$

Here δ_s is depreciation rate of social capital. However, like other forms of capital, social capital is also associated with maintenance costs: e.g., trust that is usually stated as the main form of social capital, do not remain automatically. It 'does not wear out with use but rather with disuse' (Ostrom 2000).

2.4 Composite Capital

For smooth economic performances each economy requires composite capital consist of physical, human and social capital. The stock of composite capital is defined as

$$k = k_p^{\alpha} k_h^{\beta} k_s^{1-\alpha-\beta}, \; 0 < \alpha, \beta < 1. \tag{5}$$

$$\dot{k} = \eta_1 \dot{k}_p + \eta_2 \dot{k}_h + \eta_3 \dot{k}_s \tag{6}$$

Where $\eta_1 = \dfrac{\alpha k}{k_p}, \eta_2 = \dfrac{\beta k}{k_h}$ and $\eta_3 = \dfrac{(1-\alpha-\beta)k}{k_s}$.

The equation of the motion of stock of composite capital, *k*, can be written as:

$$\dot{k} = \eta_1 f(k) + \eta_3 \phi(k_h) - \psi(c) - \left\{\eta_1 \delta_p k_p + \eta_3 \delta_s k_s\right\} \quad (7)$$

Where $\psi(c) = \eta_1 c - \eta_2 h(c)$ is *net consumption*.

The equation (7) contains two additional terms viz., social capital $\phi(k_h)$ and net consumption $\psi(c)$, which includes productive consumption $h(c)$. It should be noted that productive consumption creates human capital, which has two fold impact on the economy – directly develops human capital, $h(c)$ and indirectly creates social capital, $\phi(k_h)$.

3.5 Economic Growth

Let specific utility function be

$$u(c) = \frac{c^{1-\sigma} - 1}{1 - \sigma} \quad (8)$$

Where σ (>0) is inter temporal elasticity.

For analytical purpose, now, I consider two cases considering productive consumption – Case I $c<c_0$ and Case II $c>c_0$.

Case I

The under developed economy is characterized by low consumption and bonding social capital among themselves or community only. This less developed economy endows with low human capital mainly suffering from malnutrition. It may be at $k_h < \underline{k_h}$, then $\phi(k_h) = \frac{1}{2}\underline{S}$, social capital, in this case, is only in terms of family bonding. In such economy, human capital is ineffective, k_h=1, say, (it does not influence production function effectively) and the bonding social capital is economically unproductive, physical capital (say for example, land) is only the production input. Then the production

function converge to Solow type production function, i.e., $y = Gk_p^{\alpha}$ with usual properties. The welfare of such less developed economy depends only on the consumption alone and consequently its economic growth rate is

$$\frac{\dot{c}}{c} = \sigma^{-1}\left\{\alpha G k_p^{\alpha-1} - (\rho + \delta_p)\right\} \qquad (9)$$

Where $\sigma = (-cu_{cc}/u_c) > 0$, and ρ is the discount rate. This is a low level of equilibrium growth rate with only bonding social capital (in the under developed economy) corresponds to $K_s = \frac{1}{2}\underline{S}$ that is related to low human capital, (I may call it inefficient human capital to generate economic growth or/and development), $K_h < \underline{K_h}$, which is strongly associated with below subsistence level of consumption, i.e., $c<c_0$. In such economy, the production is very low with (physical) capital, which is insufficient to generate economic growth. This under consumption economy suffers from malnutrition and thereby low productivity, thus, unable to overcome low level equilibrium (or poverty) trap. Thus, low level equilibrium is the inherent characteristics of the less developed economy. To rescue the economy from such 'low level equilibrium trap' an alternative development approach is the productive consumption that definitely creates effective / productive human capital.

Case II

Now I Consider the economy that is characterized by growing consumption level that means consumption exceeds subsistence level, i.e., $c>c_0$. in such economy, the productive consumption is considered as investment for improvement of human capital with broader

aspects of social capital, which plays an important role in the formation of bridging social capital that is useful for stimulating economic growth as well as economic development. The economy moves from under developed to developing position only when it crosses the subsistence consumption level and acquires sufficiently human capital that starts to generate social capital in terms of bridging and linking social capital[15]. As less developed economy moves towards development only when stock of human capital sufficiently increases. Consider an economy that accumulates human capital and cross the minimum requirement at $k_h \geq \underline{k_h}$, and then the human capital generates social contacts or networks that strengthen the bridging and linking social capital. Let this social capital generating function is $\phi(k_h) = \frac{\underline{S}k_h}{\underline{S} + k_h}$ provided $k_h \geq \underline{k_h}$. In this context increasing social contacts or networks strengthens the social capital that raises economic activities and thereby employment opportunity (or the employability) as well as economic growth. Then the economic growth rate is

$$\frac{\dot{c}}{c} = \left[\sigma - \theta\right]^{-1} \left\{ \eta_1 G + \frac{\eta_3}{\eta_2} \frac{\underline{S}^2}{\left(\underline{S} + k_h\right)^2} - (\rho + \delta_p + \delta_s) \right\} \tag{10}$$

Where $\theta = (-c\psi_{cc}/\psi_c) > 0$, provided $\sigma \neq \theta$.

Obviously, economic growth rate at $k_h \geq \underline{k_h}$ is higher than at $k_h < \underline{k_h}$ only because of differences in productivity of human capital and the presence of effective social capital

[15] Social capital exits as a resource to action, emerging in engagement. It should be noted that there are also certain characteristics that distinguish social capital from other forms of capital, namely, in order to evolve; social capital needs at least two people, which are not necessarily required in other forms of capital. A number of other authors in the literature, such as Putnam et al. (1993), and Narayan and Cassidy (2001), emphasize that social capital exists only when it is shared. Of course, one can say, that to create social capital one must invest time and resources to sustain social interactions.

(second term) in second bracket viz., $\frac{\eta_3}{\eta_2}\frac{\underline{S}^2}{\left(\underline{S}+k_h\right)^2}>0$. This is a high level equilibrium growth rate corresponding to productive consumption led higher social capital compared to earlier one.

Proposition: *Average productivity rises in the economy due to productive human and social capital*.

Comparing eq (9) and eq (10) the average productivity is more in later case. This implies $\eta_1 G > \alpha G k_p^{\alpha-1}$. Substituting the value of $\eta_1 = \frac{\alpha k}{k_p}$, it will be $\frac{\alpha k}{k_p} G > \alpha G k_p^{\alpha-1}$. It means $k > k_p^{\alpha} \Rightarrow$ or $k_h^{\beta} k_s^{1-\alpha-\beta} > 1 \Rightarrow \left(\frac{k_h}{k_s}\right)^{\beta} k_s^{1-\alpha} > 1.$

This suggests that either at least one or both terms is greater than (or equal to) one. Hence human and social capital improves average productivity through their relative shares.

Graphical Explanation

Now graphically we explain and analyze the economic growth at different stages of economic development. The formations of human and social capital are explained graphically in the R-side (c, k_h) plane and L-side (k_h, k_s) plane in figure 1, respectively. The relationship between human capital and consumption is shown in RHS of Fig.1. In the RHS, horizontal axis measure consumption, c and vertical axis human capital, k_h. Consumption axis has two zone, namely, subsistence consumption zone ($c<c_0$) and productive consumption zone ($c>c_0$). Subsistence zone is confined with low consumption which produces inefficient human capital that corresponds to $k_h<\underline{k}_h$. Productive zone,

confines with consumption above subsistence level, is important for this study, it generate productive human capital, $k>\underline{k}_h \Leftrightarrow c>c_0$. In the LHS, horizontal axis measures social capital k_s with three zones, bounding social capital $k_s<k_s^*$, bridging social capital $k_s^*<k_s<k_s^{**}$, and linking social capital $k_s>k_s^{**}$. So, overall social capital $\phi(k_h)$ is S-shaped. Depreciation of social capital (δ_s) line intersects social capital generating function $\phi(k_h)$ at E_1, E_2 and E_3. Figure 1 shows the possible multiple equilibrium situations. A low-level equilibrium trap exists in less developed economy, which has poor quality human capital in terms of health and formal education (i.e., schooling), and social network confines only within family bonding which remains more or less fixed at k_s^*. It is independent of k_h up to a minimum level of human capital $\underline{k_h}$ that does not help to generate sufficient social network due to strong social old-age stigma. This traditional social stigma starts to relax with human capital development after $k_h>\underline{k}_h$, and new form of social bonding take place in terms of bridging/linking capital[16], which is economically productive. In less developed economy, low level of human capital is inefficient and ineffective, and fails to play a significant role to develop productive social capital. Therefore, less developed economy remains at E_1 (k_h^*, k_s^*), at low level equilibrium trap that occurs at low level of social and human capital (Fig .1). Low-level equilibrium trap exists when $k_h < \underline{k_h}$ and consumption is ineffective to develop human capital as well as social networks. Consumption turns to productive and it becomes efficient and effective only when $k_h \geq \underline{k_h}$. Thus, effectively productive consumption ($c>c_0$) affects economic

[16] It is a productive social capital that is accumulated as a result of simultaneous production and consumption of relational goods taking place in the context of different kinds of social participation, which facilitate the learning of cooperative attitudes, behaviours and reciprocity (Sabatini 2006).

growth only after attainment of minimum $\underline{k_h}$ level of human capital that starts to generate social network and thereby social and economic opportunity.

Social capital formation (in terms of bridging capital) takes shape as soon as human capital exceeds $\underline{k_h}$ as defined in Figure 1, and continues until it reaches its maximum. This situation leads to a stable equilibrium at E_3 (k_h^{***}, k_s^{***}) with high level of human capital (k_h^{***}) that corresponds to high consumption level (c^{***}). In between low and high level equilibrium, an unstable equilibrium exists at E_2 (k_h^{**}, k_s^{**}). From fig.1 we observe multiple equilibrium with stability at E_1 and E_3, and unstable at E_2. If once the economy crosses k_h^{**}, in fig.1, it certainly leads to higher economic growth rate along with higher level of human and social capital. It should be noted that $\underline{k_h} - k_h^{**}$ is critical zone for the transitional economy. Comparatively high effort (or big push) is required to overcome social stigma and achieve considerable social development and economic growth only through formation of effective human and linking social capital. It is difficult to overcome traditional social stigma/values at initial stage. Increasing linking social capital helps to overcome such age-old stigma providing economic benefits. It takes time to convince and accept the trade off between economic benefits and social stigma. As people receive more and more such socio-economic benefits for their uprooting old stigma and improve bridging and linking social capital. This automatic development consciousness will be evolving within the economy and socio-economic development starts into the motion.

Economy needs greater efforts for development of human capital particularly for the zone of $\underline{k_h}$ - k_h^{**} (i.e., $\underline{k_h} < k_h < k_h^{**}$). As soon as k_h exceeds k_h^{**}, k_s monotonically increases

with k_h that develops from productive consumption. In the context of economic development, productive consumption is effective only in $c > c_o$ zone that specifically corresponds to k_h^{**} - k_h^{***} and $k_s^{**} - k_s^{***}$ zones. It should be noted that an unstable equilibrium exists at $E_2(k_h^{**}, k_s^{**})$. A stable equilibrium occurs at E3 (k_h^{***}, k_s^{***}) with high social capital. It should be mentioned that developments of infrastructure and communication systems (which highly depends on the availability of physical and human capital,) highly affect the formation of social network/capital and its maintenance.

3 Conclusion

This paper provides a complementary approach for smooth development mechanism for less developing economies. This study suggests for improving social factors like social norms and regulation, which might act as a pivotal role for promotion of economic development. These non-economic factors is termed as social capital, which generate shared understandings, trust and reciprocity, underpin co-operation and collective action for mutual benefits, and creates the base for economic prosperity. Social capital could be accumulated when people interact in a purposeful manner with each other in workplaces, associations and range of informal and formal meeting places. These social activities rise as human capital develops through schooling. School curriculum is important to overcome inward looking age-old social stigma. Educated individuals are interested in dialogue and conversation. Interaction enables people to commit themselves to each other, and thereby to knit the social fabric. Thus, bridging and linking social capital greases the wheels that allow nations to advance smoothly.

This paper develops mechanism through which social capital forms and contributes to economic growth in endogenous growth framework, specific to under developed economy. This study deals with the building of bridging and linking social capital through human capital formation that could be created through productive consumption. Less developed economy can overcome low level equilibrium trap by increasing bridging and linking social capital. Incorporating social capital in growth model we find that economic growth rate is more compared to traditional growth rate. Hope this finding might encourage African nations to adopt this complimentary approach choosing appropriate design of education to their existing development path.

References:

- Alesina, A. and Ferrara, E. La., (2002), Who trusts others?, *Journal of Public Economics*, vol.-85, 207-234.
- Ballamoune-Lutz, M., (2005), Institutions, Social Capital, and Economic Development in Africa: An empirical study, ICER *working Paper* No. 18/2005.
- Bengtsson, M., Berggren, N. and Jordahl, H., (2005), Trust and Growth in the 1990s: A Robustness Analysis, Department of Economics, Uppsala University, Sweden, *Working paper* No. 2005:1.
- Berggren, N. and Jordahl, H., (2006), Free to Trust: Economic Freedom and Social Capital, *Kyklos*, vol.-59(2), 141-169.
- Bertrand M.; Luttmer E. F. P.; Mullainathan S., (2000), Network Effects and Welfare Cultures, *Quarterly Journal of Economics*, vol.-115(3), 1019-1055.

- Beugelsdijk, S. and Smulders, S., (2004), Social Capital and Economic growth, *Working paper*.
- Bjornskov, C., (2006), The multiple facets of social capital, *European Journal of Political Economy*, vol.-22, 22-40.
- Bourdieu, P., (1980), The production of belief: contribution to an economy of symbolic goods, *Media, Culture and Society*, vol-2(3), 261-293.
- Bourdieu, P., (1986), The forms of capital, In John G. Richardson (ed.) *Handbook of Theory and Research for the Sociology of Education*, Westport, CT, Greenwood Press, 242 – 258.
- Christoforou, A., (2001), Social capital and economic growth: the case of Greece, European Institute.
- Coleman, J.S., (1988), Social capital in the creation of human capital, *American Journal of Sociology*, vol-94, 95-121.
- Coleman, J.S., (1990), *Foundations of Social Theory*, Cambridge, MA, Harvard University Press.
- Dasgupta, D. and Marjit, S., (2002), Consumption, quality of Life and Growth, Economic Research Unit, Indian Statistical Institute, Kolkata, *Working Paper*-ERU/2002-12.
- Diamantaras, D. and Swanson, C. E., (2004), Culture as Organizational capital in Economic Growth, *Competition among culture*, April 22, 1-30.
- Dinda, S., (2008), Social Capital in the creation of Human Capital and Economic Growth: A Productive Consumption Approach, *Journal of Socio-Economics 37(5), 2020-2033*.

- Dowla, Asif, (2006), In Credit we trust: Building Social capital by Grammeen Bank in Bangladesh, *The Journal of Socio-Economics*, vol.-35, 102 – 122.
- Glaeser E. L.; Laibson D. I.; Scheinkman J. A.; Soutter C. L., (2000), Measuring Trust, *Quarterly Journal of Economics*, vol.-115(3), 811-846.
- Inglehart, R., Basanez, M., Diez-Medrano, J., Halman, L., and Luijkx, R., (2004), Human Beliefs and values: A Cross-Cultural Sourcebook Based on the 1999-2002 Values Surveys, Siglo XXI Editores, Mexico City.
- Knack, Stephen, and Keefer, Philip., (1997), Does Social Capital Have an Economic Payoff? A Cross-Country Investigation, *Quarterly Journal of Economics*, vol.-112(4), 1251-1288.
- Lin, N., (2001), *Social Capital*, Cambridge, Cambridge University Press.
- McGonigal, J., Doherty, R., Mills, S., Mott, J., McDonald, A., Redford, M., Buckel, C., Catts, R. and Allan, J., (2005), *Social Capital Theory: A Review*, AERS Schools and Social Capital Network.
- Miguel, E., (2003), Comment on Social Capital and growth, *Journal of Monetary Economics*, vol.-50, 195-198.
- Putnam, Robert, (2000), *Bowling Alone: The Collapse and Revival of American Community*, Simon and Schuster, New York.
- Putnam, Robert, (1995), Bowling Alone: America's Declining Social Capital, *Journal of Democracy*, Vol-6, 65-78.
- Putnam, Robert, Leonardi, Robert. and Nametti, Raffaella, (1993), *Making Democracy Work*, Princeton, Princeton University Press.

- Rupasingha, A., Goetz, S. J. and Freshwater, D., (2006), The Production of social capital in U.S. countries, *The Journal of Socio-Economics*, vol.-35, 83 – 101.
- Sabatini, F., (2006), Does Social capital Improve Labour productivity in small and medium enterprises?, University of Rome, *Working paper n.92*
- Sobel, Joel., (2002), Can We Trust Social Capital?, *Journal of Economic Literature*, Vol.-XL, 139-154.
- Steger, T. M., (2000), Economic growth with subsistence consumption, *Journal of Development Economics*, vol.-62, 343-361.
- Steger, T. M., (2002), Productive consumption, the intertemporal consumption trade-off and growth, *Journal of Economic Dynamics & Control*, vol.-26, 1053-1068.
- Tau, L. M., (2003), Investing Social Capital to stimulate economic growth and trade in Africa, Paper presented at the Biennial *conference* of the economic society of S. Africa.
- Temple J.; Johnson P. A., (1998), Social Capability and Economic Growth, *Quarterly Journal of Economics*, vol.-113(3), 965-990.
- Thorbecke, E., (2006), The Evolution of the Development Doctrine, 1950-2005, *WIDER Research-Paper* No.2006/155.
- Zak, P. J. and Knack, S., (2001), Trust and Growth, *Economic Journal*, vol.-111, 295-321.

Figure 1: Social Capital and multiple equilibriums.