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**CAPITAL MARKETS, FINANCIAL MARKETS
AND SOCIAL CAPITAL
(An Essay on Economic Theory
and Economic Ideas)**

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(An Essay on Economic Theory and Economic Ideas)

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CAPITAL MARKETS, FINANCIAL MARKETS AND SOCIAL CAPITAL INTRODUCTION

This paper is an essay on economic ideas and economic theory which has developed out of on-going research work under the RPMS, reported on at previous Conferences. This research focusses on the complementarities and synergies between social adjustment, the pursuit of macroeconomic balance, and the growth and development of Caribbean economies. I believe that the occasion warrants this exploration of "ideas and theory", as this year's Conference, (and the recent establishment of a Regional Monetary Studies Centre) may well mark the most fundamental shift in the direction and organisation of the Programme, since its inception three decades ago.

The more traditional among us may feel that this is not enough justification for an economic theory and ideas paper being presented at a monetary studies conference, attended by many practicing bankers. For those who may find this inappropriate I invoke no less a banking "authority" than the World Bank. Describing that institution at its 1992 Annual Conference on Development Economics, Summers and Shah state:

"The Bank is an institution in which ideas are as important as finance" (World Bank 1993, P.1).

Two years later at the 1994 Annual Conference, Bruno and Preshovic report that:

"In his opening remarks Lewis T. Preston, president of the World Bank, reflecting on the Bank's nearly fifty years of experience, emphasizes that in many ways its real value added lies in ideas" (World Bank 1995, P.1).

These observations were not confined to categorising the World Bank as: "a development institution, and a knowledge-based institution" (World Bank 1994, P.8), but the far bolder claim was also made that: "ideas, research, and knowledge are the keys to the future" (World Bank 1994, P.7). It is perhaps not surprising that almost parenthetically the observation was also made that:

"Economic development and the alleviation of poverty have been the Bank's unchanged business for twenty years" (World Bank 1993, P.7).

Given that our societies are the objects of the production of ideas in such auspicious circles, could we as subjects avoid the responsibility for the production of ideas of our own?

The first Section of the paper introduces the concept of capital and its related markets. Section 2 treats with financial markets, both from the point of view of economic theory and their defining characteristics in the Caribbean. Section 3 deals with the crux of the matter: social capital and capital market structures. It also takes up questions concerning the relation of social capital to public goods, externalities, human capital and social overhead capital (infrastructure), as these are currently treated in the literature. The final Section (4), examines a number of issues, including observability and the measurement of social capital, while also offering a few policy propositions.

SECTION I: FEATURES OF CAPITAL AND GROWTH MODELS

Several forms of capital have been considered in the economic literature. These include: government (public), corporate, private (household), physical, human, institutional and regulatory (social and economic), infrastructural, and financial capital. Some of these categories cover sub-groups, e.g., financial capital and its related sub-group categories, risk and cash. For our purposes, however, certain features of all these forms of capital stand out:

- **First, forms of capital may embody more than one feature, simultaneously.** This reflects either one of two, or both characteristics of capital. One is its inherent plasticity. This derives from the consideration that economic systems are about transforming inputs into outputs, either in response to changing requirements (demand) or availabilities (supply). The second is that all capital is directly or indirectly related **either** to some economic activity (and consequently to all others), or where markets exist, the market for any particular marketable unit of capital is linked directly or indirectly to all other marketable units. These two aspects are not reducible to the same, but they do reflect the formal logic of the interactions between resource constraints (or limited availabilities) and potentially unlimited requirements (needs or demand).

- Second, in developed economies, the market is the mechanism through which the various forms of capital are valued, and their relative availabilities determined. Here supply and demand analyses provide the relevant tools, once they are suitably adjusted to embrace at least six sets of considerations, depending on the category of capital under consideration:

risk (financial capital);	uncertainty (financial capital);
ownership (corporate, public and household);	responsibility ('asymmetric information');
externalities (market failure and public goods); and	depreciation (physical capital).

Because of this capital is frequently, if not invariably linked to markets, as - indeed the theme of this Conference indicates.

- * Third, the accumulation of all forms of capital requires some deferment of present consumption. This may be justified on the grounds that consumption, development, or other benefit will be derived in the future. **The accumulation of capital is therefore not desired as an end in itself.** However, as we know development may be, and has been frequently desired as end in itself. The consequence of this is that in market societies the linkage of marketable forms of capital (either potential or actual) to

economic growth is stronger than it is between these forms of capital and development, the inference being that economic growth is not the same as economic development. The effects of accumulation of these forms of capital on development, however, are mediated through their effects on economic growth (future consumption).

- Fourth, the chameleon-like character of capital should not be permitted to mask the fact, that while it is often "objectified" in the literature, **all forms of capital do embody some definite set of social relations in them.** Often these are expressed as either personal, private/business, or state/public property and are defined in law. Stocks of capital, which are not amenable to one or other form of legal ownership would be difficult, if not impossible to incorporate into mainstream economic theory, because of its fundamental market premises.

Together, the four features listed above dramatize a key dimension of both neo-classical (exogenous) growth models and the "new" versions which emphasize endogeneity. In both sets of models capital is treated as a productive factor and its usefulness is defined in the techno-economic relations of the production function in which useful commodities are produced. These models normally assume competitive conditions, including "efficient" demand and supply responses to changes in the price of capital, with that price

expressing the value of the factor's marginal product. While I am not seeking to contest here the implied justification this offers for the income shares received by "whoever happens to own the capital in the Caribbean", the point should be made that this assumption does afford these models the "luxury" of simultaneously resolving the problems of production and the distribution of income.

But even if perfect competition was not assumed, this procedure still leads to the avoidance of consideration of certain forms of capital. Regrettably, this may not be on their questionable productivity (which it would be appropriate to do), but because such forms may not be amenable to any of the types of legal ownership indicated above. Such a "deficiency" in any form of capital would affect its potential for marketisation. And, if a form of capital is not marketed or indeed is not "amenable" to marketisation, grave problems arise for mainstream economic theory.

In response to this, the question might well be asked, **what about public goods?** The answer is straightforward. All the well-known public goods have the potential for either private appropriation or governmental regulation of access to them. Just think of the classic textbook examples: defense, clean air, and information, to see how true this is. There are, however, as we shall see, an important range of "productive goods" which are not amenable to private or state forms of ownership.

It might also be argued that this class of goods could be covered in the "residuals" of neo-classical growth models, the "A factor" in the Swan-Solow formulation. These residuals are indeed defined to capture all increases in net output, which cannot be

directly attributable to adjustments in the stock of capital or labour. This is because the neo-classical production function of the macroeconomy incorporates the microeconomic premises of efficient resource/input allocation: the marginal productivity theory of factor pricing and income distribution, and price flexibility in labour and capital markets.

Hence the general equation:
$$Y = A(t)K^{1-\beta} L^\beta$$

where Y denotes net national product, K and L the stocks of capital and labour respectively, and A the level of technology which is expressed as a function of time, since it is exogenously determined.

In the "new" versions of this model developed in the 1980s (Romer 1986, 1991 and 1994; Lucas 1988; and Barro, 1989) these residuals are treated as endogenous to the model, paving the way for modelling the important residuals separately. The subsequent literature has emphasized human capital and a learning coefficient, R&D, technical progress, and to some extent, trade, public infrastructure, government deficits and public debt drag. In a recent survey Stern (1991) advocates that management and organisation, the capacity of the economy to allocate resources across sectors, as well as a greater emphasis on infrastructure should be added to the list of pressing concerns. Romer (1994) observes that all models of growth need at least one equation which describes the evolution of something like "A". The result is as Stern describes it, the various models seem to be staking out claims to "proprietary rights in the unexplained residual".

The thesis of this paper is not located in explaining the unexplained residuals. It is being advanced here that social capital is directly functionally related to development,

as distinct from growth. If, and when social capital affects growth, it does so through its relationship to the broader development process. In neo-classical models, growth and development are either collapsed into one and the same thing, or the productive factors affect development through their impact on the growth process. However, the distinction between the two is important, if as is generally conceded many may desire development as an end in itself. Any effect of social capital on growth (i.e., on increases in income and consumption) would then be, a bonus or additional benefit to be derived from the all round development of society.

As I have pointed out before, the problem is that in economic theory capital has always been located in markets, whose principal functions are to set its price and the terms on which it is held. This holds true both for new capital (accumulation), as well as past stocks (based on its often durable character) and is so whether capital is held as a form of wealth or as a factor input. Thus:

"The capital market is therefore the economic meeting place between the theory of production, often in the derivative form of the theory of investment, and the theory of consumption and saving" (The New Palgrave, 1987, P.320).

In summary therefore, capital theory encompasses the production function (input substitution and technical change) as well as risk, uncertainty, intertemporal utility functions of wealth holders, and the interest elasticity of foregone consumption. Before we take this analysis further, let us pause briefly to explore a few issues related to the operations of financial markets in the Region, since like elsewhere, this is the most highly

developed form of capital markets.

SECTION II: FINANCIAL MARKETS

The well established features of financial markets are **four-fold**, they: mediate between savers and borrowers; permit the pooling of capital and risks associated with its use; provide a legal, institutional and organisational frame for contracts to be issued and accepted and transactions to be recorded; and, provide the linkage between capital goods (physical), credit and money transactions, which are different forms of wealth holding. While financial markets obviously do not deal in a homogenous product, one necessary binding feature for all the various products however, is that legal ownership of the instruments traded is clearly defined. This is true both for debt (private and public, corporate and individual) and equity.

It has also been well established that financial markets have special problems of risk and uncertainty. Much theoretical analysis has been done on probabilities and risk-return equilibria in connection with this. This apart, the empirical evidence is sufficiently striking as to leave no doubt as to the importance of these considerations. Thus data for the USA clearly reveal that the average rate of return on financial instruments is directly related to risk (see Table 1 below).

TABLE 1

Security	Average Rate of Return per year (%)	Risk (average size of price fluctuations)
US Treasury Bills	4	3
Long-term Corporate Bonds	6	8
Large Company Stocks	12	21
Small Company Stocks	18	35

- Note:
1. The coverage is for 60 years. The data re not adjusted for inflation.
 2. The average rate of inflation is 3 per cent.
 3. Risk is the standard deviation.

Source: Data from Ibbotson Associates, "Stocks, Bonds, Bills and Inflation" as cited in J.B. Taylor (1995).

The risk return relation does however, highlight the significance of two necessary elements in all efficient financial markets, which the Region must keep in mind. One is the importance of a **satisfactory mix of instruments and their availabilities**. Without the possibility of portfolio diversification, risks, (apart from systematic risks which may not be avoidable because they relate to the overall functioning of the economy and society) will not be minimized. Unless these risks are compensated for by "higher returns" investors will be deterred. The **second** element is that **speed of entry into and out of financial markets is a sine qua non**. Without both these features financial markets are incapable of being efficient.

Of immediate importance too, is the consideration that there is presently afoot, a genuine world wide revolution in financial markets. This has been attributed by Merton, 1995, to:

- i) **institutionally driven concerns** (new securities, e.g., derivatives which help to reduce risks by putting in modern form long standing financial practices)
- ii) **technologically driven concerns** (based on advances in computer and telecommunications advances)
- iii) **theoretically driven concerns** (based on advances in the theory of finance)

For us in the Caribbean, the preeminent role usually given in the literature to technology and profit motives in driving the "marketisation of money", should not be allowed to sideline the importance of **two** further features. One is **the illicit and illegal motives** behind much of this. Such concerns have of course featured prominently in many facets of Caribbean life, because of their linkage to the narco-economy and money-laundering. The other feature is that this revolution is altering the character of financial markets, requiring **pro-active changes** in our own plans. Good examples of this are proposals to develop various territories as world wide or continental hubs or financial centres. Much of this seems to be constructed around the view that geographic location, local legislation, institutional development, secrecy and confidence in the host authorities, (factors which promoted the development of older financial centres like London and Zurich, or newer ones, like the Cayman Islands and Anguilla), are still the vital factors. The caution against this has been well made by Mary King in the public debate on the merits of Port-of-Spain as a financial centre. She draws the analogy from the computer,

the very agent revolutionising money markets. She begins by observing that:

"In days gone by, the main frame computer was indeed a computing 'centre'. Even though there were networks that connected 'dumb' terminals to the central main frame computer all the information, intelligence, communication and computing power there, were located physically at the main and usually only processor. Today with ... data servers and intelligent network links and workstations ... information systems have become 'distributed' [with] nodes specialized in particular activities [using] the resources of the network" (King 1995).

She then goes on to point out that:

"The financial centre of old, e.g., the City of London was akin to the main frame computer, where all the expertise and all services were located. With the availability of expertise internationally ... the financial system of the world is fast becoming distributed; more like the computer information and processing system upon which it runs" (King 1995).

In her view networking capabilities, combined throughout the world-wide network are what will be required, not geographical location specific features.

These comments on the policy of creating financial centres in the Caribbean, raise the question of the role of the state in Caribbean financial market development. Two comments are pertinent here. Mainstream economics has long justified state intervention when market failure is identified. This is important, as experience shows that when such failure occurs in financial markets, it becomes acute and spreads rapidly. This therefore is one justification for the role of public authorities in preempting the likelihood of such disasters.

Experience also shows that in stock markets, new equity and bond issues still form only a small portion of the total market. This has led Stiglitz to make the observation at the World Bank's Annual Conference on Development Economics that:

"the stock market is, first and foremost, a forum in which individuals can exchange risks. It affects the ability to raise capital (although it may also contribute to management's short sightedness) but in the end, it is perhaps more a gambling casino than a venue in which funds are being received to finance new ventures and expand existing activities. Indeed, new ventures typically, must look elsewhere" (Stiglitz, 1993, P.21).

This view is supported by many, but it has been rarely expressed so forthrightly and in writing, from within mainstream economics. In this situation it would be foolhardy not to ensure that finance serves the development of other forms of capital, and not the other way around. More constructively, Stiglitz provides a taxonomy of six features of market failure which has much relevance for the Region:

- 1) **Monitoring as a public good** (particularly lack of information on solvency and the efficacy of management)
- 2) **Externalities** (especially in the areas of monitoring, selection and lending)
- 3) **Externalities** (the macroeconomic consequences of financial disruption)
- 4) **Missing and incomplete markets** (particularly equity and credit markets)
- 5) **Imperfect competition** (usually based on poor information flows)
- 6) **Market inefficiency** (based on incomplete market sets and the lack of exogeneity of information)

The point must be made, that despite the much vaunted development of the financial sectors of countries in the Region like Barbados, Jamaica and Trinidad and Tobago, (both in their local and international aspects), the most highly developed financial markets of the Region are those based on off-shore activities (banking, trusts, tax havens, company registration, convenience shipping, insurance and related activities), in which both personal and corporate business are conducted. There is evidence of some degree of specialization in this business, e.g., Barbados and "capture" insurance; banking and trusts in the Bahamas and Cayman Islands, and company registration in the British Virgin Islands. Presently, out of a world total of more than \$12 trillion in offshore deposits, over \$5 trillion is kept in the Caribbean.

Three axioms follow from the above:

1. Financial markets in the Region presently serve the world wide demand for off-shore financing facilities best when:
 - There is no effective local control (and no desire to have such control) over the disposition of the financial instruments traded in these markets.
 - Many encouragements are given to ensure a minimum mix of physical, telecommunications, and legal infrastructure so as to protect confidentiality, non-disclosure and speed of transactions.
 - Accounting and legal changes across the world, broaden the appeal of discreet financial operations.

2. Because of their uprootedness and detachment from the local economies as expressed in (1) above, the yields to the local economy from these financial markets are not likely to be great. This is because of the competitive "scramble" for such facilities, and the emergence of places like the USA as attractive sites, (because of its tax exempt status to several portfolio investments, included commercial bank interest on deposits).

3. The unwillingness to exercise any control/supervision over these funds, means that there is little or no government induced pressure leading to spillovers into the local economy. And since the opportunities for commercial investment do not even begin to compete with the USA, there is also little likelihood of commercially induced spillovers into the local economy.

SECTION III: SOCIAL CAPITAL

Description

My earlier work has generated **three (3) observations** which bear directly on the questions at hand. **First**, there has been a halt to the advance of social income, benefits, and social services afforded to the majority of Caribbean people, since the 1980s. **Second**, there has also been a halt to the advance of public investments (both replacement and new stock) in capital works which provide social benefits to the majority of the

population. **Third**, the emergence of several marginalized groups and communities, and civic responses to this have highlighted the existence of social resources within communities which do not depreciate when drawn upon and used within these communities, but to the contrary, they might even expand or grow with use. Thus I stated:

"Resources committed to social partnership, consensus, solidarity, democracy and other such elements of social energy grow and do not diminish with use. These resources are regenerated from the self mobilisation of people, which is, in fact an inexhaustible resource that has been barely utilized" (Thomas, 1995).

Social capital may be defined as those voluntary means and processes developed within civil society which promote development for the collective whole. These means and processes serve to:

- a reduce "costs" or impediments to social interaction (e.g., self-help);
- to advance the pursuit of the collective aspects of social development (e.g., empowerment);
- to engender social bonding (e.g., courtesy, devotion, trust, confidence, respect for laws, and regulations and others) and
- to create genuine alternatives and a moral foundation for human behaviour which does not lead to self-defeating choices, or the non-cooperative outcomes and opportunism of game theory -- a sort of "tragedy of the commons" effect.

Social capital however, has the one essential characteristic of all forms of capital, that is, it represents the socially acceptable manner in which the deferment of immediate benefits is transformed into future benefits. Additionally, however, it has seven definite

characteristics:

- i) It is not bounded by the laws of diminishing returns, since it is not derived within the finite boundaries of market materiality.
- ii) It does not depreciate with use, but instead normally grows and develops with use.
- iii) Both (i) and (ii) are possible because it is collectively produced and derived from social action within civic society. Its centre is relations among people and not the individual qua individual.
- iv) It yields future benefits which are often desired for their own sake (e.g., confidence, trust), and therefore are not bounded by income or wealth.
- v) These benefits are not susceptible to market valuation, but it is theoretically possible to develop alternative non-market indicators of them.
- vi) Because present benefits are given up to yield future benefits, persons do have a "calculus" about it. But this is not a market-type utilitarian calculus based on contracts, *quid pro quo* and enforcement by the judicial arm of the state. People do however accumulate it with the expectation of benefits and rewards such as social support, standing within society, honour and so on.
- vii) It is not a new invention. It has existed in all societies. What is new is the recognition and emphasis which should be placed on it at this juncture.

These seven characteristics ensure that social capital produces the voluntary social means and processes which enter directly and indirectly into development. It has the properties in this sphere of the "Ricardian corn" and Sraffa's "basic commodities". It is the missing social dimension to my earlier model developed in Dependence and Transformation (Thomas, 1974) in which material transformation of the small open underdeveloped economy, required the development of a capacity to produce the relatively small vector of goods which enter directly or indirectly into the production of all other goods.

Table 2 summarizes some of the ways in which social capital enhances development. These features complement the seven characteristics listed above. Put together therefore, social capital reduces the "transaction costs and institutional costs" presently being emphasized in the economic literature. In game-theory terms also it increases the number of possible iterations and reduces the attractions of opportunistic behaviour; it deepens social trust; it expands the flow of information; and its successes breed other successes.

Social capital, public goods and externalities

The above makes it abundantly clear that social capital cannot be interpreted to mean human capital (which raises the abilities of individuals) or social overhead capital (which facilitates development). However, the analysis so far might well invite the question, how does social capital differ from public goods or externalities? The answer

TABLE 2

Characteristics:

- i) Diminishing returns do not apply.
- ii) Appreciates with use.
- iii) Collectively produced within civic society.
- iv) Produces outcomes desired for their own sake.
- v) Outcomes are not subject to market valuation (other indicators necessary).
- vi) Its "calculus" is not utilitarian in the traditional market sense. It does however emphasize giving and rewards.
- vii) It is not a new discovery.

Other Features

- i) It is **non-coercive**. (Internal violation rather than external rewards/punishment drives it.)
- ii) It is **humane**. (It elevates social concerns over individual gains/losses.)
- iii) It is **sustainable**. (It's time-horizon is oriented to future generations.)
- iv) It is **empowering**. (It is not based on exploitation or zero-sum games.)
- v) It is **synergistic**. (It affects and is affected by all areas of social life.)
- vi) It is **catalytic**. (It can generate outcomes far outside its initial purview.)
- vii) It is **mobilizing**. (It helps to develop the energies of the society.)
- viii) It is **accountable and responsible**. (It emphasizes sharing and trust.)
- ix) It is concerned with both **development** and the **distribution** of the benefits of development.
- x) It's accumulation is **driven from below**. (Because of its social character.)

again, is straightforward. **Public goods** are defined in terms of two primary attributes: non-rivalry in consumption and non-excludability. While these give a collective aspect to these goods they are not necessarily produced in a collective, social way. Private business firms can produce clean air, security, information -- the traditional textbook examples, and market them. If the government does provide them, they can charge user fees for their use. These properties are inconsistent with social capital, as used in this paper.

Externalities derive from a situation of "market failure," where the private costs and benefits of producing and consuming a commodity spill over to those who are neither producers nor consumers. This provides the justification for state intervention either by way of regulation, taxation or assigning property rights through tradable permits, based on the divergence between the private and social valuation of costs and benefits. State intervention is also not the only solution, as examples of "private remedies" abound. As a rule, therefore, externalities do not rule out the possibility of private or state production of the commodity concerned. All that is required is that a clear definition of property rights be assigned. With this an efficient resolution to the dilemmas can be established in principle.

Social capital, human capital and infrastructure

Although I have stressed that social capital is not to be confused with human capital or social overhead capital as they are currently used, a few comments on these

would be appropriate. In growth (development) models **human capital** has been treated as a major contributory factor to the expansion of output and incomes. This occurs in one of two ways: either facilitating the adoption of new technology or else human capital is treated as a *productive factor*. In the latter case accumulation deepens the capital available per worker and raises the worker's output per unit of labour. The focus here is on individual growth, not the collective social growth which social capital stresses.

In the literature **social overhead capital** covers three categories of public outlays: **human capital**, public expenditure on R&D, and social infra-structural investments. These expenditures are justified on the grounds of externalities, public goods, the high risk/long term pay off profiles of R&D, and distributional concerns. Indeed most of a country's **social infrastructural investments** tend to be owned by the government. In the most developed market economy (the USA) the government accounts for 18.5 million employees out of a work force of 120 million. Significantly, state and local government, accounts for 83 per cent of this employment, and the federal government the remainder (17 per cent). The three largest categories of employment are education (44 per cent), defense (14 per cent) and health (10 per cent). Concurrent with this the capital stock in the US is estimated at \$13 **trillion**, of which government accounts for \$2 **trillion**; private residential \$6 **trillion**, and private business \$5 **trillion**. Because of the heavy concentration of state employment in local (community) government, and social, and defense services, along with the sizeable social infrastructure owned by the state, it is to be expected that this form of capital would relate closely to social capital. Indeed a

synergy between these two would seem, in principle, to be likely.

Some of this linkage is encouraged by reports (Aschauer 1990) that public infrastructural investments in the USA have been neglected to the point where it might be considered as America's "third deficit". The results of his model show that if "the average level of infrastructural investment (relation to GDP) between 1950 and 1970 had been maintained for the succeeding 20 years " (Aschauer, 1990, P.1) then the rate of return to private capital would have been 22 per cent above its actual value of 7.9 per cent, private investment would have risen from 3.1 to 3.7 per cent of the capital stock and private sector productivity growth would have been 50 per cent higher than the 1.4 per cent reported. Aschauer found also that the rate of return on public infrastructure investments was high -- with a one per cent increase in core infrastructure spending increasing GNP by 0.24 per cent. Further, he finds that there is no supporting evidence of public sector investments crowding out private investment. To the contrary, he found that after about four years

"each additional dollar of public investment in infrastructure will raise private investment by 45 cents, contradicting the notion that a dollar of public investment merely 'crowds out' and therefore reduces, private investment" (*ibid*, P.1 emphasis in the original).

The data in Table 3 summarize some of the key findings of Aschauer. The data in Table 4 provide some empirical data on public capital's output elasticity in the USA.

The World Bank Annual Report 1994 has also acknowledged the importance of

infrastructure:

"Infrastructure can deliver major benefits in economic growth, poverty alleviation, and environmental sustainability -- but only when it provides services that respond to effective demand and does so efficiently" (World Bank, Annual Report 1994, P.2).

TABLE 3

PUBLIC CAPITAL BY TYPE AND PRODUCTIVITY (1949-1985)				
Type	Coefficient Estimate*	T-Statistic	Percent of Total	F
Core Infrastructure (highways, mass transit, airports, electrical and gas facilities, water and sewers)	0.24	(5.07)	55%	0.16
Other Buildings (office buildings, police and fire stations, courthouses, garages, and passenger terminals)	0.04	(1.57)	7	0.01
Hospitals	0.06	(1.62)	3	0.33
Conservation & Development	0.02	(0.92)	4	0.01
Educational Buildings	0.01	(-0.18)	15	0.99

*The coefficient is the percentage change in total national output given a one per cent change in the particular type of public capital.

Source: D.A. Aschauer, 1990

It then goes on to cite empirical estimates for several countries. These are shown in Table 5 below.

TABLE 4

SOME EMPIRICAL ESTIMATES OF PUBLIC CAPITAL'S OUTPUT ELASTICITY			
Author(s)	Type of Public Capital	Data Sample	Output Elasticity
National-Level Studies			
Aschauer (1989a)	Nonmilitary, nonresidential	1949-85	0.39
Munnell (1990a)	Nonmilitary, nonresidential	1949-87	0.34
Finn (1993)	Highways and streets	1950-89	0.16
State-Level Studies			
Munnell (1990b)	Nonmilitary, nonresidential	48 states, 1970-86	0.15
Costa, Ellson, and Martin (1987)	Nonmilitary, nonresidential	48 states, 1972 only	0.20
Garcia-Mila and McGuire (1992)	Highways and streets	48 states, 1970-83	0.045
Regional Studies			
Eberts (1986)	Core infrastructure	38 MSAs ^a , 1958-78	0.04

a. Metropolitan Statistical areas.

Source: K. J. Lansing (1995).

In these studies the rate of return is usually computed as:

$$R = e \cdot \bar{Y}/I_i$$

where R is the rate of return on a resource input, e is the output elasticity of the input, \bar{Y} is real GNP and I_i the size of the resource input. Using this formula the rate of return on public infrastructure is the combination of the output elasticity given by it and the share of the public capital stock (K_g) to the private capital stock K_r i.e., $(K_g/K_r) \cdot e$.

Apart from the controversies over the accuracy of the estimates these studies reinforce three elements of our analysis so far. **First**, they clearly locate infrastructure in the "public goods" debate which we have already covered. Here, the criteria of choice are three fold: excludability/non-excludability, rivalry/non-rivalry in consumption, and externalities. Indeed, the World Bank Report (P.25) carries a figure which displays these variables. (This is reproduced for convenience as an Appendix to the paper). **Second**, the literature focuses on the neglect of infrastructural investments, and its consequence. This point has been made in my earlier reports to the RPMS and I have repeated this earlier in this Paper. **Third**, several of these studies address the issue of how to make infrastructure investments, more efficient. A number of techniques have been highlighted: decentralization, local participation, focused subsidies, pricing and regulatory matters, project design and planning. While all this is very important it does not bear on the aspect of capital I am dealing with in this paper -- except perhaps, indirectly. That is, because all of these proposals imply that it is possible to make a more or less accurate market evaluation of this category of capital.

TABLE 5

RESULTS FROM STUDIES OF INFRASTRUCTURE PRODUCTIVITY

Sample	Elasticity ^a	Implied rate of return ^b	Author/year	Infrastructure measure
United States	0.39	60	Aschauer 1989	Nonmilitary public capital
United States	0.34	60	Munnell 1990	Nonmilitary public capital
48 states, United States	0	0	Holtz-Eakin 1992	Public capital
5 metro areas, United States	0.08	-	Duff-Eeno and Eberts 1991	Public capital
Regions, Japan	0.20	96	Mear 1973	Industrial infrastructure
Regions, France	0.08	12	Frud'homme 1993	Public capital
Twain, China	0.24	77	Uchimura and Gao 1993	Transportation, water, and communication
Korea	0.19	51	Uchimura and Gao 1993	Transportation, water, and communication
Israel	0.31-0.44	54-70	Bregman and Marom 1993	Transportation, power, water, and sanitation
Mexico	0.05	5-7	Shah 1988, 1992	Power, communication, and transportation
Multicountry, OECD	0.07	19	Canning and Fay 1993	Transportation
Multicountry, developing	0.07	95	Canning and Fay 1993	Transportation
Multicountry, OECD and developing	0.01-0.16	-	Baffas and Shah 1993	Infrastructure capital stocks
Multicountry, developing	0.16	63	Eastery and Rebedo 1993	Transportation and communication

a. Percentage changes in output with respect to a 1 percent change in the level of infrastructure.

b. Ratio of discounted value of increase in dependent variable to discounted value of investment in infrastructure.

As indeed the World Bank states:

"commercial and competitive provision of infrastructure can effectively deliver the services needed to meet social goals such as economic growth, poverty reduction, and protection of the environment" (ibid, P.73).

SECTION IV: CONCLUSION

The tasks remaining are two-fold. **First**, how do we measure the contribution of social capital? **Second**, how do we promote investment in it? How do we preserve it and avoid its inadvertent destruction? How do we also reinforce the synergies between social and other forms of capital?

In the time available these tasks cannot be covered adequately. Instead the major directions of future work are sketched and a few preliminary policy propositions are advanced.

Surveys, game theory, behaviour modelling, experimental economics and the HDI index

The formation of social capital is not readily observable. At least not in the same way that prices may be used as indicators for other forms of capital accumulation, thereby overcoming their heterogeneous character. This of course does not invalidate the concept. Indeed, the very markets through which other forms of capital are mediated do depend

on many less readily observable social features, such as trust, honesty, community altruism, confidence, responsibility (personal and social), and so forth. Unlike others, say law and order (courts), security (police), property rights (courts), often these are not institutionalized. Keyflitz and Dorfman (1991), as reported in Todaro (1994), have listed 14 institutional and cultural prerequisites for the operation of effective private markets. Based on these Todaro (1994) has identified 11 market-facilitating legal and economic practices.

Two lines of inquiry and policy recommendations suggest themselves. The first is, given the heterogeneity of social capital, surveys and the production of ordering scales could be profitable lines of inquiry. In principle, it seems likely that social categories such as the degree of trust, willingness to invest time and energy in social pursuits, and willingness to participate in collective action can all be captured in surveys which would generate data for purposes of comparison, even if as intrinsic measures they may not be entirely satisfactory.

The second line of inquiry and recommendation is based on the view that a proxy measure of social capital formation might well be the growth of social institutions predicated on its existence e.g., NGOs and other forms of voluntary social networking. Here again the degree of "popular participation" in these, (measured quantitatively and qualitatively) may be used (for comparative purposes) as proxy indicators of the levels of social capital formation.

Here it should be pointed out that **game theory and behaviour modelling type approaches** do not appear to me to be very useful. The reason is that where social action is investigated in these approaches, it is predicated on the calculus of private costs and benefits, even when motives other than self-interest are being modelled. Thus in the prisoners dilemma game, collective action is seen as one in which the marginal return per unit of contribution is less than one unit to the contributor, but more than one unit to the group. Thus what is weighed is the individual benefit, which when the individual withholds his or her contribution to the group, makes the individual better off, while the group would have been better off if that contribution had been made.

The difficulty also exists in that the benefits of such modelling derive from their "simplicity", i.e., the ability to constellate the myriad of real world complexities into a few critical assumptions, and then to draw inferences about the real world, based on these. In this way models can contribute to presenting complex phenomena in a new form suitable for complex analysis. There are at present efforts afoot to extend this analysis in at least three major directions, by:

- Expanding the range of individual behaviour outside the scope of self-interest, a procedure stoutly resisted by those who see "man (sic) as basically base".
- Permitting utility maximization through trade-offs between self-interest and other motives. Or, as some suggest permitting the choice between two distinct utilities, social and personal, at the extreme ends of the spectrum.

- Using different single motives as the context varies.

In similar vein I would not be too hopeful of the possibilities in **experimental economics**. Although some writers (Baldani 1995) are hopeful about the future of this area of economic analysis, I remain skeptical. The narrow claim of experimental economics is that:

"it allows us to observe the choices that subjects make -- given a specific strategy set, a specific reward structure, and a specific set of rules in a laboratory setting" (Baldani, 1995, P.180).

Surely this has little validity in the economic circumstances of the Caribbean, where applied economic theory and observation are far more likely to be fruitful lines of research and analysis!

The UNDP's **Human Development Index (HDI)**, and its other related Indexes (GEM and GDI) seek to explicitly incorporate the social dimensions of development with their emphases on income distribution, longevity, knowledge (schooling and literacy) and gender. Projects are underway in the Region (e.g., Guyana) to develop national, and hopefully intra-country dis-aggregated indexes. The strength of these indexes is that they do not view human capital formation as a means, i.e., as an input into production, but value it as an end in itself. Human beings are not treated as "beneficiaries", but as participants in the process of development. The satisfaction of their material needs is important largely because of its implications for human choices, and simply to end

This work points in the direction of this paper. Indeed the UNDP hypothesizes that development has to be both human and sustainable, that is

"a development that centres on people's choice and capabilities and does not undermine the well-being of present or future generations" (UNDP, P.4).

Indeed it goes further and embraces a concept of *social capital defined as* "voluntary forms of social regulation" and which is central to sustainable human development:

"the enlargement of people's choices and capabilities through the formation of social capital" (*ibid*, P.7 my emphasis).

In this formulation sustainable human development is more than the simple combination of sustainability and a human dimension -- a synergy between the two is presumed.

However, while an advance, this treatment is still inadequate from the perspective of this paper. Why? The answer is that social capital while seen as existing in "relations among persons" is counterposed to other forms of capital which are not. Thus it is advanced that physical capital is embodied in things, and human capital in the knowledge and skills of individuals. This paper argues that **all forms of capital exist in relations among the people**. The difference centres on whether the form can be privately appropriated or not.

Social capital formation and preservation

Historically there have been institutional developments in the region, albeit limited, which are related to the concept of social capital. The best examples are connected to finance: sou-sou; partner; box-hand; self-help capital works; cooperatives; and, developmental non-profit organizations (NGOs). The preceding analysis suggests that these social networks have two points of usefulness. **First** through their direct impact on economic activity (growth) and then **secondly**, through their direct impact on the growth of social interaction and networking. Unfortunately, the Authorities have tended to value these institutions mainly from the former set of characteristics, not recognizing often enough, the direct contribution they make to the building of social interchanges and voluntary forms of social regulation.

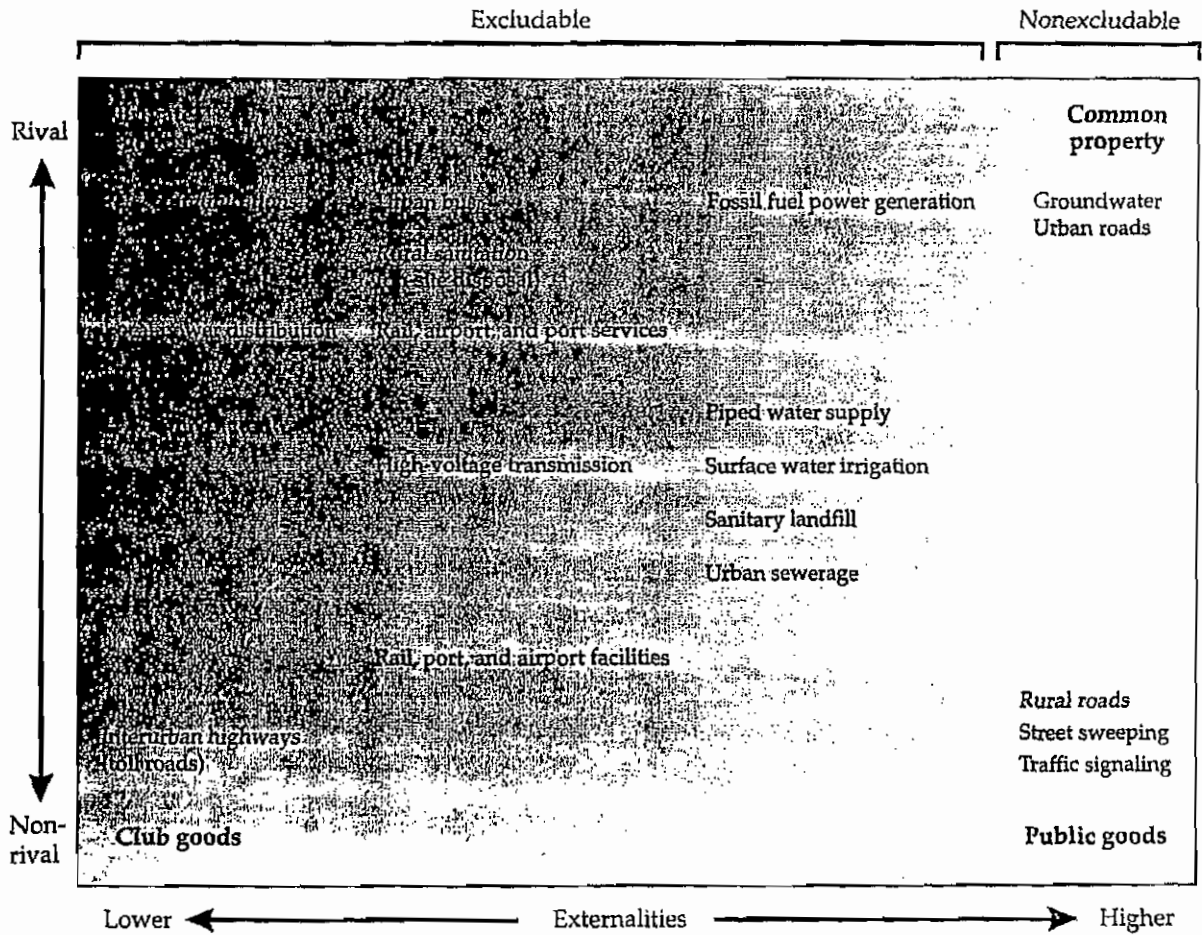
The clear **policy proposition** which emerges is that the two-fold characteristics of these expressions need to be recognized and efforts should be made to avoid the inadvertent destruction of social capital formation. Particularly, as it is not infrequent to find that macro-economic management (both fiscal and monetary) ignores the impact of economic policy on non-formal, non-commercial, voluntary social activities. In fact scant attention has been paid to these sectors in regional financial sector reform.

The final observation I wish to make would be to stress the likelihood of synergies based on the accumulation and use of social capital and other forms of capital, e.g., human capital, social overhead capital and institutional development. In fact it might well be that in different societies and at different times, the lines between these forms of capital are blurred and indistinct.

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Figure 1.3 Infrastructure services differ substantially in their economic characteristics across sectors, within sectors, and between technologies.



Note: Excludable means that a user can be prevented from consuming the good or service. Rival means that consumption by one user reduces the supply available to other users.

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