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**RICH MAN, POOR MAN, BEGGAR MAN, THIEF – BUT WHO IS WHO
IN THE CAPITALIST ECONOMY**

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RICH MAN, POOR MAN, BEGGAR MAN, THIEF - BUT WHO IS WHO IN THE CAPITALIST ECONOMY?

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ABSTRACT

The thesis of this paper is that a free-market capitalist economy is biased against supplying basic needs of poor consumers and also biased against creating inventing and using green technology. We begin by identifying the patterns of perverse logic in the system of market supply and in the process of technological advance under capitalism. The first pivotal problem is that economic decision makers place too high a value on the time of the current generation of workers. Hence capitalist markets create and use technologies to produce goods and services that are geared to saving worker and consumer time, instead of being geared to conserving scarce non-renewable resources.

A second bias arises because of the existing inequality of wealth and the differential price of time between the rich and the poor. Demands for positional goods for the rich, which are time saving and resource using, crowd out demands to meet basic needs of the poor. Entrepreneurs react by satisfying the dominant, but wasteful, market demands of the rich, both in current supply and by responding to incentives to invent new products and processes that appeal to the rich. This has a further consequence in accentuating inequality, as prices fall and quality rises for products subject to innovation, and in driving up the relative price of skilled labour yet further, refueling the cycle of labour saving innovation at the expense of the environment.

Policy to redress these perverse pressures must be far more radical than those currently under discussion in either the 'Green' or the 'Poverty' forums. We argue for rethinking definitions of private property rights, to attach more importance to use rights than to ownership rights, where the corollary is that lack of use can cause loss of ownership. Although a wealth tax is an obvious first step in reducing the power of the rich to distort production towards resource intensive goods, it is never likely to be sufficient. Within consumption and production, policy should aim to increase the rate of utilisation of all durable consumer goods and productive capital. This requires incentives which promote rental markets for privately owned durables and restore shift working to ensure better capacity utilisation. The taxation of production could also change: incentives to business should be restructured to maximise the use of renewable resources, particularly of unskilled labour, and minimise the use of materials intensive techniques leading to the depletion of reserves and the creation of waste products. Finally the rewards to invention and innovation, whether through R&D tax credits or the award of intellectual property rights, must circumvent the present bias of invention for today's rich in order to address the needs of today's and tomorrow's poor.

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Rich man, poor man, beggar man, thief

In the wake of the World Summit on Sustainable Development in Johannesburg 2002, many people are asking why it has been so difficult to agree on strategies to improve upon world problems of poverty and pollution. The rich countries have made only small concessions in respect of new policies to alleviate poverty and have failed to agree on well-defined targets for reducing fossil fuel emissions. Why are the rich so hesitant about promoting growth in incomes for the poor and organising a cleaner sustainable world economy? In this paper we argue that the free market capitalist economy is biased against supplying basic needs of poor consumers and biased against creating and using greener technology. To see why this is the case we must examine the basic mechanisms of the capitalist system to expose its perverse logic.

Private ownership underpins capitalist markets, but we need to ask whether so much private ownership of goods is necessary and productive. Does private ownership in fact lead to theft of the limited resources of the planet? If so, are the rich really the thieves? Are the poor better at preserving the future of the planet? Are both beggars and thieves ultimately greener and more redistributive, in their attempts to recycle an excess of under-utilised goods from richer to poorer households?

Property rights and the institutional basis of capitalism

Private ownership of the means of production is frequently seen as the *sine qua non* of a capitalist economy. It has been argued that the fundamental institutional basis of capitalism is well-defined private ownership of property, without which markets cannot function effectively (Makowski and Ostroy, 2001) and economies cannot begin to grow and develop (Jones, 2000). A recent paper by Skaperdas and Syropoulos (2002) argues that the efficiency of exchange via markets can be severely compromised by the presence of contested ownership and enforcement costs. In contrast Putterman et al. (1998) provide a critique of the literature on equality-efficiency trade-offs and conclude firmly that: 'Economic theory still provides no proof of the superiority, much less the necessity, of either unabridged private property or of its highly unequal distribution....While the operation of unfettered markets engenders great inequalities of wealth, claims that markets would be inefficient without such inequalities are largely speculative.'

Few authors dispute the fact that private ownership fuels inequality in practice. Once private property is well established and property rights are accepted as inalienable by force, remaining with their owner unless sold or gifted to another via inheritance, inequality is likely to be a persistent feature of the system. This inequality can be generated within any generation by good or bad fortune and is be perpetuated between generations through inheritance (Atkinson and Harrison, 1978; Hills, 1995). Even with the growth of the new assets of intellectual property and knowledge, access to ownership is still inhibited by inheritance and access to private capital markets, without which

people are limited in respect of investment in education and access to information. So we observe a division of populations into rich and poor both within and between societies.

Thus the rich own deeds of title to durable assets, which bring entitlement to use or sell properties, the receipt of profits now or in future from enterprise, and they also command high wages from their skills based on education and experience in production. The poor comprise two groups: the working poor, who own rights to their modest earnings from working in lower skilled employment, but have few other assets; and the non-working poor or 'beggars', who have no assets and no work, and rely on transfer incomes from the state or charity from other individuals. Thieves can come from any of the above classes, but essentially they operate in opposition to private property rules by taking what they can from others and recycling these goods in second hand markets.

Moving from the status of poor to rich

Can people escape from their inherited position and make the transition between groups? Entrepreneurship and work incentives are supposed to offer the opportunity for any poor person to transit from the bottom to the top – this is the American dream and the post-Thatcher vision in the UK. Nevertheless the transit routes from poverty to riches by the legal means of work and enterprise are limited by many factors including both inherited wealth and genetic ability. The legal system protects those with private assets and consumption goods against theft and also sets the rules for transfer payments and charitable operations. Individuals are free to choose to become thieves if they view the likelihood of being caught and the expected punishments as being worth less than the benefits of stealing.

So what are the general facts about distribution? Wealth in the US has become more unequal during the 1980s and 1990s (Wolff, 1998); a recent British study concludes that intergenerational income mobility has declined (Blanden et al., 2001), suggesting that in both societies the rich are gaining over the poor both within and between generations. This pattern is also prevalent in several other rich countries, with the contrary experience of progress towards reduced inequality of incomes being the exception rather than the rule (Gottschalk and Smeedling, 1997).

Cross country analysis of average incomes tries to offer a more optimistic view: growth theory predicts that average incomes per capita are expected to show some convergence over time due to investment and technology transfer. Even so, Jones (1998) presents figures to suggest that, even in the very long run, half of all countries will remain at levels below 40% of the income of the leading country and most countries will not reach these steady state positions until between 200 to 300 years have elapsed. Far from being discouraged by his own figures, Jones toys with the view that the past slowness might be attributable to the slow diffusion of the capitalist system. A more pessimistic view of the prospects for the poor is offered by Deardorff (2001), whose model of trade and growth illustrates how countries that start out different may remain so. So already we see that

existing economic systems appear to generate and sustain inequality. Why then are there so many champions of the cause of free markets and private ownership?

Claims made by economic theory concerning the operation of competitive markets

Since Adam Smith first elucidated the ideas of enlightened self-interest and the superiority of unfettered markets (Smith, 1776) there have been powerful arguments in economic literature that economic efficiency and progress are best served by competitive capitalist markets. The concept of consumer sovereignty encapsulates the idea that demands for goods and services will shape patterns of production so the most strongly desired items will be produced and sold. Resources are then allocated 'efficiently' by competing entrepreneurs responding to consumers' willingness to pay, rather than to direction from the state as in centrally planned economies. The inexhaustible wants of consumers will continue to command production through time under capitalism and the competition between producers for scarce production resources will ensure that factor prices reflect scarcity.

The competitive capitalist market is argued to be an efficient mechanism in the dynamic sense too: as long as entrepreneurs can compete for profits using innovation they will do so and in the process they will benefit their customers (for a recent restatement of the way competition acts to improve productivity see: Carlin, Haskel and Seabright, 2001). With some help in the form of intellectual property protection for invention, the market offers incentives to invent new or better methods of production and design new goods and services. These new products will gain a market share if they can do one or more of three welfare-improving things: reduce explicit production costs for existing products (process innovation); broaden the range of products (product innovation, filling gaps within the range of current product variety); raise the quality of the product (product innovation offering novel characteristics and rendering existing products obsolete). So far so good, but does this type of economic system deliver what people ultimately value and is it sustainable?

Beginning with the second question, Georgescu-Roegan (1971) demonstrated that the economic process is not sustainable when it continues to rely on fixed stocks of the earth's resources. The economy transforms non-renewable energy and materials into a mix of consumer goods and waste products without reference to the entropy law. The latter states that, in any transformation of matter, the share of bound energy will increase as a proportion of total energy, comprised of available (usable) energy and bound (inaccessible) energy. Thus the use of natural resources to produce goods for human satisfaction must be adding to waste or pollution and the process cannot be transformed by technology into any kind of clean, perpetual motion machine. The way forward is to use renewable solar energy as much as possible to minimise the use of non-renewable resources. But for economics rather than for technologists there is a prior question – are we actually producing goods and services which succeed in adding to human satisfaction?

Inter-group distribution – rich versus poor, public versus private goods

There is increasing evidence that under the present distribution system, increasing economic wealth among the already advantaged does not dramatically increase human happiness. A recent survey of the literature on the economics of happiness (Frey and Stutzer, 2002) concludes ‘The empirical research on happiness has clearly established that at a given point in time, and within a particular country, persons with higher income are happier. Over time, however, happiness in western countries and Japan does not systematically increase, despite considerable growth in real per capita income. This can be attributed to the rise in aspiration levels going with increases in income.’ According to Easterlin (2001) too, although people always expect to be happier in the future as their incomes grow, the average happiness over the life cycle of the individual remains constant as aspirations expand. People are thus always disappointed with their material increase in welfare; the familiar adage of ‘the more you have, the more you want’ appears pervasive.

This evidence does not deny the opportunity to advance the happiness of the poorest by redistribution within societies, but much economic analysis has focused on the efficiency losses arising from taxation designed to achieve redistribution, but which adversely affects economic incentives. The potential for government to act as a redistributive agent without efficiency losses is very extensively explored by Putterman et al. (1998), who suggest that wealth redistribution could exhibit positive feedback by expanding access to investment in education.

There are other supporters of the view that political aims of reducing the role of government in advanced economies may be misplaced. Ng (2000) has criticised the under-valuation of public versus private goods and the overestimation of the distortionary costs of taxation, on the grounds that private goods are more environmentally degrading than public goods, and that private income does not increase happiness in a society where relative income matters. The policy implication is that increased provision of public goods could be more welfare improving and less market distorting than allowed for in conventional analysis and policy.

The above studies hold back from any more radical conclusion, such as that the invention and production of more and better quality goods for private consumption by the rich is a pointless waste of scarce world resources, even though the incentive structure of the free market economy drives economic activity in this direction. Our appraisal goes further to argue that the private market is essentially flawed as a mechanism for delivering economic satisfaction to the poor in the short term, or economic survival to all in the long run. First, we examine whether the capitalist system could ever offer an economic mechanism suitable for a sustainable world economy. Second, we offer a rationale for the idea of ‘rising aspirations’ and constant happiness, based on the fixed time and energy constraints facing richer individuals.

The basic intertemporal conflict – today’s versus tomorrow’s consumers

The first fundamental problem of a capitalist system which exploits finite (non-renewable) factor resources is that it fails to allow for the divergence between social and private rates of time preference. The first (social rate) is society’s willingness and ability to preserve stocks of finite resources, and hence to wait for future consumption and rewards. The second (private rate) reflects the private citizen’s increasing unwillingness to wait for anything, given that he or she has a finite life-span. If future events affecting the unborn generation were to be given the same weight as present ones, then the social discount rate would be zero and in any calculation future costs and benefits would have a weighting factor of unity. A recent survey (Frederick et al., 2002) shows a wide range of estimates of the private discount rate, but emphasises that the private discount factor is uniformly below unity in empirical investigations. The median of the 42 studies surveyed implies a weighting factor of around 0.82 (private discount rate 22%) to an event as little as one year away (Frederick et al. 2002, Table 1, author’s calculation of median).

The economic literature concerned with social choice, including environmental or ‘Green’ issues, has long acknowledged this problem and has encouraged government to redress this imbalance (Layard, ed. 1972, part III). These authors argue that this can be done by using lower discount rates (reflecting social time preference) for public projects with long duration and/or by taxing finite resources to slow their rate of extraction and exhaustion. These policies are useful but they barely scratch at the surface of the problem and they ultimately fail to move the capitalist economy to a sustainable economy. Why is this?

At root the problem is more complex than that of correct time discounting by today’s consumers: future generations of workers and consumers are not simply missing from the democratic political process, and thus unable to swing social discount rates in their favour. More importantly, they are absent from both the perceived factor supplies and from the observed market demand, viz. the expression of purchasing power in the market today. Thus they are simultaneously missing voters, missing workers and missing consumers and it is these three problems which interact to produce the biases of capitalism.

Perverse factor prices and technology biases

We characterise the result of the twin problems of missing voters and missing future workers as leading to a bias in the resource intensity of patterns of supply. From a long run social perspective, people, or the collective labour power of workers, are the ultimate renewable resource in the production of consumer goods and services. But under market capitalism they are treated as a scarce resource in the design of production systems, with scarcity reflected by the wage which reflects the current generation’s own evaluation of the scarcity of their time in their finite lives. Human beings are reproducible resources and thus ‘Green’. However, because of their high rate of time preference and the value

they place on leisure, they are priced in the factor markets as if they were increasingly scarce, depletable fixed resources. This problem of apparent scarcity is being exacerbated in Europe by low birth rates, which have evolved as more women have chosen careers over motherhood, although in the US the birth rate has increased again after an initial fall (The Economist, 2002).

In contrast to the renewable people, all types of capital equipment, production plant and tangible intermediate goods are characterised by the inability to reproduce themselves. They all embody some elements of non-renewable resources, whether in terms of raw materials or energy for their construction and transport. Entrepreneurs seeking to make an entry into a market by harnessing technological change are driven by a desire to make profit; they do not face any incentives to be labour intensive and capital minimising. Too low a price is put on the exploitation of limited resources (capital and energy) and too high a price on labour. Profits can be raised by responding to these biased prices: by economising on expensive high wage labour using sophisticated equipment, by economising on storage of semi-finished stocks using fuel intensive just-in-time delivery of small batches of parts and materials, and by producing the goods and services desired by those with the biggest purchasing power.

The technical possibility for capital-labor substitution, particularly evident in manufacturing, has led to highly capital-intensive production, lower market prices and higher quality of items subject to technological improvement. However the environmental cost is high, as such goods may not perform dramatically better in use than earlier vintages of goods produced with more labour and less scarce resources. To the extent that they show real quality improvements per unit price, there is a rise in real wages for the current generation of worker/consumers. Their lives are finite and their time is individually scarce, although collectively renewable; so the increase in real incomes due to innovation raises the costs of their labour further and stimulates labour-saving environment-depleting production technology again.

There are further types of technology bias in invention and innovation driven by market size and profitability. Producers will invent products according to perceived demand and the urgency of the demand will vary by income group. An important set of examples is explored by Schmitt and Wadsworth (2002), who show that the ownership of personal computers, which provide access to modern information and communications technology (ICT), is much greater for those with higher incomes. Similarly ranked rates of adoption by income group were observed with earlier innovative goods that are now mature products, such as vehicles, and washing machines. They demonstrate that the ownership gap between rich and poor only begins to close after the highest income group reach product saturation, but their study also demonstrates that there is incomplete elimination of differential ownership rates, as the low income consumer market is saturated well below 100%, locking in inequality. Thus, despite the hope that ICT will offer help to disadvantaged groups, for example using the Internet to gain cheap information, it appears that most new technology and innovative products will be of greater advantage to

the already well-off who adopt them most rapidly. This is the market which the profit-seeking designer of tomorrow's products will target.

Placing today's luxury wants above the basic needs of today and tomorrow

As well as these biases in production and innovation, the capitalist system also exhibits bias in the satisfaction of competing demands. Although basic economics teaches that the relative scarcity of production resources is generated by competing and inexhaustible demand, many demands are in no sense necessities. We can conveniently divide consumer demand into two types, labeling these as 'needs' and 'wants'. With 'needs', demand is for items which satisfy the basic human need to survive in a reasonable state, e.g. food, drink, shelter, health care. In contrast 'wants' describes demand reflecting the desire for luxury in excess of need; these commodities are not necessary for survival in good health. Textbook economic theory claims that resources are always insufficient to meet all the demands in the market. It then proceeds to discuss how scarce resources are allocated to competing demands without reference to whether the demands reflect needs or wants. The possibility of satiation in demand is also given very little attention in standard economic theory.

Why after so many years of economic growth do we observe simultaneously unmet needs of the poor and seemingly inexhaustible wants demand from the rich? Why are the rich not yet satisfied, so that entrepreneurs in the market can turn their resources to supplying the needs of the poor today and harbouring resources for supplying basic needs tomorrow?

There are a number of factors leading to consumption bias towards wants in patterns of demand. The first was identified above – the capitalist market reality is that expressed demand is greatest from those who are here today and have the most purchasing power. The market will strive to satisfy the demands of those with purchasing power, but will be less inventive in regard to the basic needs of those with no income. But even so, eventual satisfaction or satiation of the greed of the rich is never achieved – why not?

A second and more subtle feature of demand is that relating to competition for status. After satisfying their basic needs, the rich use their purchasing power to move on to the purchase of positional manufactured goods. By definition there is an inexhaustible demand for positional goods; all can compete, but few can win the positional race. As each new good is introduced there is a competition to be in the elite club of winners, one of the first owners of the latest positional good.

On top of this desire to be first, another bias in demand by the rich arises from the differential price of time of rich and poor people. Asset owners and high wage earners face an imbalance between their limited time endowment (finite lifetime) and their high wealth/income/goods endowment. (Linder, 1970; Scitovsky, 1976). As people become richer they have more options open to them in their use of time but their time endowment

does not rise to match the growth in their incomes. This leads them to shift their patterns of consumption towards goods intensive activities and away from time intensive ones. Hence they will discard old but functional home equipment and personal goods and purchase new varieties of positional goods, which permit them to display their wealth without any increase in the time needed for consumption.

However the rich do not just focus their spending power on tangible goods. They also demand services which free up their personal time from mundane tasks – hence we also see a very large growth in prepared foods, in restaurants, and in information services. They also demand help to manage their assets in order to maximise their wealth – employing lawyers to protect their rights of ownership and financial specialists so that they can enjoy maximum rates of return on their assets.

In its description of the use of scarce factors of production again the textbook economic model glosses over key issues. Labour is paid the marginal value of output and this production of labour services is always assumed to be satisfying a genuine economic need. A paradox of our labour market is that some of the highest earners, who work in the City are not fundamentally creative, in the fashion of either industrialists or even restaurant chefs. Rather they are wealth value preservers, acting as managers of portfolios of the assets of the rich and aiming to maximise the price of their claims on income and profit streams, without contributing directly to the industry and trade processes which generated the incomes. Living from a share in these marginal changes in asset values can give them the personal economic power of high earners, although much of their activity comprises a process of obtaining income for themselves and their clients by being on the positive side in a zero-sum trade. Thus no account is taken in their earnings of the losses sustained by small savers without access to the City's sophisticated information set, whose portfolio value may have gone down as a result of their activity. At heart we see again the potential for positional demands of the rich to divert production resources away from the supply of goods and services with real need value for all.

The paradox of poverty amid plenty in the rich world

To fully explore the way in which the demands for positional goods raise the supply price of basic goods and also prices of important complex services we outline a descriptive model of an advanced economy open to international trade.

Commodities:

We can denote at least six main types of commodities, which have the following characteristics:

1. Basic goods

These are goods used by all, which are needed for survival and are produced with mature technology,

e.g. food and drink, unbranded (or cheap brands of) clothes.

2. Basic services

These services are used by all, and produced with mature technology,

e.g. public utilities, building and maintenance of roads, construction of low budget housing, also supply of catering and leisure facilities.

3. Complex goods

These are goods with real value for all, but which require both R&D and use of skilled labour in production, so they are expensive in unit cost compared with basic goods,

e.g. pharmaceuticals, vehicles including aircraft.

4. Complex services

These are services with significant value for all and which require the use of highly skilled workers,

e.g. teaching, medical care, music and the arts.

5. Positional goods

These are goods which add very little real function above the basic goods they replace, or which remain significantly under-utilised for much of their existence, but allow purchasers to gain status due to their limited ownership and high prices,

e.g. designer clothes, big screen TVs, 'surround sound' systems, top class kitchen equipment, jacuzzis, yachts, second homes.

6. Wealth management services

These are services used by those with wealth to maximise the value of their wealth,

e.g. individual use of information and communications technology, portfolio management and share services, insurance brokers.

Consumers:

There are two consumer types, rich and poor, delimited by wealth/income. These groups incorporate the two types of labour, skilled and unskilled respectively, although not all rich and poor need to be working. Thus besides the skilled workers, other rich consumers may be those who have retired with high incomes, or are not employed through choice due to inherited wealth; in addition to unskilled workers, other poor people may be those who retired on a basic pension or the unemployed.

Rich people consume all types of goods and services types 1 to 6, but with a relatively low budget share being devoted to basic goods and services, 1,2. Their surplus income beyond necessities, 1 to 4, is devoted to the purchase of positional goods, 5, which are high value added products for the producer. Because they are seeking rank by purchasing highly priced goods and also because they place a high value on their own time their decisions are not very sensitive to price, nor to the usefulness of the objects they buy, which are more for display than for consumption.

The rich also buy financial services, 6, to economise on their own time use and maximise the value of their wealth. In contrast, poor people consume largely the first four types of commodities; they devote a high budget share to basic goods and services needed for living and have to pay attention to their prices and the utility value of the items bought.

Markets:

Incentives to innovate are low in 1 and 2, basic goods and services, where the technologies are mature, profit margins are low and the growth of demand is relatively slow. They can be much higher in some of the other categories: e.g. the potential for product innovation using technology breakthroughs or new designs is high in 3, complex goods and 5, positional goods. The opportunity for short term profit is high in goods where the innovation is design rather than invention based, e.g. type 5, positional goods such as designer fashion. However the opportunity for medium term profit is high where R&D produces patentable invention, e.g. 3, complex goods, such as medicines. The opportunity for process innovation by making cost savings in production by means of capital - labour substitution are also large for these groups. In contrast these opportunities are much lower in 4, as these are services requiring interpersonal communication and “hands on” use of skilled labour. They may also be lower in some areas of 6 needing interpersonal communication from skilled workers.

Innovation in 3 and 5 will produce lower real prices (either price falls or quality rises) and this reduces the average price of goods purchased by the rich faster than for the poor, who consume fewer of the commodities subject to innovation. This makes the rich better off and feeds the inequality of incomes. Due to the lure of the large market, coupled with technical invention and design, and scale economies of their manufacture or supply, positional goods for the rich, and leisure services reliant on complex equipment, such as air transport, are provided ever more cheaply relative to complex services, such as health care for the old, residential care for the mentally ill, or pastoral care for the delinquent.

Figure 1 - Competition for workers between sectors

Labour type	Globally traded goods and services (Products)	Non-traded services (Occupations)
Skilled worker pool: High demand Rising wages	A: Commodities 3, 5, 6 - High tech. Manufacture (Drugs, Designer Goods) - High tech. Services (Financial Services)	B: Commodities 4 - Health services (Doctors and Nurses) - Education services (Teachers, Lecturers)
Unskilled worker pool Low demand Falling wages	C: Commodities 1, 2 - Low tech. Manufacture (Food and Beverages, Construction) Simple information and financial services (Call centres)	D: Commodities 2 - Distribution (Shop assistants, Drivers) - Hotels and catering (Chefs and waiters)

Competition for resources of skilled labour from positional goods and wealth management services means that the complex goods and services which have real value to all will cost more than if these latter demands did not exist. However feeding

positional goods markets with a supply of new products is attractive to producers because of the boost to market share and the higher profit margins. A particular problem of production and pricing arises in type 4, complex services, which become continually more expensive relative to other items through time even though they are necessities. This problem was first recognised by Baumol and Bowen (1965) in the context of the performing arts. To see this we can review the operation of the labour market in the context of an economy open to international trade, which reveals a further dynamic problem of greed-biased capitalism. In an advanced economy with a relatively high endowment of skilled workers, the process of international competition will enhance the pressures from within the economy to specialise in the production of skill intensive products, importing tradeable low skill items.

The array of production above differentiates products by their skill intensity and by the extent to which they are internationally traded. We see that the rising export demand for traded goods in commodity types 3,5,6 causes skilled workers to be drawn into sector A. This makes it very expensive to supply products from sector B which produces commodities of type 4. At the same time imports release unskilled domestic labour from the production of basic commodities, so wages fall in the unskilled sector and resources are then available to supply staff for construction and leisure service activities. Again the process interacts with unequal consumer incomes as the old, unhealthy, poor need more care workers than the young, healthy, rich who patronise restaurants.

The two sectors suffering the greatest problems of funding in many advanced capitalist economies are the complex services of health services and education. They are often provided in the public sector precisely because they are seen as merit goods, which are desirable and necessary for all and should not be subject to market pressures. Ironically this relegates them to being cash limited by the public expenditure constraints, leading to the familiar twin problems of underpayment of their skilled workers and rationing of the inadequate supply. Yet more adverse dynamics appear as a result. Restrictions on the supply of medical care undoubtedly exacerbate problems of absence from work of all types of workers. Once again this makes labour appear more expensive than its long run marginal cost when healthy, leading to continued pressure for failure-proof automated processes. Even more ironic is the feature that the future skill base of an advanced capitalist economy depends critically on the quantity and quality of teaching in schools, universities and vocational training institutions. Constraining expenditure in medical services is analogous to an agricultural economy failing to mend fences and protect the harvest; under-spending in education is analogous to an agricultural economy eating its seed corn.

Policy to redress the perverse logic of capitalism

Rethinking property rights:

Ownership of private property in advanced societies frequently limits goods and assets to be kept for the exclusive use, and right of disposal, by individuals. No censure is obtained

for failure to use privately-owned durable goods, whether these are production facilities or consumer durables. Also, even if the durable goods depreciate, provided they do not impede or harm others, the owners generally face no penalty. We argued above that the under-utilisation of consumer durable goods is directly linked to both the high private price of the rich individual's time and to their desire for positional goods. The underuse of production capital, especially equipment and buildings that are seldom used round the clock, is also a consequence of the unwillingness of individuals to work unsocial hours, coupled with the undue cheapness of capital goods. However such over-consumption and over-capacity entails an excessive rate of depletion of scarce environmental resources.

We can contrast this exclusive ownership and ultimate power to waste resources with leasehold occupation under restrictive covenants. There are many examples of leasehold ownership of property for fixed periods, where the freehold owner derives a small rent and may have rights of inspection, while the lessee has obligations to maintain the property. Restrictions on the type of use permitted, whether commercial or education or for housing, are also widespread. It would be possible to write in further covenants requiring occupation and use for minimum fractions of time, with a penalty of the lease being withdrawn if these conditions are not met.

The freeholder here needs to be the state or a local community, rather than another individual. We see this kind of arrangement with common ownership of land by tribal groups in West Africa (Toulmin and Quan, 2000). Under tribal ownership, the use of land for agricultural production is awarded to particular families without their being given private title to the land, which remains with the tribe as a group. In such cases, failure to plant any seeds or taking actions which caused degradation of the land can lead to a loss of these use rights. As Cousins (2000) points out, far from leading to a tragedy of the commons, which only arises where there is no title and unrestricted access, communal ownership of land can balance the allocation of land rights for different uses. The same territory which is in private use during the rainy season for crop cultivation can be offered to another group for grazing during the dry season, ensuring full capacity utilisation.

Another useful model for thinking about this problem is that of local public goods, a concept developed by economists to describe goods which can be used by more than one person but which have limited capacity and are subject to congestion. Walking past any marina or docks we see many boats which remain at anchor for months at a time. Second homes often stay vacant for much of the year, yet these private goods could be thought to display the characteristics of local public goods in that many users could occupy them for holidays without reaching their congestion limits. Should their owners be chivvied into renting these assets to obtain better occupancy rates and to prevent the need for new production entailing resource depletion? Should there even be fair use rights for squatters on boats or in buildings which are under-utilised? The defender of the market would say that if it was profitable to do so then the owners would rent, but this potential for profit depends on the owners' time costs (too high to oversee transactions) and existing tax structures (too low to reflect real resource costs).

Personal incentives and taxation:

We could begin by breaking down the cycle of division into rich and poor. This cycle is very closely related to the inheritance of wealth and to the effects of family background, whereby inequality of opportunity in childhood creates strong correlations between the success and failure rates of different generations. An annual wealth tax would provide a starting point. Inheritance could be capped to allow only the transfer of small asset values, to break the intergenerational inheritance of inequality and reduce incentives to hoard stocks of assets for children.

For environmental reasons we need to institute progressive taxation of wealth held in physical assets, with particular emphasis on penal taxation of under-utilised assets. For example at present second homes pay lower council tax than the first property; Muellbauer and Cameron (2000) identify this as a problem of inequity and argue for equal rates; but based on the embodiment of scarce resources which are underutilised, they should be charged at more than full rate. Similarly those with two TVs per household pay the same licence fee as those with one, but to avoid wasteful consumption the rate should be more for the second. Car tax has been historically set per vehicle although recently varied by engine size and emissions; but rebates could be offered to those using older vehicles to encourage their repair and maintenance and avoid new purchases, subject of course to meeting good emissions standards.

In society, we need to create a new status culture, which is critical of personal asset stock-building and the purchase of positional goods, whilst being very positive about community service. This requires the use of status rewards in companies and communities, so that people begin to view the conduct of 'Green' service activity to satisfy needs, rather than personal ownership of a wasteful excess of goods, as the basis of social status. In the UK we already have a system of honorary titles, which can be won by service to the community, but this system is at present too narrow and achievement is not sufficiently restricted to those making socially efficient contributions, as distinct from engaging in privately profitable activity.

Taxation and regulation of production

Can we avoid ecological degradation causing transition from rich, to poor, and finally to non-existence? To commence any improvement, capitalist economies must try to create social value incentive systems in production. An ideal system of taxation would rate every product for specific tax rates, which would rise according to its heritage cost (depletion of non-renewable resources) and according to its inequity cost (contribution to the stock of under-utilised assets of the rich which raises prices to the poor).

This would mean correspondingly low taxes on labour use in the production of consumable (disappearing) and necessary services, such as care for the elderly or sick. In contrast, we would tax labour most heavily when employed in the production of durable goods which embody scarce real resources both in their construction and disposal. Taxes

on durable assets and on the capacity of plant and buildings could be set inversely to their length of life and to their rate of utilisation. We would also need to support big charges on energy consumption and on waste disposal. All the above will cheapen uses of renewable labour in the production of essential services, relative to the manufacture of goods by capital intensive and resource intensive methods.

Technology bias

We have in place a system of intellectual property broadly composed of patents and designs, trade marks, and copyright. Patents reward inventors of genuinely novel items, provided that these have an industrial application, but the inventor has to document and display the details in the public domain so that others may learn from the invention. Trade marks protect a company's right to trade under their company name or sell branded goods using an established trade mark, to validate the origin of their goods and services. Copyright protects the rights of authors to their text, but it does not generally protect the use of the ideas contained therein and it preserves fair use for non-commercial purposes, such as personal study.

These various rights are meant to preserve incentives for creative activities of both a commercial and a cultural nature, while also offering opportunity to followers to improve upon what has gone before. Given that these are intangible knowledge based goods, there are considerable grey areas about who created many of these assets and whether society should award monopoly rights for exploiting these inventions and creations. Sole ownership is often not justified and, as the intellectual property literature argues (Scotchmer, 1991), there are many situations where the basic inventors do badly and those who add the last brick to the pile do very well. Equally there are many questions arising concerning the social value of the rapid evolution of IP rights in information and communication technologies.

However, IP rights could be adapted using existing legal policy: for example there are precedents in UK patent law which bear on the issue of under-utilisation but which are not universally in force. Courts here have the power to grant a compulsory licence if a patent is not being exploited by the holder, but a private application for a licence to produce the item by another party has been refused. More generally, the issue of what is a sufficient contribution to merit a patent, or a compulsory licence, can be adapted to fit with the desired incentive structure for satisfying basic needs and preserving societal resources. At one extreme society can create big incentives for socially desirable technical advances if no IP protection were awarded unless the inventor can either show improvement of supply for basic needs or provision of greener technology. However this could still fall short of offering optimal pricing of the invention during the monopoly afforded by the IP right.

Important moves have been made to try to balance innovation driven by private profit with government sponsored research, but these have not often been able to deliver the key results. For example, Glennerster and Kremer (2000) describe the abortive attempts of the

USAID to fund research into a malaria vaccine over many years. In the US the Vaccine and Microbicide Tax Credit legislation offers new rewards for companies inventing vaccines for Third World diseases; the subsequent introduction in the UK of tax credits for research into vaccines also represents a new injection of funds to repair the technology bias of existing R&D against basic diseases which affect the world's poor (Inland Revenue, 2002). The importance of guaranteed markets for vaccines is also stressed as a policy route to rebalancing incentives (Glennerster and Kremer, 2000).

Conclusions

We have argued that a free-market capitalist economy is biased against supplying basic needs of poor consumers and also biased against creating green technology. We began by identifying the patterns of perverse logic in the system of market supply and in the process of technological advance under capitalism. The first pivotal problem is that economic decision makers place too high a value on the time of the current generation of workers. Hence capitalist markets create and use technologies to produce goods and services that are geared to saving worker and consumer time, instead of being geared to conserving scarce non-renewable resources.

A second bias arises because of the existing inequality of wealth and the differential price of time between the rich and the poor. Demands for positional goods for the rich, which are time saving and resource using, crowd out demands to meet basic needs of the poor. Entrepreneurs react by satisfying the dominant, but wasteful, market demands of the rich, both in current supply and by responding to incentives to invent new products and processes that appeal to the rich. This has a further consequence in accentuating inequality, as prices fall and quality rises for products subject to innovation, and in driving up the relative price of skilled labour yet further, restoring the cycle of labour saving innovation at the expense of the environment.

Policy to redress these perverse pressures must be far more radical than those currently under discussion in either the 'Green' or the 'Poverty' forums. We argue for rethinking definitions of private property rights, to attach more importance to use rights than to ownership rights, where the corollary is that lack of use can cause loss of ownership. Although a wealth tax is an obvious first step in reducing the power of the rich to distort production towards resource intensive goods, it is never likely to be sufficient. Within consumption and production, policy should aim to increase the rate of utilisation of all durable consumer goods and productive capital. This requires incentives which promote rental markets for privately owned durables and restore shift working to ensure better capacity utilisation. The taxation of production could also change: incentives to business should be restructured to maximise the use of renewable resources, particularly of unskilled labour, and minimise the use of materials intensive techniques leading to the depletion of reserves and the creation of waste products. Finally the rewards to invention and innovation, whether through R&D tax credits or the award of intellectual property rights, must circumvent the present bias of invention for today's rich in order to address the needs of today's and tomorrow's poor.

Keynes is often quoted for his alleged remark that ‘in the long run we are all dead’. This is a truism when describing the experience of individual economic actors. The challenge for modern government is to ensure that as a society this is not also true.

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