

CSLS-Industry Canada Workshop on “Productivity Issues in a Canadian Context”

September 29th, 2000 Lord Elgin Hotel, Ottawa, Ontario



"Economic and Social Aspects of Productivity"

Session 6 The Social Aspects of Productivity 3:00-4:00 PM

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Draft #1

September 22, 2000

Preliminary draft: comments appreciated. Since this paper is certain to be revised substantially please check with author before citation or quotation.

Economic and Social Aspects of Productivity

There is a very large literature on productivity, most of which is entirely economic in nature. Hence, the novelty of this paper is the joint consideration of social and economic aspects in productivity. The question, then, is twofold: (1) what is missing from standard analyses of productivity and (2) how should one incorporate social concerns in an analysis of productivity. To address these issues, the paper begins by asking how to define productivity, before proceeding to a consideration of the bidirectional influences of social factors on productivity, and the social impact of changing productivity levels. Reference is made to the paper *The Relationship Between Productivity and Economic Well-Being*, by Andrew Sharpe, and some other relevant literature. The paper concludes with suggestions for a future research agenda.

1. What is Productivity?

Careful thinking about productivity is useful, because the idea is sometimes defined in vague, or even circular terms. The *Concise Oxford Dictionary*, for example, defines productivity as capacity to produce; quality or state of being productive; production per unit of effort; effectiveness of productive effort.¹ The *Houghton Mifflin Dictionary* is at least fairly clear about what is being produced, defining productivity as of or involved in the creation of goods and services to produce wealth or value. A similar focus on goods and services is apparent in the work of Harris (1999: 2), who defines productivity as a measure of how effectively the economy's resources are translated into the production of goods and services. However, Barrell

¹*Concise Oxford Dictionary of Current English*, 6th Edition, Clarendon Press, Oxford University Press, 1976.

et al (2000:3) take a more general view: we would define (productivity) to mean output per unit of productive input.

Leaving aside the frequent use of qualifiers such as productive in the definition itself, productivity is certainly about the effectiveness of the process which creates goods and services. However, there is a certain vagueness in many definitions about what is being used up in the process an imprecision which is reflected in the continuing controversy over whether labour productivity or multi-factor productivity is the appropriate issue for analysis. In the more general definitions, productivity is about the ratio between outputs and inputs. Perhaps because this approach invites questions about what to label as an output and what to consider an input, economic discussions of productivity often restrict attention to those outputs which can be labeled goods and services. However, even in this case an accurate specification of the inputs used up in production is essential if changes in the level of productivity are to be correctly perceived.

In theoretical discussions of productivity, the assumption is often made that all inputs and outputs of the productive process have market prices that are determined in perfectly competitive markets, without externalities. In this case, the aggregate private and social value of outputs and inputs are identical and can be obtained by summation of the market value of inputs and outputs. However, if one is to be concerned with the real world, one must take seriously the possibility that some inputs² in the productive process might not have market prices.

In general, whether or not something has a market price depends on the institutional and legal structure of a society. Economists like to think of productivity as an issue which is

²By Ainput we mean any variable, the level of which affects the level of output of goods and services.

separable from the arbitrary institutional differences that one observes in different societies. In principle, economists would like to have measures of productivity which reflect differences in the technical relations of production, and not differences in institutional or legal arrangements. Whether or not a particular production process is judged highly productive should not, in principle, be driven by whether or not inputs in its production are priced in the market.

If, for example, meat packing firms in one country have to hire quality control inspectors, while in another country food standards inspectors in meat packing plants are government employees, the lower labour requirement (either measured as employees per unit of output, or as paid hours per unit of output) of firms in the latter country is a misleading indicator of labour productivity in the industry. More generally, the pricing of labour services depends on the institutional boundary between market relationships and unpriced services provided in the government and household sector. Hence, the number of employees (and measures of labour productivity derived therefrom) depend crucially on institutional structure.

However, in principle we would like to have measures of labour productivity which are not artefacts of the institutional structure. An accurate measure of labour productivity would not, for example, be affected if a system of wage labour in a capitalist economy were replaced by slavery. In a slave society, workers do not get wages and the stream of current labour services does not generally have a market price³. As a consequence, labour usage is therefore not reflected in the variable monetary cost of production. However, the fact that some labour input is unpriced should not, in principle, affect measures of labour productivity.

³The market price of slaves reflects the net value of future labour services, but becomes an element of the capital structure of firms. By the current conventions of National Income Accounting, labour services that are not exchanged for cash (as in household production, or the voluntary sector) are not counted in GDP. Firms and households that employed their own slaves would therefore be counted as employing very little wage labour (overseers, presumably) and having high labour productivity.

The deficiencies of relying on output per employee or output per paid working hour as a measure of productivity have been much rehearsed in the literature on multi-factor productivity. Measured multi factor productivity growth is obtained as a residual, after accounting for the impact on output of changes in inputs specifically considered, and it is clear that the stock of machinery and equipment generates a stream of services that one should measure as an input. A surge in output today, at the cost of neglected maintenance and a depleted capital stock tomorrow, is widely recognized as an inaccurate indicator of productivity.

However, although changes in the stock of purchased machinery and equipment can be estimated with the aid of (contentious) estimates of service life and market depreciation, there are a number of other stocks whose level is affected by the production process. Furthermore, plant and equipment is not the only stock whose level affects the level of output obtained. Whether or not these stocks have market prices depends, again, on the possibly arbitrary nature of national institutional and legal structures.

Accurate estimation of productivity trends should, in general, account for the unpriced inputs used up in production, and should not be sensitive to institutional changes which affect whether or not productive inputs have market prices. In the analysis of multi-factor productivity, for example, the measured productivity of the resource sector should in principle reflect its effectiveness in the use of natural resource stocks. In Canada's resource industries, there are many anecdotes of past wasteful production practices which made economic sense only because firms had to pay for labour and machinery, but did not pay for their impacts on natural resource stocks. Such production practices are not reasonably considered examples of greater

productivity.⁴ Measures of sectoral productivity should, in principle, not be driven by the proportion of the resource stock which is private, or by the mode of public sector taxation and royalty extraction from natural resources.

The definitions of productivity cited earlier do not limit their conception of input to the category of purchased input. Hence, accurate measures of productivity should not depend on the pricing mechanism in place for the use of environmental assets. Whether a firm has to pay for a pollution permit, or dumps its exhaust gases into the atmosphere for free, should not in principle affect its measured level of technical productivity. A full measure of multi-factor productivity should count the environmental assets used up in production, irrespective of the institutional mechanisms which determine whether or not firms have to pay a market price for the depletion of such assets.

In Section 3, this paper will review Sharpe's discussion of the impacts of rising productivity levels on economic well-being. That section of the paper relies on the discussion in Osberg and Sharpe (1998, 2000) of trends in economic well-being as a weighted average of trends in average consumption, aggregate accumulation, income distribution and economic insecurity. In measuring trends in the components of economic well-being, that work attempts to be comprehensive in nature. Aggregate accumulation is, for example thought of as encompassing

⁴Even if the resource base were privately owned, this would not completely solve the problem. Private ownership might imply a system in which either (a) the resource which is depleted is sold explicitly to resource extraction companies or (b) resources are owned by resource extraction firms. In the former instance, resource rents appear in separate balance sheets from any profits due to greater efficiencies in resource extraction, while in the latter case they are mingled. However, measures of sectoral productivity should not be affected by the proportion of private firms in each category.

the accumulation of human capital stocks, as well as net changes in the value of plant and equipment, and changes in consumption per capita are defined to include the value of increases or decreases in leisure, as well as consumption of market goods.

For purposes of analysis of productivity, the issue is whether an accurate measure of the costs of goods and services production should consider costs incurred along all four dimensions of economic well-being, whether accurately priced in economic markets, or not. The production of goods and services has implications for all four dimensions of economic well-being, all of which could legitimately be considered costs of production, but only some of which are priced (to an extent that depends on the institutional structure).

Accumulation for the benefit of future generations can, for example, occur either in the form of produced capital in machinery, equipment and structures (which is typically priced in capital markets) or in the form of changing levels of natural resource stocks (which is imperfectly priced) or in changing levels of environmental degradation (generally unpriced). An accurate measure of multi-factor productivity should account for the total resources used up in current production of goods and services which could have been passed to future generations for their benefit. The Index of Economic Well-being attempts to be comprehensive in its assessment of aggregate accumulation over time, regardless of whether the underlying assets are priced in the market process.

The costs of changes in inequality and insecurity can also be seen as unpriced inputs in production, in both a direct and indirect sense. In the direct sense, risk of loss of assets is a cost of many production processes, so in principle one would want the costs of a change that increased risk to be reflected in productivity measures, regardless of the allocation of the costs of that risk. For example, if a firm adopts a production process which carries a higher risk of fire, it may

decide to self-insure or to buy insurance against loss. Either way, the greater probability of loss is an economic cost associated with that production process - whether borne by firms in the industry or offloaded to the insurance sector⁵.

As well, one could imagine a change in work place technology that implies both an increase of 10% in output per able bodied employee and a 5% probability of permanently disabling workplace injury. It is possible to imagine an institutional structure in which conventional productivity statistics fully capture both the benefits and costs of this technology change - i.e. if firms were legally prevented from discharging disabled workers, so that both disabled and healthy workers continue to be booked against the associated technology. However, this is not the way things are done in Canada and in general the institutional structure of a society will determine the allocation of costs - whether disabled workers can be discharged without compensation, or whether they can purchase insurance, or receive compensating differentials in the form of higher wages for greater ex ante risk or whatever. Each of these institutional structures has different implications for the share of total injury costs borne by firms, either ex ante or ex post. The costs borne by workers will be reflected in a change in the observed income distribution, and insecurity about future income streams experienced by workers.

⁵If unlucky firms that suffer (for example) fire loss go bankrupt, while lucky firms are still in business at the end of the reporting period, sample selection bias may contaminate statistics on the productivity of technological change which involves greater risk.

In the workplace injury example, technological change increases the aggregate level of risk, but in general the impacts of change on the aggregate level of risk, and the allocation of an existing level of risk among individuals, are often mingled. For example, changes in production processes which reallocate labour often have the effect of changing the value of human capital stocks. To the extent that these changes simply reallocate the returns to human capital between different individuals with different types of human capital, the effect is redistributive (among workers)⁶.

However, the issue stressed here is the cost of changes in the aggregate level of human capital risk. If technological and institutional change were to increase the amount of pure churning that goes on in the labour market, but there was no increase in mean incomes, the utility level of risk averse workers would fall. The same amount of output would be produced, but at the cost of an increase in the inequality and insecurity experienced by individual workers - costs which are not necessarily priced in the market. To the extent that these costs are borne by households rather than by firms, they will be unrecognized in productivity statistics.

If technological changes increase the risk of unemployment due to layoff, or decrease the extent and credibility of guarantees of employment continuity, their costs are being borne by workers. To the extent that firms have to pay severance, or to keep employees on and invest in

⁶One way of thinking about human capital risk is to imagine a two stage process. In the first stage people either maintain their human capital value with probability P_{ai} or are assigned to the reallocation pool with probability $(1-P_{ai})$. Once in the reallocation pool, they draw their new human capital value from a distribution whose mean and dispersion varies with technological change and institutional structure, and with their personal characteristics. An individual's human capital risk is a compound probability, but the elements of the process are worth distinguishing.

their retraining, these costs are borne by firms. Either way, there is a real cost to the changes in production process which is being borne by some economic agents - but in the latter case, one can at least expect that firms will consider these costs in making their technology decisions. To the extent that firms have to internalize the human capital impacts of their decisions, one will be more likely to observe actual changes that reflect social costs - but in general, if such costs occur they ought to be considered in analysing whether such changes improve productivity. Depending on the allocation of costs between workers and firms, one will observe different patterns of ex post inequality and poverty outcomes and ex ante insecurities about the future. However, these changes in inequality and insecurity outcomes are unpriced consequences of the change in production process - unrecognized costs that should be reflected in productivity measures.

As well, changes in inequality and insecurity can be seen as having an indirect impact, in the sense that trends in their levels can be seen as affecting a stock. Although variously labelled in different literatures as the Industrial Relations Climate, Workplace Culture, Social Capital or Social Cohesion, there is a common perception in a number of disciplines that *something* inherited from the past influences the general level of morale, innovative behaviour, work effort, propensity to strike, likelihood of theft, desire to satisfy customers, willingness to cooperate with other workers, etc., of individual workers. Whatever label one affixes, it is clear that no firm pays a market price for the services of the general level of this input, although its level does affect the amount of output that can actually be obtained from any given amount of capital and number of workers.

It is clear that within workplaces, people tend to watch how other people behave, and adjust accordingly - hence norms of behaviour in workplace culture are very important to individual behaviour. Furthermore, although very important to firm productivity, these aspects of

worker behaviour are notoriously hard to measure and reward at the individual level (incentivize in the current jargon). Although the potential productive capability of individuals may depend on the skill set enabled by their education, health status and on the job experience, what individuals could do is generally different from what they actually do. To the extent that the output that is actually obtained depends on Workplace Culture, the Industrial Relations Climate or Social Capital, measurement of productivity trends that ignores the cost of unpriced changes in its stock will be misleading.

2 Impacts of Social Capital on Productivity.

Amartya Sen has argued that Technologies is often seen in highly limited terms, for example, as particular mechanical or chemical or biological processes used in making one good or another. The extremely narrow view of technology that emerges from such a limited outlook does little justice to the ‘social’ content of technology what Marx called ‘the combining together of various processes into a social whole.’⁷ The making of things involves not merely the relationship

⁷It is often forgotten that Marx himself had a very nuanced vision of the determinants of productivity trends in capitalist society. Although the core of Marx’s analysis emphasized the tendency to greater capital intensity of production and the class conflict between workers and owners, Marx also anticipated, in a generally positive way, modern trends to the multi-tasked, multi-skilled worker of the present day. A Modern industry, indeed, compels society, under penalty of death, to replace the detail worker of today, crippled with lifelong repetition of one and the same trivial operation, and thus reduced to the mere fragment of a man, by the fully developed individual, fit for a variety of labours, ready to face any change of production, and to whom the different social functions he performs, are but so many modes of giving free scope to his own natural and acquired powers. (Marx, 1887/1967: 488)

between, say, raw materials and final products, but also the social organization that permits the use of specific techniques of production in factories or workshops or on land. (1990:128)

In much of theoretical economics, the household side of the economy is modelled as a set of isolated utility maximizing individuals who care only about their private consumption of market goods and services. Firms are modelled as black boxes which absorb as inputs the labour and capital supplied by individuals and somehow generate market goods and services as output. Economic modelling often dismisses as too complex the twin facts that individuals (including economists) also care about other issues and that managers are needed within firms because the social relations which maximize the effectiveness of the production process are not inherently obvious.

However, there is a growing literature which stresses the importance of the social relations surrounding production. Why have social capital and social cohesion become such hot topics in economics in recent years ? Neither term fits the normal economics mold. Economics is a discipline which prides itself on precision, but both ideas are hard to define, and often confused with each other. Economists usually start from the perspective of a selfish, utility maximizing individual, whose interaction with others is limited to buying and selling in the market place - yet social capital and social cohesion are both about social relationships, group identities and the non-market dimensions of life. Nonetheless, the growth in concern for social capital and social cohesion is unmistakable⁸.

⁸The ECONLIT DATA base has 200 hits on the term Social capital, only 46 of which date from 1995 or before. Social cohesion has 59 hits, 25 from 1995 or before.

In part, the impetus for a rising concern with social capital and cohesion has undoubtedly come from events in Eastern Europe. When the Berlin Wall fell in 1989, there was a great deal of optimism among economists for the economic future of Eastern Europe. Although that optimism makes, in retrospect, embarrassing reading, at the time it was thought that economic growth would be rapid in the post-Soviet era. Because the Eastern European nations had technically sophisticated, highly educated labour forces and a great deal of capital, many analysts expected that the elimination of the dead hand of communist central planning would unleash the pent up potential of Eastern European nations for rapid growth. These expectations were based on the simple perspective that economic production occurs when capital, labour and human capital are combined at the workplace. Since many economists thought (and continue to think) that the price signals of an unregulated market are the most effective possible way of coordinating economic activities, they concluded that as soon as Eastern Europe acquired a market system, good things would happen. And if this was all there was to it, history would have turned out differently.

During the 1990's, the decline in living standards that has actually occurred in these nations, and the rise of gangster capitalism in much of the old Soviet bloc has pushed many to ask what went wrong. There is now a new recognition of the importance of the social context of market processes. As Sen has put it Although capitalism is often seen as an arrangement that works only on the basis of the greed of everyone, the efficient working of the capitalist economy is, in fact, dependent on powerful systems of values and norms. Indeed, to see capitalism as nothing other than a system based on a conglomeration of greedy behaviour is to underestimate vastly the ethics of capitalism, which has richly contributed to its redoubtable achievements.

(1999: 262)

Social Capital and Social Cohesion may be new jargon, and events in Eastern Europe may have given a recent boost to its popularity, but these are not really new concepts in social sciences. Within Western nations, there is a long history of concern with the social framework of market processes. Adam Smith noted in the *Theory of Moral Sentiments* Ch. V⁹ (1986:110-112):

⁹ Thanks to my colleague Mel Cross for this citation, and others similar.

The regard to those general rules of conduct, is what is generally called a sense of duty, a principle of the greatest consequence in human life, and the only principle by which the bulk of mankind are capable of directing their actions. . Upon the tolerable observance of these duties depends the very existence of human society, which would crumble into nothing if mankind were not generally impressed with a reverence for these important rules of conduct.¹⁰

There has therefore long been a concern in Western nations with the issues raised by the social capital/cohesion literature, even if early writings tended to be broader in focus, and less quantitative in orientation, than the modern social science tradition. Although much of the concern with Social Capital is motivated by larger political and Quality of Life issues, one can also expect impacts on productivity, conceived narrowly as the ratio between outputs and inputs. Figure 2.1 is drawn from a forthcoming OECD report on the importance of human and social capital and is intended as a schematic organizing framework to pull together a number of related points.

On the right, the desired outputs of the economic system are drawn as a set of concentric circles in order to make two points. Economic well-being is portrayed as a strict subset of well-being, in order to emphasize the fact that however ambiguous the distinction is between social and economic issues, some cannot be labeled as economic under any reasonable definition of economic. The set of issues which individuals care deeply about, and which contribute to their well-being, is broader than the set of economic issues. However, economic well being also

¹⁰ De Tocqueville devoted Chapter VIII of his second volume to how AThe Americans Combat Individualism by the Principle of Interest Rightly Understood. He claimed, , that Athey (Americans) show with complacency how an enlightened regard for themselves constantly prompts them to assist each other, and inclines them willingly to sacrifice a portion of their time and property to the welfare of the State(1961:146).

involves a broader set of issues than the production and consumption of marketed goods and services. Since the distribution of income, insecurity and accumulation for the benefit of future generations also affect the economic well-being of individuals, but are not captured in Gross Domestic Product, it is a larger concept than GDP. Finally, the set of goods and services produced for the market include some expenditures (such as commuting to work) which do not contribute directly to economic well-being.

On the left hand side, the boxes identified represent stocks of types of input. In this diagram, forms of capital are emphasized, each of which affect well-being, economic well-being and GDP. Physical capital in plant, equipment and inventory is now well measured in conventional national income accounting and routinely included in estimates of multi-factor productivity levels. However, Section 1 above has already argued that the services generated by natural capital, although often unpriced in economic markets, should also be measured in assessments of productivity trends.

The more unconventional part of Figure 2.1 is the shaded box. Its basic purpose is to identify the roles of the human element in production. By some criteria, one would include measures of health as an element of human capital, since both cognitive and physical skills (whether produced by education or on-the-job training) and health status are the characteristics of specific individuals¹¹. Both health and human capital are clearly important to labour quality, and hence to productivity, even in its narrowest sense.

¹¹The literature on socio-economic determinants of health (e.g. Lavis and Stoddart (2000); Wilkinson, 1996, 1999) has clearly identified both individual characteristics like education and societal characteristics such as the level of economic inequality as highly important determinants of individual health - arguably considerably more important than medical interventions to life expectancy.

Figure 2.1 also contains a box labelled social capital. There is vigorous debate about how best to define social capital, but for present purposes let us refer to it as norms and networks which facilitate collective action. In the recent literature, Knack and Keefer (1997) is an example of the literature which has argued that measures of trust can be seen as a useful operationalization of the concept of social capital originally proposed by Putnam (1993). Social capital is a characteristic of communities, and can be expected to increase productivity by increasing the range of transactions that people can engage in with confidence, and also by decreasing the transactions costs associated with trade. For example, to the extent that people can credibly trust other market participants, they can expend less resources on lawyers, pay for fewer anti-theft measures, and obtain credit more easily. Knack and Keefer find measures of social capital to be positively correlated with rates of economic growth.

Organizational capital can be seen as somewhat distinct, in the sense that it is specific to particular organizations such as firms, governments, etc. rather than to society as a whole but the importance for productivity of the expectations and patterns of behaviour within organizations built up from the past is apparent to any real world manager. Indeed, the soft technology of workplace organization and motivation has been observed in case studies to be the major focus of many real world managers, because it is so crucial to realized productivity at the firm level. (see Osberg, Wien and Grude, 1995)

The role of Institutions/Social Arrangements is identified separately in Figure 2.1 in order to highlight the importance of formal structures, as well as the more informal norms and networks already discussed. A large part of the problems of the transition economies have been traced to the sorry state of their institutions (such as the police and judiciary) and their social arrangements (such as unemployment insurance or medicare). Poorly functioning institutions

mean that individuals and firms have to develop substitute arrangements (like private security guards), whose costs often appear in productivity measures. Institutions and social arrangements constitute the framework within which individuals acquire individually productive characteristics such as human capital. These frameworks also condition the interactions of individuals within organizations and the broader community.

All this may be very well, but the sceptical reader is entitled to ask: How much might all this matter in the context of a country such as Canada? Hazledine's analysis of the failure of the New Zealand policy experiment is instructive in this regard. As he notes, the adoption of widespread structural reforms in New Zealand in 1984-91 has been followed by a period in which Macro-economic performance in nearly all measurable dimensions - GDP and productivity growth, unemployment, income distribution, balance of payments - has been worse than in the previous period in New Zealand and than in Australia since 1984" (2000:2). His explanation of the adverse macro trends is that whatever the efficiency gains micro economic reforms produced, they were more than eaten up by a substantial increase in the proportion of the workforce employed as managers to supervise more intensely an increasingly less cooperative workforce. By his argument, the social impacts of economic reforms - in a country not so very different from Canada - may be large enough to overwhelm any narrowly economic impacts on productivity.

3. The link between Economic Well Being and Productivity

This section reviews Sharpe's (2000) discussion of the relationship between economic well-being and productivity. In constructing an Index of Economic Well-Being, Osberg and Sharpe have argued that the aggregate utility or economic well-being to be derived from a given stock of wealth and flow of consumption of goods and services depends partly on how current consumption of goods and services is distributed and partly on how insecure individuals are in anticipating their future income flows. However, productivity is a narrower concept. If productivity is, in general terms, the ratio between the aggregate value of goods and services produced and the aggregate value of inputs used in that production, then inequality and insecurity can enter to the extent that they (1) affect the measurement of the outputs of goods and services or the inputs of resources used or (2) change the ratio between numerator and denominator (conditional on measurement).

Section 1 has already argued that if specific issues affect the level of output produced, it is often useful to think of the issue in terms of inputs to the production process, even if that input does not now have a market price. Accurate measurement of productivity should include consideration of all the costs of production of goods and services, both priced and unpriced. If all costs were counted, improving productivity levels would necessarily increase the aggregate value of resources produced in any given period, which could then be divided between current consumption and accumulation in whatever proportion desired by the current generation of decision-makers. Improving productivity does not, however, guarantee that current output is divided in optimal proportions between consumption and accumulation¹² - indeed, if a change in working relationships or technology produces a sufficiently large change in the

consumption/accumulation ratio, it is quite conceivable that this might outweigh any productivity gain.

Clearly, incorrect measurement of productivity means that one can no longer be nearly as sanguine about the relationship between productivity and aggregate consumption and accumulation. Measurement of labour productivity alone has long been criticized on the grounds that it ignores the influence of both physical and natural capital. It is easy to construct models in which labour productivity rises with the accumulation of physical capital, but consumption (and well-being) decline with the depletion of natural capital, if the price mechanism for natural and environmental resources is deficient. Comparison of the virtues of multi-factor productivity and labour productivity is a special (extreme) case of the more general case for including measures of all productive inputs. In analysis of multi-factor productivity, when only a subset of actual inputs are considered in the measurement of productivity, there is no guarantee that trends in economic well-being, measured and actual productivity will coincide.

¹²Osberg (1985) discusses why consumption and accumulation should be separately considered, since there are many reasons to believe that income flows are not always and automatically divided optimally between consumption and accumulation.

4. Conclusion

This paper has argued, in common with much of an emerging literature on Social Capital, that production processes occur within a social context, whose characteristics influence heavily the amount of labour and capital directly required to produce a given amount of goods and services. One way of thinking about the social framework of economically productive activity is to conceptualize a number of stock variables, (as in Figure 2.1) whose level influences the level of goods and services production. From this angle, one can see these stocks as unpriced inputs to the productive process - changes in which are an unrecognized cost to decisions about production technologies and social institutions. The research priority for the future productivity analysis is to more accurately identify and measure these stocks, and their importance for the level of production of goods and services.

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Figure 2.1 - A partial framework to understand the links between various forms of capital and economic and social outcomes

