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# Toward a "General Theory" of Market Exchange

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Within neoclassicism, the theory of perfect competition describes the ideal operation of the market system. This paper will question the adequacy of this idealized conception of the theory of exchange by challenging the generality of the assumptions underlying the model.

The argument is that the theory of perfect competition does not describe the essence of the market process. Rather, perfect competition addresses the processes of a specific kind of market. To have a full understanding of the exchange process, we must allow that other types of markets exist. Specifically, the situation of the traders in the market and the characteristics of the good traded can actually affect the market process and the eventual outcome of this process. A consideration of these realities leads to a contemplation of the possibility that there is a "general theory" of exchange within which the perfectly competitive model of the textbooks is a special case.

The paper begins with a short discussion of the role of assumptions in economic theory. I then explore the implications of an alternative approach to the market through an examination of a variety of cases. Each of these cases will be illustrated through some well-known events in economic history. This paper will conclude with a short section on policy.[1]

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### *Assumptions in Economic Theory: Abstraction vs. Oversimplification*

Defenders of the perfectly competitive model argue that assumptions are necessary for scientific work. However, an argument for the hypothetical deductive method of science does not automatically mean that theorists must accept the specific assumptions behind the theory of perfect competition.[2] In particular, we would do well to remember that there is an important difference between an abstraction and an oversimplification. Stated briefly, an abstraction examines the essential aspects of a situation. It extracts fundamental relationships that can be subjected to further study by application of the rules of deductive logic. On the other hand, an oversimplification distorts our knowledge to the extent that it focuses on, and generalizes from, an inessential or ephemeral aspect of the process at hand. In its error, an oversimplification inhibits our search for the truth of the subject at hand.[3] Contrary to Milton Friedman's widely cited essay on method, assumptions do matter.[4]

In this paper, I argue that the theory of exchange can be enriched if we do not accept two oversimplifications that are characteristic of the received theory of exchange. The first is the presumed homogeneity of rational economic actors. This important assumption makes the objective situation of the persons trading in the market immaterial. Within standard microeconomics, all persons are ontologically identical since they are presumed to be rational maximizers. The only acknowledged differences between persons are their individual preferences and respective endowments.

A second oversimplification occurs when users of neoclassical theory assume that the specific characteristics of commodities do not substantively affect the operation of the market. This latter assumption is implicit in textbook presentations that illustrate "the" theory of the market by discussing an undefined abstract good such as the proverbial "widget."[5]

I will argue that by not accepting these assumptions, the homogeneity of actors, and the homogeneity of the market process, the theory of exchange can be broadened into a much more "general theory" of exchange. This more general theory can assist in understanding the specific institutional structures of various markets as they have evolved over time. More specifically, it can provide institutional economists with a better theoretical understanding of current and anticipated policy changes than is allowed by either transactions cost or public choice analyses. Indeed, notions of economic "fairness" and unequal exchange can be shown to have substantive theoretical content insofar as they are grounded in a general theory of exchange. When the homogeneity assumptions are un-

critically employed, our knowledge of the market process is distorted. This error is compounded when neoclassical theory is employed in the formation of policy.

### *Competition Where Participants Are Not Homogeneous*

Following Lutz and Lux [1988], I propose that instead of a homogeneous economic agent, there are two characteristic types of market participants. Some people trade in the market in order to fulfill needs, while others trade in the market in order to fulfill wants [Lutz and Lux 1988, chap. 2]. For this paper, I will define a *need* as a demand that, if not met, will intensify with time. On the other hand, a *want* is a demand that, if not met, will remain at the same intensity or diminish with time.[6] It follows that needs traders must enter into certain exchanges in order to maintain their status as viable participants in the market economy. This activity does not necessarily involve an increase in utility. Alternatively, wants traders, through the exchange process, are able to advance to higher indifference curves as measured in utility.

The existence of both needs and wants traders in the market has the potential to redefine the relationship between the act of exchange and the utility experienced by a particular economic agent. It introduces the idea that the utility that a person receives from a particular exchange is, under certain circumstances, not independent of the nature of the traded goods, their income, or social status. This observation undermines standard exchange theory and will be seen to drive the following results.[7]

Now it should be clear that there are many commodities that could fit within the definition of a need or a want at any given moment in time. This is precisely the point. It is not the specific commodity, but rather the circumstances of the person in the market–in other words their specific individual condition–that dictates whether a given transaction at a particular time is about satisfying a need or a want. The familiar textbook example of water may help to illustrate this point. A thirsty person in a desert, whose life is in danger, will be willing to freely exchange a considerable quantity of wealth to obtain a relatively small quantity of drinking water. Alternatively, a thirsty person who lives in the proximity of a freshwater lake in Maine would be unlikely to engage in such a desperate exchange. The first thirsty person is trading for a need, the second person seeks to fill a want, a want that, if it remains unsatisfied, can soon be resolved by their own initiative.[8]

If market participants can be divided into persons who trade for needs and persons who trade for wants, then four possible market arrangements

can be presumed to exist. I have depicted these four scenarios in the following table:

**Table 1.**

| Seller | Buyer |
|---|---|
| 1. Needy Trader | Needy Trader |
| 2. Wants Trader | Wants Trader |
| 3. Needy Trader | Wants Trader |
| 4. Wants Trader | Needy Trader |

*Needy Seller and Needy Buyer*

The first scenario is one in which needy persons are trading on both the selling and the buying sides of the market. We could characterize this as a subsistence economy where both persons are dependent on the market for their sustenance. Both parties to the exchange must trade in order to prevent their personal circumstances from deteriorating. In a fundamental sense, these people need each other and are even conscious of their interdependent relationship. For this reason, neither buyer nor seller can derive a systemic advantage from the structure of the market. This theoretical conclusion should not be construed as an assertion that exploitation does not take place. Depending on historical circumstances, such a market may or may not be distinguished by harmony or sharp trading.[9] The point is that any exploitation would be based on individual characteristics and specific historical circumstances. In this case, exploitation is not systemic to the process of exchange in the sense that the market arrangement embodies a principle of unequal exchange.

*Wants Seller and Wants Buyer*

The second scenario has wants traders on both sides of the market. This means that both parties would improve their circumstances should they have an opportunity to trade, but they will not be worse off should the exchange fall through. They desire to improve their utility but are not threatened with a decline in their current levels of "happiness." This situation is characteristic of the world of standard microeconomic theory. In such a situation, neither side is able to derive a systemic advantage from their position in the market. Both enter freely into the exchange and will only follow through with the exchange if they perceive it to be to their advantage. The "gains from trade" are purely additive in the sense that

new goods acquired in market exchanges leave one strictly better off. A failure to trade does not subtract from current utility levels. The guiding principle is the idea of the presumed autonomy of market participants.

It is crucial to the success of the neoclassical theory that everyone who enters into an exchange is fully constituted independently of the market. This aspect of the theory, while not stressed by our contemporaries, was obvious to the founders of the neoclassical school. For instance, in Carl Menger's *Principles of Economics,* two independent farmers, A and B, happen to have a surplus in their respective crops, grain and vintage, and hit upon the idea that they would be happier if they were to exchange their surpluses.[10] No sense of urgency is expressed in this vision of the exchange relation. This autonomy is not merely a simplifying assumption. As the next section will demonstrate, it is integral to the neoclassical theory of the market.[11]

*Needy Seller and Wants Buyer*

The third scenario is the first to illustrate the difficulties that arise if the circumstances of the traders are different. It is characterized by a needs trader on the selling side and a wants trader on the side of the buyer. This could be a stylized depiction of the modern market for unskilled labor.[12] In such a circumstance, we can expect that the freely contracted wage will be systemically lower than what it might have been if labor was trading to satisfy wants. The reason is that in our example the laborer must sell his/her services in order to meet his/her needs. If these needs are not met, his/her situation will deteriorate, which implies that he/she will be even more desperate and consequently in a worse bargaining position in the next trading period.

I wish to emphasize that employers do not have to be conscious of their bargaining power for this result to hold. No notion of a conspiracy is required. Employers are simply maximizing their profits in the manner indicated by the standard theory. However, in this example, maximizing profits ensures that the firm's managers meet their wants. That is to say that being in this market is both rational and beneficial for them. The crucial difference, the difference that leads to the characteristic result of this market, is that wants traders have the option of withdrawing from the market if a proposed exchange fails to meet their profit-maximizing criteria. For instance, if maximization indicates that buying labor or a substitute for labor at a later time will generate higher returns, the firm has the option to leave the market temporarily and return to it at a more advantageous point in time. This fact is important to the outcome of the

wage bargain. One corollary of the above duality between needs and wants is that exploitation occurs when one side has the power or ability to wait and the other does not.[13]

This idea is not at all new. That a differential ability to wait is important to the eventual outcome of the wage bargain has long been understood. Consider the following quotation from Adam Smith:

> The workmen, accordingly, very seldom derive any advantage from the violence of those tumultuous combinations, which, partly from the interposition of the civil magistrate, partly from the superior steadiness of the masters, *partly from the necessity which the greater part of the workmen are under of submitting for the sake of present subsistence*, generally end in nothing, but the punishment or ruin of the ringleaders [Smith 1976, 76; emphasis added].

Before it can be concluded that a form of systemic advantage exists in the context of free exchange, it must be established that the differential bargaining power of market participants is lasting. This power must be something other than an ephemeral condition that will be competed away as other potential employers enter the market to secure the services of disgruntled workers.[14] In our example, the employer is foregoing the profits he could gain from employing labor in the short term. Theory indicates that the firm would prefer to profit now rather than later. However, this firm is assumed to be a wants trader, with the implication that it is not essential to the firm's viability as an economic unit that it pursue short period returns.

For this differential in bargaining strength to be sustained, one of two conditions must be true. The first is that the owners (or managers) of a firm must be in a position of fulfilling wants. This ensures that they will have a higher reservation price than the presumably needy work force. This is the condition that is implied in the definition provided by Lutz and Lux [1988], as well as in the above quotation from Adam Smith when he refers to the "superior steadiness of the masters."

A second condition that can result in the existence of a differential in bargaining strength is related to the credit worthiness of the two traders. By definition, we know that persons who are trading for wants are less immediately dependent on the market. This is due to their ability to withdraw from trading for a period of time. The implication is that wants traders possess additional resources that they can rely upon until trading conditions are more to their advantage. The corollary is that, by having additional resources, wants traders have some collateral that can be employed to secure credit. Needs traders, who are dependent on the market in order to prevent a deterioration in their current position, are al-

most certain to have less adequate collateral. After all, if they owned goods that were liquid, they would no longer be needy. As goods owners, they could credibly raise their reservation wage and join the ranks of wants traders. Similarly, who would rationally lend to someone whose economic situation is likely to deteriorate over the near term? The lack of collateral on the behalf of needs traders implies that as a group they are credit constrained. Need, combined with a differential access to credit, is sufficient to ensure a systematic reduction in the needy person's bargaining position. The differential access to credit ensures that some traders are temporally restricted. Just as the free market presumes to provide perfect choice at a point in time, the assumption of perfect access to credit implies that everyone has the freedom to freely locate their choices through time.[15]

What, then, of William Baumol's proposition about the nature of "contestable markets"? Let us recall that a firm is or is not inclined to enter a market depending upon the profit it can make. In economics, profit can be thought of as a return over reservation price. If buyers of labor are homogeneous and buying in order to fulfill a want, then all buyers are in the same position vis-à-vis this market. They all reap the advantage of waiting. Under these conditions, the threat to withdraw from an exchange is credible. Game theory indicates that where a threat is credible, it is unlikely that it will have to be exercised [Kreps 1990, 65-77]. The result is a disadvantageous market outcome for needy traders. Understanding their disadvantage, needy traders grudgingly accept the dictates of the market.

Another objection to the above argument might be that needy firms—firms with a lower reservation price—can and do exist. Such firms could observe a profitable opportunity and enter the market. There are two ways to respond to this line of thought. The first is that the distinction of being a wants or needs trader is determined prior to a person's participation in the market. For this reason, the number of needy firms does not necessarily increase in any discernible proportion to the "demand" for them. Second, and more fundamentally, free entry and exit requires zero cost to bankruptcy and perfect credit markets. It is exactly this degree of access that is in question. Needy firms are, if anything, less mobile in their pursuits and location choices than more fortunate firms. Persons and firms do not become needy because there is an advantage in it. The situation of need is a preexistent condition, one that most of us wish to overcome in our economic lives. Once we achieve economic security, we are no longer compelled to accept the humiliations that constitute the daily experience of needy traders.

It is generally understood that being needy and dependent on a market has an important impact on a person's observed behavior. For instance, we can suppose that a needy person, as opposed to a wants trader, will exhibit a higher degree of time preference. The fact is that "the poor are too busy working in order to survive" [Lutz and Lux 1988, 27]. An unwillingness to invest in educational opportunities, a lower savings rate, and other learned forms of short-term behavior can be attributed to low incomes and lack of access to credit.[16] Indeed, these behaviors are reasonable responses by persons who are trading for needs. Such problems are less frequently associated with persons who are wants traders.[17]

*Wants Seller and Needy Buyer*

Finally, let us turn to the fourth scenario that describes a market where a wants seller is trading with a needy buyer. Again, it is the differential reservation price that matters. If the seller is indifferent between staying in the market at a given profit rate or leaving the market altogether, he/she is in a superior bargaining position relative to a person who needs to purchase in order to maintain his or herself. This is related to the problem of local monopolies. The market described in this scenario has been evident in both Third World situations[18] and in the economic history of this country [Ransom and Sutch 1977]. In such cases, there is a systemic advantage in favor of the wants trader. The reason is that their well-being is not immediately dependent on the successful outcome of the exchange. Alternatively, the needy buyer is presented with a situation in which their personal position will deteriorate with the passage of time. For them, it is rational to engage in a trade today even if it is clearly a disadvantageous one. I wish to emphasize that in this trade the canons of rational behavior are not violated. Information is not constrained, and there are numerous buyers and sellers. The only change in the standard assumptions of neoclassical price theory is that the initial positions of the participants in the exchange are not homogeneous.

Not all instances of this scenario have capital in the privileged market position. An interesting example of firms being needy relative to labor is illustrated by the nineteenth and early twentieth century shipping industry. Sailors, when they returned to port after a multiple-year journey, would typically be in possession of a relatively large amount of accumulated back wages. We could say that their reservation price was, on average, considerably enhanced. On the other hand, it was unprofitable for a ship to be moored in a port any longer than necessary. A superior

ability to wait meant that sailors held a significant degree of market power over their potential employers. The consequent "labor shortage" faced by shipowners was especially acute in the West Coast ports where many people would decide to leave the sailing profession and pursue opportunities in the booming economy of California. For shipowners, the resolution was a *de facto* legalized form of kidnapping in which sailors would be "shanghaied." This was a procedure in which disreputable tavern owners would drug sailors and, for a finder's fee, load them onto outbound ships. Once the ships were out to sea, the captain was the only figure with legal jurisdiction, and the sailor would find himself without any recourse to law. In this way, the shipping industry took advantage of the legal structure of international shipping to ensure itself a timely, cheap, and docile supply of labor. The vociferous resistance to various reform efforts is indirect evidence that shipowners and captains understood how difficult and expensive it would be to recruit labor if unfettered market relations were to prevail in their industry [Davidson 1985].

Perhaps more germane to recent discussions within the law and economics literature is the observation that it is needy firms that are motivated to negotiate contracts with key suppliers of production inputs. Firms in complex production processes are exposed to large losses in the event of an unanticipated disruption in the production process. The willingness of courts to acknowledge this need and apply penalties in the case of contract violations is an adaptation of the legal system in recognition of this aspect of exchange [Corbin 1964, secs. 1102-1135]. In this view, the social value of a contract is not simply limited to minimizing transactions costs or sharing the risk implicit in the fluctuation of input prices. On the contrary, the continued existence of a potentially needy firm is, in many cases, dependent on this social arrangement we call contract law.

The point is to suggest that with the addition of a plausible and reasonably elementary distinction, some important results of neoclassical economics can be brought into question. A free market may not maximize utility for all, for a systemic pattern of unequal exchange may exist. If the above argument has merit, the theory of the perfect market is not as generalizable as its proponents claim. It would follow that neoclassicism is a specific theory that applies only under the conditions of the second scenario where wants traders are on both sides of the exchange. Such a theory of the market can generate important misunderstandings if it is employed to study exchanges that are outside of its sphere of applicability.

## *Competition When the Specificity of the Commodity Matters*

### *The Theory of General Economic Equilibrium*

It would be a fair generalization to state that to most contemporary economists, the theory of general equilibrium is synonymous with economic analysis. A corollary of the theory of general equilibrium is the proposition that, barring external constraint, the final result of exchange in a free market is the most efficient outcome. Proponents argue that to interfere with the smooth functioning of the market is to lose the "information" transmitted by the market price. As a scarcity index, prices in commodity markets are thought to allow for the rapid transference of information on profit opportunities and relative scarcities.

An implicit assumption of general equilibrium theory is the proposition that in the absence of external constraints, market forces operate in an identical manner in each and every market. General equilibrium theory presumes that an equilibrium will arise in every market without regard to the nature of the commodity under discussion. In this theory, the "laws" of the market are thought to hold equally for stolen car stereos, hamburgers, and foreign exchange.

Within this theory, market clearing prices must always emerge. This must be the case since incorrect valuations represent an opportunity for an alert arbitrageur to capitalize on false prices. In this manner, neoclassical theory, with its emphasis on the theory of individual behavior, argues that market opportunities will not last in the absence of external constraints. Being persuaded by these arguments, economists typically conclude that the free market provides the most rational and efficient disposition of a nation's resources.

As a strategy of persuasion, neoclassical market theory attempts to reduce price and monetary relations to a primordial barter relationship between the owners of real quantities of goods [Levine 1980]. Within this Robinson Crusoe metaphor, the purchase of a financial asset is a form of investment theoretically indistinguishable from planting a seed in the ground or postponing present consumption.[19] There is no room in such an analysis for the possibility that the financial circulation is a process with an internal logic that is not reducible to an underlying barter economy.

Parallel to the argument of the last section, I will now explore the importance of the assumption that all markets operate as barter markets. I will argue that by deriving a theory of market behavior that is independent of the commodity traded, the neoclassical school participates in a

fundamental conceptual error. The existence of this error leads to false deductions, poor judgment, and ultimately misguided regulatory policies.

### *On the Distinction Between Consumer Goods, Status Goods, and Financial Assets*

My thesis is that the behavior of a market depends on some of the specific qualities of the good traded. To uphold this thesis is to reject the idea that there is a single generic or universal theory of market behavior. For example, a distinguishing characteristic of asset markets is their relative liquidity. During normal trading periods, individuals can rid themselves of their entire portfolio of assets for a negligible transaction cost. By contrast, real estate will normally sell at a discount well below its market price if one desires to sell it within a month. Used furniture is even less liquid than real estate.

Besides liquidity, traded goods differ in a number of other dimensions. For instance, some goods are bought and sold in a manner that is very close to the way markets are typically described in textbooks. I will denote such goods "consumer goods." Consumer goods are distinguished by the fact that their essential properties can be reasonably well understood or anticipated by the purchaser. Of most significance for the behavior of the market, the consumer is able to judge his or her desire for these goods prior to, and independently of, their knowledge of the market price. This independent evaluation is essential if the standard theory of demand is to be operable. In such markets, firms can and do lower price in order to increase sales and reduce inventories.

A second type of good, which I will denote "status goods," are different from consumer goods in that they are valued for their ability to help a person achieve a sense of individuality. Consuming a specific good, in opposition to other choices, indicates something about a person and aids the process of individuation [Levine 1981, 278-285]. A product of this sort is useful, but that is far from its only attribute. For instance, Reebok sneakers are obviously footwear, but Reeboks play a more complicated role in our social system. They indicate that the consumer is fashion conscious and has a surplus of disposable income [Veblen 1953, chap. 7]. Sellers of status goods are aware of the dual nature of their product. For this reason, they exert themselves to establish the market "position" of their product and to ensure that these commodities maintain their image. This is the reason that status goods are distributed through certain upscale retailers at a minimum price. This is mandated to the extent that part of the utility of the good is embodied in the price and public image of

the product. These marketing realities present a challenge to the neoclassical theory of consumption, which requires that utility and price be consciously separable.[20] With status goods, the retail price indicates an artificial scarcity, a scarcity that consumers perceive to be one of the desirable attributes of the product [Veblen 1953, 116-7].

Financial assets are a third distinct type of good. Assets represent a legal entitlement to a future pecuniary return. This commodity is unique in that it has no attribute enabling it to be directly observable or consumable. Its price and ultimate value are independent of any particular preference other than the desire for an increase in wealth. Moreover, assets are typically free of carrying costs. As such, an asset can usefully serve as a store of generalized purchasing power or wealth.[21] Its value is determined by what the aggregate of market participants perceive the asset to be worth, along with their collective estimation of how this value will change over time. This latter fact is fundamental to the actual operation of asset markets.

A unique feature of asset markets is that they function, that is to say trades are made, only in the case of divergent expectations. Like all markets, someone has to be willing to buy if a price is to emerge. However, the purchase of an asset requires that a buyer hold an expectation that differs from that of the seller. Instability results when expectations converge. A market crash occurs, and is rational, when everyone concurs on an expectation of falling values.[22]

This situation is fundamentally different from that of other markets. Under normal conditions, the demand for consumer goods depends on the current market price for those same goods. On the other hand, a conventional (high) valuation for status goods is essential to the operation of those markets. After all, the value of a status good to its owner is dependent on a widespread knowledge of a good's price and its premium over any conceivable use-value that can be derived by the consumer. The asset market is unique in that it is the unknown and, to an important extent, unknowable value of the asset that creates the market and the need for an exchange [Prasch 1992].

## *Perspectives on Policy*

### *If the Identity of Traders Matters*

If it is true that traders are not equally dependent on the market in the sense that some people must trade from a position of systemic weak-

ness, it follows that trading restrictions that attempt to protect, and even enhance, the bargaining position of needy traders begin to make sense. For instance, extending the coverage of the minimum wage can be justified in occupations where we can identify a large group of needy workers. Such workers may be subject to low pay since they are unable to bargain effectively with an industry that trades to satisfy the wants of its management. Occupational Safety and Health Administration (OSHA) protections make sense if workers who are dependent on the market are unable to bargain for the higher wage that is required to act as an insurance fund against unsafe working conditions. This last statement would be true even in a case where workers were fully capable of understanding the exact health risks involved. Implicit in this result is that without symmetric bargaining power and/or full employment, the "theory of compensating wage differentials" does not hold.

One policy that would probably do more than any other to eliminate unequal bargaining power would be a policy of full employment. Workers would have substantive bargaining power if jobs were plentiful. That full employment is capable of enhancing the bargaining power of workers has not escaped notice. The Phillip's curve is implicitly based upon this fact [Phillips 1958]. Michal Kalecki also drew our attention to the role of unemployment in managing the workplace [Kalecki 1971, chap. 12].

Another aspect of the market's pernicious impact on needy traders is captured in the recent work of Juliet Schor, which draws attention to the increasing labor effort expended by the average American worker [Schor 1991]. Reductions in the level of income support programs, combined with the retreat from a public commitment to full employment, has forced people to accept reductions in their standard of living [Krugman 1992]. It is difficult to imagine that the observed increase in the labor supplied by individuals is due to some exogenous social force that has increased the average American's "preference" for labor over leisure time. It is more reasonable to speculate that this increased work week is associated with a decline in the bargaining power of the American work force.

A policy of full employment would begin to bring actual content to the market ideal of a free exchange between equally situated owners of property. With full employment, laborers who are dependent on the market would be able to bargain *as if* they were wants traders. Wants traders, who formerly derived a surplus from labor's fear of unemployment, or the abject condition of a specific group such as migrant laborers, would be forced to bargain on a more equal basis.

*If the Nature of the Commodity Matters*

The value to society of specific economic regulations and other market interventions can also depend on the type of commodity that is being traded. For instance, an agency that inspects the quality of food items can be socially useful by ensuring consumers that the quality of food is uniformly healthy. Such regulation has the secondary effect of taking the speculative element out of the purchase of food. Ideally, customers determine their demand for certain food items on the basis of preference and price. In such a case, they would be free of the need to make some estimate of the prospective safety of food items on the basis of its relative price or some other "signal" [Akerloff 1970]. We can conclude that health regulations improve the efficiency of the market by allowing food to trade in an orderly manner as consumer goods rather than in the more disorderly manner that is characteristic of speculative goods.

Asset markets can serve a more social purpose to the extent that assets can be induced to trade in the manner of consumer goods rather than as speculative goods [Keynes 1964, 158-161]. For instance, some speculative pressures are eased when the Securities and Exchange Commission requires a degree of truth in the annual reports of publicly listed companies. In the event that expectations converge and a flight from assets is in evidence, "circuit breakers" can stop trading while the situation stabilizes. Moreover, volume is enhanced by the ability of regulatory agencies to provide the market with a degree of legitimacy through their periodic attempts to curtail insider trading. Such interventions can improve the operations of asset markets by enhancing their "efficiency" and preventing mishaps in the financial sector from spilling over into the rest of the economy in the form of debt-deflations or credit-crunches [Fisher 1933; Kindleberger 1989].

## *Conclusion*

This paper is critical of the generalized use of the theory of perfect competition. Its primary conclusion is that the received theory is a specific theory. Its domain is limited to the case of wants traders who are exchanging commodities with well-defined and predictable characteristics such as non-status consumption goods. The argument suggests that if market participants can be distinguished by circumstances that affect their trading behavior, and/or the market is trading a good whose perceived value is dependent on either its current or expected price, the

standard theory of exchange fails to perform a descriptive or scientific purpose. In such cases, the wrong theory is being applied to the problem.

In these latter cases, the political economy of the situation changes. Various safeguards and regulatory measures may be rational solutions to very real economic problems. Such policies can be directed to defects that are intrinsic to the exchange relationship. Economists must come to realize that in many cases regulatory policy is geared to finding solutions to problems that are internal to the actual performance of a free, perfectly functioning, market-based economy.

## *Appendix. The Independence Assumption in the Theory of Consumer Behavior*

In the standard, or neoclassical, theory of exchange, all persons are trading in the market to satisfy wants. Some wants are acknowledged to be of high intensity and others less so, but the underlying notion is that the integrity, or structural coherence, of the individual as an economic agent remains intact even in the event that a want remains unfulfilled [Levine 1988, 5].

Crucial to the neoclassical theory of consumption is the assumption that a given agent will move to a higher utility frontier in the event of an exchange, but in the event that the exchange does not take place, they will not, as a result, be worse off. In other words, the reservation price, valued in utility, is the *status quo ante*. The assertion that the failure to exchange does not make us worse off is not simply an ideological bias. On the contrary, it is a foundationally crucial assumption. For this reason "needs," in the sense of dependence on the exchange relationship, can and must be thought to be nonexistent. The reason that needs are overlooked is tied to an assumption that is unique to the neoclassical theory. *The neoclassical theory posits that for any individual optimizing agent, the prices of consumption goods, their "endowment," and their preferences must each be independently determined. I will label this assumption the "independence assumption."*

Indeed, for a consumer, the prices of consumption goods are given in the market place. These prices are thought to be parameters to the problem of "rational choice." The consumer is generally thought to be so small relative to the market that any attempt to manipulate the relative price structure through purchase or sale would be futile.

The second of these assumptions is that pertaining to income. The consumer is thought to have an "endowment" that, when sold, represents his or her income. This would still be true even in the case of a consumer who

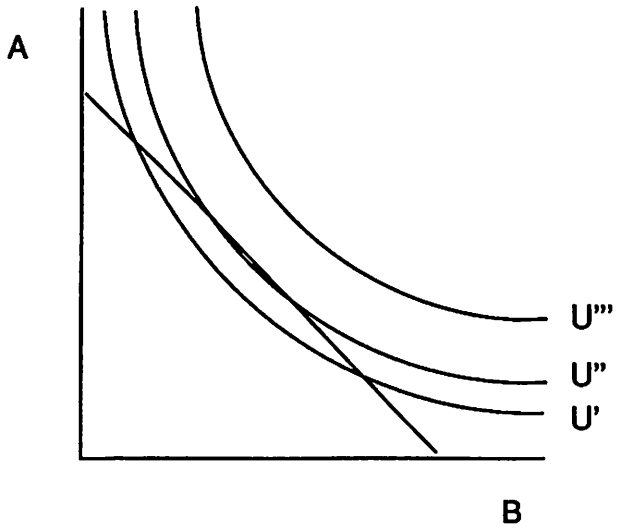
desires to consume his or her own goods. In such a case, the goods are thought to have a shadow price that values these goods as income at their respective market prices. These shadow prices would be used to calculate the value of their initial endowment so there would be no effect on the theoretical estimation of a consumer's income.

Finally, there is the map of indifference curves. This is treated as a datum to the problem of consumer choice. We are not supposed to know, judge, or be able to provide quality weights to them because they are given. At best, they can be inferred from *ex post* purchase patterns along the lines of the notion of "revealed preference."[23] Graphically, the consumption decision looks like Figure 1.

Relative prices of consumption goods A and B determine the slope of the budget constraint. The original endowment, valued at market prices, determines the distance of the budget line from the origin. The equilibrium "basket" of consumption goods is the tangent between the highest attainable utility curve (U") and the budget constraint.

A problem arises when our preferences are in any sense a function of the relative plentifulness or scarcity of various goods. For the sake of simplicity, suppose that there are five goods in our "economy": business suits (S), entertainment (E), food (F), water (W), and labor (L). Further-

**Figure 1. The Consumption Decision**



more, suppose that our "representative agent" sells his/her labor for a wage that allows for a certain budget. Consumer surveys indicate that he/she spends his/her income on the four consumption goods in the following quantities: 40 percent S; 30 percent E; 20 percent F; 10 percent W.

Now suppose her job is offshored so she is working in the fast-food industry for one-quarter of her previous wage. Fast-food restaurants provide uniforms. This fact, combined with the now unaffordable cost of nights on the town, indicates that suits are no longer in demand. This leads our consumer to formulate a new consumption pattern, say 80 percent F; 15 percent W; 5 percent E; 0 percent S. Now typically, this change is handled as a simple example of the income and substitution effects at work. However, this assumes stable preferences. Can we honestly say that this is the case?

The question at hand is whether a change in the wage level is able to force a change in a consumer's utility for different goods. To continue the above example, we might suppose that our imaginary laborer is depressed and begins to consume an entirely new commodity such as fortified wine. Can we attribute this new demand to a change in her income? Most of us would agree. However, the neoclassical theory of demand cannot concur in this judgment without losing its determinacy.

We know that the neoclassical theory insists that a consumer's preferences are established prior to their knowledge of their income and must remain constant throughout the comparative statics exercise. At best, these utility maps are estimated by supposing various "states of the world." But this is unconvincing since the only theoretical basis for such a claim is based on the theory of revealed preference. This theory is ineffective since it is not able to separate out hypotheses as to whether it is the substitution effect or a reassessment of preferences that is responsible for changes in the consumption bundle when a consumer experiences lower incomes [Georgescu-Roegen 1954; Lutz and Lux 1988, Appendix I].

Now, if the slope and location of the utility curves were dependent on the level of income, it would follow that the model of consumer choice would be underspecified. The reason is that we would be trying to determine the optimal consumption of the two goods A and B from a single equation, an equation that jointly determines the location of the budget constraint and the specificity of the preferences that make up the set of utility frontiers.

It should now be clear that the reason for the "independence assumption" is to satisfy a mathematical imperative. If consumer theory is to posit a unique solution, utility must be determined prior to, and independently of, our knowledge of a person's endowment, and the purchasing

power of that endowment as indicated by the structure of relative prices. It is an unfortunate vice of modern mathematical economics to assert that the assumptions that are imperative to achieving the closure of any given model correspond to observable realities in the actual economy. There is no a priori reason to assume such a correspondence. The independence assumption is a case in point. In order to solve for what are supposed to be three independent variables, the level of goods A and B consumed and the level of utility achieved, the model must articulate three independent equations–the utility map, the consumer's endowment, and the market's relative prices. Such an assumption cannot be supported by our knowledge of real-world behavior. If the independence assumption did not modify our understanding of actual policy proposals, this fact would be of no importance. However, we know that this is not the case. "The Theory of Consumer Behavior" is invoked to support a wide variety of policies. Some of these policies are of questionable merit.

For this reason, the positing of "needs" as a category in the text plays an undermining role. The existence of needs indicates that the utility a person is able to obtain from various bundles of goods can reasonably be thought to be a function of income. The idea is that a consumer's condition, valued in utility, deteriorates as their needs go unresolved over time. Having the budget constraint fall below a certain level increases the potential utility that a person could gain by having these needs met. In the "real world," we cannot formulate our preferences until we know our income.

Those who dismiss the notion of needs by an appeal to the standard theory of consumer behavior are not, as they suppose, making a theoretical argument so much as they are simply reasserting the priority of the "independence assumption" for economic theory. Such an assertion is not derived from a reasoned argument. On the contrary, it reflects a belief about the priority of a certain methodology. Should defenders of the independence assumption believe that it captures an important attribute of consumer behavior, it is they who should articulate their reasons for it and allow that argument to be subjected to professional scrutiny.

## *Notes*

1. The presentation is not designed to shed new light on economic history. On the contrary, these examples are designed to illustrate the breadth of understanding that can emerge through the proposed more general theory of exchange.
2. Proponents of the theory of perfect competition implicitly force us into a false choice when they require that we simultaneously accept both the use of as-

sumptions and their specific idea of the appropriate assumptions to use or be forced to reject what most contemporary economists believe to be the method of scientific investigation. It is understood that the theory of perfect competition is not intended to be completely "accurate" in the sense that it provides a full description of the market process. It is clear that an abstraction has been made and will inevitably be made if theory is to advance in its appointed task.

3. "The theorist must, of course, simplify to some extent . . . theory cannot render its appropriate service to practice except by abstracting from what for the immediate purpose on hand can without serious loss be treated as of negligible account. What can safely be disregarded depends in part on temporary circumstances. But it is the nature of the questions which are put to economists, or which should be put to economists, rather than any methodological preferences or prejudices of the economists themselves, which provide the proper criteria for framing of models for purposes of analysis" [Viner 1953, 3-4].
4. Friedman [1953]. For critiques, see Katouzian [1980] and Hollis and Nell [1975].
5. By rejecting a universal explanation of the market process, this paper is spiritually aligned with the American Institutionalist School. See Means [1935], Ware and Means [1936], and Galbraith [1967] for representative expositions of an institutionalist view of the market process.
6. Lutz and Lux [1988] argue that a want is more of a whim, which, if not fulfilled, will decrease in intensity over time and perhaps even disappear. I would like to modify their definition and posit the distinction that is featured in the text. I believe that this less stringent distinction preserves my argument without obliging me to enter into a discussion over the nature of human desires. However, one should not surmise from my silence that such discussions are uninteresting. The needs/wants distinction is developed in a slightly different context in Galbraith [1958, chap. 11].
7. Those who would like a more extended discussion of the relationship of the idea of needs to the orthodox theory of exchange are asked to refer to the Appendix to this paper.
8. This single example, while clear, is extreme. Obviously, there are degrees of deprivation. Some are absolute. On the other hand, one might argue that in a wealthy society few needs are absolute. I would not agree with such an assertion. However, I am willing to allow for, and even encourage the reader to consider the importance of a social context that creates needs and the idea that these distinctions are rarely so clear in practice. However, this paper is designed to introduce the concept of needs into the larger discussion of economic theory and policy. For this reason, clear distinctions have an important illustrative value.
9. The specifics of the relations of exchange that characterize a society that lives at or near subsistence is, as one might expect, a subject of debate among economic anthropologists. The debate takes the form of "substantivists vs. formalists." The former group believes that the structures of society are important determinants of how exchange is conducted and that the forms of exchange will differ between societies. See Sahlins [1972, chaps. 4-6] and Dalton [1961]. Formalists argue that rational economic man can take many guises and argue for an adherence to standard microeconomic doctrines. See Cook [1966] and Schneider [1974]. The argument in the text lends support to the substantivist school.

10. "To begin with the simplest case, suppose that two farmers, A and B, have both previously been carrying on isolated household economies" [Menger 1981, 177].
11. Some writers within the neoclassical tradition have tried to argue that needs simply do not exist. An example is the chapter titled "Substitutes Everywhere: The Concept of Demand" [Heyne 1987, chap. 2]. Both Lutz and Lux [1988, chap. 2] and Levine [1988, chap. 1] have raised objections to this facet of neoclassical thought.
12. Later in the paper, I will show that full employment has the potential to transform needy unskilled labor into wants traders.
13. The existence of unequal bargaining power explains a number of institutional arrangements wherein people attempt, through their behavior, to give themselves an edge in the exchange bargain. Firms stockpiling inventories before a wage negotiation or a union strike fund would be examples of such behavior.
14. This is the outcome promised by the theory of contestable markets. See Baumol [1982].
15. The decade of the 1980s has provided numerous examples of the unequal bargaining power between employers and employed. Wage give backs, and even the systemic looting of pension funds, were all tolerated by employees who, after numerous years in manufacturing jobs, were trying to hang onto their employers. The fact is that firms had more bargaining power as a result of financial deregulation, and a generous bankruptcy code allowed takeover specialists to use this financial strength to their strategic advantage. Neoclassicism cannot see these facts because it is wedded to the General Equilibrium Theory with its idiosyncratic assumption of a complete set of futures markets.
16. A number of earlier commentators on this paper have argued that a needy trader is simply the special case of a person who has no savings and a high rate of time preference. This is a reply consistent with the decontextualized individualism that is essential to the standard theory of exchange. The text argues that these observed behaviors are a *result* of being a needs trader and are symptoms, not causes, of the observed behaviors. For a lengthier critique of the neoclassical theory of consumption, see the Appendix to this paper.
17. Characteristically, economists have assumed the homogeneity of market participants. As a result, when they observe a correlation between short-term orientation and a person's poverty, they tend to see the former as the cause of the latter. This conclusion follows directly from their vision of the free market. Distinguishing between the prior positions of persons trading in the market can aid social scientists in separating cause from effect. By distinguishing between market participants, it can be hoped that economics can make a more useful contribution to the discussion of poverty and its cure.
18. It is their grasp of this issue that motivates some theorists to articulate a "basic needs" approach to economic development. An example is Hicks and Streeten [1979].
19. Examples of this "Crusoe approach" are in Mankiw [1992, chap. 15] and Barro [1993, chaps. 2-3]. Through its focus on the barter model, the neoclassical theory of investment attempts to finesse Keynes's critique of both the Loanable Funds theory and Say's Law. However, this is not the time to dwell on the macroeconomic critiques of neoclasscial theory. We will simply join in the spirit of standard microeconomics and assume that the necessary macrofoundations of the theory are in place. For this reason, this paper will assume that effective demand is constant at a level that will assure full employment throughout the trading period.

20. ". . . as we consider the total dynamics of society the impact of the price structure on preferences may be just as important as the impact of preferences on the price structure" [Boulding 1989, 5].
21. The reasons for this conclusion are complex, and a full argument is not provided in the text. Those who are interested will want to start with Keynes [1964, chap. 17].
22. The dynamics of expectations-led crashes are well documented in the literature. See Kindleberger [1989], Minsky [1986], and Wojnilower [1980].
23. This strict assumption concerning interpersonal comparisons does not seem to prevent economists from engaging in the lucrative activity of cost-benefit analysis, which requires, at its foundation, that interpersonal utility estimations be made. But the contradictions inherent in that activity are not the subject of this paper. See Lutz [1993] for such a critique.

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ANWAR:
Interesting article
I found (nothing
directly to do w/
finance or credit!)
Jamee.

# KERALA, INDIA

*Bill McKibben*

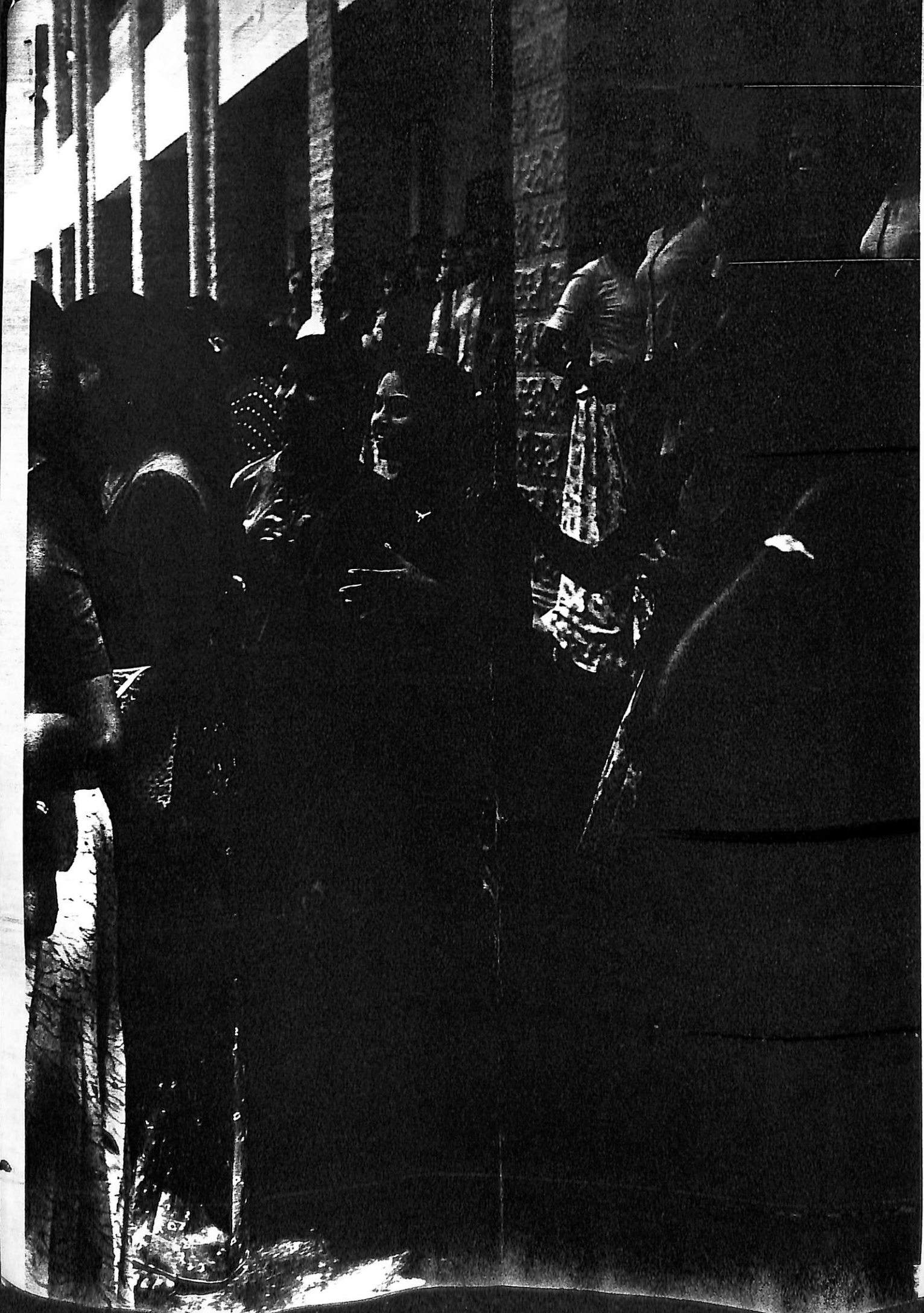
*Photographs by Raghubir Singh*

OPPOSITE: *Students at their college near Cochin*

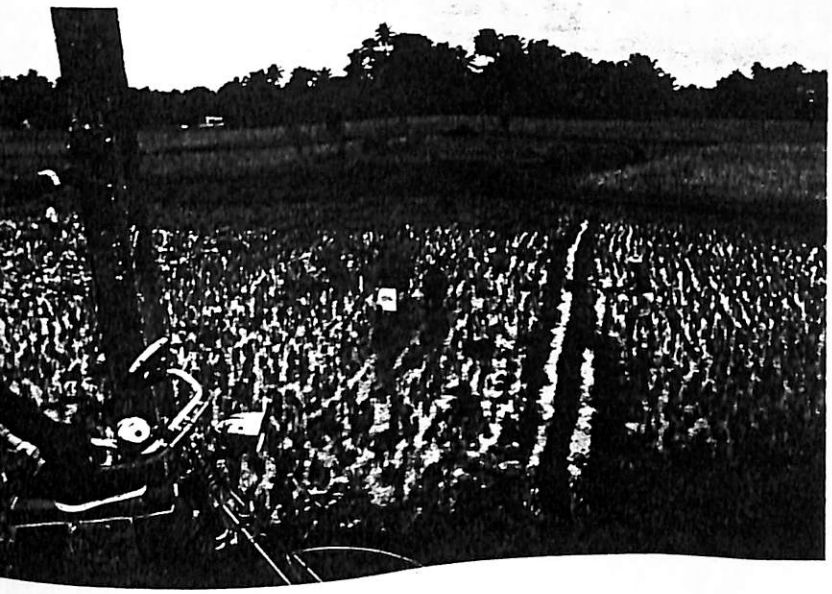
Once we're past a certain age, really new *information* about the world becomes a rarity. Our picture of the world solidifies. Occasionally, science will add a new fact–the atom bomb, say–that changes the way we understand existence. Or some political event, like the collapse of the Soviet bloc, will scramble our perceptions for a while. But such cataclysms are rare. Even travel rarely startles us: we know in advance roughly where we will find poverty or order or splendor or charm or fanaticism. Fodors in hand, we can figure out what to order for dinner six months before we arrive.

So when I say that Kerala, a state of twenty-nine million people in southern India, is unsettling and bizarre, I am making a strong claim. In certain ways it may be the oddest place on earth.

Not on the surface. On the surface, it defines a planetary norm. The first morning I was there, I got up before dawn and climbed to the flat roof of the small dormitory where I was staying. Before there was enough light even to make out the nearest trees, the sounds were already sharp–roosters crowing and wild birds starting to sing, the occasional belch of a cow and the steady, nasal music that came from a loudspeaker by the Hindu temple two miles distant. The music rose like a column of smoke from a chimney, always there but never obscuring the other sounds–the splash as someone up-ended a bucket for a morning shower, the infrequent cough of an engine. As the sun came up, I could see more clearly down the valley–could see, anyway, the tops of endless coconut and banana palms, a rich, green carpet with a bit of emerald rice paddy showing through here and there. It looked almost like jungle; it seemed unlikely there were people enough to be making all that noise.



But as I started to walk on the well-packed trails through the woods, I saw how carefully the groves were spaced and tended–the trunk of each rubber tree delicately wounded and dripping its thin trickle of white latex into a small saucer, the base of each palm mounded against erosion. Just as the sun pushed above the canopy of fronds I came out on the dikes that circled and crossed the paddy fields. In one of the small fields seven people bent over sickles, harvesting the stalks of rice one handful at a time. Farther on, in a field already cut, two men hoed the heavy mud, readying it for the next planting. A steady stream of people walked the dike in the cool of the morning,



*Paddy near Adoor*

most with baskets on their heads: rice seedlings, bundles of palm fronds, piles of dried white coconut. And a particular thrill ran through me as I watched: "This is what the world looks like," I found myself saying. This is one of the two or three archetypal human scenes: rice fields and palm trees, muscled labor, brown skin.

Having seen this surface, I was ready to fill in the rest–my knowledge of the world seemed sufficient. Brown skin, beating sun, hand labor, and rice paddies equal poor peasants, illiteracy, diseases I didn't want to catch, and large families so that the children could lend a hand in the fields. Lives nasty, brutish, and short.

And in some measure I was right. Hard labor, rice, and brown skin do correspond with poverty: Kerala is poor, even for India, with a per capita income estimated by various surveys to be between $298 and $350 a year, about one-seventieth the American average. When the American anthropologist Richard Franke surveyed the typical Keralite village of Nadur in the late 1980s, he found that nearly half the 170 families had only cooking utensils, a wooden bench, and a few stools in their homes. No beds–that was the sum of their possessions. Thirty-six percent also had some chairs and cots, and nineteen percent owned a table. In five households he discovered cushioned seats.

But here is the odd part.

The life expectancy for a North American male, with all his chairs and cushions, is seventy-two years, while the life expectancy for a Keralite male is seventy. So a boy born this spring in America can expect to die in 2067, while a boy born in Kerala will die in 2065.

After the latest in a long series of literacy campaigns, the United Nations in 1991 certified Kerala as a hundred percent literate–your chances of having an informed conversation are at least as high in Kerala as in Kansas.

Kerala's birth rate, meanwhile, hovers near eighteen per thousand, compared with sixteen per thousand in the United States–and is falling faster.

Demographically, in other words, Kerala mirrors the United States on about one-seventieth the cash. It has problems, of course. There is chronic unemployment, and a stagnant economy that may have trouble coping with world markets. Its budget deficit is often described as out of control. But these are the kind of problems you find in France. Kerala utterly lacks the squalid drama of the Third World–the beggars reaching through the car window, the children with distended bellies, the baby girls left to die.

In countries of comparable income, including other states of India, life expectancy is fifty-eight years, and only half the people (and perhaps a third of the women) can read and write; the birth rate hovers around forty per thousand. Development experts use an index they call PQLI, for "physical quality of life index," a composite that runs on a scale from zero to a hundred and combines most of the basic indicators of a decent human life. In 1981, Kerala's score of eighty-two far exceeded all of Africa–in Asia only the incomparably richer South Korea (eighty-five), Taiwan (eighty-seven), and Japan (ninety-eight) ranked higher. And Kerala kept improving. By 1989, its score had risen to eighty-eight–compared with a total of sixty for the rest of India. It has managed all this even though it's among the most densely crowded places on earth–the population of California squeezed into a state the size of Switzerland. Not even the diversity of its population–sixty percent Hindu, twenty percent Muslim, twenty percent Christian, a recipe for chronic low-grade warfare in the rest of India–has stood in its way.

It is, in other words, weird–like one of those places where the starship *Enterprise* used to land that superficially resembled our earth but was slightly off. It undercuts maxims about the world we consider almost intuitive: Rich people are healthier, rich people live longer, rich people have more opportunity for education, rich people have fewer children. We *know* all these things to be true–and yet here is a countercase, a demographic Himalaya suddenly rising on our mental atlas. It's as if someone demonstrated in a lab that flame didn't necessarily

need oxygen, or that water could freeze at sixty degrees. It demands a new chemistry to explain it, a whole new science.

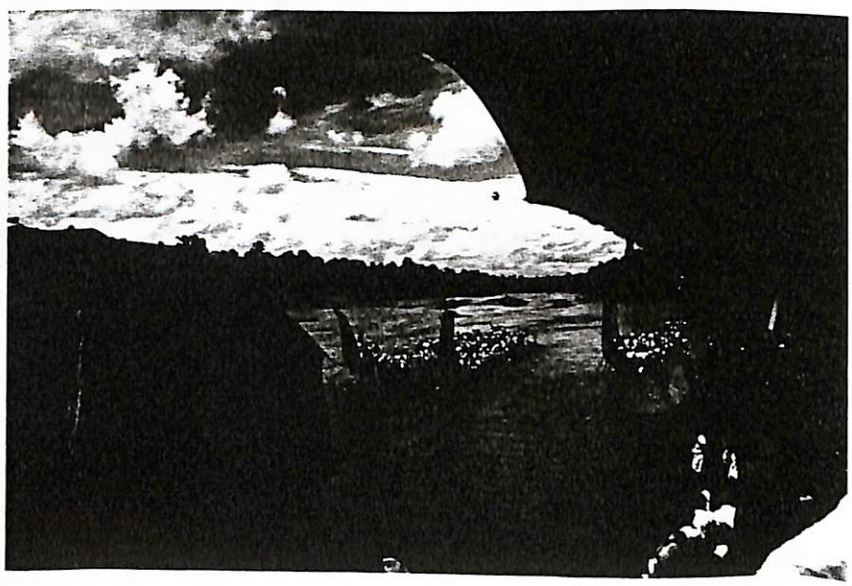
A small parade of development experts have passed through Kerala in recent years, mainly to see how its successes might be repeated in places like Vietnam or Mozambique. But Kerala may be as significant a schoolhouse for the rich world as for the poor. "Kerala is the one large human population on earth which currently meets the sustainability criteria of simultaneous small families and low consumption," says Will Alexander of the Food First Institute in San Francisco.

It is a subversive fact on the ground, this stagnant/stable economy that serves its people well, and in some ways it is a scary fact. One of the reasons we've been able to ignore the clear environmental and moral imperatives to reduce our own high rates of consumption is our belief that it's either Wal-Mart or hunger, high-tech medicine or death at an early age. Kerala implies that instead there's some point where rich and poor might meet and share a decent life, some point far distant from our current state. Keralites subsist on one-seventieth the cash and some similar fraction of the oil, the electricity, the garbage. Surely it offers some new data for the most important question of our age: "How much is enough?"

At the Centre for Development Studies in Trivandrum, a kind of Kerala think tank, I stopped in the office of a historian named Michael Tharakan. He had a large stack of books on his desk—each of them, he said, advancing its own thesis about how Kerala had come to be so singular: "Some explain it in terms of social history, some in terms of public policy, maybe public finance." Significant numbers of Keralites work abroad and send money home—that's made a difference. And Kerala elected a Communist government in 1957 (the first place on earth to do so in democratic elections) and has since returned the party to power on some occasions and voted it out on others. Clearly that Marxist influence has helped shape the state, but is it cause or effect? Heading further back in time, some historians point to the type of plantations built by the British, others to benevolent nineteenth-century monarchs. The only thing everyone agrees on is that at least some of the roots of Kerala's peculiarity can be found in its early history.

Kerala emerged at the end of the eighth century, when a Hindu monarchy supplanted a looser, feudal structure. The trade contacts of the ancient and early medieval periods (Kerala's cardamom, pepper, turmeric, and other spices were constant attractions—our word *ginger* derives from a word in the local language, Malayalam) eventually turned to more modern, and more exploitative, colonial domination. By 1792, the British controlled what is now Kerala, dividing it into three districts. The first hints of Kerala's singularity came in that colonial era. In the southern two-thirds of the state, the British left the local princes on the throne. Hoping for an agricultural surplus large enough to satisfy both themselves and the British, these rajahs offered tax breaks for the reclamation of swamps and marshes, and they moved to give tenant farmers more control over the land. "Development policy in the whole world is generally considered to begin in the 1940s," says Tharakan. "But you can see the roots of it right from the beginning of the nineteenth century in Kerala."

To conclude, however, that Kerala under the British was becoming an enlightened and democratic place would be a mistake. The tradition of caste, bulwark of the Hindu rulers since the eighth century, was as strong as ever in the nineteenth. At the top of the heap were the Namboodiri Brahmins, followed by the Nairs—soldiers and administrators—and various artisanal classes. Below all of them were the Ezhavas, roughly a



*Snake boats on the Pamba River on Krishna's birthday*

fifth of the population, who traditionally made their living climbing palms to harvest the coconuts, and the Pulayas, the local untouchables. Within the various castes, innumerable complicated subsets emerged, and the codes of conduct became ever stricter and more degrading over time. Unclean castes had to stay outside the temples—Ezhavas had to stand twelve feet from the walls, and Pulayas sixty-four feet. A Namboodiri walking on the road was preceded by a Nair, who gave a warning shout so that others could get out of sight. Low-caste men paid a tax on their hair, and low-caste women paid a breast tax—and the proper salutation from a female to a person of rank was to bare her breast. Umbrellas were forbidden to lower castes (a hardship in this equatorial clime, where much of the population now carries black parasols to ward off the sun). The humiliation was accompanied by exploitation—higher castes, who owned most of the land, could evict the lower castes at will, and worked them virtually as slaves. Kumaran Asan, an Ezhava poet, captured the feeling of his people in one poem: "They walk so gently, with fear in mind, that

even the earth does not feel their tread . . . even grass would not make way before them."

Kerala is now less caste-ridden than any spot in Hinduism, a transition more complete than, say, the transformation achieved by the civil rights movement in the American South. Looking backward, it is clear that some of this epic, and mostly

*A Marxist hammer and sickle share a temple wall with Hindu deity Hanuman*

peaceful, change can be traced to new economic conditions. As the British and the rajahs pushed cash crops instead of subsistence farming, and as more and more tenant farmers became involved with that market, the need for literacy grew, for instance, and some of the old customs became financially ruinous.

But a purely economic explanation of Kerala's singular history goes only so far—it's as unsatisfying as calling the Civil War a clash between industrial and agrarian economies. Such factors are clearer in hindsight; to those who lived through the changes, they seemed much more dramatic and less inevitable. "The large masses of people accepted caste distinctions as part of the order of things" writes M. K. Sanoo, a Keralite historian. "Each in his own set place, moving along the orbit of caste, as if it was nature. The men of those days could not even dream that any change in it was possible." Even Tharakan, a devout rationalist, says that "though these changes had an economic base, they were mediated at the level of ethics, of moral dictums." Or, in plainer English, Kerala too had its Lincolns, its Martin Luther Kings, and to understand this quick and peaceful miracle—and perhaps to repeat it elsewhere—we need to catch their temper, see the ideas they set loose.

Sri Narayana Guru was born in 1856 to an Ezhava family—in proper holy-guy fashion, in a hut "but a shade better than a cowshed." His biographer/hagiographer relates that when he was born he did not cry: "He lay there without any movement. His father was informed the child was stillborn. Then movement started limb by limb. The father was informed that the child was not dead. Even after that the cry of the child was not heard. The umbilical cord was cut, still he did not cry. He did not cry even when hungry or for any other reason." As a young man, he renounced worldly attachments and began to wander, sitting in caves with legs crossed and meditating, fasting and consorting with lepers. Curing lepers, maybe. As more people sought him out for healing or advice, he and his disciples felt the need of a regular temple for worshipping Shiva. At a beautiful spot in a river near Aruvippuram, he had his followers build a small canopy of coconut leaves and mango leaves over an altar on a rock jutting out in the water. The year was 1888. "They improvised lamps with shells and arranged them in rows. They were lighted at dusk and a piper began to play devotional tunes. The whole place was soon filled with pious village folk." Sri Narayana, who had been sitting apart and meditating all night, stood at midnight and walked into the river. As thousands watched silently ("if silence had music, the atmosphere was filled with it," wrote one correspondent) he descended into the river, and then reemerged, holding an idol of Shiva. He stood beneath the canopy with it in his arms for three hours, totally lost in meditation, tears flowing down his cheeks. Finally, at three in the morning, he installed the idol on the pedestal.

His action was the Keralite equivalent of overturning the tables of the money changers, or refusing to give up a seat on the bus. From the beginning of time, so far as anyone knew, only Brahmins had ever installed an idol. "Yet when Swami performed the sacred rite it appeared so natural for him to pick up a small rock and install it." When Brahmin authorities arrived to question him about his action, he gave an answer that still makes Keralites laugh. "I have installed only the *Ezhava* Shiva," he said, a mockery of caste that undermined its rotten superstructure more than his actual deed.

Caste did not crumble immediately, however. Sri Narayana Guru, along with many other reformers, spent their lives cam-

paigning for more rights for the various castes–more representation in government jobs, increased educational opportunity, the right to enter and worship at all temples. But all the prosaic struggle for civil rights went on in an atmosphere of spirituality; more than the simple assertion of power by a group too large to be ignored, it was also the assertion of a moral ideal, a view of human dignity against the oppressions both of feudalism and of faith. "One caste, one religion, one God for man," was Sri Narayana Guru's rallying cry.

Since oppression and religion were so intertwined in Hindu culture, social progress depended on religious reform, which could only come from religious leaders–there's a sense in which activists like Sri Narayana Guru had to be both Martin Luther and Martin Luther King. He knew the freedom struggle was about much more than political independence. When a student of his said once that if all the Indians merely spat at the same time the Englishmen would be drowned, the swami replied, "That is true. But the mouth becomes dry on seeing an Englishman." He was building new people as much as a new politics.

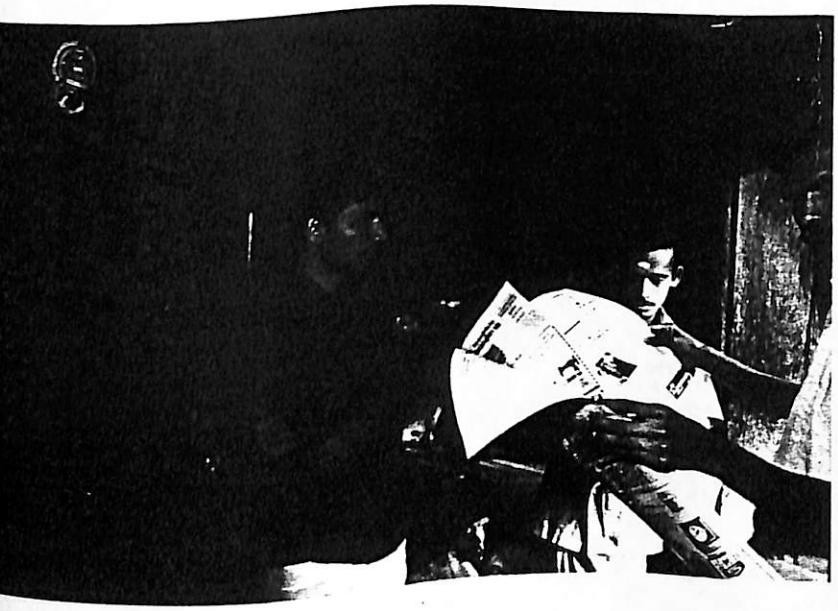
Something was in the air–that's clear from the wide range of Keralites who joined the fight against caste and privilege. To some extent they were shedding old traditions, such as extended families and joint inheritance, that stood in the way of economic modernization–Tharakan speaks of a "counter-reformation" in response to the lower-caste activism. But there was also a stunning level of class betrayal, of people voluntarily leaving behind old privilege. The story of E. M. S. Namboodiripad, who headed the first Communist government in Kerala in 1957, is instructive. Born a Brahmin and a *jenmi*, or rent-collecting landlord, he grew up studying the Rig Veda and "scrupulously observing all customs and manners of society handed down from generation to generation." In his autobiography, he recalls his family's extensive lands, "not one square inch cultivated by us." Instead they sat on the veranda of their estate, giving presents to their serfs and receiving tribute. Awakened by the poetry of Kumaran Asan, who also served as an aide to Narayana Guru, Namboodiripad and others of his clan began to find themselves "gripped by radical ideas and movements." Some burned the sacred threads that identified them as Brahmins and demanded they be taught English as well as Sanskrit; others argued for reforms of the inheritance traditions of the caste. In 1940 Namboodiripad inherited a vast fortune, seventy thousand rupees, but he donated it all to start a publishing house for the workers' movement. When he took office in the 1950s, Namboodiripad introduced the land reforms that eventually stripped the last material basis of caste domination.

The moral fervor did not infect all the privileged, who organized to hold on to their position. "From the 1920s on there was a series of constant low-level uprisings among the poor," says Franke. "A few deaths here and there, and one very big uprising, the Moplah rebellion." Still, the revolution in people's heads was as thorough as the revolution in material status. "There was such a strong culture of reform," says Franke. "The parallel with the American civil rights movement is a useful one. There came a period here when even closet racists had to at least pay lip service to change. In Nadur, the village I was studying, we lived with a Brahmin family. They were not Communists, and they were not *happy* about losing their land, but they did acknowledge that it was morally right." In his book, he tells the story of a hot May, when drying wells made fetching water a major task. "A rich high-caste household (whose son is a prominent Marxist) arranges privately for a deep bore to be dug in the rock behind their house." After two days of drilling, they hit water and pump it with their own diesel motor to a government truck that distributes it daily throughout the village.

*Employees of* Malayalam Manorama, *India's largest newspaper, receiving Christmas presents*

The Communism that slowly emerged from this intense reform era still bears its marks. As T. M. Thomas Isaac, a professor at the Centre for Development Studies, wrote in a history of the coir-workers' union in Alleppey, one legacy of Sri Narayana Guru was a sense of pride and self-respect among the mainly Ezhava laborers. Having entered politics through the temple-entry agitation or other such campaigns, many went from caste militance to class consciousness, especially after a 1938 strike was brutally repressed. For many, he says, "One caste, one religion, one God for man" was replaced by "No caste, no religion, no God for man." But even when elected to office, the Keralite Communists managed to avoid the lunacies that characterized Marxist governments everywhere else. For all the struggle, there was enough flexibility, enough *morality*, that the search for justice never turned into social cleansing.

For those of us who live in the rich parts of the world, the most moving part of the story is probably the painful decision of some of the well-off to trade in their old privilege for something fairer. Those who did so were rarely saints; in some ways, the most moving story I heard involves at least as much calculation as nobility. P. K. Nambiar, a retired veterinarian who guided me on a visit to Trivandrum, described his upbringing in a well-off Nair family. They owned two thousand acres—a vast holding in Kerala, where the average spread nowadays is an acre or two—all of which was farmed by tenants. "I can remember, even now, the depressed classes would



*A Nair family*

come to my father's house. They'd have to stay three hundred meters away. They'd bring a live fish, and dig a little hole in the ground so the fish would not move away, and then they'd make a little sound so we'd know the fish was there." When he went away to school, his mother would make him take a bath when he came home on break before she'd touch him—"She'd insist right now that you wash your own cups," he said, as we finished our tea. "But my father somehow knew that land reform would eventually come, and he decided to give away his land himself. The taxes on it were high, anyway. And as a result all of our tenants, even today, are very cordial with us—not like they are with those who held out to the bitter end. When my mother died recently, we returned to our old lands to cremate her. And I was a little worried about what people there would say. But they were wonderful. It is customary that the nearest tenant provide the logs for the pyre, and he was grateful to do so."

In the morning, every road in Kerala is lined with boys and girls walking to school. Depending on their school, their uniforms are bright blue, bright green, bright red; it may be sentimental to say that their eyes are bright as well, but of all the subtle corrosives that broke down the old order and gave rise to the new Kerala, surely none is as important as the spread of education to an extent unprecedented and as yet unmatched in the Third World.

Though Christian missionaries and the British started the process, it took the militance of the caste-reform groups and then of the budding Left to spread education widely—the first great boom was in the 1920s and 1930s, particularly in southern Kerala, where the princes acceded to popular demands for ever more schools. When leftists dominated politics in the 1960s, they spread the educational programs into Malabar, the northern state that had been ruled directly by the British, and began granting scholarships to untouchables and tribal peoples. By 1981, the general literacy rate in Kerala was seventy percent—twice the all-India rate of thirty-six percent. Even more impressive, the rural literacy rate was essentially identical, and female literacy, at sixty-six percent, not far behind. Kerala was a strange spike on the dismal chart of Third World literacy.

The government, particularly the leftists who governed for much of the late 1980s, continued to press the issue, however, aiming for "total literacy," usually defined as a population where about ninety-five percent can read and write. The pilot project began in the Ernakulam region, an area of three million people which includes the city of Cochin. In late 1988, fifty thousand volunteers fanned out around the district, tracking down 175,000 illiterates between the ages of five and sixty, two-thirds of whom were women. The leftist People's Science Movement (KSSP) recruited twenty thousand volunteer tutors and sent them out to teach: within a year, it was hoped, the illiterates would read Malayalam at thirty words a minute, copy a text at seven words a minute, count and write from one to a hundred, and add and subtract three-digit numbers. The larger goal was to make people feel powerful, feel involved—the early lessons were organized around Brazilian teacher Paolo Freire's notion that the concrete problems of people's lives provide the best teaching material. KSSP organizers, dressed in red loincloths and white headbands, might appear in a village, drumming and dancing; as a crowd gathered, one of the teachers would start to sing, adapting a Bertolt Brecht poem:

Do not hesitate.
The old and the young,
Worker and farmer,
Begin studying today
To read and write. . . .
Study everything,
Question everything,
Do not hesitate.
Take a book in hand.
It is the new weapon.

"Classes were held in cowsheds, in the open air, in courtyards," one leader told the *New York Times*. "For fishermen we went to the seashore. In the hills, tribal groups sat on rocks. Leprosy patients were taught to hold a pencil in stumps of hands with rubber bands. We have not left anyone out." For those with poor eyesight, volunteers collected fifty thousand donated pairs of old eyeglasses and learned from doctors how to match them with recipients. On February 4, 1990, thirteen months after the initial canvass, Indian prime minister V. P. Singh marked the start of World Literacy Year with a trip to Ernakulam, declaring it the country's first totally literate district. Of the 175,000 students, 135,000 scored eighty percent or better on the final test, putting the region's official literacy rate above ninety-six percent; many of the others stayed in follow-up classes and likely had learned enough to read bus signs. The total cost of the 150 hours of education was about twenty-six dollars per person.

Organizers knew the literacy campaign was working when letters from the newly literate began arriving in government offices, demanding paved roads and hospitals.

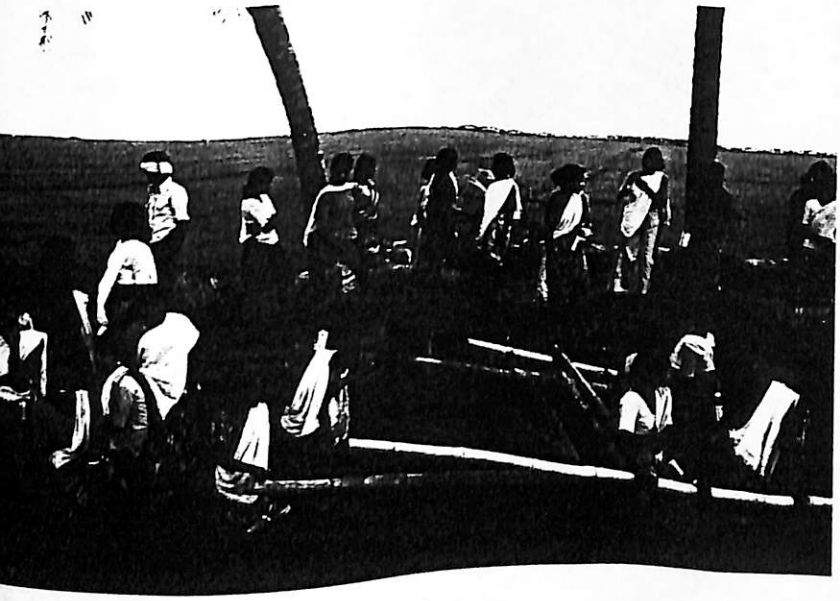
East across the Ghats, in the neighboring state of Tamil Nadu, a new industry has sprung up in recent years. Quack doctors claim to be able to tell, from the appearance of a newborn's umbilical cord, whether the next child will be a boy or a girl—if they say it's a girl, the mother will often opt for an abortion as soon as she gets pregnant (a twig of the poisonous *erukkam* plant is inserted into her cervix); should the procedure not work, the flowers of the plant yield a milk that can kill newborn females. When two *Washington Post* reporters began looking into the issue in 1993, they traveled to Madras, in Tamil Nadu, where they came across a recent survey by the Community Service Guild—of the 1,250 women surveyed, the survey concluded that more than half had killed baby daughters. One woman who had poisoned her newborn daughter told the reporters "I never felt any sorrow. There was a lot of bitterness in my heart toward the baby because the gods should have given me a son." The cities may be higher-tech—amniocentesis is now widespread in urban India—but otherwise much the same. Of 8,000 abortions performed at one Bombay clinic in the early 1990s, 7,999 were of female fetuses. Even those girl children allowed to live are often given less food, less education, and less health care, a bias not confined to India. Across the Third World, girls are given less food and less health care, and so they die. In China, with its fierce birth control, there were 113 boys for every 100 girls under the age of one in 1990. There are, in short, millions and millions of women missing around the world—women who would be there were it not for the dictates of custom and economy.

So it is a remarkable achievement in Kerala to say simply this: there are more women than men. In India as a whole, the 1991 census found that there were about 929 women per 1,000 men; in Kerala, the number was 1,040 women, about where it

*Sign for a jewelry shop, Cannanore*

should be. The female life expectancy in Kerala exceeds that of the male, just as it does in the developed world. Infant mortality is actually lower for girls than boys. There are actually more female college students than males.

As with education, the emancipation of women is both cause and effect of Kerala's singular progress. To some extent, it has historical roots—by ancient custom the Nair caste of Hindus, who made up about fifteen percent of the population, lived in joint matrilineal households. Much studied by anthropologists, these *taravads* owned all household property in common. A husband could marry into the *taravad,* but doing so won him no permanent rights to property—or even to his wife. In some communities, when the man returned from a journey (the Nairs were, after all, a warrior caste), he had to wait on a special bench on the porch of the house for his wife to invite him in; if his sandals were out there on the veranda, it was the sign that she had taken a new husband. This female control over sexuality and property began to fade when the British took over—without wars to fight, the men stayed home and became increasingly interested in knowing who their children were; later, the complex joint holdings made modern capitalism cumbersome, and what remained of them were largely broken up by land reforms. Still, some of the ancient attitude remains.



*Field hands in the backwaters near Kuttanad*

Keralite women brim with a confidence that might shock their sisters in the rest of India, and most of the rest of the developing world. I spent several days once at a secular ashram, Mitraniketan, sharing a dormitory with about twenty-five women from villages around Kerala who had gathered there for "awareness training." They were like a bright, movi[illegible] cloud in their saris; many were midwives or other healt[illegible] workers, and they would return home to spread the wor[illegible] about everything from managing finances to breast-feedin[illegible] Though many were married, they felt free to travel on thei[illegible] own. (A solitary Muslim husband had come along to chaperon[illegible] his wife and her sister.) And on the last night of their program[illegible] in a packed auditorium, they performed more than an hour's worth of skits and songs, taking the stage one after another without any shyness or giggling modesty. One long song, which kept the audience rapt, involved a girl who had married the man of her dreams, only to see him start drinking. He repents, but then he drinks again. Finally he hits her. And she packs up and leaves—amid much cheering. Loretta Lynn would feel right at home.

Whatever the historical reasons, Kerala's quartet of emancipations—from caste distinction, religious hatred, the worst forms of gender discrimination, and the powerlessness of illiteracy—have left the state with a distinctive feel, a flavor of place that influences every aspect of its life. It is, for one thing, an intensely political region: early in the morning in tea shops across Kerala people arrive to eat a *dosha* and read one of the two or three Malayalam-language papers that arrived on the first bus. (Kerala has the highest newspaper-consumption per capita of any spot in India.) In each town square political parties maintain their icons—a statue of Indira Gandhi (the white streak in her hair carefully painted in) or a portrait of Marx, Engels, and Lenin in careful profile. (Kerala may be the last spot on earth where socialist realism is not camp.) Strikes, agitations and "stirs," a sort of wildcat job action, are so common as to be almost unnoticeable. One morning while I was there, the *Indian Express* ran stories on a bus strike, a planned strike of medical students over "unreasonable exam schedules," and the call from one leftist leader that the government take over a coat factory where striking workers had been locked out. By the next day's paper the bus strike had ended, but a bank strike had begun. Worse, the men who perform the traditional and much beloved *kathakali* dance—a stylized ballet that can last all night—were threatening to strike, and planning a march in full costume and makeup through the streets of the capital.

Sometimes all the disputation can get overwhelming. In a long account of his home village, Thulavady, K. E. Verghese says that "politics are much in the air and it is difficult to escape from them. Even elderly women who are not interested are dragged into politics." After several fights, he reports, a barbershop posted a sign on the wall: "No political discussions, please." But for the most part the various campaigns and protests seem a sign of self-confidence and political vitality, a vast improvement over the apathy, powerlessness, ignorance, or tribalism that governs many Third World communities. In 1981 in the village of Nadur, which Richard Franke studied so closely, a local Communist leader began to agitate for a new electrical transformer. (Only a quarter of the households have electricity, but everyone benefits from streetlights.) With the

old transformer, the current, though rated at 220 volts, was so weak that in the early evening the streetlights hardly glowed. As the few people with private lamps began to turn them off around 10 P.M., however, and the current began to strengthen, the streetlights flared to life–long after they were of any use. A petition drive and some demonstrations at regional offices finally got a new substation built. Five years later, the same villagers forced the paving of the main road, which was nearly impassable during the rainy season and a dusty mess the rest of the year. Though the protest was fierce, it was nonviolent, and the road was paved–dust no longer washed into people's homes, which is a major political victory, if dust has always coated your dinner.

For those used to the all-too-explicable servility of poor people in other parts of the world (and to the occasional, and equally explicable, rage that this obsequiousness can suddenly turn to), Kerala offers a refreshing whiff of the air that George Orwell found in revolutionary Spain in the 1930s. "Waiters and shop-walkers looked you in the face and treated you as an equal. Servile and even ceremonial forms of speech had disappeared. . . . All this was queer and moving." Once, flying out of JFK for India, I was trapped by a snowstorm and spent two days in Manhattan, seeing the usual winter sight of beggars huddled in blankets against the cold, pitiful signs scrawled on cardboard at their feet. Finally landing in Bombay, I took a taxi from the international airport to the domestic terminal, and in the ten-minute journey had four separate women with clinging children reach through the window asking alms (not surprising, since perhaps a million people live in cardboard huts lining the airport runways, in one of the world's largest slums). To reach Kerala, which is infinitely poorer than New York, and in fact trails Bombay in per capita income, was a relief–queer and moving indeed.

The Communists have come and gone from power several times since Independence; at the moment they are out of power, and even when they've been in control it's usually been as part of a coalition. But the political culture of Kerala–the egalitarianism, the willingness to agitate–has bred a particular strain of thinking that seems to last even through conservative administrations. "There is a Left ideological hegemony," says Thomas Isaac–or, translated from the Marxist, the watchword of Keralite politics has been redistribution, not growth. Where other poor places–Japan after World War II, Taiwan, South Korea, Brazil, the new Mexico–focused on growth to alleviate poverty, Kerala has been much more interested in sharing what wealth was available. And the most obvious goal of the various revolutionaries, as it has been in almost every agrarian economy, was land reform–sharing the very soil. K. E. Verghese, in his chronicle of the village of Thulavady, describes the old rural economy as "semi-slavery." The sharecroppers were paying between sixty and eighty percent of the gross returns to the landlords; as late as the 1960s, eight percent of landowning households controlled more than sixty percent of rice land. Such feudalism, of course, is still typical across Asia and Latin America.

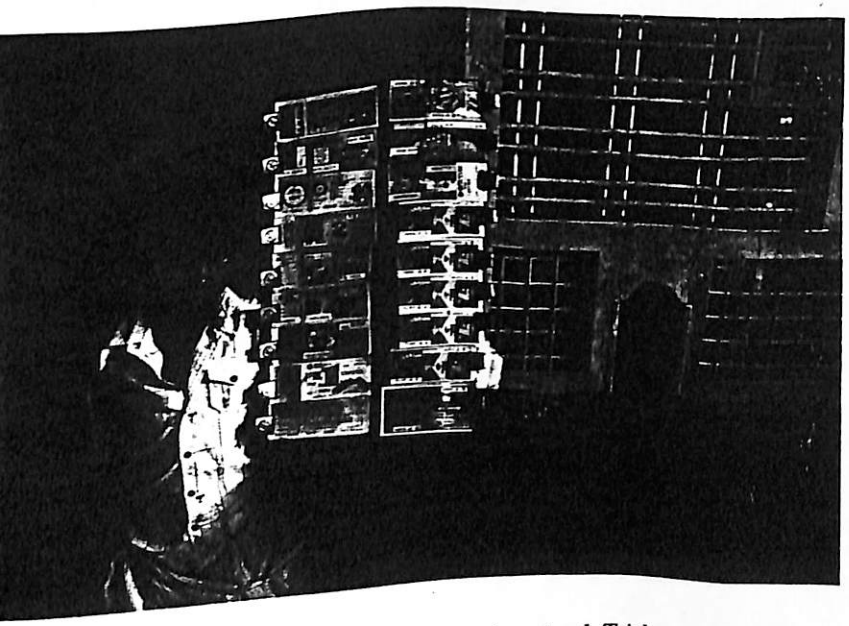
When, after much interference from Delhi, the Communists managed finally to pass land reform laws in the late 1960s, about one and a half million tenants became landowners, averaging about an acre and a half of rice land apiece. More than a third of a million of the poorest Keralites received the rights to the hut land they had been living on, gaining compounds large enough at least to grow a few coconut trees. While the land reform redistributed acreage, it didn't completely level the distribution of wealth–time after time I talked with the descendants of Brahmin families who had used the compensation from the taking of their land to get good educations, win professional jobs, and maintain relatively high incomes. But, as Franke points out, at least these doctors, teachers, and civil servants do some good for Kerala, instead of earning their wealth by collecting rent in the fashion of their ancestors. The huge slice of profits they took off the top of each year's crop has been effectively redistributed. And undoubtedly, the relative moderation of Kerala's land reform has been one of its blessings. Landowners were compensated for their property, and the Communists made no attempts to collectivize agriculture, content to let the new owners farm it as they saw fit.

If there's a general lesson about leftist ideology to be learned from Kerala, in fact, it's that it benefits from having to answer to voters. The Keralite Communists have ruled a population bigger than Czechoslovakia, East Germany, Hungary, Cuba, or North Vietnam; they have accomplished all of the things those nations insisted they were also accomplishing; and they have done so without closing newspapers, jailing opponents, or destroying the environment. Most of all, perhaps, they have helped produce a population of people able to hold them, and all other would-be leaders, accountable–able to demand for themselves the goods that Soviet leaders dispensed as favors.

Chief among those goods is food. The fight for fairly priced food was part of the general upheaval of the years before independence–militants staged antihoarding campaigns, and forced landlords to sell surpluses at affordable rates. The first Communist government tried to institutionalize some of these measures, but when it was dissolved by Delhi, efforts languished until 1964, when a famine forced the state to buy food to make sure it was available. The system of ration or "fair-price" shops that was expanded then, in collaboration with the CARE relief agency, quickly spread–ninety-nine percent of the state's villages are served by one of the stores, which offer rice at a steep discount. Each family gets a ration of the cheap rice, depending on how much paddy land they own–when Franke studied the village of Nadur in the late 1980s, he found the poorer residents buying two-thirds of their rice at the store, a figure that rises much higher during the lean months of the summer, and that effectively raises the incomes of the poorest fifth of the population by ten percent.

There is no question that food is often scarce–in Nadur, says Franke, during the hot, dry months of February and March, "food is mango stew, mango curry, mango pickle, fried mango,

mango snacks, and mango dessert." But severe malnutrition has virtually disappeared, partly because what calories do exist are shared much more equitably than most places. Just as important—and a fact that underlines both Kerala's poverty and its uniqueness—the calories that do get eaten get put to use. It turns out that in a body infested with intestinal parasites, as much as half the food that goes in the mouth nourishes only the worms. Because Kerala has easily affordable medical care and clinics across the state, there are fewer worms. This is what much of the world is about, and Kerala is not: Are the worms in your gut eating half of your food?



*A boy selling lottery tickets at a bus stand, Trichur*

Many people, sincerely alarmed by the world's ever-expanding population, have decided that we need laws to stop the growth—that, sad as such coercion would be, it's a necessary step. And they have some cases to point to—China, for instance, where massive government force probably did manage to contain a population that would otherwise have grown beyond its ability to feed itself. But as the country frees itself from the grip of the Communists, the pent-up demand for children may well touch off a massive baby boom. Compulsion "does not work except in the very short term," writes Paul Harrison in his book *The Third Revolution*, and his case in point is India, which tried to raise its rate of sterilization dramatically in the 1970s. To obtain recruits for the "vasectomy camps" erected throughout the country, the government withheld licenses for shops and vehicles, refused to grant food ration cards or supply canal water for irrigation, and in some cases simply sent the police to round up "volunteers." It worked, in a sense—in 1976, 8.3 million Indians were sterilized. But Indira Gandhi lost the next election largely as a result, the campaign was called off, and it was "ten years before the number of couples using modern contraception rose again to their 1972–73 peaks." India's population, which grew by 109 million in the 1960s and 137 million in the 1970s, grew 160 million in the 1980s. That is the population of two Mexicos, or one Eisenhower-era United States.

The population problem seems so overwhelming that we're always looking for shortcuts. I think it's occurred to many in dark moments that horrible diseases like AIDS might be the start of the earth trying to reduce its overpopulation. Morality aside, the idea is simply wrong. For one thing it underestimates the sheer momentum of the increase. Half a million Rwandans were hacked to death in that country's brief civil war—a number that took the world about forty-seven hours to replace. And by killing those in their prime, writes Harrison, war and disease simply deepen chaos and divert resources from health and education, making life less predictable and delaying the shift to lower fertility. As usual, immorality is bad policy.

In any event, Kerala—and a scattered collection of other spots around the world, now drawing new attention in the wake of the United Nations' Cairo summit on population—makes clear that neither plague nor coercion is necessary. In Kerala the birth rate is forty percent below India as a whole and almost sixty percent below the rate for poor countries in general—in fact, a 1992 survey found the birth rate had fallen to replacement level. That is to say, Kerala has solved one-third of the equation that drives environmental destruction the world over. And, defying the conventional wisdom, it has done so without rapid economic growth—done so without becoming a huge consumer of resources and thus destroying the environment in other ways.

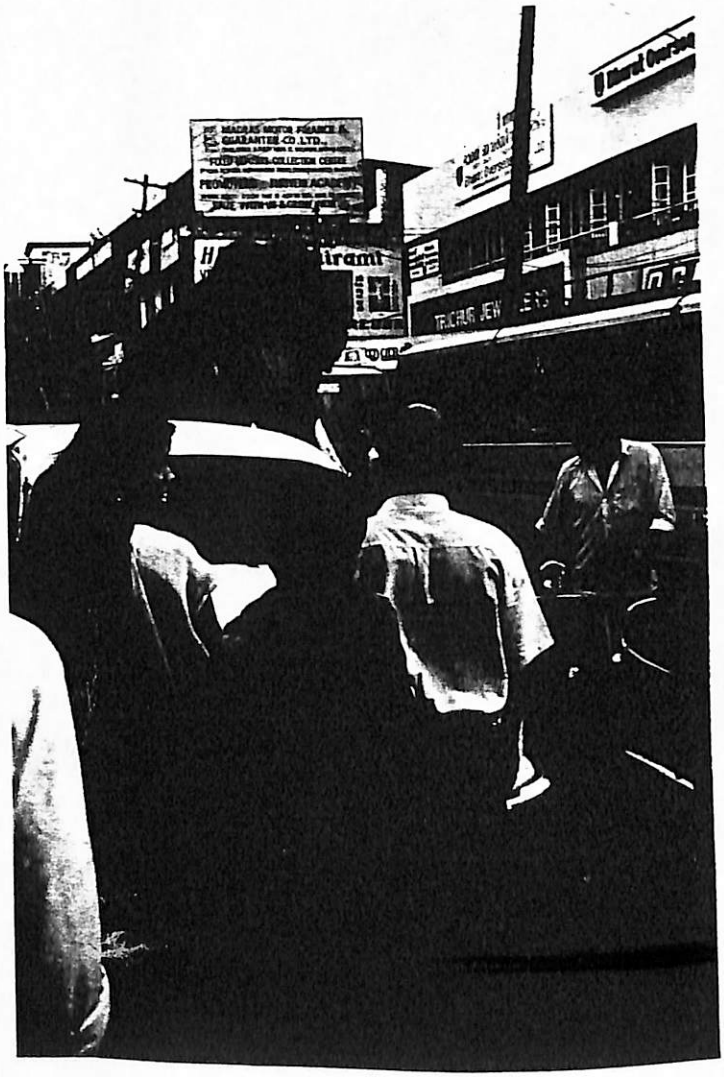
"The two-child family is the social norm here now," said M. N. Sivaram, the Trivandrum representative of the International Family Planning Association, as we sat in his office, surrounded by family-planning posters. "Even among illiterate women we find it's true. When we send our surveyors out, people are embarrassed to say if they have more than two kids. Seven or eight years ago, the norm was three children and we thought we were doing pretty good. Now it's two, and among the most educated people, it's one." Many factors contribute to the new notion of what's proper—the pressure on land is intense, of course, and most people can't support huge families on their small parcels. But that hasn't stopped others around the world. More powerful, perhaps, has been the spread of education across Kerala. Literate women are better able to take charge of their lives—the typical woman marries at twenty-two in Kerala, compared to eighteen in the rest of India. On average around the world, women with at least an elementary education bear two children fewer than uneducated women. What's more, they also want a good education for their children. In many cases that means private schools to supplement the public education, and people can't afford several tuitions.

Kerala's remarkable access to affordable health care has provided a similar double blessing. There's a dispensary every few kilometers where IUDs and other forms of birth control are freely available, and that helps. But the same clinic provides cheap health care for children, and that helps even more. With virtually all mothers taught to breast-feed, and a state-supported nutrition program for pregnant and new mothers, infant mortality in 1991 was seventeen per thousand, compared with ninety-one for low-income countries generally. Someplace between those two figures–seventeen and ninety-one–lies the point where people become confident their children will survive. The typical fertility for traditional societies, says Harrison, is about seven children per woman, which "represents not just indiscriminate breeding, but the result of careful strategy." Women needed one or two sons to take care of them if they were widowed, and where child mortality was high this meant having three sons and, on average, six children." In a society where girls seem as useful as boys, and where children die infrequently, reason suddenly dictates one or two children. "I have one child, and I am depending on her to survive," said Mr. Sivaram. "If I ever became insecure about that, perhaps my views would change."

The question *should* be: How can the Kerala model spread to other places with different cultures, less benign histories? Unfortunately, there's another question about the future that needs to be answered first. Can the Kerala model survive even in Kerala, or will it be remembered chiefly as an isolated and short-term outbreak from a prison of poverty?

In the paddy fields near Mitraniketan, bare-chested men swung hoes hard into the newly harvested fields, preparing the ground for the next crop. They worked steadily but without hurry–in part because there was no next job to get to. Unemployment and underemployment have been signal problems in Kerala for decades. As much as a quarter of the state's population may be without jobs; in rural villages, by many estimates, laborers are happy for seventy or eighty days a year of hoe and sickle work. And though the liberal pension and unemployment compensation laws, and the land reform that has left most people with at least a few coconut trees in their house compound, buffer the worst effects of joblessness, it is nonetheless a real problem: in mid-morning, in the small village at the edge of the rice fields, young men lounge in doorways, with nothing to do.

To some extent, Kerala's successes are surely to blame. A recent report published by the Centre for Development Studies looked at the coir (coconut fiber), cashew processing, and cigarette industries and concluded that as unions succeeded in raising wages and improving working conditions, they were also driving factories off to more degraded parts of India. Kerala's vaunted educational system may also play a role. Because of what they are taught, writes M. A. Oommen, "university graduates become seekers of jobs rather than creators of jobs." In Kerala, says K. K. George of the Centre for Development Studies, "the concept of a job is a job in a ministry. When you get out of school you think: 'The state should give me a job as a clerk'"–an understandable attitude, since government service is relatively lucrative, completely secure, and over, by law, at age fifty-five. Large numbers of Keralites also go into medicine, law, and teaching; that they perform well is proved by their success in finding jobs abroad–as many as a quarter million Keralites work at times in the Persian Gulf–but at home there is less demand.



*A traffic jam after a procession honoring Krishna, Trivandrum*

The combination of a stagnant economy and a strong commitment to providing health and education have left the state facing large budget deficits. Development expert Joseph Collins, for all his praise of Kerala's progress, calls it a "bloated social welfare state without the economy to support it," a place that has developed a "populist welfare culture, where all the parties are into promising more goodies, which means more

## MY AUNT SMOKES ANOTHER LUCKY

She slips it out of its leatherette case,
an immaculate cartridge
she clenches between the red bow of her lips
while flicking her butane lighter,
sucking deeply until the tip
starts to crackle and glow like a fuse.

She snaps the lighter shut and blows smoke
through pursed lips over her shoulder,
lifting the Lucky between two rednail fingers
like somebody about to take an oath,
her hand's glamorous gesture
echoing the pale curve of her cheek.

She smokes her way through another story,
punctuates it with the Lucky
she keeps sharp with crisp drags
and raps into the Everglades souvenir ashtray.
She squints at her cigarette:
one bitter puff and she wrings its neck

into a colossal nest of ashes,
the lipstick on its butt so alluring
that when I start smoking candy cigarettes
I put the lit end in my mouth
and everybody laughs, especially my aunt,
smoke haunting her head like ghosts of family.

*–Michael McFee*

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deficits. The mentality that things don't have to be funded, that's strong in Kerala–in the midst of the fiscal crisis that was going on while I was there, some of the parties were demanding that the agricultural pension be doubled."

But the Left seems to be waking up to the problems. Professor Thomas Isaac–described to me as a "twenty-four-karat Marxist" and as a wheel in the Communist party–said, "Our main effort has been to redistribute, not to manage the economy. But because we on the Left have real power, we need to have an active interest in that management–to formulate a new policy towards production." Instead of building huge factories, or lowering wages to grab jobs from elsewhere, or collectivizing farmers, the Left has embarked on a series of "new democratic initiatives" that come as close as anything on the planet to actually incarnating "sustainable development," that buzzword most beloved of environmentalists. The Left has proposed, and on a small scale has begun, the "People's Resource Mapping Program," an attempt to move beyond word literacy to "land literacy." Residents of local villages have begun assembling detailed maps of their area, showing topography, soil type, depth to the water table, and depth to bedrock. Information in hand, local people could sit down and see, for instance, where a grove of trees would make sense to prevent erosion.

And the mapmakers think about local human problems, too. In one village, for instance, residents were spending scarce cash during the dry season to buy vegetables imported from elsewhere in India. Paddy owners were asked to lease their land free of charge between rice crops for market gardens, which were sited by referring to the maps of soil types and the water table. Twenty-five hundred otherwise unemployed youth tended the gardens, and the vegetables were sold at the local market for less than the cost of the imports. This is the direct opposite, clearly, of centralized planning, as well as the direct opposite of a global market. It is exquisitely local–it demands democracy, literacy, participation, cooperation. The new vegetables represent "economic growth" of a sort that does much good and no harm. The number of rupees consumed, and hence the liters of oil spent packaging and shipping and advertising, go down, not up.

With Kerala's high levels of education and ingrained commitment to fairness, such novel strategies might well solve its economic woes–especially since a stabilized population means it doesn't need to sprint simply to stay in place. One can imagine, easily, a state that manages to put more of its people to work for liveable if low wages. They would manufacture items that they need to use, grow their own food, and participate in the world economy in a modest way: exporting workers and some high-value foods like spices, and attracting some tourists. "Instead of urbanization, ruralization," says K. Vishwanathan, the longtime Gandhian activist who runs an orphanage and job-training center where I spent several days. At his cooperative, near the silkworm pods used to produce high-quality fabric, women learn to repair small motors and solder together broken transistor radios–to make things last, to build a small-scale economy of permanence. "We don't need to become commercial agents, to always be buying and selling this and that," says Vishwanathan. He talks on into the evening, spinning a future at once humble and exceedingly pleasant, much like the tree-shaded and airy community he has built on once-abandoned land: a future as close to the one envisioned by E. F. Schumacher or Thomas Jefferson or Gandhi as is cur-

rently imaginable on this planet. "What is the good life?" asks Vishwanathan. "The good life is to be a good neighbor, to consider your neighbor as yourself."

But what if your neighbors want mainly to sell you things? In a global economy, pretty much everyone's your neighbor, and with the introduction of GATT and the opening of India's economy, these neighbors may soon overwhelm Kerala's history, its leftist tradition, its demographic success.

"India," the regional director for Coca-Cola said recently, "is the last major market on earth." Walled off since Independence from much of the world's economy by laws and tariffs, India has been a bit player multinationally—thirty-third among exporting nations, trailing Ireland. Its economy has been growing "only" four percent a year, nothing like the double-digit rates in China, which is now held up as the model of a booming nation. As the *New York Times* put it—rather baldly—in a 1995 news story: "Where the single-minded determination and decisiveness of an authoritarian leader pushed China rapidly into the world economy, India's torturous and corrupt democratic politics, coupled with a lingering nostalgia for socialism, and a pervasive xenophobia, have hobbled real economic development." But not to fear—in the past four years, India has begun to jog down the Chinese track, promising the IMF that in return for loans it will "structurally adjust" itself, a form of economic chiropractic that has been prescribed for poor countries from Albania to Zaire. In real terms, it means bringing down budget deficits, usually by slashing social spending; eliminating subsidies, sometimes even for basic foodstuffs; and beginning to open one's sheltered economy to the bracing air of the outside world.

In even realer terms, what it means to Keralites can be measured in the price of coconuts. "When you look around Kerala you see nothing but coconut trees," says Thomas Isaac. "When you fly in on a plane, you see all the coconut trees and wonder where you might possibly land." Kerala *means* "land of coconuts," and by one calculation, three coconut trees can supply enough money to buy food for one adult for a year, as long as coconuts are selling at four rupees apiece. But with the arrival of "liberalization" and the lifting of tariffs, according to Thomas Isaac, the price of coconuts has plummeted fifty percent. Meanwhile, the state subsidy for foods like rice has also dropped precipitously, to the point where Kerala has been forced to limit access to the fair-price ration shops. "All this may turn out to be an insurmountable obstacle to our system," he says. "Rightly or wrongly, we've been pursuing a path of development autonomous from the outside world. We don't have so much faith in integration with the outside world on its terms, you know—you have to remember we were integrated for several hundred years under colonialism. But now we are forced to integrate, and whatever local interventions we try to make in Kerala may come to naught against this force."

If that happens, it may or may not be tragic for Kerala. Given its high level of education, it might be able to adapt to the new market-driven world—it could conceivably emerge as another Asian "tiger" like Thailand or Taiwan. But if it did, it would be a tragedy for the rest of the world—a waste of the lesson that Kerala offers.

Because Kerala suggests a way out of two problems simultaneously—not only the classic development goal of more food in bellies and more shoes on feet, but also the emerging, equally essential, task of living *lightly* on the earth, using fewer resources, creating less waste. Kerala's environmental importance is utterly basic. It demonstrates that a low-level economy can create a decent life, abundant in the things—health, education, community—that are most necessary for us all. Gross national product is often used as a synonym for achievement, but it is also an eloquent shorthand for gallons of gasoline burned, stacks of garbage tossed out, quantities of timber sawn into boards. One recent calculation showed that for every American dollar or its equivalent spent anywhere on earth, half a liter of oil was consumed producing, packaging, and shipping the goods. One-seventieth the income means one-seventieth the damage to the planet. So, on balance, if Kerala and the United States manage to achieve the same physical quality of life, Kerala is the vastly more successful place.

Which is not to say that we could ever live on as little as they do—or, indeed, that *they* should. The right point is clearly somewhere in between. Logical as a middle way might be, though, we've not even yet begun to think about it in any real terms. We've clung to the belief that perhaps someday everyone on earth will be as rich as we are—a belief that seems utterly deluded in light of our growing environmental awareness.

Kerala does not tell us precisely how to remake the world. But it does shake up our sense of what's obvious, and it offers a pair of messages to the First World. One is that sharing works. Redistribution has made Kerala a decent place to live, even without much economic growth. The second, and even more important lesson, is that some of our fears about simpler living are unjustified. It is not a choice between suburban America and dying at thirty-five, between agribusiness and starvation, between 150 channels of television and ignorance. Kerala is a fact on the ground, both inspiring and discomfiting. The average American takes home something like seventy times the income of the average Keralite. There is some latitude for change. ■

Eric Hobsbawm

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# Identity Politics and the Left

My lecture is about a surprisingly new subject.* We have become so used to terms like 'collective identity', 'identity groups, 'identity politics', or, for that matter 'ethnicity', that it is hard to remember how recently they have surfaced as part of the current vocabulary, or jargon, of political discourse. For instance, if you look at the International *Encyclopedia of the Social Sciences*, which was published in 1968—that is to say written in the middle 1960s—you will find no entry under *identity* except one about psychosocial identity, by Erik Erikson, who was concerned chiefly with such things as the so-called 'identity crisis' of adolescents who are trying to discover what they are, and a general piece on voters' identification. And as for ethnicity, in the *Oxford English Dictionary* of the early 1970s it still occurs only as a rare word indicating 'heathendom and heathen superstition' and documented by quotations from the eighteenth century.

In short, we are dealing with terms and concepts which really come into use only in the 1960s. Their emergence is most easily followed in the USA, partly



because it has always been a society unusually interested in monitoring its social and psychological temperature, blood-pressure and other symptoms, and mainly because the most obvious form of identity politics—but not the only one—namely ethnicity, has always been central to American politics since it became a country of mass immigration from all parts of Europe. Roughly, the new ethnicity makes its first public appearance with Glazer and Moynihan's *Beyond the Melting Pot* in 1963 and becomes a militant programme with Michael Novak's *The Rise of the Unmeltable Ethnics* in 1972. The first, I don't have to tell you, was the work of a Jewish professor and an Irishman, now the senior Democratic senator for New York; the second came from a Catholic of Slovak origin. For the moment we need not bother too much about why all this happened in the 1960s, but let me remind you that—in the style-setting USA at least—this decade also saw the emergence of two other variants of identity politics: the modern (that is, post suffragist) women's movement and the gay movement.

I am not saying that before the 1960s nobody asked themselves questions about their public identity. In situations of uncertainty they sometimes did; for instance in the industrial belt of Lorraine in France, whose official language and nationality changed five times in a century, and whose rural life changed to an industrial, semi-urban one, while their frontiers were redrawn seven times in the past century and a half. No wonder people said: 'Berliners know they're Berliners, Parisians know they are Parisians, but who are we?' Or, to quote another interview, 'I come from Lorraine, my culture is German, my nationality is French, and I think in our provincial dialect'.[1] Actually, these things only led to genuine identity problems when people were prevented from having the multiple, combined, identities which are natural to most of us. Or, even more so, when they are detached 'from the past and all common cultural practices'.[2] However, until the 1960s these problems of uncertain identity were confined to special border zones of politics. They were not yet central.

They appear to have become much more central since the 1960s. Why? There are no doubt particular reasons in the politics and institutions of this or that country—for instance, in the peculiar procedures imposed on the USA by its Constitution—for example, the civil rights judgments of the 1950s, which were first applied to blacks and then extended to women, providing a model for other identity groups. It may follow, especially in countries where parties compete for votes, that constituting oneself into such an identity group may provide concrete political advantages: for instance, positive discrimination in favour of the members of such groups, quotas in jobs and so forth. This is also the case in the USA, but not only there. For instance, in India, where the government is committed to creating social equality, it may actually pay to classify yourself as low caste or belonging to an aboriginal tribal group, in order to enjoy the extra access to jobs guaranteed to such groups.

* This is the text of the Barry Amiel and Norman Melburn Trust Lecture given at the Institute of Education, London on 2 May 1996.

[1] M.L. Pradelles de Latou, 'Identity as a Complex Network', in C. Fried, ed., *Minorities, Community and Identity*, Berlin 1983, p. 79.

[2] Ibid. p. 91.

But in my view the emergence of identity politics is a consequence of the extraordinarily rapid and profound upheavals and transformations of human society in the third quarter of this century, which I have tried to describe and to understand in the second part of my history of the 'Short Twentieth Century', *The Age of Extremes*. This is not my view alone. The American sociologist Daniel Bell, for instance, argued in 1975 that 'The breakup of the traditional authority structures and the previous affective social units—historically nation and class... make the ethnic attachment more salient'.[3]

In fact, we know that both the nation-state and the old class-based political parties and movements have been weakened as a result of these transformations. More than this, we have been living—we are living—through a gigantic 'cultural revolution', an 'extraordinary dissolution of traditional social norms, textures and values, which left so many inhabitants of the developed world orphaned and bereft.' If I may go on quoting myself, 'Never was the word "community" used more indiscriminately and emptily than in the decades when communities in the sociological sense become hard to find in real life'.[4] Men and women look for groups to which they can belong, certainly and forever, in a world in which all else is moving and shifting, in which nothing else is certain. And they find it in an identity group. Hence the strange paradox, which the brilliant, and incidentally, Caribbean Harvard sociologist Orlando Patterson has identified: people *choose* to belong to an identity group, but 'it is a choice predicated on the strongly held, intensely conceived belief that the individual has absolutely no choice but to belong to that specific group.'[5] That it is a choice can sometimes be demonstrated. The number of Americans reporting themselves as 'American Indian' or 'Native American' almost quadrupled between 1960 and 1990, from about half a million to about two millions, which is far more than could be explained by normal demography; and incidentally, since 70 per cent of 'Native Americans' marry outside their race, exactly who is a 'Native American' ethnically, is far from clear.[6]

So what do we understand by this collective 'identity', this sentiment of belonging to a primary group, which is its basis? I draw your attention to four points.

First, collective identities are defined negatively; that is to say against others. 'We' recognize ourselves as 'us' because we are different from 'Them'. If there were no 'They' from whom we are different, we wouldn't have to ask ourselves who 'We' were. Without Outsiders there are no Insiders. In other words, collective identities are based not on what their members have in common—they may have very little in common except not being the 'Others'. Unionists and Nationalists in Belfast, or Serb, Croat and Muslim Bosnians, who would otherwise be indistinguishable—they speak the same language, have the same life styles, look and behave the same—insist on the one thing that divides them, which happens to be religion. Conversely, what gives unity as Palestinians to a mixed population of Muslims of various kinds, Roman and Greek Catholics, Greek Orthodox and others who might well—like their neighbours in Lebanon—fight each other under different circumstances? Simply that they are not the Israelis, as Israeli policy continually reminds them.

Of course, there are collectivities which are based on objective characteristics which their members have in common, including biological gender or such politically sensitive physical characteristics as skin-colour and so forth. However most collective identities are like shirts rather than skin, namely they are, in theory at least, optional, not inescapable. In spite of the current fashion for manipulating our bodies, it is still easier to put on another shirt than another arm. Most identity groups are not based on objective physical similarities or differences, although all of them would like to claim that they are 'natural' rather than socially constructed. Certainly all ethnic groups do.

Second, it follows that in real life identities, like garments, are interchangeable or wearable in combination rather than unique and, as it were, stuck to the body. For, of course, as every opinion pollster knows, no one has one and only one identity. Human beings cannot be described, even for bureaucratic purposes, except by a combination of many characteristics. But identity politics assumes that one among the many identities we all have is the one that determines, or at least dominates our politics: being a woman, if you are a feminist, being a Protestant if you are an Antrim Unionist, being a Catalan, if you are a Catalan nationalist, being homosexual if you are in the gay movement. And, of course, that you have to get rid of the others, because they are incompatible with the 'real' you. So David Selbourne, an all-purpose ideologue and general denouncer, firmly calls on 'The Jew in England' to 'cease to pretend to be English' and to recognize that his 'real' identity is as a Jew. This is both dangerous and absurd. There is no practical incompatibility unless an outside authority tells you that you cannot be both, or unless it is physically impossible to be both. If I wanted to be simultaneously and ecumenically a devout Catholic, a devout Jew, and a devout Buddhist why shouldn't I? The only reason which stops me physically is that the respective religious authorities might tell me I cannot combine them, or that it might be impossible to carry out all their rituals because some got in the way of others.

Usually people have no problem about combining identities, and this, of course, is the basis of general politics as distinct from sectional identity politics. Often people don't even bother to make the choice between identities, either because nobody asks them, or because it's too complicated. When inhabitants of the USA are asked to declare their ethnic origins, 54 per cent refuse or are unable to give an answer. In short, exclusive identity politics do not come naturally to people. It is more likely to be forced upon them from outside—in the way in which Serb, Croat and Muslim inhabitants of Bosnia who lived together, socialized and intermarried, have been forced to separate, or in less brutal ways.

[3] Daniel Bell, 'Ethnicity and Social Change', in Nathan Glazer and Daniel P. Moynihan, eds., *Ethnicity: Theory and Experience*, Cambridge, Mass. 1975, p. 171.
[4] E.J. Hobsbawm, *The Age of Extremes. The Short Twentieth Century, 1914–1991*, London 1994, p. 428.
[5] O. Patterson, 'Implications of Ethnic Identification' in Fried, ed., *Minorities: Community and Identity*, pp. 28–29.
[6] Todd Gitlin, *The Twilight of Common Dreams*, New York 1995, pp. 162, 109.

The third thing to say is that identities, or their expression, are not fixed, even supposing you have opted for one of your many potential selves, the way Michael Portillo has opted for being British instead of Spanish. They shift around and can change, if need be more than once. For instance non-ethnic groups, all or most of whose members happen to be black or Jewish, may turn into consciously ethnic groups. This happened to the Southern Christian Baptist Church under Martin Luther King. The opposite is also possible, as when the Official IRA turned itself from a Fenian nationalist into a class organization, which is now the Workers' Party and part of the Irish Republic's government coalition.

The fourth and last thing to say about identity is that it depends on the context, which may change. We can all think of paid-up, card-carrying members of the gay community in the Oxbridge of the 1920s who, after the slump of 1929 and the rise of Hitler, shifted, as they liked to say, from Homintern to Comintern. Burgess and Blunt, as it were, transferred their gayness from the public to the private sphere. Or, consider the case of the Protestant German classical scholar, Pater, a professor of Classics in London, who suddenly discovered, after Hitler, that he had to emigrate, because, by Nazi standards, he was actually Jewish—a fact of which until that moment, he was unaware. However he had defined himself previously, he now had to find a different identity.

## The Universalism of the Left

What has all this to do with the Left? Identity groups were certainly not central to the Left. Basically, the mass social and political movements of the Left, that is, those inspired by the American and French revolutions and socialism, were indeed coalitions or group alliances, but held together not by aims that were specific to the group, but by great, universal causes through which each group believed its particular aims could be realized: democracy, the Republic, socialism, communism or whatever. Our own Labour Party in its great days was both the party of a class and, among other things, of the minority nations and immigrant communities of mainland Britainians. It was all this, because it was a party of equality and social justice.

Let us not misunderstand its claim to be essentially class-based. The political labour and socialist movements were not, ever, anywhere, movements essentially confined to the proletariat in the strict Marxist sense. Except perhaps in Britain, they could not have become such vast movements as they did, because in the 1880s and 1890s, when mass labour and socialist parties suddenly appeared on the scene, like fields of bluebells in spring, the industrial working class in most countries was a fairly small minority, and in any case a lot of it remained outside socialist labour organization. Remember that by the time of World War I the social-democrats polled between 30 and 47 per cent of the electorate in countries like Denmark, Sweden and Finland, which were hardly industrialized, as well as in Germany. (The highest percentage of votes ever achieved by the Labour Party in this country, in 1951, was 48 per cent.) Furthermore, the socialist case for the centrality of the workers in their movement was not a sectional case. Trade unions pursued the sectional interests of wage-earners, but one of the reasons why the relations



between labour and socialist parties and the unions associated with them, were never without problems, was precisely that the aims of the movement were wider than those of the unions. The socialist argument was not just that most people were 'workers by hand or brain' but that the workers were the necessary historic agency for changing society. So, whoever you were, if you wanted the future, you would have to go with the workers' movement.

Conversely, when the labour movement became narrowed down to nothing but a pressure-group or a sectional movement of industrial workers, as in 1970s Britain, it lost both the capacity to be the potential centre of a general people's mobilization and the general hope of the future. Militant 'economist' trade unionism antagonized the people not directly involved in it to such an extent that it gave Thatcherite Toryism its most convincing argument—and the justification for turning the traditional 'one-nation' Tory Party into a force for waging militant class-war. What is more, this proletarian identity politics not only isolated the working class, but also split it by setting groups of workers against each other.

So what does identity politics have to do with the Left? Let me state firmly what should not need restating. The political project of the Left is universalist: it is for *all* human beings. However we interpret the words, it isn't liberty for shareholders or blacks, but for everybody. It isn't equality for all members of the Garrick Club or the handicapped, but for everybody. It is not fraternity only for old Etonians or gays, but for everybody. And identity politics is essentially not for everybody but for the members of a specific group only. This is perfectly evident in the case of ethnic or nationalist movements. Zionist Jewish nationalism, whether we sympathize with it or not, is exclusively about Jews, and hang—or rather bomb—the rest. All nationalisms are. The nationalist claim that they are for *everyone's* right to self-determination is bogus.

That is why the Left cannot *base* itself on identity politics. It has a wider agenda. For the Left, Ireland was, historically, one, but only one, out of the many exploited, oppressed and victimized sets of human beings for which it fought. For the IRA kind of nationalism, the Left was, and is, only one possible ally in the fight for its objectives in certain situations. In others it was ready to bid for the support of Hitler as some of its leaders did during World War II. And this applies to every group which makes identity politics its foundation, ethnic or otherwise.

Now the wider agenda of the Left does, of course, mean it supports many identity groups, at least some of the time, and they, in turn look to the Left. Indeed, some of these alliances are so old and so close that the Left is surprised when they come to an end, as people are surprised when marriages break up after a lifetime. In the USA it almost seems against nature that the 'ethnics'—that is, the groups of poor mass immigrants and their descendants—no longer vote almost automatically for the Democratic Party. It seems almost incredible that a black American could even consider standing for the Presidency of the USA as a Republican (I am thinking of Colin Powell). And yet, the common interest of Irish, Italian, Jewish and black Americans in the Democratic Party did not derive from their particular ethnicities, even though realistic politicians paid their

respects to these. What united them was the hunger for equality and social justice, and a programme believed capable of advancing both.

## The Common Interest

But this is just what so many on the Left have forgotten, as they dive head first into the deep waters of identity politics. Since the 1970s there has been a tendency—an increasing tendency— to see the Left essentially as a coalition of minority groups and interests: of race, gender, sexual or other cultural preferences and lifestyles, even of economic minorities such as the old getting-your-hands-dirty, industrial working class have now become. This is understandable enough, but it is dangerous, not least because winning majorities is not the same as adding up minorities.

First, let me repeat: identity groups are about themselves, for themselves, and nobody else. A coalition of such groups that is not held together by a single common set of aims or values, has only an ad hoc unity, rather like states temporarily allied in war against a common enemy. They break up when they are no longer so held together. In any case, as identity groups, they are not committed to the Left as such, but only to get support for their aims wherever they can. We think of women's emancipation as a cause closely associated with the Left, as it has certainly been since the beginnings of socialism, even before Marx and Engels. And yet, historically, the British suffragist movement before 1914 was a movement of all three parties, and the first woman MP, as we know, was actually a Tory.[7]

Secondly, whatever their rhetoric, the actual *movements* and *organizations* of identity politics mobilize only minorities, at any rate before they acquire the power of coercion and law. National feeling may be universal, but, to the best of my knowledge, no secessionist nationalist party in democratic states has so far ever got the votes of the majority of its constituency (though the Québecois last autumn came close—but then their nationalists were careful not actually to demand complete secession in so many words). I do not say it cannot or will not happen—only that the safest way to get national independence by secession so far has been not to ask populations to vote for it until you already have it first by other means.

That, by the way, makes two pragmatic reasons to be against identity politics. Without such outside compulsion or pressure, under normal circumstances it hardly ever mobilizes more than a minority—even of the target group. Hence, attempts to form separate political women's parties have not been very effective ways of mobilizing the women's vote. The other reason is that forcing people to take on one, and only one, identity divides them from each other. It therefore isolates these minorities.

Consequently to commit a general movement to the specific demands of minority pressure groups, which are not necessarily even those of their constituencies, is to ask for trouble. This is much more obvious in the

[7] Jihang Park, 'The British Suffrage Activists of 1913', *Past & Present*, no. 120, August 1988, pp. 156–7.



USA, where the backlash against positive discrimination in favour of particular minorities, and the excesses of multiculturalism, is now very powerful; but the problem exists here also.

Today both the Right and to the Left are saddled with identity politics. Unfortunately, the danger of disintegrating into a pure alliance of minorities is unusually great on the Left because the decline of the great universalist slogans of the Enlightenment, which were essentially slogans of the Left, leaves it without any obvious way of formulating a common interest across sectional boundaries. The only one of the so-called 'new social movements' which crosses all such boundaries is that of the ecologists. But, alas, its political appeal is limited and likely to remain so.

However, there is one form of identity politics which is actually comprehensive, inasmuch as it is based on a common appeal, at least within the confines of a single state: citizen nationalism. Seen in the global perspective this may be the opposite of a universal appeal, but seen in the perspective of the national state, which is where most of us still live, and are likely to go on living, it provides a common identity, or in Benedict Anderson's phrase, 'an imagined community' not the less real for being imagined. The Right, especially the Right in government, has always claimed to monopolize this and can usually still manipulate it. Even Thatcherism, the grave-digger of 'one-nation Toryism', did it. Even its ghostly and dying successor, Major's government, hopes to avoid electoral defeat by damning its opponents as unpatriotic.

Why then has it been so difficult for the Left, certainly for the Left in English-speaking countries, to see itself as the representative of the entire nation? (I am, of course, speaking of the nation as the community of all people in a country, not as an ethnic entity.) Why have they found it so difficult even to try? After all, the European Left began when a class, or a class alliance, the Third Estate in the French Estates General of 1789, decided to declare itself 'the nation' as against the minority of the ruling class, thus creating the very concept of the political 'nation'. After all, even Marx envisaged such a transformation in *The Communist Manifesto*.[8] Indeed, one might go further. Todd Gitlin, one of the best observers of the American Left, has put it dramatically in his new book, *The Twilight of Common Dreams*: 'What is a Left if it is not, plausibly at least, the voice of the whole people? ... If there is no people, but only peoples, there is no Left.'[9]

## The Muffled Voice of New Labour

And there have been times when the Left has not only wanted to be the nation, but has been accepted as representing the national interest, even by those who had no special sympathy for its aspirations: in the USA, when the Rooseveltian Democratic Party was politically hegemonic, in

[8] 'Since the proletariat must first of all acquire political supremacy, must raise itself to be the national class, must constitute itself the nation, it is itself still national, though not in the bourgeois sense.' Karl Marx and Frederick Engels, *The Communist Manifesto*, 1848, part II. The original (German) edition has 'the national class'; the English translation of 1888 gives this as 'the leading class of the nation'.

[9] Gitlin, *The Twilight of Common Dreams*, New York 1995, p. 165

Scandinavia since the early 1930s. More generally, at the end of World War II the Left, almost everywhere in Europe, represented the nation in the most literal sense, because it represented resistance to, and victory over, Hitler and his allies. Hence the remarkable marriage of patriotism and social transformation, which dominated European politics immediately after 1945. Not least in Britain, where 1945 was a plebiscite in favour of the Labour Party as the party best representing the nation against one-nation Toryism led by the most charismatic and victorious war-leader on the scene. This set the course for the next thirty-five years of the country's history. Much more recently, François Mitterrand, a politician without a natural commitment to the Left, chose leadership of the Socialist Party as the best platform for exercising the leadership of all French people.

One would have thought that today was another moment when the British Left could claim to speak for Britain—that is to say *all* the people—against a discredited, decrepit and demoralized regime. And yet, how rarely are the words 'the country', 'Great Britain', 'the nation', 'patriotism', even 'the people' heard in the pre-election rhetoric of those who hope to become the next government of the United Kingdom!

It has been suggested that this is because, unlike 1945 and 1964, 'neither the politician nor his public has anything but a modest belief in the capacity of government to do very much'.[10] If that is why Labour speaks to and about the nation in so muffled a voice, it is trebly absurd. First, because if citizens really think that government can't do very much, why should they bother to vote for one lot rather than the other, or for that matter for any lot? Second, because government, that is to say the management of the state in the public interest, is indispensable and will remain so. Even the ideologues of the mad Right, who dream of replacing it by the universal sovereign market, need it to establish their utopia, or rather dystopia. And insofar as they succeed, as in much of the ex-socialist world, the backlash against the market brings back into politics those who want the state to return to social responsibility. In 1995, five years after abandoning their old state with joy and enthusiasm, two thirds of East Germans think that life and conditions in the old GDR were better than the 'negative descriptions and reports' in today's German media, and 70 per cent think 'the idea of socialism was good, but we had incompetent politicians'. And, most unanswerably, because in the past seventeen years we have lived under governments which believed that government has enormous power, which have used that power actually to change our country decisively for the worse, and which, in their dying days are still trying to do so, and to con us into the belief that what one government has done is irreversible by another. The state will not go away. It is the business of government to use it.

Government is not just about getting elected and then re-elected. This is a process which, in democratic politics, implies enormous quantities of lying in all its forms. Elections become contests in fiscal perjury. Unfortunately, politicians, who have as short a time-horizon as journalists, find

[10] Hugo Young, 'No Waves in the Clear Blue Water', *The Guardian*, 23 April 1996, p. 13.



it hard to see politics as other than a permanent campaigning season. Yet there is something beyond. There lies what government does and must do. There is the future of the country. There are the hopes and fears of the people as a whole—not just 'the community', which is an ideological cop-out, or the sum-total of earners and spenders (the 'taxpayers' of political jargon), but the British people, the sort of collective which would be ready to cheer the victory of any British team in the World Cup, if it hadn't lost the hope that there might still be such a thing. For not the least symptom of the decline of Britain, with the decline of science, is the decline of British team sports.

It was Mrs Thatcher's strength, that she recognized this dimension of politics. She saw herself leading a people 'who thought we could no longer do the great things we once did'—I quote her words—'those who believed our decline was irreversible, that we could never again be what we were'.[11] She was not like other politicians, inasmuch as she recognized the need to offer hope and action to a puzzled and demoralized people. A false hope, perhaps, and certainly the wrong kind of action, but enough to let her sweep aside opposition within her party as well as outside, and change the country and destroy so much of it. The failure of her project is now manifest. Our decline as a nation has not been halted. As a people we are more troubled, more demoralized than in 1979, and we know it. Only those who alone can form the post-Tory government are themselves too demoralized and frightened by failure and defeat, to offer anything except the promise not to raise taxes. We may win the next general election that way and I hope we will, though the Tories will not fight the election campaign primarily on taxes, but on British Unionism, English nationalism, xenophobia and the Union Jack, and in doing so will catch us off balance. Will those who have elected us really believe we shall make much difference? And what will we do if they merely elect us, shrugging their shoulders as they do so? We will have created the New Labour Party. Will we make the same effort to restore and transform Britain? There is still time to answer these questions.

[11] Cited in Eric Hobsbawm, *Politics for a Rational Left*, Verso, London 1989, p. 54

**From:** "Lance Taylor" <lance@airs.com>
**To:** NSSR.65 FIFTH(SHAIKH)
**Date:** 3/24/97 5:19pm
**Subject:** Your CEPA proposal

Dear Anwar,

Here are a few immediate responses to your proposal:

First, as John emphasized to me when he was in town last week, CEPA grants to faculty members are given as seed money. That is, a grant should serve as a basis for an effort which can draw in outside funding. Because you obviously have a major data creation and processing operation in mind, you should say something about how you plan to continue after the summer project.

Second, with regard to the material on pp. 9-11, one observation is that mainstream people like Ben Friedman have done a fair bit of work on money supply determination on the asset side of the banking system's balance sheet; non-mainstreamers like Bob Pollin have also chipped in. You may want to look at some of their material.

With regard to using ratio variables in growth models, I've been doing it a long time, you see the trick in people like Barro and Sargent, etc. As I see it, your original twist is to split investment into circulating and fixed capital components, with potential differential effects on the growth rates of output on the one hand and potential output on the other. You should probably spell out the underlying linkages more clearly.

The budget looks fine.

Regards Lance

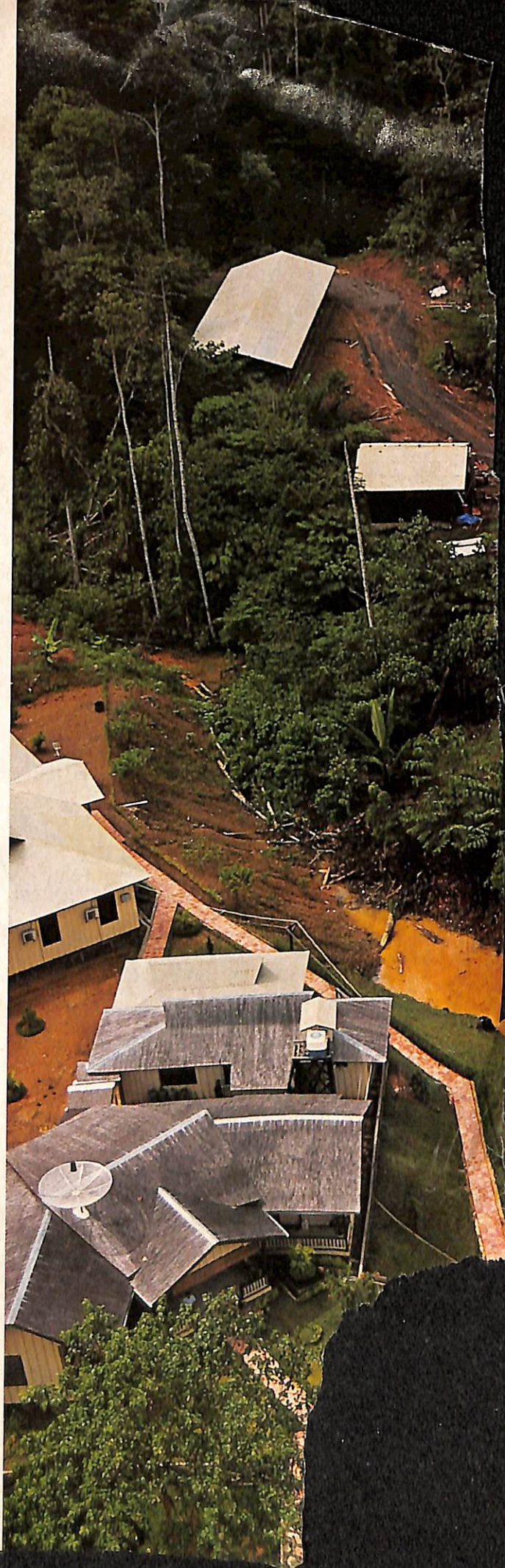
Anwar,
I thought you might find this article interesting!
Ed

# Jungle FEVER

The Bre-X saga is the greatest gold scam ever. But to understand the enormity of the fraud, you had to be there. Our man in Borneo tells his story. by **Richard Behar**

WHEN I STEPPED OFF THE PLANE IN JAKARTA, I was, like the rest of the world's lemmings, swept up in the Bre-X Minerals euphoria. The Canadian company had found the largest gold deposit of the century, buried deep underground in a dense Indonesian jungle on the island of Borneo. As Bre-X vice chairman John Felderhof later explained to me, a volcano had essentially "collapsed back onto itself" three million years ago, causing a massive buildup of heat and pressure, which created the miraculous treasure. He drew a diagram. It made sense. After all, he was on his eighth beer of the evening; I was on my fourth. What's more, everyone believed him—fellow geologists, engineers, financial analysts, business journalists, the world's largest mining companies, government officials, even a former U.S. President. "Geologically, it's the most brilliant thing I've ever seen in my life," Felderhof sputtered. "It's so big, it's scary. It's f—ing scary!"

Horrifying is a better word. Bre-X was



**IT'S SHOWTIME:** Was the Bre-X Minerals site in Indonesia nothing more than an elaborate Hollywood-like set with hundreds of performers?

PHOTOGRAPHS BY DILIP MEHTA—CONTACT

# A BIBLIOGRAPHY ON IMPERIALISM

by

Ertuğrul Tonak
Sevan Nişanyan

with the assistance of members of the
Turkish Democratic Students Association in the U.S.

# A BİBLIOGRAPHY ON IMPERIALISM

The following is a first attempt at preparing a comprehensive bibliography of Marxist literature on the subject of imperialism and of related non-Marxist sources. As it stands, the list already constitutes the most extensive compilation of the literature in English that we are aware of. It is certainly not without flaws and loopholes, but we shall gradually try to improve them in future editions.

In the first place, we decided to eliminate all non-English sources, although some of the most interesting developments in the study of imperialism have not yet been translated into English.

The division of the entries into Marxist and non-Marxist required some delicate decisions. We followed strictly subjective criteria, i.e. anyone who considered himself a Marxist we took to be a Marxist. In the area of anti-Marxist " radical" views, relevance to the ongoing Marxist discussions was our criterion for classification under the 'Marxist' heading.

To make a full compilation of the Marxist journal and article literature on imperialism is ofcourse a hopeless task. In this area, we tried to eliminate articles with a didactic and agitative emphasis, even though recognizing that their importance cannot be underestimated. Also, we tried to give a fairly good selection of case studies, although we could not possibly hope to be complete.

From non-Marxist sources we made a selection of a)bourgeois theories and studies of European colonialism b)studies of contemporary world economic order, underdevelopment and the multinational corporations, with an emphasis on statistical data. We had to exclude, however the publications of United Nations specialized agencies, OECD and other international establishments. Since we were not able to go through all non-Marxist journals, we did not include any non-Marxist articles.

Books which we found mentioned in various bibliographies on the subject, and whose contents we were not able to check personally are included in the " unclassified" section. Of these entries, we are either not sure about their political orientation, don't know to what extent they relate to the topic or do not have sufficient publication data.

x x x

This project grew out of the activities and the study groups of the Turkish Democratic Students Association in the U.S. (TDÖD-ABD). The compilers, both members of the TDÖD-ABD. wish to extend their gratitude to Fatma Gök Tonak, Nilüfer Çağatay, Cemile Moralıoğlu and the North American Congress on Latin America (NACLA) for their comradely assistance.

E.T. / S.N.

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**Harrod, Roy Forbes** (1900–1978). Roy Harrod was born in February 1900 and died in 1978. His father, Henry Dawes Harrod, was a businessman and author of two historical monographs. His mother, Frances (née Forbes-Robertson) was a novelist, and sister of the notable Shakespearean actor-manager, Sir Johnston Forbes-Robertson. Henry Harrod's business failed in 1907, but Roy won a scholarship to St Paul's School in 1911 and a King's Scholarship to Westminster in 1913. He became Head of his House, and in 1918 won a Scholarship in History to New College, Oxford, his father's College. He enlisted in September 1918 and was commissioned in the Royal Field Artillery, but the war ended before his training was completed.

He went up to Oxford in early 1919 and first read Literae Humaniores (Classical Literature, Ancient History and Philosophy). He might well have devoted his career to academic philosophy and he valued his publications in that subject more highly than his seminal contributions to economics. He has remarked that significant economic problems have only attracted the attention of profound thinkers for about two hundred years and interest in them might well disappear in another two hundred. In contrast deep thought has been devoted to the great philosophical problems (such as the validity of inductive methods of thought) for more than two thousand years and new contributions will be read for so long as civilized life remains. But his philosophy tutor at New College, H.W.B. Joseph, deterred him from devoting his life to that subject, by reacting extremely negatively to his essays. Harrod has left an account of a seminar on Einstein's theory of relativity in Oxford in 1922 where Joseph drew attention to a few terminological problems and believed this had undermined the theory. Einstein's theory of relativity survived, but Harrod was persuaded not to pursue a career in academic philosophy. In later years he published in the distinguished philosophical journal, *Mind*, and his *Foundations of Inductive Logic* (1956) has received serious critical attention from philosophers as distinguished as A.J. Ayer (1970), but his main scholarly work was not to be in Philosophy.

He followed his First Class Honours in Literae Humaniores in 1922 with a First Class in Modern History just one year later, and in 1923, Christ Church, Oxford elected him to a Tutorial Fellowship (confusingly described as a Studentship in that College) to teach the novel subject, Economics, which was to be part of Oxford's new Honour School of Politics, Philosophy and Economics.

Harrod was allowed two terms away from Oxford so that he could learn enough economics to teach it, and it was suggested that he might spend this time in Europe, but he first went to Cambridge where he attended a wide range of lectures and wrote weekly essays on Money and International Trade for John Maynard Keynes. He was equally fortunate when he returned to Oxford, for while he was critically discussing the economics essays of Christ Church's undergraduates he was himself writing weekly microeconomic essays for the Drummond Professor of Political Economy, Francis Ysidro Edgeworth.

In addition to his new academic work Harrod took a notable part in the administration of his College (where he was Senior Censor in 1929–31, the most responsible office a Student of Christ Church can be called upon to discharge), and also the University where he was elected to Oxford's Governing Body (the Hebdomadal Council) in 1929 before he was thirty. In the University and in Christ Church, he fought powerful campaigns on behalf of Professor Lindemann (subsequently Lord Cherwell) who held Oxford's Chair of Experimental Philosophy (Physics), and became principal scientific adviser to Winston Churchill's wartime government and a member of his postwar cabinet.

By 1930 his economics had developed to the point where he was able to publish his first important and original contribution, 'Notes on Supply', in which he was the first 20th-century economist to derive the marginal revenue curve. This should have appeared in 1928 to produce a claim for international priority, but Keynes, the editor of the *Economic Journal*, sent the article to Frank Ramsey who first believed there were difficulties with the argument. He subsequently appreciated that his objections rested on a misunderstanding, but Harrod's new contribution was less startling in 1930 than it would have been in 1928. He followed this initial contribution to the imperfect competition literature with an important article, 'Doctrines of Imperfect Competition' (1934), in which he summarized the essential elements of the new theories of Edward Chamberlin and Joan Robinson.

During the 1930s Harrod frequently stayed with Keynes and he was increasingly drawn into the group of brilliant young economists which included Richard Kahn and Joan Robinson who were helping him develop the new theories which culminated in *The General Theory of Employment, Interest and Money*. Harrod had written a number of important and influential articles in the press advocating new reflationary

policies in the early 1930s and these together with his extension of Kahn's employment multiplier to international trade in his *International Economics* (1933) prompted Joseph A. Schumpeter to write in 1946 in his obituary article on Keynes, 'Mr Harrod may have been moving independently toward a goal not far from that of Keynes, though he unselfishly joined the latter's standard after it had been raised.'

Shortly after the *General Theory* appeared, Harrod published *The Trade Cycle* (1936) in which he developed some of the dynamic implications of the new theory of effective demand. The conditions where output would grow were a central theme in Adam Smith's, *The Nature and Causes of the Wealth of Nations*, and it had been much analysed in the great 19th-century contributions of Malthus, Ricardo, Mill and Marx, but the long-term dynamic implications of immediate changes to particular economic variables received virtually no attention in the neoclassical work that followed the marginal revolution. In the *General Theory* Keynes mostly went no further than to work through completely the immediate effects *on a formerly stationary economy* of a variety of disturbances such as an excess of the saving which would occur at full employment over the investment businessmen considered it prudent to undertake. Harrod went a vital step further and showed what could be expected to occur if saving was *permanently high* in relation to *the long-term opportunity to invest*. In 1939 he followed *The Trade Cycle* with 'An Essay in Dynamic Theory', and after the war he developed his growth theory further in the book, *Towards a Dynamic Economics* (1948). Important articles followed including a 'Second Essay in Dynamic Theory' (1960), and 'Are Monetary and Fiscal Politics Enough?' (1964). It is almost certainly because of Harrod's rediscovery of growth theory in the 1930s and his notable contributions to it that Assar Lindbeck, the Chairman of the Nobel Prize Committee, chose to state that he was among those who would have been awarded a Nobel Prize in Economics if he had lived a little longer. The nature of Harrod's original contribution, and the gradual evolution of his theory from 1939 to 1964 is set out in the second part of this article. The detailed technical characteristics of Harrod's growth model are the subject of a separate article, *The Harrod–Domar Growth Model*.

In the Second World War Harrod's friendship with Lindemann and his increasing distinction as an economist led to an invitation to join the Statistical Department of the Admiralty (S Branch) which Churchill set up when he again became First Lord in 1939. This moved to Downing Street when Churchill became Prime Minister in 1940, but Harrod did not have a particular talent for detailed statistical work and he developed an increasing interest in the international financial institutions, the International Monetary Fund and the World Bank, which would need to be set up as soon as the war was won, and from 1942 onwards he pursued this work in Christ Church. In the immediate postwar years he took a strong interest in national politics, and stood for Parliament unsuccessfully as a Liberal in the General Election of 1945 and for a time he was a member of that Party's Shadow Cabinet. He had served on Labour Party committees before the war, and in the 1950s with Churchill's support he unsuccessfully sought adoption as a Conservative parliamentary candidate: his economic advice was warmly welcomed by Harold Macmillan, Conservative Prime Minister in 1957–63. Harrod received the honour of knighthood in 1959 in recognition of his public standing and his notable academic achievements in the prewar and postwar decades.

He had succeeded Keynes as editor of the *Economic Journal* in 1945, and in partnership with Austin Robinson (who looked after the book reviews) he sustained its reputation and quality until his retirement from the editorship in 1966.

His own postwar academic work included important contributions in three areas. In addition to the continuing development and refinement of his prewar work on dynamic theory, he published extensively on the theory of the firm and on international monetary theory which had been his particular concern during the war.

The Oxford Economists' Research Group had begun to meet prominent British industrialists before the war. A group of Oxford economists which generally included Harrod invited individual industrialists to dine in Oxford, and after dinner they were questioned extensively on the considerations which actually influenced their decisions. This led to the publication of a number of much cited articles and the book, *Oxford Studies in the Price Mechanism* (1951) to which Harrod himself did not contribute. Propositions which emanated from these dinners included the notion that businessmen took little account of the rate of interest in their investment decisions, and that they did not seek to profit maximize, but priced instead by adding a margin they considered satisfactory to their average or 'full' costs of production. In his important articles, 'Price and Cost in Entrepreneurs' Policy' (1939) and 'Theories of Imperfect Competition Revised' (1952), Harrod set out a theoretical account of how firms price in which industrialists follow something like these procedures. Their object is especially to achieve a high market share and by setting prices low enough to deter new entry, they actually succeed in maximizing their long-run profits and avoid the excess capacity that Chamberlin and Joan Robinson had considered an inevitable consequence of monopolistic or imperfect competition. This attempt to reconcile the 'rules of thumb' that the businessmen revealed with the propositions of traditional theory was more highly regarded outside Oxford than some of the books and articles in the new tradition.

His work on the world's international monetary problems occupied a good deal of his time and attention in the postwar decades. Keynes himself had considered the breakdown in international monetary relations a crucial element in the collapse of effective demand in so many countries in the 1930s, and he devoted much of the last years of his life to the creation of new institutions which would avoid a repetition of these disasters. Harrod believed he was continuing this vital work when he devoted much thought and energy to these questions. He arrived at the conclusion that there was bound to be some inflation in a world which was successfully pursuing Keynesian policies, and that the liquidity base of the world's financial system was bound to become inadequate if the price of gold failed to rise with other prices. He believed that underlying world liquidity which rested on gold in the last resort must be allowed to rise in line with the international demand for money. He therefore came to focus on the price of gold, and in his book, *Reforming the World's Money* (1965), he proposed that a substantial increase in the price of gold would be needed if subsequent international monetary crises were to be avoided. Harry Johnson (1970) has summarized his contribution to this debate.

Harrod took a great interest in actual developments in the United Kingdom economy, and published seven books and collections of articles in the first two postwar decades which were directly concerned with the policies Britain should follow. There was in addition an immense range of articles in the academic journals, the bank reviews and the press on these questions, not to mention monthly stockbrokers letters for Phillips and Drew. Harrod argued strongly and powerfully that nothing was to be gained by running the economy below

full employment, which meant an unemployment rate of less than 2 per cent in the 1950s and the 1960s. In the late 1950s he was deeply concerned that the removal of import controls would render it increasingly difficult for Britain to pursue such Keynesian policies, and he was a vigorous opponent of European Common Market entry. He attached more significance than some distinguished Keynesians to holding down inflation but he published statistics in *Towards a New Economic Policy* (1967) to show that in Britain, this had tended to be faster when the economy was in recession than when output was allowed to expand. He argued therefore that deflationary policies could play no useful role in policies to control the rate of cost inflation, which he considered the essential element in inflation in Britain. Policy swung sharply away from this Keynesian tradition in the last years of his life, and he wrote a final letter to *The Times* on 21 July 1976 in which he praised the economics of Tony Benn and Peter Shore for their opposition to the Labour government's public expenditure cuts, for, 'To cut public spending when there is an undesirably high rate of unemployment is crazy.'

His advocacy of import controls and his adverse reaction to deflationary policies at all times might suggest that he was an economist of the Left, but his willingness to support each of the British political parties at various times underlines how his approach to economic and social problems cannot be typecast. The lines of policy he supported always followed directly from his understanding of the significance of the major interrelationships, and it was his belief that Keynesian theory (which he had so notably helped to refine and develop) provided the appropriate tools for the analysis of Britain's economic problems that led him towards the expansionist policies he so consistently advocated. But further theoretical and empirical relationships which he believed were equally well founded led him to advocate a series of social policies to which very Right wing labels can be attached.

Just before the 1959 election his article, 'Why I Shall Vote Conservative', in *The Sunday Times*, put forward the startlingly unfashionable argument that only the Conservatives would allow more money to go to the better off who had most to contribute to the future of Britain. Harrod's strong belief in the importance of the *quality* of the country's population stock (which, he held, mattered no less than the physical capital stock) lay behind this article. Harrod thought the quality of the population would be bound to deteriorate if the middle classes continued to have fewer children than the poor. He was a strong believer in the inheritance of every kind of ability, and a provocative conversational conclusion he drew was that in an ideal world, one-third of Christ Church's much sought after undergraduate places should be sold to the rich. Their children often had insufficient academic ability to perform well in examinations, but they had inherited abilities of other kinds which would take them to the highest positions, so they should go to Oxford first. Harrod's reasoning on the inheritence of ability and its implications is set out in detail in the Memorandum he submitted to the Royal Commission on Population in 1944. There he suggested that a difficulty in finding servants was one reason why the middle classes had fewer children. Among his suggestions to remedy this state of affairs was that Diplomas in Domestic Service should be established, and that it should become common practice for servants to have latch-keys and the same rights as their mistresses to enjoy social lives with no questions asked. His Memorandum reads strangely in the 1980s when it is widely regarded as unacceptable that any practical conclusions may be drawn from the proposition that human abilities are inherited. Harrod never hesitated to carry his arguments to their limits, and he always went where his reasoning took him, irrespective of the predictable reactions of others.

The unselfconsciousness of both his academic and his public writing comes out especially in his two biographical volumes, the official life of Keynes (commissioned by the executors) which he published in 1951 and *The Prof* (1959), his personal sketch of Lord Cherwell. As well as providing magnificent accounts of their subjects from the standpoint of one who had known them intimately (and who profoundly understood the economic problems Keynes wrestled with), these books contain extensive autobiographical passages which will enable later generations to know more of Harrod than any biographer can begin to convey.

He ceased to lecture in Oxford in 1967 upon reaching the statutory retirement age of 67, but as a Visiting Professor he continued to teach in several distinguished North American Universities. He died in his Norfolk home in 1978 eleven years after his Oxford work came to an end.

HARROD'S REVIVAL OF GROWTH THEORY AND HIS CONTRIBUTION TO KEYNESIAN MACROECONOMICS. Harrod was intimately involved in the origins and development of Keynesian economics. As the galley proofs of the *General Theory* emerged from the printers from June 1935 onwards, copies were sent to Harrod, to Kahn and to Joan Robinson and with their assistance, Keynes rewrote extensively for final publication. Harrod helped to clarify the relationship between Keynes's new theory of the rate of interest and the then ruling neoclassical theory where this depended upon the intersection of ex-ante saving and investment schedules. In the course of their correspondence, Harrod showed Keynes how well he understood the essence of the *General Theory* by setting out its novelty and its principal elements in ten lines on 30 August 1935:

Your view, as I understand it is broadly this:-

| | |
|---|---|
| Volume of investment determined by | marginal efficiency of capital schedule<br>rate of interest |
| Rate of interest determined by | liquidity preference schedule<br>quantity of money |
| Volume of employment determined by | volume of investment<br>multiplier |
| Value of multiplier determined by | propensity to save |

Keynes responded, 'I absolve you completely of misunderstanding my theory. It could not be stated better than on the first page of your letter.'

Almost immediately after the appearance of the *General Theory*, Harrod published *The Trade Cycle* which contained for the first time in the Keynesian literature the concept of an economy growing at a steady rate. Keynes wrote of it to Joan Robinson on 25 March 1937, 'I think he has got hold of some good and important ideas. But, if I am right, there is one fatal mistake', and to Harrod himself on March 31, 'I think that your theory in the form in which you finally enunciate it is not correct, being fatally affected by a logical slip in the argument.' Harrod replied devastatingly on April 6th, 'There is no slip ... The fact is that you in your criticism are still thinking of once over changes and that is what I regard as a static problem. My technique relates to steady growth.' Harrod's slip was in fact the first step towards the reinstatement of growth theory into mainstream economic analysis.

Harrod convinced Keynes, who, on 12 April congratulated him for 'having invented so interesting a theory', but with the reservation, 'I should doubt whether any reader who has not talked or corresponded with you could be aware that the whole of the last half of the book was intended to be in relation to a moving base of steady progress.' Keynes added that it was vital that Harrod carry his ideas further and restate them more comprehensibly.

Harrod made important progress in the next fifteen months, and on 3 August 1938 he sent Keynes a preliminary draft of the article, 'An Essay in Dynamic Theory', and wrote in his accompanying letter,

> my re-statement of the dynamic theory ... is, I think, a great improvement on my book ... I have been throwing out hints in a number of places of the possibility of formulating a simple law of growth and I want to substantiate the claim. It is largely based on the ideas of the general theory of employment; but I think it gets us a step forward.

A lengthy correspondence then developed between Harrod and Keynes in which the two most original elements in Harrod's contribution which later excited much interest and controversy in the economics profession were extensively discussed.

Harrod's principal innovation was the invention of a *moving equilibrium growth path* for the economy, and he described this as the 'warranted' line of growth. Harrod had perceived before he wrote *The Trade Cycle* that there was a fundamental contradiction between the assumptions prevalent in the microeconomic theory of the firm and industry, to which he had made notable contributions, and the new Keynesian macroeconomics. In the theory of the firm, long-term investment was zero, for firms had no motivation to undertake further investment once they were in long period equilibrium. But the new Keynesian macroeconomics required that there be net investment by firms or the government whenever there was any net saving in the macroeconomy. A theory compatible with both macro and microeconomic equilibrium therefore required that firms invest all the time, so that they can continually absorb total net saving. Harrod's formulation of the warranted rate of growth, his novel discovery, was an attempt to set out this necessary equilibrium growth path that industrial and commercial investment decisions must all the time follow in order to achieve a complete economic equilibrium.

Harrod's moving equilibrium or warranted growth path required that saving (of $s$ per cent of the national income) be continually absorbed into investment, so he asked the question: at what rate of growth will firms all the time choose to invest the $s$ per cent of the national income, which equilibrium growth requires? To answer this question, he made use of the acceleration principle or 'the relation' as he called it, that firms need say $C_r$ units of additional capital to produce an extra unit of output. It follows from these premises that the warranted rate of growth of output will be $s/C_r$ per cent per annum. Since each rise in output by 1 unit entails that $C_r$ extra units be invested, a rise in output by $s/C_r$ per cent of the national income will call for an equilibrium investment of $C_r$ times this which is precisely $s$ per cent of the national income, the ratio of ex-ante saving in the national income. In Harrod's examples at this time, he suggested a typical $s$ of 10 per cent of the national income and a $C_r$ of 4, to produce a warranted rate of growth of $2\frac{1}{2}$ per cent.

This idea that if there is continual saving, then equilibrium entails a continual geometric growth in production came as a considerable surprise to Keynes and the other members of the 'circus'. As Harrod had already explained in April 1937,

> The static system provides an analysis of what happens where there is no increase [in output] which entails (as in Joan Robinson's long-period analysis) that saving=0. Now I was on the lookout for a steady rate of advance, in which the rates of increase would be mutually consistent.

But Harrod's second discovery had equally radical implications. Suppose the actual growth of output is marginally above the equilibrium or warranted rate of growth. In Harrod's numerical example with $s$ 10 per cent and $C_r$ 4, it can be supposed that output actually grows 0.1 per cent faster than the warranted rate, that is by 2.6 per cent instead of 2.5 per cent. Then with 2.6 per cent output growth, the acceleration principle or relation will entail that 4 times 2.6 per cent be added to the capital stock, so that ex-ante investment is 10.4 per cent of the national income. With ex-ante saving limited to 10.0 per cent, the 0.1 per cent excess of actual growth over warranted growth then produces an excess in ex-ante investment over ex-ante saving of 0.4 per cent of the national income. Any excess in ex-ante investment over ex-ante saving will be associated with extra expansion of the national income according to the economics of the *General Theory*. Thus if the actual rate of growth exceeds the warranted rate of $s/C_r$ per cent, the tendency will be for actual growth to rise and rise, for as soon as actual growth rises from 2.6 to say 3 per cent, required investment will rise further to 4 times 3 per cent which equals 12 per cent and so exceed the 10 per cent savings ratio by a still greater margin. Conversely, when actual growth comes out at a rate just short of the warranted 2.5 per cent, ex-ante investment will be below the 10 per cent savings ratio, which will cause the rate of growth to decline. This second discovery, which became known as Harrod's knife-edge, was therefore that any rate of growth in excess of the equilibrium or warranted path he had discovered would set off a continual acceleration of growth, while any shortfall would set off deceleration. He wrote to Keynes of this discovery on 7 September 1938:

> If in static theory producers produce too little, they will be well satisfied with the price they get and feel happy; but this is not taken to be the *right* amount of output; they will be stimulated to produce more. The equilibrium output is taken to be that which *just* satisfies them and induces them to go on as before. Similarly the warranted rate [of growth] is that which just satisfies them and leaves them going on as before. The difference between the warranted rate and the old equilibrium (i.e. the difference between dynamic and static theory) is, on my view, that if they produce above the warranted rate, they will be more than satisfied and be stimulated, and conversely, while in the case of equilibrium in static conditions the opposite happens. The 'field' round the [static] equilibrium contains centripetal, that round the warranted centrifugal forces.

It took Keynes time to absorb Harrod's startling discovery. On September 19th he proposed a counterexample in which $C_r$ was merely one-tenth, while $s$ was also one-tenth. With this counterexample, a deviation of output by a small amount from the warranted path, say by $\delta x$, which would raise planned investment above the level at which it would otherwise be by $C_r\delta x$ would merely raise this by $0.10\,\delta x$, which would equal the rise in planned saving of $s\delta x$, which would also come to $0.10\,\delta x$, so there would be no tendency towards an explosive growth in effective demand. This would grow explosively if $C_r$ was one-ninth (in which case planned investment would rise by

0.11 $\delta x$ and saving by only 0.10 $\delta x$) but the further growth of output would be damped if $C_r$ was merely one-eleventh, so, Keynes insisted, 'neutral, stable or unstable equilibrium' are equally likely.

Harrod protested on 22 September, 'it is absurd to suppose extra capital required [$C_r$] only $\frac{1}{10}$ of annual output, when the capital required in association with the pre-existent level of incomes in England today is 4 or 5 times annual output.' The probability that $C_r$ would exceed $s$ so that ex-ante investment would rise by more than ex-ante saving in order to produce instability was therefore overwhelming.

But several qualifications emerged. In comparing the increase in ex-ante investment to the increase in ex-ante saving following a small deviation of output from the warranted rate:

(1) The relevant marginal capital coefficient ($C_r$) which determines how much planned investment will rise is the net new requirement of *induced* investment. In so far as investment decisions are autonomous of short-term fluctuations in output, the relevant $C_r$ will be lower than the economy's overall capital output ratio.

(2) The relevant coefficient which determines the increase in planned saving is the *marginal* and not the average propensity to save. Planned saving will rise more where output deviates upward from the warranted rate, the greater is the marginal propensity to save in relation to the average propensity.

The circumstances that could produce a stable upward deviation of growth from the warranted rate and the avoidance of Harrod's knife-edge are therefore a very high marginal propensity to save in combination with a situation where most investment is autonomous so that the induced investment coefficient, $C_r$, is considerably less than 1. In 'An Essay in Dynamic Theory', Harrod covered this possibility with the caveat, 'when long-range capital outlay is taken into account ... the attainment of a neutral or stable equilibrium of advance may not be altogether improbable in certain phases of the cycle.' The possibility he had in mind here is that in the early stages of a cyclical recovery there may be so much excess industrial capacity that $C_r$ will be quite low for a time, and therefore quite possibly lower than the marginal propensity to save. But in general any deviation of growth from the warranted line of advance would raise ex-ante investment by a greater margin than ex-ante saving with the result that the rate of growth would deviate further.

In addition to establishing the existence of the warranted line of advance and its instability, Harrod had to define the equilibrium investment behaviour by businesses which would actually lead to expansion at the requisite rate. In his 1939 article he omitted to offer any behavioural rule but simply asserted that the warranted rate was, 'that rate of growth which, if it occurs, will leave all parties satisfied that they have produced neither more nor less than the right amount'. That is no more than a description of equilibrium growth, and much the same can be said of his definition of the warranted rate in *Towards a Dynamic Economics* (1948) as, 'that over-all rate of advance which, if executed, will leave entrepreneurs in a state of mind in which they are prepared to carry on a similar advance'. It was only in the article, 'Supplement on Dynamic Theory' (1952) that Harrod arrived at a behavioural assumption that matched his algebraic formulation of the warranted rate:

> Let the representative entrepreneur on each occasion of giving an order repeat the amount contained in his order for the last equivalent period, adding thereto an order for an amount by which he judges his existing stock to be deficient, if he judges it to be deficient, or subtracting therefrom the amount by which he judges his stock to be redundant, if he does so judge it.

With that assumption an economy which once achieves growth at the warranted rate will sustain it, while any upward or downward deviations will lead to still greater deviations wherever $C_r$ exceeds the marginal propensity to save.

But it emerged by 1964 when Harrod published, 'Are Monetary and Fiscal Policies Enough?', that even that assumption fails to define growth at the warranted rate, for it must also be assumed that the representative entrepreneur will expand at a rate of precisely $s/C_r$ when he judges his capital to be neither deficient nor redundant. This requires an expectation by the representative entrepreneur that his market will grow at a rate of precisely $s/C_r$. Hence the full requirement for growth along Harrod's warranted equilibrium path is that entrepreneurs expect growth at this rate and expand and continue to expand at that rate so long as their capital stock continues to grow in line with their market so that it is neither deficient nor redundant. They will of course increase their rate of expansion if their capital should prove deficient, and curtail it if part of their stock becomes redundant.

The warranted rate of growth and its instability were Harrod's great innovations. From 1939 onwards he contrasted this equilibrium rate with the natural rate of growth, 'the rate of advance which the increase of population and technological improvements allow', which was entirely independent of the warranted rate. Harrod defined the rate of technical progress more precisely in 1948 as the increase in labour productivity 'which, at a constant rate of interest, does not disturb the value of the capital coefficient'. This then entered the language of economics as Harrod-neutral technical progress, which, together with growth in the labour force, determines the natural rate of growth, that is the rate at which output can actually be increased in the long run. This raised few theoretical problems in 1939, and there was nothing novel in the proposition that long-term growth must depend on the rate of increase of the labour force and technical progress. Keynes himself had said as much several years earlier in, 'Economic Possibilities for our Grandchildren' (1930). But the contrast between this natural rate, and Harrod's innovatory warranted rate offered entirely new insights.

If the warranted rate exceeds the feasible natural rate, the achievement of equilibrium growth must be impractical because the economy cannot continue to grow faster than the natural rate. It must deviate downwards from the warranted rate towards the natural rate far more than it deviates upwards with the result that 'we must expect the economy to be prevailingly depressed'. If the natural rate is greater, output will tend to deviate upwards towards the natural rate with the result that the economy should enjoy 'a recurrent tendency towards boom conditions'.

Keynes's own reaction to the dichotomy between the warranted and natural rates was characteristically (his letter to Harrod on 26 September 1938) that the warranted rate always exceeded the natural:

> In actual conditions ... I suspect the difficulty is, not that a rate in excess of the warranted is unstable, but that the warranted rate itself is so high that with private risk-taking no one dares to attain it ...
>
> I doubt if, in fact, the warranted rate – let alone an unstable excess beyond the warranted – has ever been reached in USA and UK since the war, except perhaps in 1920 in UK and 1928 in USA. With a stationary population, peace and unequal incomes, the warranted rate

sets a pace which a private risk-taking economy cannot normally reach and can never maintain.

That is characteristic Keynes, but Harrod had persuaded him to express his familiar analysis in the language of his new theory of growth. In the immediate postwar decades when full employment and creeping inflation prevailed, it was widely argued that the natural rate had come to exceed the warranted. The richness of Harrod's model is demonstrated by its ability to illuminate both kinds of situation.

Evsey Domar's growth model which has a good deal in common with Harrod's was published seven years after 'An Essay in Dynamic Theory', and a considerable literature emerged in the next fifteen years on the stability conditions and other important features of what came to be known as the Harrod–Domar growth model. This is elegantly summarized by Frank Hahn and Robin Matthews in their celebrated 1964 survey article.

The development of neoclassical growth theory in the 1950s led to an increasing realization that the warranted and natural growth rates could be equated by an appropriate rate of interest. If the warranted rate was excessive so that oversaving led to slump conditions, a lower interest rate which raised $C_r$ sufficiently would bring it down to the natural rate. Conversely the inflationary pressures that resulted from an insufficient warranted rate would be eliminated if higher interest rates reduced $C_r$ sufficiently. If the real rate of interest and $C_r$ responded in this helpful way, $s/C_r$, the warranted rate could always be brought into equality with the natural rate.

Harrod's response included his 'Second Essay in Dynamic Theory' (1960), a title which underlines its significance. He proposed that there was an optimum real rate of interest $r_n$ which would maximize utility, with a value of $G_p/e$, $G_p$ being the economy's long-term rate of growth of labour productivity and $e$ the elasticity of the total utility derived from real per capita incomes with respect to increases in these. If a 1 per cent increase in real per capita incomes raises per capita utility $\frac{1}{2}$ per cent, $e$ will be 0.5, and $r_n$ the optimum rate of interest which maximizes utility will be $G_p/0.5$, viz. twice the rate of growth of labour productivity. If the marginal utility of income does not fall at all as real per capita incomes rise, per capita utility will grow 1 per cent when incomes rise 1 per cent so that $e$ is unity, and $r_n$ equals $G_p$. The more steeply the marginal utility of incomes fall, the more $e$ will fall below unity, and the more the optimum real rate of interest, $G_p/e$, will exceed the rate of growth of labour productivity.

If a society actually seeks to establish the optimum rate of interest determined in this kind of way, the value of $C_r$ will depend upon this optimum rate of interest, so it will not also be possible to use the rate of interest to equate the natural and warranted rates of growth in the manner the neoclassical growth models of, for instance, Robert Solow (1956) and Trevor Swan (1956) propose. There will therefore still be difficulties because the warranted rate of growth with real interest rates at their optimum level will not in general be equal to the natural rate. Therefore as Harrod suggested in the final articles he published in 1960 and 1964, governments will have to run persistent budget deficits or surpluses if they are to avoid the difficulties inherent in discrepancies between the natural and the warranted rates of growth.

So Harrod remained a convinced Keynesian who continued to believe that a long-term imbalance between saving, the main determinant of the warranted rate, and investment opportunity would call for persistent government intervention. When that approach to economic policy again becomes fashionable, economists may learn a good deal from Harrod's later articles which have not yet received the same attention from the economics profession as his seminal work in the 1930s and the 1940s.

WALTER ELTIS

SELECTED WORKS

The 'Bibliography of the works of Sir Roy Harrod', in *Induction, Growth and Trade: Essays in Honour of Sir Roy Harrod*, ed. W.A. Eltis, M.FG. Scott and J.N. Wolfe, Oxford: Oxford University Press, 1970, pp. 361–76, includes all the articles he published in books, journals and magazines from 1928 to 1969, and some of his most influential newspaper articles. The present Bibliography is confined to his books and academic articles in books, and academic journals.

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**Harrod–Domar growth model.** The Keynesian revolution led Roy Harrod (1939) and Evsey Domar (1946 and 1947) to work out the implications of permanent full employment. In *The General Theory of Employment, Interest and Money* (1936) Keynes himself showed how full employment could be reached, but he made no attempt to work out the long-term conditions which must be satisfied before an economy can continue to produce at that level. Harrod's and Domar's analyses of this problem show that long-term full employment requires that two fundamental conditions be satisfied.

First, the economy must invest full employment saving every year. If saving is $s_f$ per cent of the full employment national income, and investment falls short of this, then as Keynes showed, effective demand is bound to be insufficient for full employment.

Second, for continuous full employment, the rate of growth of output must equal the growth of the physical labour force, plus the rate of increase in labour productivity. If there are $n$ per cent more workers every year, and each produces $a$ per cent more output, then continuous full employment requires that production grow $(n+a)$ per cent a year. There will be no need to make use of $n$ per cent more workers if output grows less than this, so all the extra workers who wish to join the labour force will not find employment.

Harrod and Domar both discovered a truism which allows formulae for $g$, the rate of growth, to be derived from these fundamental conditions. $g$ can be defined as $\delta Y/Y$, where $\delta Y$ is 'increase in output' and $Y$ the level of output. $\delta Y/Y$ is identically equal to $\delta K/Y$ divided by $\delta K/\delta Y$, where $\delta K/Y$ is 'increase in capital/output', that is, 'investment/output', while $\delta K/\delta Y$ is 'increase in capital/increase in output' or the *marginal* capital-output ratio. There is therefore the truism that:

$g \equiv$ Investment/output $(I/Y) \div$ the capital-output ratio $(C)$.

This can be combined with two basic full employment conditions. The result is presented first in the manner suggested by Harrod (whose model was published seven years prior to Domar's).

The condition that for full employment the share of investment must equal the full employment savings ratio, $s_f$, means that in the above formula, it is necessary that:

$g = s_f$ (which has to equal $I/Y$) divided by $C$.

There will be one particular level of $C$, the marginal capital–output ratio, which profit maximizing entrepreneurs consider ideal, for which Harrod used the symbol, $C_r$, and when this is substituted for $C$ in the above expression, one necessary condition for continuous equilibrium growth at full employment is arrived at:

$$g = s_f/C_r$$

A second condition which needs to be satisfied if there is to be continuous full employment is that the economy's rate of growth must equal $(n + a)$, the rate of growth of the physical labour force plus labour productivity. Hence, if there is to be continuous full employment growth, it is necessary that:

$$g = s_f/C_r = n + a$$

So growth has to equal both $s_f/C_r$ and $(n + a)$. Harrod called the first of these the 'warranted' rate of growth for which he used the symbol $g_w$ and the second the 'natural' rate for which he wrote $g_n$. An economy will only be able to achieve continuous full employment if its rate of growth is equal to both $g_w$ and $g_n$. Since in Harrod's account, $s_f$ and $C_r$ which determine the 'warranted' rate, and $(n + a)$ which determines the natural rate, are exogenously given and independent, $g_w$ and $g_n$ will only be equal by chance. It follows that actual economies will find it virtually impossible to achieve continuous full employment, a Keynesian result which follows naturally from Harrod's Keynesian assumptions.

In the version Domar published in 1946 and 1947 which he sent to the printers before he was aware of Harrod's 1939 article, 'the rate of growth required for a full employment equilibrium' (Harrod's $g_n$) is described as $r$, the economy's long-term saving ratio $(s_f)$ is $\alpha$, and the annual output produced by a unit of capital in the long term $(1/C_r)$ is $\sigma$. Domar's equivalent to Harrod's condition for long term full employment equilibrium that $g_n$ must equal $s_f/C_r$ is (Harrod, 1959) the identical proposition that $r$ must equal $\alpha\sigma$. Harrod's symbols are more often used than Domar's because $g$, $s$, and $C$ are more readily thought of as the growth rate, the savings ratio and the capital-output ratio than, $r$, $\alpha$ and $1/\sigma$.

Harrod and Domar were both then unaware of the work of Fel'dman, who had produced a growth model quite similar to theirs in the Soviet Union in 1928. Domar published an account of Fel'dman's model, 'A Soviet Model of Growth', in his *Essays in the Theory of Economic Growth* (1957), a collection of papers in which his own model of growth and its implications for public policy are fully developed.

The consequences of the all but inevitable failure to achieve Harrod's and Domar's conditions provide illuminating insights into the long term development of real economies which often fail to achieve full employment over considerable periods. Harrod's first condition is that $g$, the economy's actual rate of growth must equal the 'warranted' rate, $s_f/C_r$. The meaning of this condition is that equilibrium growth entails that full employment saving be continuously invested, as in table 1, where a full employment savings ratio $(s_f)$ of 12 per cent, and a required capital-output ratio $(C_r)$ of 4 are assumed, so that the warranted rate is exactly 3 per cent. The real national income is 100 in the first year, and the initial capital stock is exactly the one required, namely four times this or 400.



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TABLE 1. A Table to Illustrate Growth at the Warranted Rate $s_f = 12$ and $C_r = 4$

| Year | Capital Stock | National Income | Desired Capital | Investment |
|---|---|---|---|---|
| | $K = K_{-1} + I_{-1}$ | $Y$ | $C_r . Y$ | $I = s . Y$ |
| 1 | 400.00 | 100.00 | 400.00 | 12.00 |
| 2 | 412.00 | 103.00 | 412.00 | 12.36 |
| 3 | 424.36 | 106.09 | 424.36 | 12.73 |

Investment which is always 12 per cent of the national income is added to the capital stock of the previous year, and the national income (which grows at exactly the warranted rate of 3 per cent) is always exactly one-quarter the capital stock, so the 'desired capital stock' (which is $C_r$ times the national income) is always in line with the actual stock. This means that if the economy grows at precisely the 'warranted' rate (3 per cent), entrepreneurs will be satisfied that they have undertaken the commercially correct rate of investment. In 1939 Harrod defined the 'warranted' rate of growth as 'that rate of growth which, if it occurs, will leave all parties satisfied that they have produced neither more nor less than the right amount', which is precisely the situation in the table where the actual capital stock always equals the desired stock.

Table 2 illustrates what goes wrong when $g$, the actual rate of growth is less than $g_w$. It is assumed that $g$ is only 2 per cent, while with $s_f$ 12 per cent and $C_f$ 4 as before, $g_w$ is still 3 per cent.

TABLE 2. Growth where the Actual Rate ($g$) is 1 per cent less than the Warranted Rate ($g_w$)

| Year | Capital Stock | National Income | Desired Capital | Investment |
|---|---|---|---|---|
| | $K = K_{-1} + I_{-1}$ | $Y$ | $C_r . Y$ | $I = s . Y$ |
| 1 | 400.00 | 100.00 | 400.00 | 12.00 |
| 2 | 412.00 | 102.00 | 408.00 | 12.24 |
| 3 | 424.24 | 104.04 | 416.16 | 12.48 |
| 4 | 436.72 | 106.12 | 424.48 | 12.73 |

Here, where the rate of growth is slightly less than the warranted rate, the capital stock actually increases *faster* than the one entrepreneurs consider ideal. This margin of excess capital grows continuously, year after year, so the time is bound to come where entrepreneurs will respond by cutting investment. According to Harrod (1952) the rate at which firms invest to expand will be determined as follows:

> Let the representative entrepreneur on each occasion of giving an order repeat the amount contained in his order for the last equivalent period, adding thereto an order for an amount by which he judges his existing stock to be deficient, if he judges it to be deficient, or subtracting therefrom the amount by which he judges his stock to be redundant, if he does so judge it (p. 284).

In the conditions set out in Table 2 where $g_w$ exceeds $g$, part of the capital stock of the representative entrepreneur gradually becomes redundant, so investment and therefore effective demand and growth will begin to fall. Thus Harrod arrived at the extremely uncomfortable conclusion that if actual growth is less than the 'warranted' rate, it will come to fall still further below this. It can be shown similarly that if $g$ exceeds $g_w$ for any reason, the economy will become increasingly short of capital with the result that $g$ will rise further and further above $g_w$.

There are propositions in microeconomic theory which claim to demonstrate that if there is a surplus of any particular commodity, then the rate at which it is supplied will fall off with the result that market forces respond in the direction required to remove the surplus. The economy is therefore expected to respond to a shortage or surplus of an individual commodity in the manner required to remove it; but according to Harrod's instability theorem, at the macroeconomic level, any chance deviation of actual growth below the warranted rate will lead to excess capacity, and as this grows, investment and hence effective demand will be curtailed, which will lead to the creation of still more excess capacity. The response of the macro-economy to excess capital will therefore be the opposite of that required to remove the excess, with the result that economies are inherently unstable at the macro level.

Domar arrived at a similar result by directly contrasting the rate of growth of effective demand to the growth of productive capacity. In his formulation (but using Harrod's symbols) the growth in demand equals the increase in investment ($\delta I$) times the multiplier ($1/s$) while the growth of productive capacity equals total investment ($I$) divided by the long term capital-output ratio ($C_r$), with the result that where the growth of demand equals the growth of capacity:

$$\delta I / I = s / C_r .$$

A slight upward deviation of investment from this critical rate of growth (which corresponds to Harrod's 'warranted' rate) will raise $\delta I/I$ (which equals the growth of demand) relative to $s/C_r$, the growth of capacity, and this can be expected to lead to further increases in investment. Thus as in Harrod's argument, any chance deviation in *the rate of growth of investment* from the critical $s/C_r$ growth rate of productive capacity can be expected to lead to further deviations in the same direction.

The difficulties capitalist economies must overcome to achieve continuous expansion at full employment are still greater because in order to grow all the time at the 'warranted' rate and so escape the instability inherent in any departure of $g$ from $s_f/C_r$, the 'warranted' rate itself must equal the natural rate, but there is no reason why $s_f/C_r$ should equal $(n + a)$.

Suppose the conditions assumed in the above tables ($s_f = 12$ per cent and $C_r = 4$ so that $g_w = 3$ per cent) but that the labour force grows at only 0.5 per cent and productivity at 1.5 per cent so that $g_n$ is just 2 per cent. Then the economy's full employment output can grow no more than 2 per cent a year, so it will be possible for the economy to achieve the 3 per cent growth rate required to prevent the emergence of continual excess capacity for a few years at most. Its actual long term growth rate is likely to approximate to the 2 per cent 'natural' rate with the result that $g$, the actual rate will fall short of $g_w$ most of the time. Then years with excess capacity leading to economic depression will predominate over periods of expansion. The continual tendency towards depression will reduce average actual saving ($s$) below full employment saving ($s_f$). Then via unemployment and underproduction, the economy's actual long term savings ratio will come into line with the lower investment ratio ($C_r$ times $g_n$) which physical conditions actually allow the economy to sustain.

Conversely, where $g_n$ exceeds $g_w$, market forces will all the time attempt to push actual growth above the 'warranted' rate, with the result that conditions where capital is scarce and saving inadequate will predominant. In the first instance this will lead to excess demand for capital and therefore to a predominance of inflation over deflation which is what Harrod emphasized in 1948: 'we may have plenty of booms and a frequent tendency to approach full employment, the high

employment will be of an inflationary and therefore unhealthy character' (p. 88). However, if investment of less than $C_r(n+a)$ causes the rate of growth of productive capacity to fall short of $(n+a)$, then there will be insufficient growth of the real capital stock to provide enough physical capital equipment to raise employment at the rate at which the physical labour force is growing $(n)$, with the result that the economy will suffer from growing *structural* unemployment.

Harrod's theory therefore predicts that incompatibilities between long term saving and investment opportunity are all but certain to cause prolonged unemployment (which will be structural where $g_n$ exceeds $g_w$ and demand deficient where $g_w$ exceeds $g_n$) with persistent inflation in addition wherever long term saving is inadequate for the natural rate of growth. This raises fundamental problems for public policy, and Harrod argued in 1939 that 'the difficulties may be too great to be dealt with by a mere anti-cycle policy'. He suggested that where an economy suffers from a long term tendency to over saving with the result that the 'warranted' rate exceeds the 'natural' rate, then a generous attitude to public investment is appropriate so that more will be undertaken than commercial and social considerations call for. Conversely governments should seek to generate more long term saving and to curtail long range and social investment where the 'natural' rate exceeds the 'warranted' rate.

By the later 1950s the United States and several West European economies were achieving full employment and negligible inflation which led a number of distinguished economists to develop models of economic growth which were less prone to predict secular unemployment or inflation. Robert Solow (1956) and Trevor Swan (1956) produced neoclassical growth models where market forces adjust the equilibrium capital–output ratio ($C_r$) so that this automatically equates $g_w$ to $g_n$ (which is achieved when $C_r=(n+a)/s_f$). Nicholas Kaldor (1955–6 and 1957) evolved a Keynesian model of growth and income distribution where shifts between wages and profits will adjust the savings ratio until this becomes the one required ($C_r(n+a)$) to equate $g_w$ and $g_n$. A few years earlier, Alexander (1950) had questioned the inevitability of Harrod's knife-edge which sent an economy soaring upwards or downwards wherever g diverged from $g_w$.

The unemployment and stagflation of the 1970s and the 1980s has surprisingly failed to restore some of the former prestige of the Harrod–Domar model. In the 20th century in the leading Western economies there have been prolonged periods when more saving would have been beneficial, and others with every appearance of inadequate effective demand. The Harrod–Domar growth model is one of the few which actually predicts this, so it still deserves serious attention.

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*See also* AGGREGATE DEMAND AND SUPPLY ANALYSIS; NATURAL AND WARRANTED RATES OF GROWTH.

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**Hart, Albert Gailord** (born 1909). Born in Oak Park, Illinois, Hart received his BA from Harvard in 1930 and his PhD from the University of Chicago in 1936. Most of his career – from 1946 until his retirement in 1979 – was spent as Professor of Economics at Columbia University. Much of his noteworthy work concerned the implications of uncertainty for policy makers, but he should also be remembered as having worked with Kaldor and Tinbergen (1964) to produce an ingenious proposal for a commodity reserve currency: this would serve to improve international liquidity simultaneously with providing a means of protecting incomes of primary producers against shrinkage in times of depression.

Hart's work on uncertainty included a monograph (1940), one notable feature of which was an attempt to analyse how decision makers can judge their success or failure, and thence reformulate their expectations, in the light of partial knowledge of performance distributions. From 1936 onwards, he emphasized the rationality, in situations of uncertainty, of choosing flexible production technologies which, though they might not be perfectly adapted to any specific output rate, would not be disastrously expensive to run over a range of outputs. This idea, which was also promoted by his Chicago contemporary Stigler (1939), led Hart to be critical of much writing on decision theory. He felt it misleading to theorize as if firms assign probabilities to rival hypothetical outputs, aggregate these weighted values and then build their plans around the weighted average of probable output rates (1942). Hart was also irritated by Keynes's tendency to speak of expectations in terms of certainty equivalents, and he warned that, 'generally speaking, the business policy appropriate to a complex of uncertain anticipations is different in kind from that appropriate for any set of certain expectations' (1947, p. 422).

Hart carried this theme into work critical of deterministic macroeconomic model-building and fiscal policy formulation (1945), and into a distinctive approach to monetary theory (1948, especially part II). In the latter, he introduced the 'margin of safety' motive for holding liquid assets, arguing that the structure of economic affairs is such that risks are usually linked: a single disappointment is prone to cause many other things to go wrong in consequence. Hart's concern with surprise, flexibility, and structural linkages in many ways foreshadows themes that emerged in the 1980s in the business policy literature on scenario planning and strategic choices. However, he is not usually credited as the pioneer of this kind of thinking: having been largely ignored by mainstream writers, his ideas were sufficiently poorly known to end up being reinvented.

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which could be very large, because of the absence of any significant recovery in labour demand between 1966 and 1972. On the basis of the increase between 1956 and 1961, one could expect at least a doubling of the low point between 1966 and 1974 if the balance of 'stop' to 'go' had been the same, and more than a doubling given that there had been more 'stop'. This leaves very little room for an increase in voluntary 'hard core' unemployment[25].

**(v) Conclusion**

There is no *positive* evidence that a large proportion of the numbers unemployed may be regarded as voluntary. What evidence there is suggests that very few people have become voluntarily unemployed because of a change in attitude towards work and that the number who have extended their spell of unemployment in response to higher benefits is most unlikely to have exceeded 150,000 by 1976. Certainly, an increase in voluntary unemployment cannot be a major part of the explanation of the large rise in total unemployment.

If improved benefits have increased voluntary unemployment, this is an effect which, in some respects at least, was a desired outcome of the introduction of earnings related supplements and redundancy payments. That people made unemployed, especially those who are made unemployed involuntarily, should receive assistance to engage in a thorough job search should commend the measures rather than be a source of criticism. If the economy is expanded sufficiently and job opportunities increase, then any such voluntary extensions of unemployment need not take place to the same extent, since acceptable jobs will be more readily available. Thus, in periods of relatively full employment, it is likely that much of any voluntary unemployment will disappear.

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[25] It may be observed as a corollary that three years of expansion between 1978 and 1981, such as experienced between 1953 and 1956 or between 1963 and 1966, might only reduce the number of long-term unemployed by 40%, or 125,000, by 1981.

Cambridge Eco. Policy Review 1978(?)

# CHAPTER 4

# CAUSES OF GROWTH AND RECESSION IN WORLD TRADE

**by Francis Cripps**

The stagnation of production in most parts of the world, notably in Western industrial countries, has now reached the point where output is generally at least 10% below the level which would have been projected on the basis of postwar trends prior to 1973. The cost of this recession is huge, the shortfall of output in OECD countries being equal to about one-half the total income of the entire third world. The phenomenon of world recession affects individual countries, including the UK, primarily through stagnation in the volume of international trade. Up to 1973 the volume of trade grew at an average rate of about 8% a year. It is now some 15% below that past trend and in the absence of changes in the system of trade and payments it may be expected to continue growing relatively slowly for some time to come.

The purpose of this chapter is to attempt a systematic analysis of the determinants of the level and growth of world trade and to draw implications about the conditions necessary for a recovery from the recession.

In recent years international economic problems have commonly been analysed in terms of 'global monetarist' models.[1] But since the models *assume* an automatic tendency to full employment in each country and often do not explicitly consider flows of international trade at all, they are inappropriate for analysing the problem of recession. The main object of global monetarist analysis is to determine the monetary conditions necessary for price stability, and to investigate the relationship between balance-of-payments flows and domestic monetary developments. Monetarism has nevertheless inhibited recovery from recession because it has promoted the now widely held belief that expansion of demand in any one country, or of trade in the world as a whole, is likely to be inflationary if it is stimulated by fiscal or monetary policy.[2] The only sustainable recovery, according to monetarist doctrine, is that which occurs spontaneously. Yet, as we shall see, the recession has developed, and continues to deepen, largely because of spontaneous tendencies in the pattern of trade. It will be argued that expansionary fiscal and monetary policy and interventionist trade policy are both essential to secure a recovery.

Policy statements by the OECD and its main member governments have been strongly tinged by monetarism in their emphasis on inflationary risks of expansion (although such an emphasis would almost certainly not be supported by the econometric models employed by OECD). In spite of this, the major governments have accepted that recovery needs to be stimulated by fiscal expansion. The main points of dispute have been the scale of reflation and the question of which countries should act first. It has been argued in Britain that reflation must be led by Germany and Japan because they are the only major countries with strong balances of payments. But the governments of these 'surplus' countries have not in fact been willing to reflate on a large scale, partly because of fears of inflation, while governments of most other countries have not felt able to do so for balance-of-payments reasons. The US government has been a significant agent of recovery, but the USA itself ran into a massive balance-of-payments deficit before it could initiate a sustained revival of world trade.

The main conclusion of the analysis presented below is that demand creation by means of fiscal and monetary action at the national level is very unlikely to be able to procure a recovery from world recession, because it does not offer a solution to the structural problem of imbalances in trade. On the other hand, demand creation at the *international* level, designed to boost countries' import capacity in a manner analogous to a national budgetary stimulus of domestic spending, could in principle ensure a steady world reflation. But the political obstacles to an international programme of income creation are immense, partly because this would implicitly or explicitly involve massive transfers of income from surplus countries to deficit countries.

The alternative to a programme of income creation and redistribution would be an effective mechanism for the adjustment of trade shares, making it possible for individual countries to balance their payments at a high level of domestic activity. Exchange rate changes have hitherto been accorded this role, but experience during the past decade of large exchange rate adjustments has shown that they are quite inadequate for this purpose. The exchange rate mechanism therefore needs to be reinforced, or replaced, by some other system of trade discrimination. Import restrictions, already widely used by developing

[1] See the collection of Essays in Frenkel and Johnson (eds.), *The Monetary Approach to the Balance of Payments*, London, 1976.

[2] It must be admitted at the outset that there is a danger of renewed world inflation if a recovery of trade were to be achieved. This danger is quite specific. It is that a revival of demand could provoke another sudden boom in world prices of foodstuffs, fuels and raw materials similar to that which occurred in 1973. (see p. 38).

countries to regulate their trade balances, are at present more or less prohibited for Western industrial countries. Many of these could achieve a recovery of their own economies if they were allowed to introduce import controls. But such action on the part of industrialised countries would not help developing countries. Indeed to sustain growth of output and employment in every country, trade controls would have to be operated on a multilateral basis with positive discrimination in favour of the weakest. Given the desperate plight of some very poor countries, the case for positive discrimination in their favour is now becoming urgent.

The remainder of this chapter sets out a general scheme of analysis of world trade and payments. This analysis is applied to the postwar system as it has developed since the late 1940s, leading to a diagnosis of causes of the present recession. The final section considers possible methods for procuring recovery.

## 1. Some basic assumptions

The analysis developed below treats world trade as a demand-determined system in which the level of demand is governed by balance-of-payments constraints facing individual countries and the way these interact. This approach relies on the assumptions, firstly, that exports and imports are not so price-elastic that individual countries can easily correct trade deficits by means of devaluation, and secondly, that the level of world output and trade is not closely governed by a pre-determined aggregate supply of energy, food and raw materials.

Before setting out a model it will be useful to consider the significance and plausibility of these two assumptions.

The traditional theory of international trade assumes that changes in exchange rates provide an effective mechanism for adjusting the export and import propensities of individual countries. This view is implicit in global monetarist models. But it also underlies more conventional analyses in which variations in demand affect the level of trade and output as well as the level of prices. If the elasticities of exports and imports with respect to relative costs of production in different countries (expressed in common currency) were very high, countries could choose the level of employment they wanted and at the same time balance their trade so long as they did not maintain artificially 'over-valued' exchange rates. In the event of a recession in trade, whatever its origin, countries which wanted to maintain full employment would have no difficulty in so doing. Any country which incurred a trade deficit would find its exchange rate falling slightly so as to correct the deficit, unless it happened to benefit from offsetting capital inflows in which case the trade deficit would not matter. Either way a fall in total world trade would present no special problems to any individual country.

In reality, however, few if any countries can readily compensate for a reduction in total world trade by means of a devaluation to raise their own share of trade. Some countries, if they already have trade surpluses or large reserves, may be able to ignore the effects of a fall in trade. But most have to accept a reduction in their own domestic economic activity, leading to a fall in their imports which helps to restore their own trade balance but transmits the recessionary impulse to other countries. Balance-of-payments constraints facing individual countries therefore interact in a cumulative process analogous to the Keynesian demand multiplier.

The second point which needs prior discussion is how demand-determined variations in world trade and output interact with constraints on the world supply of energy, food and raw materials. In the short run, as was shown most recently in 1972-73, an upturn in world economic activity may sometimes result in shortages of primary commodities and very sharp increases in their world prices. Moreover, large demand-induced increases in prices of primary commodities can interact with 'cost-push' increases in industrial prices to produce an inflationary spiral.[3] In the short run, therefore, the available supply of primary commodities sets a constraint on the expansion of world economic activity which may from time to time become a binding constraint. But in the longer run this constraint is not pre-determined independently of the level of world economic activity because the supply, and to some extent also the demand, for primary commodities is ultimately price-elastic. In the long run it may not even be true that faster expansion of world output and trade intensifies cost inflation, although the terms of trade should be more favourable to primary commodities, because industrial areas are likely to gain much more from the higher productivity and employment yielded by faster expansion than they stand to lose from the deterioration in their terms of trade.

Whether or not the relatively inelastic supply of primary commodities means that a higher level or faster growth of world trade intensifies inflation, the mechanism which governs the level and growth of world trade itself still needs to be explained. The model presented below, which is intended to provide such an explanation, does not distinguish primary from industrial products, nor does it explicitly consider the terms of trade between the two. For the purposes of the model changes in exports and imports should be understood to include relative price changes as well as volume changes. When relative price effects are taken into account, a general expansion of trade may be expected to increase the export earnings of all countries; industrial exporters normally receive their gain in the form of a higher volume of sales (offset to some extent by a deterioration in their terms of trade), while primary exporters receive part or all of their gain in the form of improved terms of trade, not necessarily through a higher volume of exports.

As a preliminary to considering the world system as a whole, the next section now examines the balance-of-payments constraints which face individual countries.

## 2. The balance-of-payments constraint

The balance of payments of an individual country may be set out in simplified form as follows:

| | | |
|---|---|---|
| | $X$ | exports of goods and services |
| less | $M$ | imports of goods and services |
| equals | $\overline{BT}$ | trade balance |
| plus | $F$ | net income received from abroad (profits, interest, aid, etc.) |
| equals | $\overline{B}$ | balance of current account |
| plus | $K$ | net capital inflows |
| equals | $\overline{\Delta R}$ | accumulation of reserves |

Most countries must normally aim to achieve some minimum target on the balance of trade, denoted $BT^*$. Net income from abroad may be varied only to a limited extent (depending on the country's policies in giving or receiving grant aid, as well as on the level of domestic activity) while there is a maximum, $K^*$, to the net capital inflow which can be attracted on an ongoing basis and in the long run, at least, reserves must be more or less maintained. For simplicity the minimum sustainable trade balance may be written

$$BT^* = -(F + K^*)$$

assuming that net income from abroad is fixed and that reserves cannot be allowed to fall.

This constraint has varying interpretations in different contexts. Consider first a world of fixed exchange rates. If a broad international capital market exists, the maximum sustainable capital inflow, $K^*$, depends on the creditworthiness of the borrowing country. However, if lending is dominated by governments and official agencies, it may depend mainly on the policies of lending agencies. In the case of a country, such as the USA, whose currency was almost universally accepted as a reserve asset, there might conceivably be no effective limit to the potential capital inflow and hence to the size of trade deficit which could be financed.

In a world of floating exchange rates, the constraint must be interpreted rather differently. It is argued by monetarist authors that there is no effective limit to the size of capital inflows which any one country can attract (relative to its other transactions) provided it offers sufficiently high interest rates and/or it allows its exchange rate to fall to a sufficiently low level. But in practice, a very low exchange rate usually exacerbates domestic inflation by raising the cost of imports and the price of exports. There is therefore a limit below which most governments are not willing to allow their country's exchange rate to fall. There is also a limit above which they are unwilling to raise interest rates. In these circumstances there is still a maximum to the net capital inflow they can in practice attract, although this must now be seen as depending on the exchange rate which the government is prepared to accept and the interest rates which it is willing for the country to pay.

Given the constraint on the balance of trade, the crucial question facing each country is whether or not it can achieve sufficient exports, relative to imports, to fulfil this constraint at a high level of domestic activity. Here again the mechanisms vary in different institutional contexts. Whatever the regime, one may suppose that there is some level of imports, $M^*$, necessary for the desired level of domestic activity ('full employment'), and that the actual exports, $X$, depend on the level of world trade, $W$. Formally, writing

$$X = \propto W$$

where $\propto$ is the country's share of world trade,[4] the maximum finance available for imports, which will be termed 'import capacity', $\overline{M}$, is given by

$$\overline{M} = X - BT^* = \propto W + F + K^*$$

The question is whether or not full-employment imports, $M^*$, exceed or fall short of import capacity, defined in this way.

Any country for which full-employment imports, $M^*$, are less than its import capacity, $\overline{M}$, is not balance-of-payments-constrained. It has at least the option of achieving full employment by regulating domestic demand; at the same time it can accumulate reserves or forgo the maximum capital inflow, $K^*$. On the other hand a country with import capacity below that required for full employment must by some means or another reduce its output and employment below the full employment level, and must import only what it can afford to finance. Such a country will be regarded as being balance-of-payments-constrained.

Apart from the minimum trade balance, $BT^*$, import capacity depends on exports and hence on the level of world trade and on the country's share of trade. The trade shares may be influenced to some extent by national policy, notably by making exports cheaper through devaluation or by holding down money wages. But policies to raise a country's share of world trade are usually slow-acting and difficult to implement. The trade shares of most countries have, in the postwar period at least, shown rather persistent trends, despite attempts to change them.

Import requirements must be interpreted in the light of the regime operated in each country. In a free trade context, they depend on the market shares of home and foreign producers in much the same way as exports, and full-employment imports are then as difficult to adjust as the export share of world trade. If imports are controlled by means of tariffs or quotas, full-employment imports may be more flexible, in which case a shortfall of import capacity could conceivably be compensated for by a tightening of import controls rather than by a reduction in domestic output and employment. But in many countries the scope for tighter restriction is limited or negligible because imports are already restricted to those commodities which are regarded as essential inputs for domestic production, consumption or investment.

Changes in the level or growth of world trade directly affect the import capacity of every country. Responses to such a change in import capacity may be of many kinds. But by and large unconstrained countries as defined above may be expected to maintain their imports at the expense of changes in their net capital outflow or accumulation of reserves, while constrained countries will adjust their imports and alter the level of domestic output and employment. Although countries which are constrained may attempt to compensate for a fall in world trade by raising their share of trade or reducing full-employment imports, such adjustments are usually slow and difficult to make.

[3] N. Kaldor, 'Inflation and recession in the world economy,' *Economic Journal*, December 1976.

[4] The dependence of exports on world trade may in reality take very different forms for different countries, depending in particular on whether they export primary or industrial products, and $\propto$ may therefore itself depend on the level of world trade, $W$.

### 3. A model of world trade

Following the discussion above, countries may be divided into two groups - the constrained and the unconstrained. Assume that the unconstrained group maintain near-full employment and that their imports are at the corresponding full-employment level, $M^*_u$. Given world trade, $W$, their combined trade balance will be

$$BT_u = \alpha_u W - M^*_u$$

where $\alpha_u$ is their combined share of world trade. The distribution of this trade balance between different unconstrained countries depends on their individual trade shares relative to import requirements, but for a country to be unconstrained it is at least necessary that

$$BT > BT^*$$

where $BT^*$ represents the minimum balance it could finance. If the level of world trade varied, membership of the group of unconstrained countries might change. But the combined trade balance for a fixed group of countries (including 'borderline' cases) would rise or fall with the level of world trade in a manner similar, if not identical, to that indicated by the equation above.

If all countries were unconstrained, the volume of world trade would be equal to total full-employment imports because the combined balance of trade of all countries sums to zero.[5]

If, as is always the case in practice, some countries are balance-of-payments constrained, their combined trade balance must meet the financial constraint

$$BT_c = BT^*_c = -(F_c + K^*_c)$$

Since constrained countries are mostly debtors, their net income from abroad is usually a negative item. Their trade deficit is thus determined by the extent to which they are able and willing to attract aid and capital inflows in excess of the net profits and interest they pay to creditors.

The total volume of world trade must be such as to keep the combined trade surplus of unconstrained countries down to the level of the combined trade deficit which constrained countries can finance. Thus

$$\alpha_u W - M^*_u = BT_u = -BT^*_c = F_c + K^*_c$$

The level of world trade is therefore given by

$$W = (M^*_u + F_c + K^*_c)/\alpha_u$$

This equation asserts formally that the level of world trade is fully determined by the trading propensities of unconstrained countries, specified by $M^*_u$ and $\alpha_u$, and by the net flow of income and capital to constrained countries, $F_c$ and $F^*_c$. It implies that the wide variety of causes which might be expected to influence the level of world trade, including the supply and prices of oil, food and raw materials, the extent of protectionism, the pattern of exchange rates, aid policies, the availability of international credit, the creation of reserve assets such as SDRs, and so on, all affect the level of world trade as a whole if and only if they alter the value of one or more of these four parameters.

Since imports by unconstrained countries, $M^*_u$, are normally large relative to their combined trade surplus, $BT_u$, which is in turn equal to the trade deficit of constrained countries, $F_c + K^*_c$, it follows that changes in the term $M^*_u/\alpha_u$ are likely to be larger, especially when $\alpha_u$ changes, than changes in the term $(F_c + K^*_c)/\alpha_u$. This means that the dominant factor governing growth of world trade in the medium term can be expected to be the ratio of imports by unconstrained countries to their share of world trade, $M^*_u/\alpha_u$. The volume of world trade will grow fast provided that unconstrained countries expand their imports rapidly and/or reduce their share of world trade. In a free trade system this presents difficulties, because in the long run the countries which become unconstrained are likely to be those which are most competitive, with a tendency to increase their share of trade, $\alpha_u$, and no necessary tendency to maintain very fast growth of imports. The most favourable circumstance for growth of world trade would be one in which the unconstrained countries were relatively uncompetitive, but this is not likely to be sustainable indefinitely.

It can be inferred that the most important task for an adjustment mechanism is to hold down the combined share of unconstrained countries in world trade and to force up their imports.

The growth of imports by unconstrained countries also depends on the internal rate of growth of demand as well as on their import propensities. Growth of trade therefore depends in part on fiscal and monetary policies in the unconstrained countries.

The other factor, which may be of considerable importance in the short run, is the finance available for constrained countries to maintain a trade deficit. If such countries are not initially indebted, they may for some time be able to attract sizeable capital inflows. But this imposes a rising debt service burden and in the long run their creditworthiness tends to be exhausted. Thus borrowing cannot be relied on to provide a growing source of finance for trade deficits in the long run. Although grant aid which does not involve an accumulation of debt can provide a long-term source of finance, under existing institutional arrangements it is only made available on a very small scale and under restrictive conditions.

So long as there remain some constrained countries, the volume of world trade will necessarily be too low in the sense that total imports are less than the sum of the requirements of all countries taken together. The import capacity of a constrained country, $i$, is given by

$$M_i = \alpha_i W + F_i + K^*_i = \frac{\alpha_i}{\alpha_u}(M^*_u + F_c + K^*_c) + F_i + K^*_i$$

This implies that there are three possible solutions to the problem of shortfall in import capacity. One is to reduce full-employment imports, $M^*_i$, to match $\bar{M}_i$, provided this can be done without too much harm to the level or growth of domestic productivity. The disadvantages of this approach, from a global point of view, are not only that there are many tightly constrained countries in which further restriction of imports almost certainly cannot be achieved without harm, but also that tighter restriction of imports by one country may tend to raise the share of unconstrained countries in total trade (if these produce the more essential imports); it might therefore reduce the level of world trade and hence the import capacity of other constrained countries.

A second approach is to bring about a readjustment of trade shares so as to reduce $\alpha_u$ and increase the share of each constrained country by an amount which will raise its import capacity to the required level. As noted above, divergent trends in competitiveness make this difficult to achieve in the long run when the most successful countries come to dominate the unconstrained group.

The third approach is to raise the net receipts of income and capital of each constrained country sufficiently to compensate for its low trade share. In practice this might require massive long-term income transfers.

The analysis above has shown that the level and growth of world trade in any particular period of time are determined by the composition of the unconstrained group of countries, movements of its trade propensities, and the size of the net flow of income and capital to constrained countries. The next section will briefly consider how these factors have operated during the postwar period up to the recent recession.

### 4. Postwar growth of world trade

In the late 1940s the USA totally dominated world trade and payments because it possessed the majority of the world's gold reserves and its products and currency were in universal demand. The postwar system of trade and payments was thus founded in an era of dollar scarcity in which the USA was the only important unconstrained country.

As regards trade propensities, the US government officially encouraged exports by other countries into the US market (raising $M^*_u$) and, although insisting that other countries should liberalise their own imports, permitted discriminatory restriction of imports from the USA (reducing $\alpha_u$). These policies helped to revive trade quickly, despite the dollar shortage. But the more important factor in turning trade propensities against the USA ultimately proved to be the low exchange rates and highly competitive industrialisation in European countries and Japan, which soon made discrimination against the USA unnecessary. In any event, the USA's share of world trade fell rapidly while imports began to penetrate the US domestic market.

The other factor contributing to trade in the late 1940s and the early 1950s was US overseas investment, lending and aid, which brought a supplementary flow of dollars to other countries ($F_c + K^*_c$), enabling them to run trade deficits and incidentally ensuring a trade surplus for the USA.

The most important point to note about this era of dollar scarcity is that the unconstrained country, the USA, took responsibility for securing a rapid recovery of world trade and felt able to take the necessary measures without jeopardising its own position.

By the late 1950s many European countries had rebuilt their reserves and some, notably France, increased their holdings of gold. The USA wrongly believed that its own dominant position as an unconstrained country, resting on acceptance of the dollar as an international currency, depended on the fact that the dollar could be converted into gold at a fixed price. When US gold reserves started to fall quite rapidly, the US government attempted by a variety of expedients to maintain convertibility of the dollar while protecting its gold reserves. Although in the end convertibility of the dollar had to be abandoned, in the event it was gold, rather than the dollar, which became demonetised. The gold problem which dominated international monetary discussions in the late 1950s and much of the 1960s thus in the end proved largely irrelevant to the growth of international trade and payments.

The more significant development during the same period was that the most successful Western European countries, in particular West Germany, gradually escaped from their balance-of-payments constraints. The transition was gradual because they maintained high domestic growth rates and had rapidly increasing import requirements. In itself their tendency to surplus, with export shares at least as high as needed (given continuing expansion of world trade) to finance full-employment imports, implied slower growth of $M^*_u/\alpha_u$, which would have acted as a drag on the rate of expansion of trade. But on the other hand the build-up of reserves made it possible for European countries to relax exchange controls, leading to growth of free international banking (the Eurodollar market) which presented wider borrowing opportunities to constrained countries and enabled them to expand their trade deficits. The increase in borrowing by constrained countries, $K^*_c$, helped to offset any drag on the growth of trade implied by the increasingly strong competitive position of successful European countries and Japan.

It is worth noting that the official international banking system, or at least the IMF, played only a minor role in expanding trade, because it failed to provide a continuing source of capital inflows to constrained countries. Drawings on the IMF were strictly limited and were supposed to be temporary. SDR issues, which could have helped more since they provided additional finance without increasing any country's debt burden, were small and infrequent. Indeed they may have been less important than lending by the World Bank which was at least on a long-term basis and on quite a large scale.

Relaxation of exchange controls and the development of an open international money market helped finance growing trade deficits and thereby maintain growth of trade, especially after 1970. But any further contribution of banking to the growth of trade now threatens to be limited by exhaustion of the creditworthiness of many constrained countries and by the fact that several debtors have suffered a collapse of confidence followed by an 'IMF solution', the experience of which is liable to encourage a much more cautious attitude towards borrowing in the future.

At the same time increasingly liberal exchange has made it difficult or impossible for Western industrial countries, at least, to maintain administered exchange rates. This makes a policy of incurring trade deficits more risky than before because of the greater

[5] In practice trade balances do not sum to zero because, apart from statistical inconsistencies, there is always a stock of goods in transit between countries and the value of this stock is usually increasing. The sum of trade balances is therefore positive and total world exports slightly exceed total imports.

*likelihood that 'loss of confidence' will lead to a sharp and highly inflationary fall in the exchange rate.*

*Both these developments tend to reduce the net capital inflow to constrained countries, $K^*_c$.*

### 5. The recession in trade since 1973

The most immediate cause of the recession in world trade was undoubtedly the fourfold rise in oil prices at the end of 1973, which sharply altered trade propensities. It raised the share of many OPEC countries (by value) in total trade way beyond their import requirements, enlarging the tendency to surplus of the group of unconstrained countries as a whole. The slump was exacerbated by the fact that unconstrained industrial countries, especially the USA, allowed the 'tax on oil' to provoke a domestic slump, hence reducing their imports. Subsequently the unconstrained industrial countries have all undertaken some degree of reflationary action, but not nearly enough to restore a full-employment level of output and imports. Their caution in reflation must be blamed on their belief in the monetarist doctrine that reflation would stimulate inflation, to which they are particularly sensitive after the wave of inflation which followed the oil price increase and the boom in prices of other raw materials.

The shift in OPEC's share of trade has since been partly offset by the fast growth of OPEC imports, although the OPEC surplus would still be very large if there were a world recovery (demand for oil having itself been curtailed by the recession). Moreover the growing energy deficit of the USA helps to maintain OPEC's surplus position.

Among unconstrained industrial countries, Germany and Japan remain reluctant to expand fast by means of domestic reflation.

It is doubtful whether the immediate causes of recession mentioned above provide a complete explanation of the continuing slow growth of trade. The other factors which may be at work are an increasingly unfavourable movement of trade propensities as trade becomes dominated by the most highly competitive countries, and the progressive exhaustion of the creditworthiness of constrained countries, combined with their reluctance to incur deficits in an era of volatile exchange rates.

The most widely canvassed solutions to the problem of recession are in various respects unconvincing. 'Recycling' of the OPEC surplus runs up against the problems of lack of creditworthiness or reluctance to borrow on the part of constrained countries. The fact that surpluses are always recycled *ex post* is no comfort. The point is that the surpluses themselves are being held down, through recession, to whatever level deficit countries can finance.

Coordinated reflation is unlikely to secure a full recovery of trade. Unconstrained countries cannot plausibly be forced to reflate much beyond what they regard as acceptable domestically and there is certainly no *a priori* reason to expect that through reflation they will necessarily raise their imports sufficiently to provide a recovery to pre-1973 trends.

At present surpluses on current account as reported by OECD total about $100 billion a year — roughly 10% of the value of world trade — divided approximately equally between OPEC, industrial countries, and a major statistical discrepancy whereby recorded net receipts of profits and interest by OECD countries fall far short of recorded net payments by developing countries (this discrepancy must be offset in capital accounts since the overall balance of payments of each country including changes in reserves necessarily sums to zero). The total surplus would probably be larger relative to the value of trade in the event of a recovery, since the most highly competitive countries usually secure a disproportionate share of an increase in trade. Moreover some OPEC countries, in particular Saudi Arabia, would not increase their imports in line with their additional earnings from oil exports.

There are three possible approaches to dealing with the problem of chronic surpluses associated with structural imbalances in trade. One is for countries individually to try to adjust their economies to live with a lower level, and slower growth, of trade. A second is to try to eliminate the structural imbalances which cause surpluses. The third is to accommodate the surpluses. Each represents a possible method of procuring a general recovery of employment and output.

### 6. The problem of recovery

Before considering measures to eliminate surpluses, or to accommodate them, it is worth asking whether fast growth of trade is in fact necessary to secure a revival of employment and growth of output. For developing countries which already restrict imports tightly, a slow growth of trade would clearly make recovery difficult, although there are grounds for arguing that many developing countries would in the long run benefit from changes which reduce their dependence on imports. The argument for lower dependence on trade is strongest for industrial countries, like the UK, which suffer a chronic balance-of-payments constraint under free trade but could mitigate the constraint by controls on imports. Since the purpose of import restriction would be to permit higher domestic activity, not to earn a trade surplus, the use of import controls would not necessarily cause a reduction in the level of world trade. Protection would only be harmful to the level of world trade if controls were operated in such a manner as to increase imports from unconstrained countries at the expense of other constrained countries; indeed protection would expand world trade if restrictions discriminated against unconstrained countries. Import controls therefore have a useful role to play in permitting some countries at least to increase their domestic output and employment. They would not offer a full solution to the problem unless they discriminated systematically against imports from unconstrained countries in favour of imports from constrained countries.

Measures to eliminate structural surpluses present great difficulties. As noted above, it is hard to imagine surplus countries being forced to import very much more than they want. Elimination of surpluses would therefore require reduction in the export shares of surplus countries. This is more or less impossible in the case of oil exporters, simply because their oil exports are essential to the rest of the world. Reduction of the export share of successful industrial countries has also proved difficult, not only because they try to limit revaluation of their own currencies but also because the degree of devaluation which other countries are prepared to undertake in order to improve their own competitiveness turns out to be insufficient to dethrone the most successful industrial exporters. The alternative to devaluation is some system of discrimination against the most successful countries. Ideally this would involve a displacement of exporting industry to other countries which have greater need of it. But it is hard to imagine how this could be achieved, quite apart from the political difficulty of constructing a supranational system for sharing out the gains.

To the extent that countries cannot easily adjust to slow growth of trade and that structural surpluses cannot be eliminated, the only remaining possibility is that the surpluses should be more effectively accommodated, which means procuring an increase in sustainable deficits. If trends in trade propensities were such that surpluses tend to increase, this could be an increasingly difficult task. It is certain that surpluses would not rise indefinitely because (except perhaps for oil exporters) they would eventually become an intolerable drain on the exporting country's own resources. For example, it seems unlikely that any industrial country would tolerate an export surplus amounting to more than 10% of its GDP; a recovery of trade which forced the surplus up towards such a level would compel the country in question to take strong action to curtail its own exports or expand its imports.

Given that structural surpluses may be quite large, even if ultimately they are bounded, the question is whether a mechanism could be devised for financing counterpart deficits on an equally large scale. This is a precise analogue, at the international level, of the problem of excess savings by households and firms in a national economy analysed by traditional Keynesian economics.

It is possible to imagine a coordinated international reduction of interest rates, but this would not stimulate all that much more borrowing to cover deficits. The Keynesian remedy for slump which has proved most effective in national economies has been deficit spending by governments, either in the form of direct public expenditure or through subsidies or tax cuts. The lack of a world government makes systematic application of this remedy internationally very hard to conceive. In principle the IMF could, with guaranteed support by all the major countries, undertake an annual budget of grants financed by SDR creation or by the marketing of IMF bonds. So long as the IMF's own creditworthiness were not in question, it could give away as much income as was necessary to enable constrained countries to incur the requisite trade deficits without accumulating more debt of their own. The IMF bonds or SDRs (or assets exchanged for them) would necessarily be accumulated by the surplus countries.

While a solution involving the IMF playing the role of a world treasury is only of theoretical interest, in the earlier postwar period the USA was actually in a position to perform this function and to a certain extent did so through its aid programmes and overseas military spending. The USA has now not only lost its political ability to act as sole manager of the world trade and payments system, but may also no longer have the capacity to finance an unlimited deficit of its own.

The obstacles to a financial solution of the problem of structural surpluses are therefore such as to require serious attention to be given to the development of discriminatory measures to reduce surpluses and to the use of import controls by constrained countries to help them cope with an inadequate level of trade. Although international trade has certainly assisted the development and dissemination of productive technology, further increases in interdependence will not necessarily be beneficial, because tendencies to structural imbalance make it very difficult to maintain trade at a sufficiently high level. There must therefore come a point at which the ability to regulate trade propensities is at least as important as that they should be high. For many countries and from the point of view of the trading system as a whole, that point may now have been reached.

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# A Formal Analysis of the Cambridge Economic Policy Group Model

By Francis Cripps and Wynne Godley
*Cambridge University*

Two propositions about management of the British economy advanced by the Cambridge Economic Policy Group (CEPG) have aroused some controversy. One concerns the relationship between fiscal policy and the balance of payments; the other concerns the relative merits of import restricts and devaluation as alternative means of achieving full employment. Both have also caused confusion and misunderstanding because they were not formulated with sufficient precision when originally advanced in newspaper articles (especially Godley and Cripps, 1974) and annual policy reviews (CEPG, 1975, 1976). The policy reviews were based on a fully defined computer model (the current version is described in Fetherston, 1976), but because this was developed for realistic quantitative analysis it is too complicated and too specific to be suitable for a general exposition.

This paper provides a simplified presentation of the main assumptions of the CEPG model and derives from them some precise conclusions about the effects of fiscal and trade policy. Little or no attempt is made to justify the assumptions, the purpose being to clarify what has been asserted rather than to argue in favour of these conclusions against others.

The quantitative model used for policy reviews was always intended to evolve in the light of experience and criticism and in response to the changing focus of interest in specific policy objectives and instruments. The assumptions and conclusions presented here are still provisional.

In order to derive the theorems in an intelligible analytic form, some simplifications to the realistic quantitative model have been adopted. In particular, disaggregation of components of the current balance of payments, output, national income and public accounts, as well as short-run dynamics, have all largely been omitted.

The first section of the paper gives an overall, verbal description of the model to indicate how it relates to different theoretical traditions. The three following sections describe in turn assumptions relating to real demand, external trade and inflation, and derive specific propositions about relationships between targets and instruments. The final section outlines properties of the model as a whole, based on results from the preceding sections.

## I. General Description

In its broad structure the CEPG model lies squarely within the postwar tradition of Keynesian model-building. The main targets of policy are employment and output, the current balance of payments and the rate of inflation. The principal instruments are fiscal policy and the exchange rate. The sufficiency of these instruments for achieving the targets is one of the issues to which this paper is addressed.

The causal structure of the model involves demand and output being determined by a multiplier process in response to fiscal policy, exports and import propensities; employment being determined in response to real demand and output; exports and import propensities being determined by world trade and by the relationship between domestic and external price levels measured in common currencies; and the rate of inflation being determined by cost increases, in particular money wages, import prices and tax rates.

The limited independent role ascribed to monetary policy is conceived in terms of credit restrictions and interest rates (although the latter are assumed not to have much influence in practice because of external and internal constraints on their use). The money supply is regarded as entirely endogenous, being fully determined by decisions on fiscal policy, credit restrictions and interest rates and by external flows; it is not itself a policy variable with any independent influence on demand or the price level.

Within this orthodox Keynesian framework—broadly shared, for example, by the Treasury (H.M. Treasury, 1975) and National Institute (Bispham, 1975a) models—CEPG's particular conclusions derive mainly from three sets of assumptions.

Firstly, the consumption function concept is extended to bring private fixed investment as well as consumption into a single "private expenditure function" with private disposable income in aggregate as the main explanatory variable. Formally this is very different from the traditional representation, which emphasises the distinction between consumption, determined by personal income, and investment, determined by an accelerator process. In practice over the cycle the predictions of the two models need not be very different because investment and the share of profits in national income both move procyclically. Given the well-known difficulty of modelling the corporate sector, there is an advantage in aggregation provided the overall relationship is empirically robust. What is ensured, by modelling the expenditure function in the aggregate, is that assumptions about acquisitions of financial assets by the private sector as a whole are plausible in the long run—a matter of great importance for a medium-term model.

The aggregate function implies a relationship between fiscal policy, home demand and the balance of payments that is simpler and more clear-cut than that implied by traditional Keynesian models. While the so-called "New Cambridge" result has gained some qualified support (Budd, 1975; Ball *et al.*, 1975; Corden *et al.*, 1975; Stamler, 1975), it had been strongly denied by others (notably Kahn and Posner, 1974, and Bispham, 1975b).

The second distinctive feature of the Policy Group model is that money wage determination is represented as the outcome of periodic negotiated wage settlements composed in part of compensation for past price and tax changes and in part of *ex ante* changes in the disposable real wage. This approach makes it possible to examine the part played by inflation in reconciling *ex ante* real wage targets with actual resource availability. It is broadly consistent with the later views of Keynes (Trevithick, 1975), and contrasts both with the Phillips Curve, whether in its original or "expectations-augmented" form (Friedman, 1975), and with the analysis of bargaining that focuses on attempts to change pay relativities (Phelps Brown, 1962).

The vertical long-run Phillips Curve (Friedman, 1975, p. 22) implies that low unemployment generates accelerating inflation. Under the CEPG assumptions



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This section specifies the determinatio
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*Definitions*

The real expenditure–output identity is

(D1) $$Q \equiv D + X - M$$

where the variables are measured at consta
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$$D \equiv XP + G + S$$

all measured inclusive of a "relative price

$$XP' \equiv PD.XP$$

$$G' \equiv PD.G$$

$$S' \equiv PD.S$$

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The money income–expenditure identit
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(D2) $$Y' \equiv D' + X' - M'$$

where $Y'$ is measured inclusive of net indi
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over the sectors, may be defined by

(D3) $$T' \equiv tY'$$

$$YP' \equiv Y' - T' = (1-t)Y'.$$

a lower rate of unemployment (given the balance of payments and terms of trade) would normally be associated with a slower rate of inflation.

The third main respect in which the CEPG model differs from many others is in the special attention paid to factors influencing the distribution of real disposable income between wages and other incomes. Here the assumptions are not particularly novel or controversial. But given the view that money wage bargaining is concerned with real wage targets, income distribution is of particular importance because it directly affects resources available for real wages, and hence the rate of inflation.

## II. Real Demand

In this and the following sections, assumptions of the model are presented as simplified equations.

The equations are formulated as medium-term relationships with a steady growth rate, $g$, and a steady rate of inflation, $r$. Trend parameters (such as underlying growth of productivity) are omitted, as are short-term dynamic specifications (such as adjustment lags), which have in any case not been the main focus of interest. Equation numbers are prefixed either with D (definitional identity), B (behavioural assumption) or T (derived proposition). A list of symbols is given at the end of the paper. Those with primes denote variables at current prices.

This section specifies the determination of real national income and output, conditional on the tax rate, public expenditure, exports, the propensity to import, the terms of trade and the rate of inflation.

*Definitions*

The real expenditure–output identity is given by

(D1) $$Q \equiv D + X - M$$

where the variables are measured at constant factor cost. Domestic expenditure is further disaggregated as

$$D \equiv XP + G + S$$

all measured inclusive of a "relative price effect" so that

$$XP' \equiv PD.XP$$
$$G' \equiv PD.G$$
$$S' \equiv PD.S$$

where $PD$ is the ratio of current market prices to constant factor cost. The inclusion of a relative price effect, apart from being a useful simplification, normally tends to improve the measure of resource pre-emption (in terms of employment content) of different components of demand.

The money income–expenditure identity (ignoring net income from abroad) is written as

(D2) $$Y' \equiv D' + X' - M'$$

where $Y'$ is measured inclusive of net indirect taxes. An overall net tax rate, $t$, which determines the distribution of national income between the public and private sectors, may be defined by

(D3) $$T' \equiv tY'$$
$$YP' \equiv Y' - T' = (1-t)Y'.$$

Ignoring net income and transfers from abroad, the current balance of payments surplus is

(D4) $B' \equiv X' - M'$.

To express the balance of payments in "real" terms in such a way that it can be brought into equivalence with domestic claims on real national income, the money value of the current balance is divided by the domestic price deflator:

(D5) $B \equiv B'/PD$.

Note that since

$$B'/PX = X - M/TT$$

the real current balance as defined above can also be approximately represented as

(T1) $B \approx X - M/TT$

provided (as is usually the case) that $PD \approx PX$.

The real national income is defined as

(D6) $Y \equiv Y'/PD = D + B$.

Writing $m$ for the propensity to import and using (T1), this implies

(T2) $Y \approx Q(1 + m(1 - 1/TT))$.

The familiar proposition expressed in (T2), that the real national income depends on real output and the terms of trade, is thus a consequence of definitions and accounting identities.

*Behavioural assumptions*

Imports and stockbuilding are determined in volume terms by conventional propensities, which may be written

(A1) $M = mQ$

(A2) $S = \alpha_0 g Q$.

The effects of competitiveness on the propensity to import will be considered in the following section.

The assumption about private acquisition of financial assets in money terms is given by

(A3) $AFP' = \alpha_1(g+r)\,YP' - \alpha_2 S'$

where $AFP'$ refers to net acquisition of financial assets external to the private sector as a whole. This can be influenced by interest rates or credit rationing, specially hire purchase controls. But such monetary influences have normally had only a minor role in the United Kingdom and are therefore not formally considered here.

The determination of private expenditure (excluding stockbuilding) follows directly from the above assumption:

$$XP' \equiv YP' - AFP' - S' = \{1 - \alpha_1(g+r)\}\,YP' - (1-\alpha_2)S'.$$

Since the same deflator is used throughout the relationship is the same in real terms:

(T3) $XP = \{1 - \alpha_1(g+r)\}\,YP - (1-\alpha_2)S$.



*Real income, the balance of payments and fisc*

From (T1) and (D6),

$$Y = XP + G + S + X - M/TT.$$

Substituting from (A1), (A2), (D3), (T2) an solution for real income can be obtained as

(T4) $Y = (G+X)/\phi$

where

$$\phi = t + \alpha_1(g+r)(1-t) - \frac{\alpha_0\alpha_2 g - (m/TT}{1 + m(1 - 1/TT}$$

Note that the multiplier is the lower, the hig inflation is assumed to raise private net acquis income. The steady-state tax rate necessary to income can be derived from (T4) as

$$t = \frac{\left[\frac{G+X}{Y} - \alpha_1(g+r) + (\alpha_0\alpha_2 g - m/TT\right.}{\{(1 - \alpha_1(g+r)\}}$$

and the steady-state public sector financial defi can be expressed with a little further manipulat

(T5) $$\frac{DG}{Y} = \frac{\left[\alpha_1(g+r)\left(1 - \frac{G}{Y}\right) - \alpha_0\alpha_2 g/\{1+n\right.}{\{1 - \alpha_1(g+r)\}}$$

This is a precise formulation of the propositio the public sector deficit and the balance of p January 1974 London and Cambridge Bulletin realistic parameter values the relationship linea

$$\frac{DG}{Y} = 0{\cdot}15g + 0{\cdot}30r - 1{\cdot}05\frac{B}{Y}.$$

The effects of inflation and real growth in the by CEPG as relatively uncertain, while the link deficit and balance of payments deficit is m prescribes a fiscal policy rule that is necessary, medium-term growth, inflation and balance of p directly specify which of these targets will be m policy.

## III. The Balance of

This section specifies the determination of th the level of real output, the rate of inflatio exchange rate, tariff policy and world demand.

*Definitions and assumptions*

The current balance of payments has already (ignoring net income and transfers from a

$B' \equiv X' - M'$

$B \equiv B'/PD$.

*Real income, the balance of payments and fiscal policy*

From (T1) and (D6),

$$Y=XP+G+S+X-M/TT.$$

Substituting from (A1), (A2), (D3), (T2) and (T3), a conventional multiplier solution for real income can be obtained as

(T4) $$Y=(G+X)/\phi$$

where

$$\phi=t+\alpha_1(g+r)(1-t)-\frac{\alpha_0\alpha_2 g-(m/TT)}{1+m(1-1/TT)}.$$

Note that the multiplier is the lower, the higher the rate of inflation because inflation is assumed to raise private net acquisition of financial assets relative to income. The steady-state tax rate necessary to achieve a given target level of real income can be derived from (T4) as

$$t=\frac{\left[\frac{G+X}{Y}-\alpha_1(g+r)+(\alpha_0\alpha_2 g-m/TT)/\{1+m(1-1/TT)\}\right]}{\{(1-\alpha_1(g+r)\}}$$

and the steady-state public sector financial deficit as a share of national income can be expressed with a little further manipulation as

(T5) $$\frac{DG}{Y}=\frac{\left[\alpha_1(g+r)\left(1-\frac{G}{Y}\right)-\alpha_0\alpha_2 g/\{1+m(1-1/TT)\}-\frac{B}{Y}\right]}{\{1-\alpha_1(g+r)\}}.$$

This is a precise formulation of the proposition about the relationship between the public sector deficit and the balance of payments deficit advanced in the January 1974 London and Cambridge Bulletin (Godley and Cripps, 1974). With realistic parameter values the relationship linearizes approximately to

$$\frac{DG}{Y}=0{\cdot}15g+0{\cdot}30r-1{\cdot}05\frac{B}{Y}.$$

The effects of inflation and real growth in the above formulation are regarded by CEPG as relatively uncertain, while the link between the steady-state budget deficit and balance of payments deficit is more clear-cut. The relationship prescribes a fiscal policy rule that is necessary, but not sufficient, for achieving medium-term growth, inflation and balance of payments targets; but it does not directly specify which of these targets will be most affected by changes in fiscal policy.

## III. The Balance of Trade

This section specifies the determination of the balance of trade, conditional on the level of real output, the rate of inflation, home and foreign costs, the exchange rate, tariff policy and world demand.

*Definitions and assumptions*

The current balance of payments has already been defined in money and real terms (ignoring net income and transfers from abroad) as

(D4) $$B'\equiv X'-M'$$

(D5) $$B\equiv B'/PD.$$

Assumptions are now required about the determination of export and import volumes and prices. Trade volumes are assumed to be determined by income and relative cost terms (the cost of UK output compared with that of competitors, expressed in common currency units):

(A4) $X=\beta_0 WX^{\beta_1}\{RX.RFC.(1+t_x)\}^{-\beta_2}$

(A1a) $M=\mu Q\{RX.RFC/(1+t_m)\}^{\beta_3}$.

The propensity to import, $m$, in the previous section is thus given by

$$m=\mu\{RX.RFC/(1+t_m)\}^{\beta_3}.$$

Relative factor cost in "own" currencies is defined as the ratio of home unit cost to the "world" price of competitive products:

(D7) $$RFC\equiv\frac{PD}{1+t_a}\Big/PWC$$

This variable provides an index of costs in the United Kingdom relative to competitor countries.

Export and import price deflators are assumed to be weighted averages of home and external prices, the relevant external prices being "world" prices of competitive products and of raw materials (both converted to sterling). For simplicity all exports are assumed to be competitive products, while imports comprise a mix of the two categories.

(A5) $$PX=\left\{\frac{PD(1+t_x)}{(1+t_a)}\right\}^{\beta_4}\left(\frac{PWC}{RX}\right)^{(1-\beta_4)}$$

(A6) $$PM=\left[\frac{PD}{(1+t_a)(1+t_m)}\right]^{\beta_5}\left[\frac{PWM^{\beta_6}.PWC^{(1-\beta_6)}}{RX}\right]^{(1-\beta_5)}$$

The "world" terms of trade for raw materials relative to competitive products is defined as

(D8) $WTT\equiv PWM/PWC.$

*The terms of trade and the current balance*

The above assumptions and definitions lead directly to a useful theorem about export and import price levels and the terms of trade:

(T6) $$PX=\frac{PD}{1+t_a}\cdot\frac{(1+t_x)^{\beta_4}}{(RX.RFC)^{(1-\beta_4)}}$$

$$PM=\frac{PD}{1+t_a}\cdot\frac{WTT^{\beta_6(1-\beta_5)}}{(1+t_m)^{\beta_5}(RX.RFC)^{(1-\beta_5)}}$$

$$TT=(1+t_x)^{\beta_4}(1+t_m)^{\beta_5}(RX.RFC)^{(\beta_4-\beta_5)}.WTT^{-\beta_6(1-\beta_5)}.$$

If the exchange rate is continuously adjusted to compensate for relative inflation, export and import prices will rise at the same rate as domestic prices. The terms of trade will in these circumstances depend only on border taxes, $t_x$ and $t_m$, and on the world terms of trade for raw materials.

The solution for the current balance, conditional on a given level of real output, may be written using the approximation (T1) as

(T7) $$B=\beta_0 WX^{\beta_1}\{RX.RFC.(1+t_x)\}^{-\beta_2}-\frac{mQ(RX.RFC)^{\beta_3+\beta_5-\beta_4}.WTT^{\beta_6(1-\beta_5)}}{(1+t_x)^{\beta_4}(1+t_m)^{\beta_3+\beta_5}}.$$



This solution has the appropriate prop exports together with an equal proportion effective devaluation of the same magnitu if the current balance is measured in te approximate in terms of sterling.

CEPG are not "elasticity pessimists" a maintained devaluation of relative cost values in foreign currency terms with resp is assumed to exceed unity and that of mately unity. But it may take several yea and the terms-of-trade elasticity ($\beta_5-\beta_4$) the short run.

*The balance of payments and real income*

The balance of payments may be a co different senses. This section does not disc balance of payments may impose on mon is simply assumed that some minimum tar the maximum level of real national incom

For simplicity suppose that the curre The maximum level of real output consiste $Q_0$ of equation (T7) above when $B=0$:

(T8) $$Q_0=\frac{\beta_0 WX^{\beta_1}}{mWTT^{\beta_6(1-\beta_5)}}\cdot\frac{(1+t_m)^{(\beta_3+\beta_5)}}{(1+t_x)^{(\beta_2-\beta_5)}}$$

This level of output may be supposed to l policy.

The effects of trade policy instrument balance of payments target, are seen to be of payments, given a fixed level of output are slightly different because the latter is well as changes in the level of output.

If the rate of inflation can be taken as sidies, import tariffs and import quotas ca methods in the medium term for increasir in a balance-of-payments-constrained sit instruments may feed back on the rate of ment of the efficacy of different trade polic about the determinants of inflation. Thes

## IV. INFL

This section specifies the determinatic policy, the terms of trade and the level of

*Money wages*

Wage bargaining may, in the absence nceived as establishing an *ex ante* disp and prices that prevail at the time of settle

This solution has the appropriate property that a proportionate subsidy on exports together with an equal proportionate tariff on imports is equivalent to an effective devaluation of the same magnitude. Note that the equivalence is exact if the current balance is measured in terms of foreign exchange but is only approximate in terms of sterling.

CEPG are not "elasticity pessimists" as regards the medium-term results of a maintained devaluation of relative costs. The long-term elasticity of export values in foreign currency terms with respect to an effective devaluation $(\beta_2-\beta_4)$ is assumed to exceed unity and that of import values $(\beta_3+\beta_5)$ to be approximately unity. But it may take several years for the full response to materialize, and the terms-of-trade elasticity $(\beta_5-\beta_4)$ is assumed to be adverse, especially in the short run.

*The balance of payments and real income*

The balance of payments may be a constraint on domestic policies in several different senses. This section does not discuss constraints that capital flows in the balance of payments may impose on monetary policy, interest rates, etc. Here it is simply assumed that some minimum target for the current account determines the maximum level of real national income that can be achieved.

For simplicity suppose that the current balance of payments must be zero. The maximum level of real output consistent with this requirement is the solution $Q_0$ of equation (T7) above when $B=0$:

$$(T8) \qquad Q_0=\frac{\beta_0 WX^{\beta_1}}{mWTT^{\beta_6(1-\beta_5)}}\cdot\frac{(1+t_m)^{(\beta_3+\beta_5)}}{(1+t_x)^{(\beta_2-\beta_4)}}\cdot(RX\cdot RFC)^{-(\beta_2+\beta_3-\beta_4+\beta_5)}.$$

This level of output may be supposed to be maintained by an appropriate fiscal policy.

The effects of trade policy instruments on the level of output, given a zero balance of payments target, are seen to be the same as their effects on the balance of payments, given a fixed level of output. Their effects on real national income are slightly different because the latter is influenced by terms-of-trade shifts as well as changes in the level of output.

If the rate of inflation can be taken as given, the exchange rate, export subsidies, import tariffs and import quotas can all be considered potentially effective methods in the medium term for increasing the level of output and employment in a balance-of-payments-constrained situation. But as will be shown, these instruments may feed back on the rate of inflation. This means that an assessment of the efficacy of different trade policy instruments depends on assumptions about the determinants of inflation. These are considered in the next section.

## IV. Inflation

This section specifies the determination of the rate of inflation, given fiscal policy, the terms of trade and the level of relative costs.

*Money wages*

Wage bargaining may, in the absence of a policy of money wage control, be conceived as establishing an *ex ante* disposable real wage on the basis of taxes and prices that prevail at the time of settlement. The *ex ante* real wage may con-

veniently be defined as the instantaneous value, in terms of going prices and tax rates, of a wage settlement at the moment it is concluded; this will normally be eroded by subsequent price and tax changes until superseded by a new settlement. Money wages being paid in any period are an average of the *ex ante*, or "target", real wages incorporated in past settlements and the range of previous price levels and tax rates on which these settlements were based. With a steady rate of inflation and a constant average tax rate, money wage determination may thus be represented as

$$(A7) \qquad W' \equiv \frac{WD^*}{1-t_w} \cdot PD \cdot (1-\gamma_0 r)$$

where $WD^*$ denotes the average real disposable value of current money wage agreements at the time of settlement, and $\gamma_0$ is the average time elapsed since settlements were negotiated.

The factors determining the target real wage cannot be formulated with any precision. In particular it has not been perceptibly influenced by the level of unemployment.

The *ex post* disposable real wage—what settlements actually turn out to be worth—is given by

$$(D9) \qquad WD = \frac{W'}{PD}(1-t_w).$$

From these two relations the rate of inflation can be derived as

$$(T9) \qquad r = \frac{1}{\gamma_0}\left(1-\frac{WD}{WD^*}\right).$$

Despite the difficulty of explaining or predicting the target real wage, proposition (T9) has some important implications. One is that a once-for-all reduction in the real wage (owing, for example, to higher taxation or a worsening of the terms of trade) will generate a permanently higher rate of inflation unless it is accommodated by an equal reduction in the real wage target. Another is that inflation will be accelerated by a reduction in the lag, $\gamma_0$, whether because of frequent renegotiation of settlements or through incorporation of cost-of-living adjustments. It would also be accelerated if $\gamma_0$ is effectively shortened because the real wage target is defined with respect to the anticipated future price level rather than that prevailing at the time of settlement.

This equation alone does not provide a complete specification of the determinants of the rate of inflation because the *ex post* real wage is itself influenced by the effect of inflation on the distribution of income.

*The determination of real wages*

The total disposable real wage bill, considered *ex post*, is a residual from real national income after deduction of taxes and profits (excluding stock appreciation):

$$(D10) \qquad WD.E \equiv (1-t)Y - YC.$$

This expression can be rearranged to show the average disposable real wage as a share of average output per person employed:

$$(T10) \qquad \frac{WD}{Z} = (1-t)\frac{Y}{Q} - \frac{YC}{Q}.$$



Assume that taxes on profits are passed o
are untaxed). Disposable money profits (
be written as the difference between the v
total costs of supply:

$$(D11) \qquad YC' \equiv \frac{PD}{1+t_a}(Q+M-X) + \frac{PX}{1+t_x}$$

The price of domestic expenditure is s

$$(A8) \qquad PD = (1+t_a)(1+e)HC$$

where historic costs lag current costs by

$$(A9) \qquad HC = (1-\gamma_1 r)CC..$$

The share of real profits in output car
together with (A1) and (T6), as

$$(T11) \qquad (1+t_a)\frac{YC}{Q} = (1+m)\left\{1-\frac{}{(1+e)(}\right.$$

The first result above, (T10), shows, defi
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The second result, (T11), describes the
(excluding stock appreciation).

If there is no inflation and no different
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$$\frac{YC^*}{Q} = \frac{1+m}{1+t_a}\cdot\frac{e}{1+e}.$$

As shown in the appendix, (T11) may be
stock appreciation in terms of this "norr
appreciation and differential profits on

$$(T11) \qquad \frac{YC}{Q} = \frac{YC^*}{Q} - \frac{1}{(1-\gamma_1 r)}\cdot\frac{SA}{Q} + \frac{YC}{Q}$$

where

$$\frac{SA}{Q} = \frac{\gamma_1 r(1+m)}{(1+t_a)(1+e)}$$

and

$$YCX = \frac{X}{(1+t_a)}\left\{\frac{PX(1+t_a)}{PD(1+t_x)} - 1\right\}$$

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Assume that taxes on profits are passed on in prices (or alternatively that profits are untaxed). Disposable money profits (excluding stock appreciation) can then be written as the difference between the value of final sales (net of sales tax) and total costs of supply:

(D11) $$YC' \equiv \frac{PD}{1+t_a}(Q+M-X)+\frac{PX}{1+t_x}\cdot X-CC(Q+M).$$

The price of domestic expenditure is set as a mark-up on unit historic costs:

(A8) $$PD=(1+t_a)(1+e)HC$$

where historic costs lag current costs by $\gamma_1$:

(A9) $$HC=(1-\gamma_1 r)CC.$$

The share of real profits in output can be derived from these assumptions, together with (A1) and (T6), as

(T11) $$(1+t_a)\frac{YC}{Q}=(1+m)\left\{1-\frac{1}{(1+e)(1-\gamma_1 r)}\right\}+\frac{X}{Q}\cdot\left[\frac{1}{\{(1+t_x)(RX.RFC)\}^{(1-\beta_4)}}-1\right]$$

The first result above, (T10), shows, definitionally, how real wages are affected by taxation, the terms of trade and the share of disposable real profits in output. The second result, (T11), describes the factors influencing the share of profits (excluding stock appreciation).

If there is no inflation and no differential profit margin on exports, the formula (T11) reduces to

$$\frac{YC^*}{Q}=\frac{1+m}{1+t_a}\cdot\frac{e}{1+e}.$$

As shown in the appendix, (T11) may be rewritten to show real profits excluding stock appreciation in terms of this "normal" share of profits together with stock appreciation and differential profits on exports:

(T11) $$\frac{YC}{Q}=\frac{YC^*}{Q}-\frac{1}{(1-\gamma_1 r)}\cdot\frac{SA}{Q}+\frac{YCX}{Q}$$

where

$$\frac{SA}{Q}=\frac{\gamma_1 r(1+m)}{(1+t_a)(1+e)}$$

and

$$YCX=\frac{X}{(1+t_a)}\left\{\frac{PX(1+t_a)}{PD(1+t_x)}-1\right\}.$$

Real profits inclusive of stock appreciation will hardly vary at all as a share of real output when the rate of inflation changes (whether on account of wage or import costs), although they will vary in response to effective devaluation because this changes the export profit margin.

A change in the steady-state rate of inflation will, however, affect the share of profits excluding stock appreciation, and hence the share of real wages. The size of the effect on real wages is nearly equal in absolute magnitude to the change in stock appreciation.

*Adjustments to inflation*

The three relationships derived in this section, (T9), (T10) and (T11), jointly determine the rate of inflation conditional on the *ex ante* wage target, output per employee, fiscal policy, the cost competitiveness of exports and the terms of trade.

Given values of policy instruments and exogenous variables, the process of inflation provides two direct mechanisms for reconciling the *ex ante* real wage with available real income. These are the interval between wage settlements and the lag in passing cost increases through into prices.

In addition, policy instruments themselves may vary in response to inflationary pressure. In Section II above it was shown in (T5) that the budget deficit has to be higher, given other targets and instruments, the faster the rate of inflation. This implies that if other targets are unchanged inflation will be cushioned to some extent by lower tax rates. If the balance of payments target can be relaxed, inflation can be moderated still further by tax reductions.

A further policy response that has been used to cushion inflation is to "defend" the exchange rate and allow export competitiveness to deteriorate, thereby reducing the share of profits in income as implied by (T11) and increasing the share of wages. This obviously has effects on other targets which are discussed in the next section.

In circumstances where inflation is controlled by restriction of money wage increases, the analysis of this section may be used instead to derive the *ex ante* level of real wages that must be imposed in wage bargaining in order that the inflation target should be achieved. The scale of reduction in the real wage target, as compared with what otherwise might have occurred, gives some indication of the severity of the wage control policy and of the scale of wage explosion that might ensue.

## V. The Interaction of Fiscal Policy, Trade Policy and Inflation

In a Keynesian model there is a presumption that the two main instruments —fiscal policy and the exchange rate—may prove incapable of ensuring satisfactory outcomes for all three principal targets—employment, the balance of payments and inflation—unless there is a Phillips Curve relationship such that low inflation is in the long run the unique counterpart of reasonably full employment. Recent experience of several years of fast inflation combined with high unemployment (following a long period of low unemployment and slow inflation) has confirmed that the Phillips Curve relationship is at best weak. This has made it all the more obvious that for practical purposes the two conventional policy instruments—fiscal policy and the exchange rate—are insufficient.

*Conventional policy*

Before considering the use of import restrictions the implications of the model described above for the conduct of macroeconomic policy by means of fiscal policy and the exchange rate will be brought out by holding constant each one of the three targets in turn, and considering the trade-off between the other two.

First consider the case where real output is held constant. If the balance of payments is required to improve, there must be an effective devaluation (T7) and a higher average tax rate (T5). Both these are strongly inflationary (T10 and T11).



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*Import restrictions*

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SCAL POLICY, TRADE POLICY AND INFLATION

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there must be an effective devaluation (T7) and a
h these are strongly inflationary (T10 and T11).



Now consider the case where the balance of payments is held constant. If real output is to be increased there must be an effective devaluation (T8), but this time the average tax rate may be reduced (T5). It is not clear, comparing the full steady-state outcomes, whether inflation will ultimately be faster or slower. The result depends on the size of the inflation-increasing effects of terms of trade deterioration (T10) and higher export profit margins (T11) against the inflation-reducing effects of the lower tax rate (T10). CEPG's detailed quantitative model shows a slight reduction in the ultimate steady-state rate of inflation.

In the short term, however, an increase in output, for a given balance of payments target, becomes strongly inflationary ((T8), (T10) and (T11)) because the volume response to devaluation is slow. The adjustment process needed to take advantage of the long-term steady-state result therefore requires either an intervening period of accelerated inflation or temporary relaxation of the balance of payments target.

The third case, where inflation is held constant while the other targets vary, can be inferred from the first two. In the first case, with constant real output, improvement of the balance of payments was highly inflationary. In the second case, with a constant balance of payments, an increase in output reduced inflation only slightly if at all. It follows that, if inflation is to be held constant, output must be varied widely for small variations in the balance of payments.

The above results, which are expressed in terms of long-run steady states, imply that a major reduction in inflation could be achieved only through tax reductions or defence of the exchange rate and only to the extent that the balance of payments deteriorates.

If on the other hand money wage control is used to provide the additional instrument necessary for simultaneous achievement of all three targets, the reduction in inflation will require a relatively large reduction in the *ex ante* real value of wage settlements and a smaller reduction in the actual real wage.

*Import restrictions*

The implications of adopting protection as an alternative to devaluation can be considered by assuming that an equal increase in output is to be achieved (for a given balance of payments) by fiscal policy combined either with devaluation of the exchange rate ($RX$), or with a tariff on imports ($t_m$), or with a direct reduction in the normal propensity to import ($\mu$).

In the long run, ignoring transitional problems, the terms of trade will be worsened by devaluation and improved by a tariff (T6). In the quota case we assume controls are arranged so as to leave the terms of trade unchanged. Also, the first equation of (T6) shows that export profit margins will rise as a result of devaluation (but are unaffected by tariffs or quotas).

Fiscal policy, in particular the overall tax rate (inclusive of tariffs), will by (T5) be almost, although not exactly, the same under each policy because by assumption output and the balance of payments are identical. If the overall tax rate was exactly the same (and ignoring for the moment any difference in stock appreciation), equations (T10) and (T11) show that disposable real wages would be highest if tariffs are used (because of the terms of trade gain), lower with quotas, and lowest with devaluation (both because of the terms of trade loss and because of the rise in export profits margins). These differences in real wages will

be reflected in the rate of inflation (T9), which will be highest with devaluation and lowest with tariffs.

The differences in real wages and inflation will be reduced, as compared with the above, by differences in the tax rate (T5) (lowest with devaluation) and stock appreciation (T11) (highest with devaluation). But these offsets are only partial since they are induced by the very inflationary pressure they help to accommodate.

The quantitative significance of these comparisons depends mainly on the size of the differences in the terms of trade and export profit margins. In CEPG's quantitative model the terms-of-trade loss resulting from devaluation is small in the long run, although the terms-of-trade gain from tariffs is substantial. The increase in export profit margins resulting from devaluation is also large. The long-run effects on inflation and real wages are significantly different under each of the three types of policy.

It has already been pointed out that in the short term devaluation is highly inflationary unless the balance of payments target can be relaxed. By contrast, protection, whether by tariffs or quotas, presents no transitional problems at all (in the CEPG model). This is because neither the terms of trade nor the distribution of income at any stage move in a manner that is adverse to the disposable real wage.

## APPENDIX. STOCK APPRECIATION AND THE SHARE OF PROFITS

First define real profits attributable to the difference between margins on exports and on home sales as

$$YCX \equiv \frac{X}{PD}\cdot\left\{\frac{PX}{(1+t_x)}-\frac{PD}{(1+t_a)}\right\}.$$

The share of profits excluding stock appreciation may then be written, from (T11), as

$$\frac{YC}{Q}=\frac{(1+m)}{(1+t_a)}\left\{1-\frac{1}{(1+e)(1-\gamma_1 r)}\right\}+\frac{YCX}{Q}$$

$$=\frac{(1+m)}{(1+t_a)}\cdot\frac{e}{1+e}-\frac{(1+m)}{(1+t_a)}\cdot\frac{\gamma_1 r}{(1+e)(1-\gamma_1 r)}+\frac{YCX}{Q}.$$

The average lag between historic cost and current cost must be equal to the stock-turnover ratio, i.e.

$$S=\gamma_1(Q+M).$$

If stocks are valued at historic cost, stock appreciation in money terms is

$$SA'=\gamma_1 r.(Q+M).HC$$

$$=\frac{\gamma_1 r.(1+m)}{(1+t_a)(1+e)}\cdot Q.PD$$

and stock appreciation in real terms, dividing by the domestic expenditure deflator, is given by

$$\frac{SA}{Q}=\frac{\gamma_1 r.(1+m)}{(1+t_a)(1+e)}.$$

Now, defining normal profits including stock appreciation as

$$\frac{YC^*}{Q}\equiv\frac{(1+m)}{(1+t_a)}\cdot\frac{e}{1+e}$$

the actual share of profits excluding stock appreciation may be written as

$$\frac{YC}{Q}=\frac{YC^*}{Q}-\frac{1}{(1-\gamma_1 r)}\cdot\frac{SA}{Q}+\frac{YCX}{Q}.$$



## LIST OF SYMBOLS

*Note:* ′ denotes value at current prices; prefix *P* deno

- $Q$: real output
- $D$: domestic expenditure
- $X$: exports
- $M$: imports
- $XP$: private expenditure (consumption plus fixed inv
- $G$: public sector expenditure
- $S$: stockbuilding
- $Y$: real national income
- $T$: net public sector revenue (direct and indirect tax interest)
- $t$: overall net tax rate (same coverage as $T$, incl others)
- $YP$: private disposable income
- $B$: current balance of payments
- $TT$: UK terms of trade (ratio of export to import pr
- $m$: propensity to import
- $g$: real growth rate
- $r$: rate of inflation
- $AFP$: private net acquisition of financial assets
- $DG$: public sector financial deficit
- $WX$: volume of world trade in "competitive" product
- $RX$: exchange rate (foreign currency units per £)
- $RFC$: factor cost of sales by UK producers relative to c
- $t_x$: net indirect tax rate on exports
- $t_m$: net indirect tax rate on imports
- $t_a$: net indirect tax rate on domestic expenditure
- $PWC$: world price of "competitive" products in foreig
- $PWM$: world price of raw materials in foreign currency
- $WTT$: world terms of trade for raw materials
- $W$: money wage
- $WD^*$: disposable real wage target
- $t_w$: net direct tax rate on wages
- $WD$: actual disposable real wage
- $E$: employment
- $YC$: disposable real profits
- $Z$: output per employee
- $CC$: current cost per unit of final sales
- $\gamma_1$: domestic profit mark-up on historic cost
- $HC$: unit historic cost of final sales
- $SA$: stock appreciation
- $YCX$: differential real profits on exports

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*Note:* ' denotes value at current prices; prefix *P* denotes price deflator

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| $Q$: | real output |
| $D$: | domestic expenditure |
| $X$: | exports |
| $M$: | imports |
| $XP$: | private expenditure (consumption plus fixed investment) |
| $G$: | public sector expenditure |
| $S$: | stockbuilding |
| $Y$: | real national income |
| $T$: | net public sector revenue (direct and indirect taxes, etc. *less* subsidies and debt interest) |
| $t$: | overall net tax rate (same coverage as $T$, includes $t_x$, $t_m$, $t_a$ and $t_w$ among others) |
| $YP$: | private disposable income |
| $B$: | current balance of payments |
| $TT$: | UK terms of trade (ratio of export to import prices) |
| $m$: | propensity to import |
| $g$: | real growth rate |
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| $PWC$: | world price of "competitive" products in foreign currency units |
| $PWM$: | world price of raw materials in foreign currency units |
| $WTT$: | world terms of trade for raw materials |
| $W'$: | money wage |
| $WD^*$: | disposable real wage target |
| $t_w$: | net direct tax rate on wages |
| $WD$: | actual disposable real wage |
| $E$: | employment |
| $YC$: | disposable real profits |
| $Z$: | output per employee |
| $CC$: | current cost per unit of final sales |
| $e$: | domestic profit mark-up on historic cost |
| $HC$: | unit historic cost of final sales |
| $SA$: | stock appreciation |
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# An Inter-Industry Analy

By JOHN
*University Col*

## INTRODU

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1983

# 9 Costs and prices

This chapter and the next show how inflation can be analysed as a sequential process. Once again our main concern is with logical accounting relationships which constrain what *can* happen without fully determining what *will* happen. In previous chapters we supplemented accounting identities with a general behavioural axiom (that stock-flow ratios do not change indefinitely). For inflation, too, we shall adopt a general behavioural axiom – that none of the main categories of income (wages, interest, profits, tax revenue) is indefinitely altered as a share of the total by general inflation of prices. Just as principles of asset creation have been illustrated by examples using specific versions of the stock-flow axiom, so principles of inflation will now be illustrated using specific assumptions about the adjustment of wages, interest, profits and tax revenue when prices rise.

But there is an important difference. In the case of financial stocks and flows we were able to suggest what, specifically, determines steady-state values. We cannot do the same for rates of inflation. On the contrary, although we can show in general how inflation must be transmitted, the analysis itself suggests that steady-state rates of inflation in a closed economy can change rather capriciously.

### Plan of the two chapters

This chapter presents accounting relationships and points out the consequences of certain norms for prices and interest rates. Basic principles of inflation accounting are introduced.* The main result of the chapter is to show precisely how costs must add up.

* A more complete discussion of inflation accounting will be found in Chapter 11.

Chapter 10 introduces a general axiom about adjustment of wages, profits, interest rates and tax revenue which enables us to analyse inflation as a determinate, sequential process. The rate of inflation will be solved endogenously for specific cases which illustrate the general axiom.

## Costs, interest and profits

Let us start the analysis of how costs add up by considering once again the accounts of a single business. In Chapter 4 we set out a model in which a business holds inventories of goods and work-in-progress. This was used to illustrate the cash-flow problems which are one important motive for borrowing.

This time we are not interested in cash flow but in costs and prices. We must now distinguish explicitly between changes in volumes of transactions and changes in unit costs and selling prices. To keep the examples as simple as possible we assume throughout this chapter that the volume of goods and services produced and sold, and the volume of inventories, remain constant through time. All changes in money values will then represent changes in unit costs or prices. The appendix provides an algebraic treatment which demonstrates that the results hold equally well when volumes change at the same time as prices.

## A rise in unit costs

First suppose that there is a rise in unit costs of production and consider how prices must rise if profits are to be maintained. Table 9.1 below provides a specific example.

The time periods have been chosen such that inputs purchased and work undertaken in one period emerge as sales in the next period – i.e., the time periods are equal in length to the period of production. Inventories at the start of each period are sold in that period; inventories at the end of the period represent costs incurred during the period.* The starting-point of the table is

* The algebra in the appendix allows accounting periods to differ from the period of production.



**Table 9.1** A rise in costs with a constant volume of sales turnover and inventories

| Period | (1) Unit cost index (period 1 = 1.00) | (2) Costs in period = end-period value of inventories | (3) Interest charge on opening value of inventories | (4) Profits net of interest | (5) Value of sales in period | (6) Price index of goods and services sold (period 1 = 1.00) |
|---|---|---|---|---|---|---|
| | | ($) | ($) | ($) | ($) | |
| 1 | 1.00 | 700 | 35 | 265 | 1000 | 1.00 |
| 2 | 1.00 | 700 | 35 | 265 | 1000 | 1.00 |
| 3 | 1.10 | 770 | 35 | 265 | 1000 | 1.00 |
| 4 | 1.21 | 847 | 39 | 291 | 1100 | 1.10 |
| 5 | 1.33 | 932 | 42 | 321 | 1210 | 1.21 |
| 6 | 1.46 | 1025 | 47 | 352 | 1331 | 1.33 |
| 7 | 1.46 | 1025 | 51 | 388 | 1464 | 1.46 |
| 8 | 1.46 | 1025 | 51 | 388 | 1464 | 1.46 |

that unit costs of production, having been constant in periods 1 and 2, rise by 10% in each of periods 3 to 6 and then remain constant in periods 7 and 8. Column (1) shows the unit cost index, and column (2) shows amounts of money paid out as costs in each period.

From now on we shall need to distinguish interest charges on inventories from profits proper. Column (3) of the table shows interest charges calculated at the rate of 5% per period on the value of inventories at the start of each period (end of the previous period). The reader may imagine that the business is financing its inventories entirely by borrowing and therefore actually has to pay the interest charges shown in column (3) to its creditors. Alternatively, whatever part of the value of inventories is not financed by borrowing represents money locked up in the business which could otherwise have earned interest. Either way, it is meaningful to separate out interest

on money invested in inventories from profits of the business as such.

Columns (4), (5) and (6) of the table give the answer to the problem posed at the outset – how selling prices must be increased in order that profits are maintained as costs rise. To be precise, profits *net of interest* have been maintained constant *in real terms* – measured by their purchasing power relative to the average price of goods and services sold (column (6)). The reader may verify this by dividing the price index into the profit figure for each period (the answer always comes out as \$265). To confirm that profits have been calculated correctly, let us refer back to Chapter 4 where profits (before deducting interest) were defined as sales revenue, $\hat{S}$, less costs, $\hat{C}$, plus the change in the value of inventories, $\Delta\hat{I}$. Here we have profits net of interest given by

$$\hat{\Pi} = \hat{S} + \Delta\hat{I} - \hat{C} - R.\hat{I}_{-1} \qquad (9.1)$$

where R is the rate of interest per period and $\hat{I}_{-1}$ is the opening value of inventories. In the table, column (4) is equal to column (5) plus the change in column (2), *less* columns (2) and (3).

The solution for the price index (column (6)) should not surprise the reader if he or she recalls that sales lag one period behind the purchase of inputs and the activity of production. The price index rises by 10% in each of periods 4 to 7 – i.e., by the same amount as the unit cost index (column (1)), but one period later.

**The adding-up property**

Note that the value of sales in each period is equal to costs incurred in the *previous* period plus interest and profits in the *current* period. Moreover profits and interest are both constant proportions of sales revenue. We may therefore say that prices have risen *as if* historic costs of production were being passed into selling prices with the addition of interest charges and a



constant average profit mark-up. We can write this formally as

$$\hat{S} \equiv \hat{C}_{-1}(1+R)\,(1+\hat{\lambda}) \qquad (9.2)$$

where $\hat{C}_{-1}$ represents historic costs, R is the rate of interest charged on costs, and $\hat{\lambda}$ is the proportionate mark-up for profits net of interest. This represents the adding-up property of costs, interest, profits and prices.

To be absolutely clear that the equation is an *identity* which does not rely on any particular assumption about how prices are determined, consider the example of period 4 in the table above. Lagged costs, $\hat{C}_{-1}$, are \$770. The rate of interest, R, is 5%, so interest charges are 5% × \$770 = \$39, bringing costs plus interest up to \$809. Profits are \$291, making the total value of sales \$809+\$291 = \$1100. The profit mark-up on costs plus interest is

$$\hat{\lambda} = \$291/\$809 = 36\%$$

Whatever the level of profits and the value of sales, we can always calculate the profit mark-up, $\lambda$, in this manner.*

At first sight the adding-up identity (9.2) may not appear to be very revealing. We still have some way to go before its precise significance will emerge. But it is obvious already that we can convert the identity into a statement about the price index, $\hat{p}$, relative to lagged unit costs, $\hat{UC}_{-1}$. The price index is defined as sales value divided by sales volume,

$$\hat{p} \equiv \hat{S}/\hat{s} \qquad (9.3)$$

where $\hat{s}$ is the volume of sales in the current period. The volume of sales is equal by assumption to the volume of production in the previous period. So lagged costs per unit of output, $\hat{UC}_{-1}$, must be equal to

$$\hat{C}_{-1}/\hat{s}$$

* If prices were low enough relative to costs, the mark-up might come out negative.

Therefore if we divide the adding-up identity (9.2) by the volume of sales, s, we get

$$\hat{p} = \hat{UC}_{-1}(1+R)\,(1+\hat{\lambda}) \qquad (9.4)$$

This says that the ratio of prices to lagged unit costs depends on the rate of interest and the profit mark-up. In our example the volume of sales at period 1 prices is \$1000 (the volume of sales is constant throughout). So, for example, the price index in period 4 is

$$\$1100/\$1000 = 1.10$$

Lagged unit costs are

$$\$770/\$1000 = 0.77$$

The reader may verify that

$$1.10 = 0.77\,(1+0.05)\,(1+0.36)$$

i.e., lagged unit costs plus the interest charge (5%) plus the profit mark-up (36%) are indeed equal to the price index.

We want to obtain an expression for real wage costs, interest and profits as shares of output. But we cannot do this meaningfully by dividing the identity 9.4 by the price index since the resulting unit-cost term

$$\hat{UC}_{-1}/\hat{p}$$

describes a sum of money paid out in the previous period divided by the price index in the current period. We shall not get any further until we have looked more carefully at the question of inflation accounting.



**Inflation accounting – a paradox**

The behaviour of costs, interest payments and profits in Table 9.1 above is at first sight paradoxical when expressed in 'real' terms. Suppose that we divide the various payments in each period by the price index so as to get a measure of their purchasing power in terms of the goods and services actually produced. The result is as follows.

**Table 9.2** Payments from Table 9.1 divided by the price index (period 1 purchasing power, \$)

| Period | Costs in period = real value of end-period inventories = end-period real capital invested | Interest charge | Profits | Total |
|---|---|---|---|---|
| 1 | 700 | 35 | 265 | 1000 |
| 2 | 700 | 35 | 265 | 1000 |
| 3 | 770 | 35 | 265 | 1000 |
| 4 | 770 | 35 | 265 | 1000 |
| 5 | 770 | 35 | 265 | 1000 |
| 6 | 770 | 35 | 265 | 1000 |
| 7 | 700 | 35 | 265 | 1000 |
| 8 | 700 | 35 | 265 | 1000 |

Total receipts from sales are constant in real terms. The flow of interest payments is constant in real terms. Profits (after payment of interest charges) are constant in real terms; moreover according to the principle set out in Chapter 4 (page 72), if inventories are wholly financed from borrowing the whole of profits is available as a cash flow to the owners of the business. Yet, because money costs rise before prices, real costs (money costs divided by the price index) are 10% higher throughout the period of rising costs (i.e., periods 3 to 7). Where have the resources to pay for the higher real costs 'come from'?

### Inflation and the real value of money debt

The resolution of this paradox is illustrated in Table 9.3 below. It is now best to treat all money invested in finance of inventories as if it was a debt of the business so that we can clearly distinguish what happens to the money invested. The first column of the table corresponds to the end-period value of inventories in Table 9.1. The second column shows changes in the first column which determine the amount of new money the business has had to borrow in each period. The third column reproduces the price index from Table 9.1 which we use to measure the real value of transactions in each period and the real value of end-period debt.*

**Table 9.3** The fall in real value of existing debt of the business

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Period | End-period money value of debt | New money lent in period (change in (1)) | Price index (period 1 = 1.00) | Real value of end-period debt | Real value of new money lent in period ((2)÷(3)) | Change in real value of existing debt in period |
| | ($ values) | | | (period 1 purchasing power $) | | |
| 1 | 700 | 0 | 1.00 | 700 | 0 | 0 |
| 2 | 700 | 0 | 1.00 | 700 | 0 | 0 |
| 3 | 770 | 70 | 1.00 | 770 | 70 | 0 |
| 4 | 847 | 77 | 1.10 | 770 | 70 | −70 |
| 5 | 932 | 85 | 1.21 | 770 | 70 | −70 |
| 6 | 1025 | 93 | 1.33 | 770 | 70 | −70 |
| 7 | 1025 | 0 | 1.46 | 700 | 0 | −70 |
| 8 | 1025 | 0 | 1.46 | 700 | 0 | 0 |

* Note that, until we aggregate, this price index may not be a good measure of the general purchasing power of money. For discussion of the implications of deflating *end-period* debt by the average price index for sales in the period see Chapter 11, page 224.



Columns (4) and (5) of the table are obtained by dividing the first two columns by the price index. They show that in period 2 there was no change in the real value of debt and no borrowing of new money. The rise in the real value of debt in period 3 was exactly equal to the real value of new borrowing. But when prices rose in periods 4 to 6 the real value of debt remained constant despite the fact that borrowing of $70 in real terms was taking place each period. Existing creditors of the business were in fact losing out to the tune of $70 each period as inflation eroded the real value of debts fixed in money terms. This continued in period 7 (when prices rose for the last time) although the flow of new borrowing had by then come to an end.

The 'inflation loss' shown in column (6) of the table broadly resolves the paradox noted at the outset. It is existing creditors of the business who have 'paid for' higher real wage costs through erosion of the real value of the money they have invested.*

### Real interest

The main point which emerges is that when there is inflation, interest actually paid on money debt is an inappropriate measure of the return to creditors and, for that matter, the cost to debtors. The proper measure of real interest in each period is given by interest paid (deflated by the price index) *less* the real capital loss caused by inflation.†

* There is still a small timing problem because extra real costs (Table 9.1) occurred in periods 3 to 6 when unit costs were rising, while the 'inflation loss' to creditors occurred in periods 4 to 7 when prices were rising. Note that the identity between additional real costs and inflation losses to creditors could be made precise, period by period, if we measured the real value of debt in terms of the unit cost index instead of the price index.

† The precise formula for the real interest rate, r, is

$$1+r = (1+R)/(1+\%p)$$

where r is the nominal interest rate and %p denotes the rate of inflation (see the appendix).

In our example the real interest rate has been negative, approximately

$$5\% - 10\% = -5\%$$

from period 4 to period 7. In each of these periods creditors of the business have received interest payments worth \$35 (period 1 purchasing power) but have suffered a \$70 inflation loss. They have received negative *real interest* of \$35 per period. The exact value of the real interest rate in periods 4 to 7 is real interest divided by the *opening* real debt, i.e.,

$$-\$35/\$770 = -4\tfrac{1}{2}\%$$

### Inflation-adjusted accounts

Inflation-adjusted accounts of the business can now be set out.

**Table 9.4** Inflation-adjusted accounts of the business (period 1 purchasing power, \$)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Period | Costs = end-period value of inventories = end-period debt | Change in inventories = change in debt | Sales | Real interest | Profits |
| 1 | 700 | 0 | 1000 | 35 | 265 |
| 2 | 700 | 0 | 1000 | 35 | 265 |
| 3 | 770 | +70 | 1000 | 35 | 265 |
| 4 | 770 | 0 | 1000 | −35 | 265 |
| 5 | 770 | 0 | 1000 | −35 | 265 |
| 6 | 770 | 0 | 1000 | −35 | 265 |
| 7 | 700 | −70 | 1000 | −35 | 265 |
| 8 | 700 | 0 | 1000 | 35 | 265 |



These accounts satisfy the same identities as the accounts in current prices shown in Table 9.1. Profits (column (5)) are equal to sales *less* costs and real interest *plus* the change in the value of inventories. Profits turn out to be a constant percentage of sales and a constant percentage (36%) of historic costs plus real interest (which always comes out at \$735).

Real profits of the *business* (column (5)) have been constant. But for *creditors* of the business the fall in the value of money has implied a loss of real wealth. The reason why creditors have received negative real interest of \$35 in four periods is that the nominal interest rate has been held constant at 5%, regardless of inflation.

Cost inflation from period 3 to period 6 has increased the real incomes of employees and suppliers of the business at the expense of the creditors.*

### Adjustment of nominal interest rates

If nominal interest rates had kept up with inflation the story would have been different. To illustrate this the episode of cost inflation is now re-run with a constant *real* interest rate. This is done by raising the nominal interest rate to 15½% from period 3 to period 6 inclusive.†

* In period 3 the extra real costs were paid out of an increase in real debt (column (2)) but this was recovered from creditors in period 7.

† The calculation is

$$(1+0.05)\times(1+0.10)-1 = 0.155$$

(see the formula in the footnote on page 177 above). Observant readers may wonder why the nominal interest rate has gone up in period 3 since in the preceding example real interest only went negative in period 4. It will be found that the only way to preserve the *real* interest rate at 5% in period 4 is to start the higher *nominal* interest rate from period 3. When the profit mark-up is constant, nominal interest rates must adjust simultaneously with changes in *cost* inflation if real interest rates are to be preserved, period by period (see appendix).

**Table 9.5** A rise in costs accompanied by a rise in the nominal interest rate

| Period | (1) Unit cost index (period 1 = 1.00) | (2) Costs in period = end-period inventories | (3) Interest charged on inventories | (4) Profits net of interest | (5) Value of sales in period | (6) Price index of sales (period 1 = 1.00) |
|---|---|---|---|---|---|---|
| | | ($) | ($) | ($) | ($) | |
| 1 | 1.00 | 700 | 35 | 265 | 1000 | 1.00 |
| 2 | 1.00 | 700 | 35 | 265 | 1000 | 1.00 |
| 3 | 1.10 | 770 | 109 | 291 | 1100 | 1.10 |
| 4 | 1.21 | 847 | 119 | 321 | 1210 | 1.21 |
| 5 | 1.33 | 932 | 131 | 353 | 1331 | 1.33 |
| 6 | 1.46 | 1025 | 144 | 388 | 1464 | 1.46 |
| 7 | 1.46 | 1025 | 51 | 388 | 1464 | 1.46 |
| 8 | 1.46 | 1025 | 51 | 388 | 1464 | 1.46 |

As before, the value of inventories at the end of each period is equal to costs incurred in the period. Goods and services are sold with a constant 36% mark-up on historic costs plus current interest charges.

It emerges that the rise in the nominal interest rate from 5% in periods 1 and 2 to 15½% in period 3 is sufficient by itself to raise the price of sales in period 3 by 10% (in this period unit costs have started to rise but have not yet fed through into sales). The consequence is that real costs in period 3 (measured in period 1 purchasing power) remain constant at $700; the simultaneous rise in the nominal interest rate has prevented them from getting ahead of prices. Since the higher nominal interest rate has been passed through into prices, the purchasing power of money has fallen; the inflation loss leaves the real interest rate at 5%.

From period 4 to period 6 costs and prices rise together at a rate of 10% per period with the nominal interest rate held constant at its new level of 15½%, maintaining the real interest rate at 5%. Then in period 7 when unit costs stop rising, we have put the nominal interest rate back to 5% which has the effect of halting the inflation of prices; the cut in the nominal interest rate exactly offsets the remaining cost increase still coming through and the system settles into a new steady state at a permanently higher level of money prices and costs.



The reader may check that our various identities for profits hold in each period in this example as in previous examples. If the inflation-accounting procedures applied before are worked through again it will be found that *nothing at all changes in real terms through the inflation episode*. The volume of sales is, by assumption, always equal to $1000 at period 1 prices. Real costs and the value of the end-period inventory are always $700 (period 1 purchasing power). Real interest is $35 in every period and real profits are $265. In fact the process of inflation has left no trace whatsoever on inflation-adjusted accounts for the business.

### Inflation neutrality

We have come to an exceedingly important and quite general conclusion.* If the nominal interest rate varies in line with inflation of costs, and if, in addition, percentage profits are a constant mark-up on historic costs plus interest, then prices will change simultaneously and in proportion to unit costs. General changes in the level of money costs and prices will have no effect at all on the real income of employees and suppliers, the owner of the business, or its creditors.

What we have found is the set of assumptions under which inflation is strictly 'neutral', having no effect on any category of real income per unit of production and sales.

* The appendix gives an algebraic demonstration.

### Steady states

When the results are inflation-neutral in the sense just described, we shall say that the cost-price system is in a 'steady state'. In other words, we define an inflation steady state as a situation in which the real interest rate (measured relative to cost inflation) *and* the profit mark-up are both constant. As has just been shown, real costs per unit of output will then also be constant. But the rate of inflation is not determinate from the characteristics of these steady states. It could be anything and it could change instantaneously (as it did in periods 3 and 7 in the example just discussed).

It is intuitively obvious what will happen when neutral or steady-state assumptions do not hold. Given the volume of sales, an increase in any one category of real income is at the expense of others. If nominal interest rates get ahead of inflation, real costs and/or real profits must fall. If costs get ahead, real interest and/or real profits must fall. If profit mark-ups rise, real costs and/or real interest rates must fall.

But we must be careful. The price index which has been used for inflation accounting so far has been the average price of the products of the business in question. This may not be a very relevant measure of purchasing power for the incomes being measured. This defect of the approach will only disappear if the results are aggregated for the economy as a whole.

### Aggregation

It was explained in Chapter 4 that when business accounts are added up for a closed economy, purchases and sales of 'intermediate' goods and services can be netted out. What is left on the sales side is final sales, FE, defined in Chapter 1 as sales to consumers and government and sales to businesses in their role as purchasers of durable capital goods (e.g., factories and equipment). If rent is regarded as a part of aggregate profits, the only item left on the cost side is money wages and salaries. The *average* profit mark-up, $\lambda$, is defined by the ratio of aggregate profits to aggregate costs plus interest charges. The aggregate price index, p, representing the average price of all final sales in the economy as a whole, is a reasonable general measure of the purchasing power of money.*

It is high time that we introduced taxes as a further element of costs. Taxation will here be represented formally as a percentage charged on the value of final sales.



### An example of aggregate costs and profits

The following table adapts the example for a single business in Table 9.1 to provide a hypothetical set of accounts for a whole economy. It is *aggregate* volumes of output, final sales and inventories which are now assumed to be constant.

Table 9.6 provides a description *not* of disposable income but of primary income generated by production. Several forms of income transfer are left out – notably taxes on income, interest on government debt, interest on private debt other than that which finances inventories and grants like social security benefits which have no direct bearing on incomes earned in production. But note that if wages, profits and interest on inventories were shown after tax, the column for taxes should include direct taxes on these incomes and social security contributions paid by businesses and employees.

There is one other important point of interpretation. The table says nothing about the average wage *per employee*. Column (2) provides figures for the aggregate wage bill but the table does not

* It is obviously unrealistic to assume a unique, common period of production for all businesses. The appendix shows that this is unnecessary since our results hold equally well when the accounting period differs from the period of production. Strictly, one modification is required – the interest-rate term in adding-up identities must be multiplied by a ratio representing the share of lagged costs in the total cost of current sales. But to keep the examples as simple as possible this will be ignored here; we assume a unique, aggregate period of production and continue to use this as the accounting period.

**Table 9.6** Accounts for a whole economy

| Period | (1) Wage cost per unit of output (period 1 = 1.00) | (2) Aggregate wage bill = end-period value of inventories ($) | (3) Interest charged on opening inventories ($) | (4) Profits net of interest ($) | (5) Sales taxes ($) | (6) Value of final sales in period ($) | (7) Price index of final sales (period 1 = 1.00) |
|---|---|---|---|---|---|---|---|
| 1 | 1.00 | 700 | 35 | 265 | 250 | 1250 | 1.00 |
| 2 | 1.00 | 700 | 35 | 265 | 250 | 1250 | 1.00 |
| 3 | 1.10 | 770 | 35 | 265 | 250 | 1250 | 1.00 |
| 4 | 1.21 | 847 | 39 | 291 | 275 | 1375 | 1.10 |



say how many people are employed. Column (1) provides an index of wage cost per unit of output. This would only give us an index of the average wage per employee if labour productivity (defined as the average volume of output per person) was constant.

## Real incomes and inflation-neutrality

The same inflation-accounting procedures as before can be applied to the aggregate accounts.

**Table 9.7** Inflation-adjusted accounts for a whole economy (period 1 purchasing power, $)

| Period | Wage bill = end-period value of inventories | Interest on inventories | Profits net of interest | Sales taxes | Volume of final sales |
|---|---|---|---|---|---|
| 1 | 700 | 35 | 265 | 250 | 1250 |
| 2 | 700 | 35 | 265 | 250 | 1250 |
| 3 | 770 | 35 | 265 | 250 | 1250 |
| 4 | 770 | −35 | 265 | 250 | 1250 |

These aggregate accounts have essentially the same properties as those for a single business discussed earlier.

The adding-up property is now that lagged real wage costs per unit of output plus the real interest charge on inventories plus the profit mark-up and the tax mark-up must be equal to the volume of final sales.

There are now three conditions for 'neutrality' of the inflation-accounted results. Not only must the real interest rate (relative to *cost* inflation) and the profit mark-up remain constant, but also the average rate of sales tax must not change. The first of these conditions is infringed in the example above from period

3 onwards. This is why the real wage bill has changed in period 3 and real interest has gone negative in period 4.

Just as before, we define an inflation steady state as a situation in which the three conditions for neutrality are met, comparing one period with the next. Again, real wage costs per unit of output are necessarily constant in a steady state. This implies that money wage costs *cannot* get ahead of prices provided nominal interest rates are adjusted immediately and profit and tax mark-ups are maintained.

Finally, recall that in steady states the rate of inflation is indeterminate and may change instantaneously from one period to another.

## Appendix 9.1 Inflation and incomes from production

This appendix provides an algebraic treatment of costs, prices and the distribution of income when volumes of output, sales and inventories are changing and the length of accounting periods differs from the period of production. The presentation here is for a closed economy as a whole.

### The definition of profits and the adding-up identity

Our starting-point is the definition of profits net of interest charged on the value of inventories:

$$\Pi \equiv FE+\Delta I-WB-T-R.I_{-1} \qquad (A9.1)$$

Here $\Pi$ denotes profits, FE is the value of final sales, $\Delta I$ is the change in the value of inventories during the accounting period, WB is the wage bill, T is sales taxes (net of subsidies), R is the rate of interest and $I_{-1}$ is the opening value of inventories on which interest is charged.

The historic cost of current-period sales, HC, is equal to the



current wage bill less the change in the value of inventories:

$$HC \equiv WB-\Delta I \qquad (A9.2)$$

The proportion of historic costs of sales in each period which has been carried over from earlier periods, $\kappa$, is measured by the opening value of inventories:

$$\kappa \equiv I_{-1}/HC \qquad (A9.3)$$

We may now write historic costs plus interest charges as

$$HC+R.I_{-1} = (1+\kappa R)HC$$

The profit mark-up on historic costs plus interest charges is defined as

$$\lambda \equiv \Pi/(HC+R.I_{-1}) \qquad (A9.4)$$

So the sum of historic costs, interest and profits may be written as

$$HC+R.I_{-1}+\Pi = (1+\lambda)\,(1+\kappa R)HC$$

Finally let us define an average sales tax rate, $\tau$, as a percentage of the costs of sales including interest and profits:

$$\tau \equiv T/(HC+R.I_{-1}+\Pi) \qquad (A9.5)$$

We may now rewrite the definition of profits (A9.1) in two alternative forms:

$$FE \equiv HC+R.I_{-1}+\Pi+T \qquad (A9.6)$$
$$FE \equiv (1+\tau)\,(1+\lambda)\,(1+\kappa R)HC \qquad (A9.7)$$

**Volumes and wage costs**

The basic volume measures are

fe the volume of sales at base-period market prices, and
i′ the end period volume of inventories at base-period cost

It will be convenient to define the volume of output at base-period cost so that the wage bill in each period can be expressed accurately as the volume of output at cost multiplied by an index of wage costs per unit of output.

The historic cost of final sales in the base period,

$$HC_0 \equiv WB_0 - \Delta I_0$$

includes an element of costs carried over from earlier periods. We can correct for this by revaluing opening base-period inventories at base-period cost to measure what final sales in that period would have cost at base-period wages per unit of output:

$$fe'_0 \equiv WB_0 - \Delta i'_0$$

A general measure of the volume of final sales at base-period cost is then given by

$$fe' \equiv fe/\sigma \qquad \text{(A9.8)}$$

where $\sigma$ is the ratio of base-period market prices to base-period cost:

$$\sigma \equiv fe_0/fe'_0$$

The volume of output at base-period cost may now be defined as

$$q' \equiv fe' + \Delta i' \qquad \text{(A9.9)}$$



and the index of wages per unit of output at cost as

$$W' \equiv WB/q' \qquad \text{(A9.10)}$$

The above definitions imply that in the base period the volume of output at cost is equal to the wage bill –

$$q'_0 = WB_0$$

so the index of wages per unit of output at cost takes the value of unity in the base period:

$$W'_0 = 1$$

We shall assume* that the end-period value of inventories depends only on current wage costs per unit of output and on the volume of inventories:

$$I = W'i' \qquad \text{(A9.11)}$$

The change in the value of inventories in each period may be divided into two components:

$$\begin{aligned} \Delta I &\equiv I - I_{-1} \\ &= W'i' - W'_{-1}i'_{-1} \\ &= W'\Delta i' + (W' - W'_{-1})i'_{-1} \end{aligned} \qquad \text{(A9.12)}$$

The first component represents the volume change in inventories valued at current cost: the second component represents a

* A more general formulation would have to allow for the possibility that the unit cost of end-period inventories may diverge slightly from current wage costs per unit of output. This would considerably complicate the formulae which follow by introducing 'relative inventory valuation adjustments' of the form

$$I - W'i'$$

which would usually in practice be very small. Note that the problem is confined to shifts in the relative unit cost of inventories compared with the base period; we have just shown that $W'_0 = 1$, which implies that A9.11 will always be consistent with

$$I_0 = i'_0$$

valuation change due to changes in money wage costs per unit of output.

Historic costs in each period may now be derived as a function of current and lagged unit wage costs. Using A9.2, A9.9, A9.10 and A9.12

$$\begin{aligned} HC &= WB-\Delta I \\ &= W'(fe'+\Delta i')-W'\Delta i'-(W'-W'_{-1})i'_{-1} \\ &= W'.fe'-(W'-W'_{-1})i'_{-1} \end{aligned} \qquad \text{(A9.13)}$$

This says that the historic cost of current sales is equal to sales valued at current cost less the valuation change on inventories.

Now let us define the proportion of final sales volume deriving from the opening volume of inventories:

$$\kappa' = i'_{-1}/fe' \qquad \text{(A9.14)}$$

The historic cost of sales may be expressed (using A9.13 and A9.14) as

$$\frac{HC}{fe'} = (1-\kappa')W'+\kappa'W'_{-1} \qquad \text{(A9.15)}$$

This says that the unit cost of current sales is a weighted average of current and lagged wage costs per unit of output.

## Costs and prices

It is now convenient to scale the index of wage costs by defining

$$W \equiv W'/\sigma \qquad \text{(A9.16)}$$

so that W′ and fe′ in equation A9.15 above can be replaced by market-price measures, W and fe. Noting that the interest charge on inventories can similarly be expressed in terms of lagged wage costs and the opening inventory/sales ratio, κ′, the



result for historic costs (A9.15 above) can be expanded to include the interest charge as

$$HC+R.I_{-1} = \{(1-\kappa')W+\kappa'(1+R)W_{-1}\}fe$$

and, including profit and tax mark-ups, the value of final sales is

$$FE = (1+\tau)\,(1+\lambda)\,\{(1-\kappa')W+\kappa'(1+R)W_{-1}\}fe \qquad \text{(A9.17)}$$

Finally, defining the price index for final sales as

$$p \equiv FE/fe \qquad \text{(A9.18)}$$

we arrive at a relationship between unit wage costs and prices:

$$p = (1+\tau)\,(1+\lambda)\,\{(1-\kappa')W+\kappa'(1+R)W_{-1}\} \qquad \text{(A9.19)}$$

## Real interest

Consider a stock of money, MON, and define its end-period real value as

$$mon \equiv MON/p \qquad \text{(A9.20)}$$

The real value of the same stock of money at the end of the previous period was

$$mon_{-1} = MON/p_{-1}$$

and the change in real purchasing power due to the change in prices between the previous period and the current period is

$$\Delta mon \equiv MON/p-MON/p_{-1}$$

If the rate of inflation is defined as

$$\%p \equiv p/p_{-1}-1 \qquad \text{(A9.21)}$$

the change in real purchasing power reduces to

$$\Delta mon = -\%p.\ mon \qquad \text{(A9.22)}$$

Interest earned on the stock of money at the rate R per period is in real terms worth

$$R.MON/p = R.mon \qquad \text{(A9.23)}$$

Adding A9.22 and A9.23, we obtain the real return on the stock of money as

$$(R-\%p).mon = \frac{(R-\%p)}{(1+\%p)}\ .mon_{-1}$$

$$= \{\frac{1+R}{1+\%p} - 1\}\ .mon_{-1} \qquad \text{(A9.24)}$$

The real rate of interest, r, may therefore be defined relative to the end-of-previous-period real value of the stock of money as

$$r \equiv \frac{1+R}{1+\%p} - 1 \qquad \text{(A9.25)}$$

To maintain a constant real interest rate as inflation varies, the nominal interest rate must be adjusted so as to satisfy

$$(1+R) = (1+r).(1+\%p)$$

**Costs and prices again**

We now return to the price formula (A9.19 above). Cost inflation may be defined in the same way as price inflation by

$$\%W \equiv W/W_{-1} - 1 \qquad \text{(A9.26)}$$



The real interest rate measured in terms of cost inflation, is, by analogy with A9.25 above,

$$r' \equiv \frac{1+R}{1+\%W} - 1 \qquad \text{(A9.27)}$$

This definition can be substituted in A9.19 to simplify the term for unit wage costs and interest. First note that

$$(1+R)W_{-1} = \frac{(1+R)}{(1+\%W)}\ .W$$

$$= (1+r').W$$

It follows that A9.19 can be rewritten as

$$p = (1+\tau)\ (1+\lambda)\ (1+\kappa'.r')W \qquad \text{(A9.28)}$$

Now, finally, defining the index of real wage cost per unit of output as

$$w \equiv W/p$$

we derive the constraint on real incomes generated in production as

$$w(1+\tau)\ (1+\lambda)\ (1+\kappa'.r') = 1 \qquad \text{(A9.29)}$$

For inflation-neutrality of the distribution of real incomes from production, it is evidently sufficient that any three of the four terms $w, \tau, \lambda$ and $\kappa'\ r'$ in A9.29 should remain constant.

Note that when real unit wage cost, w, is constant from one period to the next, the rates of cost and price inflation must be equal:

$$\%W = \%p$$

In this case r' in A9.29 can be replaced by r (the real rate of interest measured in terms of price rather than cost inflation).

**Inflation-accounted incomes from production**

Using lower-case letters without primes to denote variables measured in terms of real purchasing power, historic real costs can be defined by analogy with A9.2 as

$$hc \equiv wb - \Delta i \qquad \text{(A9.30)}$$

Note that the real value of end-period inventories, i, is *not* the same as the volume of inventories except in periods when the unit wage cost index, W′, and the price index, p, happen to coincide. In general

$$\begin{aligned} i \equiv I/p &= W'.i'/p \\ &= w'.i' \end{aligned} \qquad \text{(A9.31)}$$

where $w' \equiv W'/p$.

The change in the real value of inventories can be decomposed, by analogy with A9.12, as

$$\Delta i = w'.\Delta i' + (w' - w'_{-1}).i'_{-1} \qquad \text{(A9.32)}$$

where the first term is the volume change and the second term is the real valuation change.

Following identical steps to those employed for money costs, interest, profits and taxes, the real unit cost of sales may be expressed as a weighted average of current and lagged real wage costs per unit of output (see A9.15),

$$\frac{hc}{fe} = (1-\kappa')w + \kappa'.w_{-1} \qquad \text{(A9.33)}$$

and the summation of wage costs and other incomes may be expressed in the alternative forms (see A9.6 and A9.7)

$$fe \equiv hc + r.i_{-1} + \pi + t \qquad \text{(A9.34)}$$



and

$$fe \equiv (1+\tau)\,(1+\lambda)(1+\kappa''.r)hc \qquad \text{(A9.35)}$$

where $\kappa''$ is the share of the opening real value of inventories in the historic real cost of sales:

$$\kappa'' \equiv i_{-1}/hc \qquad \text{(A9.36)}$$

The problem noted in this chapter about the timing of adjustments to the nominal interest rate can be understood from A9.33 and A9.35. In the chapter we had a period of production exactly equal to the accounting period so that by assumption

$$\kappa = \kappa' = \kappa'' = 1$$

and

$$hc = w_{-1}.fe$$

The real cost of sales in each period was entirely predetermined by wages and prices in the previous period. Thus in A9.35 the product

$$(1+\tau)\,(1+\lambda)(1+\kappa''.r) = fe/hc = 1/w_{-1}$$

was predetermined. Given a zero tax rate and a fixed profit mark-up, the real interest rate measured in terms of price inflation, r, was also predetermined. This result would not hold if the acounting periods were longer than the period of production since the real cost of sales would no longer be entirely predetermined by what had happened in earlier periods. But the element of predetermination is a genuine phenomenon (not just a product of the way in which we have carved up time periods) which arises because in the sequence of production, wage costs must generally be incurred before interest, profits etc. can arise.

# 10 Inflation processes

The previous chapter has shown how wages, interest charges, profits and taxes feed into the average price of final goods and services in a closed economy. This chapter proceeds to analyse inflation as a sequential process. Our general hypothesis is that none of the various components of final prices will fall behind progressively or indefinitely in the course of a sustained inflation; they are protected by a variety of adjustment mechanisms which tend to keep costs and prices rising together.

## The general hypothesis

In a modern economy there are tendencies for stabilization of most individual categories of income in real terms or relative to one another or as a share of national income. For example, taxes are usually assessed as percentage rates applied to money incomes and expenditures. This sustains tax revenue in real terms and as a share of national income when money prices and incomes rise. Similarly there is a tendency for nominal interest rates to adjust in response to changes in the rate of inflation so as to reduce the variations in the real return to owners of financial assets which would occur if nominal interest rates remained fixed.

Again, although profit shares generally go up and down between booms and recessions of *real* output, the share of profits usually does not alter so drastically in response to changed inflation rates.*

* Note that this statement refers to profits as defined in Chapters 4 and 9. It is not true as regards another frequently used measure – profits *less* inventory revaluation (stock appreciation).



There is also in most countries a fairly pronounced tendency for the rate of increase in money wages to vary in response to the rate of inflation of prices, helping to keep the share of wages in national income reasonably stable. Since wages form a large part of national income, the observation of a correlation between movements of the average money wage in the economy as a whole and movements of a general price does not necessarily prove much; there is a chicken-and-egg question about which moves first. But most individual money wages, as well as the average for the economy as a whole, do broadly keep up.

Our objective is now to analyse the cumulative or continuing inflation processes which arise when most categories of real income are capable of being defended, to a greater or lesser degree, against erosion of their purchasing power. The instruments through which each income category may be adjusted are fairly self-evident – profits through revision of prices in the light of rising costs, tax revenue through proportionate tax rates, real interest on financial assets through changes in nominal interest rates, and real wages through increases in money wages.

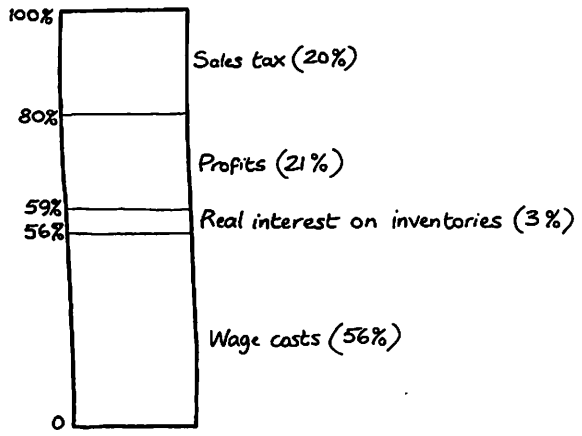
## The overall constraint

As emphasized in the preceding chapter, the components of prices add up in a well-defined way. This constrains the combined value of wages, interest, profits and taxes in real terms, as illustrated in Chart 10.1 based on figures from Table 9.7.*

Through time, the shares of different components of prices may change, as is illustrated in Chart 10.2. But nothing can be inferred directly from observed changes in shares about whether inflation has accelerated or decelerated and why. Readers may

* When unit wage costs rise at a different rate from prices, the adding-up property for real incomes requires, strictly speaking, that real interest should be measured relative to the rate of inflation of unit wage costs rather than prices (see Appendix 9.1)

**Chart 10.1** The constraint on components of prices as shares of the real value of sales




ask themselves whether, in Chart 10.2, wage inflation has accelerated with profits lagging behind or whether, on the contrary, profit margins have fallen, slowing down inflation to the benefit of real wages. There is no way of telling.

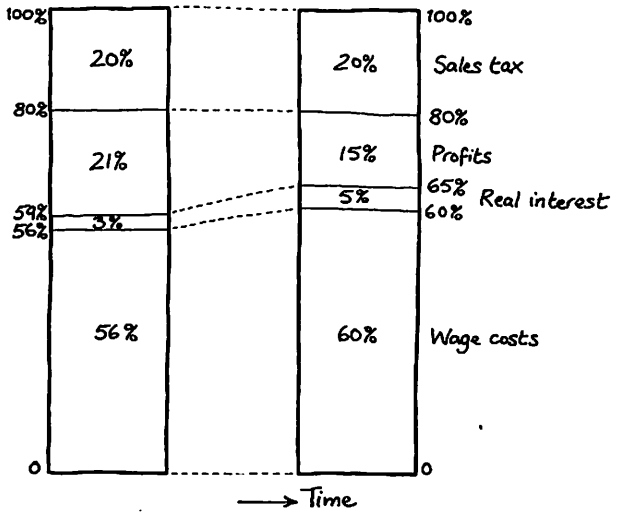
Assumptions are required about the specific manner in which components of prices adjust before we can infer anything about the rate of inflation. In the remainder of this chapter we shall usually treat the shares of taxes and profits as being determined exogenously, independent of the rate of inflation, on the assumption that taxes are determined as percentage rates and that in a closed economy there is nothing to prevent prices from being revised so as to preserve the average profit mark-up.*

The next part of the chapter considers the adjustment of wages

* But note the qualifications at the end of this paragraph and the remarks about how the share of profits may be sensitive to the *volume* of output and sales on pages 204 and 252 below.



**Chart 10.2** A change in the shares of different components of prices




and its implications for inflation. A similar treatment is then provided for interest. Finally we note the case, which may be important in practice, where the profit mark-up is calculated without proper allowance for interest charges.

Money wages are nearly always adjusted at discrete intervals of time. It is a fairly common practice, for instance, for the money wages of any given group of workers to be adjusted once a year. But different arrangements obtain at different times and in different places. Sometimes wage indexing arrangements are made according to which money wages are put up almost instantaneously to compensate for rises in prices. At the other extreme a significant number of workers may be covered by long-term contracts which predetermine money wages for as much as three years at a time.

No theory of the long-term determinants of wages in modern economies will be presented here. Our discussion is strictly

limited to the question of how money wages react to rising prices in the short run. There are certainly few topics in contemporary economics which are more vexed than the theory of wage determination; we and several of our colleagues have made reasonably plain our views about how the process operates in our own country.*

To show how an analysis of short-run money wage determination can be developed, we postulate that money wage bargains are made with reference to the purchasing power of money at the time contracts are negotiated. We call the real value of the agreed money wage at the time when the contract is made the *real wage settlement*. This will differ from the real wage actually received (unless there is no inflation) because in the period up to the next wage settlement price inflation will erode the real value of the money wage. The average level of the real wage settlement may be affected by a great variety of factors including the extent to which unemployment is feared, or by the government exercising some kind of incomes policy. We shall here regard it as an exogenous variable.

Given the real value of wage settlements, we can determine how inflation affects the real value of wages paid.

To keep things very simple, suppose that money wages in each period are the outcome of contracts made with reference to prices in the previous period. In this case the *real* value of money wages paid and received in any period will be proportionately lower, the *higher* is the rise in prices since the previous period.

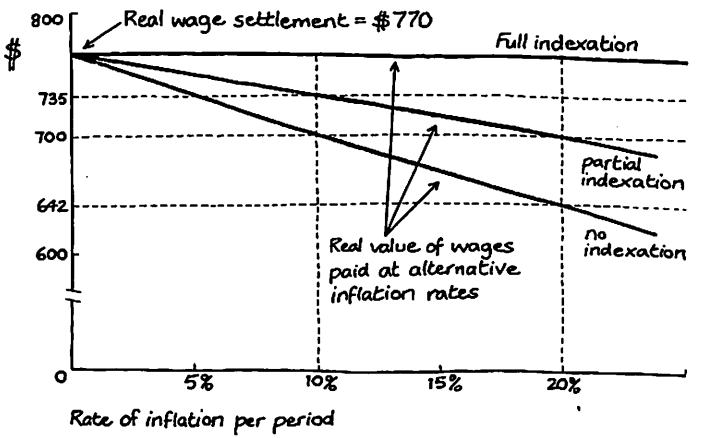
Chart 10.3† illustrates what will happen following a real settlement of \$770 (measured in purchasing power in some base period), depending on the rate of inflation and the degree to which the wage contract provides for indexation. With *no* indexation and 20% inflation per period, wages subsequently paid out would only be worth \$642 in real terms at the time of payment.

* See in particular Coutts, Tarling and Wilkinson, 'Wage bargaining and the inflation process', *Economic Policy Review*, March 1976, Department of Applied Economics, Cambridge.

† Up to now all the charts in this book have represented time on the horizontal axis. Chart 10.3 and all the remaining charts in Chapter 10 represent *inflation rates per unit of time* on the horizontal axis.



**Chart 10.3** The real value of wages, given the real wage settlement, at different rates of inflation




The effect of inflation on real wages (given real wage settlements) illustrated in Chart 10.3 may alternatively be represented as a process taking place in time. In Table 10.1 it is postulated that inflation moves from zero in periods 1 and 2 to 5% in the following two periods, thence to 10% and 20%. The real wage settlement (shown in column (5)) is assumed to remain constant throughout, implying the money wage settlements shown in column (3) obtained by multiplying the real wage settement by the price index. Money wages actually paid (column (4)) are assumed to be equal to settlements in the previous period and these have been divided by prices to yield real wages (in column (6)). The values for real wages corresponding to each rate of inflation are exactly equal to those shown in Chart 10.1

Partial or full indexation can be achieved if the wage contract provides for automatic adjustment of money wage payments whenever prices rise. Contracts of short duration frequently

**Table 10.1** Real wage settlements and the real value of wages paid

| Period | (1) Price index (period 1 = 1.00) | (2) Increase in prices over previous period (per cent) | (3) Money wage settlement (5)×(1) | (4) Money wages paid in period = settlement in previous period | (5) Real wage at settlement | (6) Real value of wages paid in period = (4)/(1) |
|---|---|---|---|---|---|---|
| | | | (current $) | | ($, period 1 purchasing power) | |
| 1 | 1.000 | 0 | 770 | 770 | 770 | 770 |
| 2 | 1.000 | 0 | 770 | 770 | 770 | 770 |
| 3 | 1.050 | 5 | 808 | 770 | 770 | 733 |
| 4 | 1.102 | 5 | 849 | 808 | 770 | 733 |
| 5 | 1.213 | 10 | 934 | 849 | 770 | 700 |
| 6 | 1.334 | 10 | 1027 | 934 | 770 | 700 |
| 7 | 1.601 | 20 | 1233 | 1027 | 770 | 642 |
| 8 | 1.921 | 20 | 1479 | 1233 | 770 | 642 |



renegotiated would have much the same effect. In general, wage contracts suffer less erosion, the more up-to-date the price information on which they are based. At the extreme, settlements which incorporate an accurate expectation about inflation to come can have the same effect as full indexation.

Taking account of possibilities like these, it is likely that in a real-life economy outcomes for average real wages will be more like the one sketched in Chart 10.4 than any of the lines in Chart 10.3. At high rates of inflation, particularly if they persist for long, indexation by one device or another will become increasingly pervasive and effective.

**Chart 10.4** Indexation varying with the rate of inflation




Note that it is only possible to make an empirical study of the adjustment of wages in the terms discussed above if there are data which measure the level and timing of contractual wage *settlements* as well as flows of money wage *payments*. Unfortun-

ately macroeconomic series for wages and salaries are generally confined to data on wage payments or on average rates of pay in force. Aggregate data on settlements scarcely exist.*

### Unit wage costs

The relevant wage component of costs is wage costs per unit of output, not wages paid per employee. When wage contracts specify 'piece' rates of pay (i.e., payments per unit of output), the preceding discussion carries through directly to wages per unit of output. But it is more common for wages and salaries to be specified per hour, week or month ('time' rates) with little or no automatic adjustment for changes in output per employee during the period of the contract. Employers then bear the costs and benefits of short-run variations in the volume of turnover or output per employee unless they pass these through into prices. This practice is one reason (possibly the main reason) why the share of profits usually fluctuates quite sharply with the volume of business turnover. In such cases real wage cost per unit of output will be varying inversely with the share of profits. Purely cyclical fluctuations in the relative shares of profits and unit wage costs will, however, be ignored in what follows because they have little or no effect on prices.

Another point to bear in mind is that wages are subject to income tax deductions and social security contributions. For this reason wage costs to employers are usually much higher than cash payments to workers. To the extent that contracts are motivated by consideration of the real value of what workers actually receive, our model of the interaction between prices, taxes and wage costs is formally deficient. However, it would be easy to reorganize accounts for components of prices to show unit wage costs (and, for that matter, interest and profits) on a net-of-tax or 'take-home' basis. What we have termed a 'sales tax' would then have to be expanded to include income taxes and social security contributions.

* Estimates for the UK have, however, been compiled by Coutts, Tarling and Wilkinson, *op. cit.*

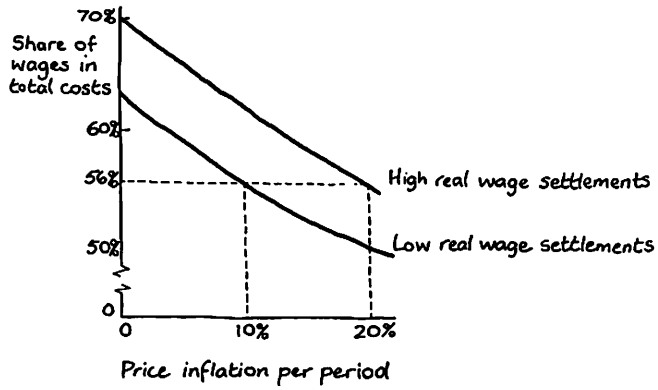


### Inflation when interest rates are indexed and the profit mark-up is constant

Let us now put assumptions about the adjustment of real wage costs into the identity (Chart 10.1 above) which shows how shares of real wages, real interest, profits and sales taxes in final sales must add up.

The chart below shows how real wage costs per unit of final sales depends on the level of real settlements and the rate of price inflation per period. To keep the lines as steep as possible wage indexation has been assumed away altogether (in real life the lines may be more nearly horizontal). The dotted lines indicate, for example, that a 56% wage share could be achieved with 'low' settlements and 10% inflation per period or 'high' settlements and 20% inflation per period.

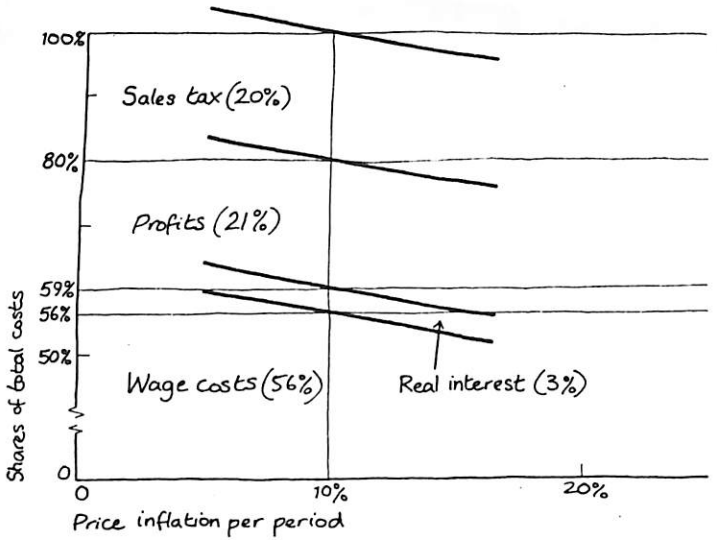
**Chart 10.5** Outcome for the share of wages in total costs at different levels of settlement and rates of inflation



From the previous chapter we know that there are well-defined circumstances in which the wage share would *have* to be 56% (or some other number) irrespective of the level of real wage settlements. This would be the case if the shares of sales tax, profits and *real* interest charges in final sales were all fixed, independent of the rate of inflation. We might well assume a given percentage rate of sales tax and a given profit mark-up. To keep the share of real interest fixed we should also have to suppose that the nominal interest rate rises or falls in line with changes in the rate of inflation.

The case when the wage share is fixed, irrespective of the level of wage settlements, is illustrated in Chart 10.6 below. Starting from the bottom line for wage costs (corresponding to 'low' settlements in the previous chart above), we add on real interest

**Chart 10.6** Inflation with a given wage settlement






at a fixed 3% rate, a profit mark-up of 36% on wage costs plus interest, and sales tax at 25%. The result has to add up to 100%, but it does so only at one unique rate of inflation – 10% per period.

It is not difficult to imagine an inflation steady state in which wage negotiators have to put up money wage rates per unit of output by 10% each period to maintain the real value of wage settlements. A nominal interest rate of 15½% would be providing an effective 5% real rate of interest. With constant percentage profit and tax mark-ups, prices would be rising by 10%. So long as the level of real wage settlements did not change, the 10% rate of inflation would continue indefinitely.

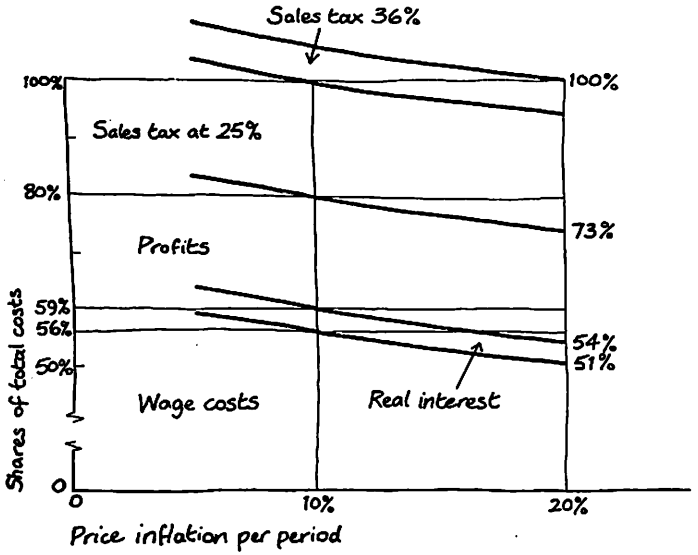
The steady state illustrated in the chart above could very easily be disturbed. If we had put in the 'high' settlements wage curve (Chart 10.5) instead of the 'low' one, the rate of inflation would have been 20%, not 10%. Note that a transition from one steady state to the other could be very rapid if nominal interest rates were adjusted as soon as wage settlements started to escalate.*

It is not only a change in the average level of real wage settlements (expressed per unit of output) which can alter the rate of inflation. Higher real interest, profit mark-ups or sales taxes could all equally well push the rate of inflation up. This is illustrated in Chart 10.7 below which is exactly the same as the preceding chart except that a new line has been added at the top to represent a rise in the rate of sales tax from 25% to 36%. This, too, is sufficient to increase the steady-state rate of inflation from 10% to 20%.

The effects on prices of a rise in sales tax are often discussed as if the tax increase caused prices to go up once and for all (possibly with some 'second-round' effects). Note that under our assumptions a rise in sales tax or in any of the other components of prices will increase not only the price level but also the ongoing rate of inflation. The scale of the addition to ongoing inflation depends crucially on the slope of the lines in our charts. If wage indexation were pervasive, the bottom line would be almost flat. The rate of inflation would then be extremely

* See the numerical examples in Chapter 9 where inflation jumps from zero in one period to 10% in the next and a few periods later suddenly returns to zero.

**Chart 10.7** Effects of an increase in sales tax




sensitive to upward or downward shifts in any or all of the different components of prices.

The effect of an increase in the rate of sales tax on the inflation rate illustrated in Chart 10.7 may alternatively be represented as a sequential process taking place in time.

Table 10.2 illustrates two inflation steady states, the first (period 1 to 4) at a rate of 10% per period, the second (periods 5 to 8) at a rate of 20% per period. The transition between the two is caused by a once for all rise in the rate of sales tax in period 5 from 25% to 36%.

The first (10%) inflation steady state can be traced through starting with the postulated real wage settlement (column (9)) together with the price index (column (7)), and inferring the



money wage settlement. Everything else then follows inevitably from the assumptions given at the head of each column. The stability of the real cost components shown in the lower half of the table imply that the inflation is in a steady state, and the 10% rate of inflation can be considered as a resolution of the fact that the sum of the cost claims exceeds 100%; the inflation turns the real wage settlement per unit of output worth 62 (column (9)) into real wages actually paid per unit of output worth 56 (column (10)).

In period 5 sales taxes are assumed to rise from 25% to 36%. The new inflation rate of 20% per period then follows inevitably from the same set of assumptions about real cost claims. In the top half of the table a heavy line has been drawn for each series at the point when its rate of change alters from 10% to 20%. The new (20%) rate of inflation resolves the unaltered real cost claims partly by reducing the real value of wages per unit of output from 56 to 51 (column (10)) and partly by reducing the share of real profits per unit of output (column (12)) since this is determined as a constant mark-up on *costs* (column (5)) which are now, because of the higher tax rate, a smaller proportion of the total value of sales.

The logical steps displayed in the table can be used to explore the consequences of making alternative assumptions about real cost claims. For instance one could enter a higher figure than 62 for real wage settlements per unit of output on the assumption that with a higher rate of inflation real wage settlements are raised in an attempt to recover the lost ground. In this case the new inflation rate will be more than 20%. Alternatively one could assume that the nominal rate of interest remains constant at 15½%, in which case (everything else being equal) the new rate of inflation will be significantly less than 20%. This case is illustrated in Chart 10.9.

In the light of this observation the reader may begin to wonder not why inflation occurs but why it is usually not, after all, so very unstable. The only stabilizing element in the charts above is the downward slope of the line for wage costs (but for this, all the lines would be flat since the upper lines are defined by percentage mark-ups). However, the charts have so far assumed that the

**Table 10.2** An inflation process showing the effects of an increase in sales tax

(cents per unit; the volume unit is an assortment of goods and services costing $1.00 at period 1 selling prices)

| Period | (1) Money wage settlement per unit of output: rises of 10% \| 20% | (2) Money wages paid per unit of output = (1) lagged | (3) Unit wage cost of goods & services sold in period = (2) lagged | (4) Interest charge = (3)× interest rate at 15½% \| 26% | (5) Profit per unit of sales = ((3)+(4))× mark-up of 36% | (6) Tax per unit of sales = ((3)+(4)+(5)) × tax rate at 25% \| 36% | (7) Average price of of sales = ((3)+(4)+(5)+(6)) | (8) Increase in price over previous period (per cent) |
|---|---|---|---|---|---|---|---|---|
| 1 | 62 | 56 | 51 | 8 | 21 | 20 | 1.00 | 10 |
| 2 | 68 | 62 | 56 | 9 | 23 | 22 | 110 | 10 |
| 3 | 75 | 68 | 62 | 9 | 26 | 24 | 121 | 10 |
| 4 | 82 | 75 | 68 | 10 | 28 | 27 | 133 | 10 |
| 5 | 98 | 82 | 75 | 12 | 31 | 43 | 160 | 20 |
| 6 | 118 | 98 | 82 | 21 | 37 | 51 | 192 | 20 |
| 7 | 142 | 118 | 98 | 26 | 45 | 61 | 230 | 20 |
| 8 | 170 | 142 | 118 | 31 | 54 | 73 | 276 | 20 |

(real values; cents, period 1 purchasing power)

| | (9) Real wage at settlement per unit of output = (1)/(7) | (10) Real value of wages paid per unit of output =(2)/(7) | (11) Real interest charge = (10) lagged× real interest rate | (12) Real profit per unit of sales = (5)/(7) | (13) Real tax per unit of sales = (6)/(7) | (14) total real income per unit of sales = (10)+(11)+(12)+(13) |
|---|---|---|---|---|---|---|
| 1 | 62 | 56 | 3 | 21 | 20 | 100 |
| 2 | 62 | 56 | 3 | 21 | 20 | 100 |
| 3 | 62 | 56 | 3 | 21 | 20 | 100 |
| 4 | 62 | 56 | 3 | 21 | 20 | 100 |
| 5 | 62 | 51 | −2 (3)* | 19 | 27 | 95 (100) |
| 6 | 62 | 51 | 3 | 19 | 27 | 100 |
| 7 | 62 | 51 | 3 | 19 | 27 | 100 |
| 8 | 62 | 51 | 3 | 19 | 27 | 100 |

* Figure in brackets is for real interest measured relative to *cost* inflation (see Chapter 9)

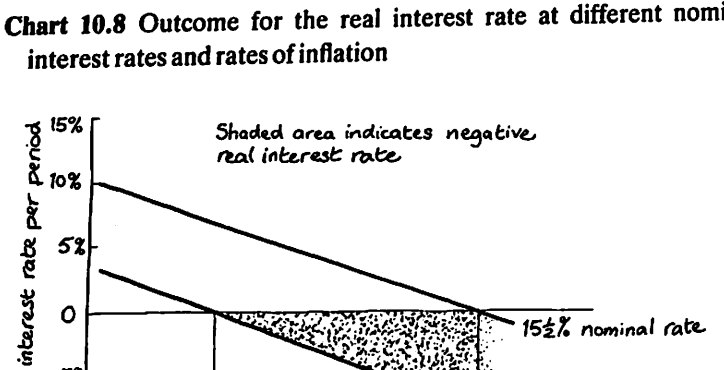
real interest rate is independent of inflation, which is not in practice very realistic. We shall now show that failure to index interest rates to inflation can contribute an additional, surprisingly important, stabilizing element.

### The role of interest rates

First consider how the real interest rate depends on the nominal interest rate and the rate of inflation. This is illustrated in Chart 10.8. When there is no inflation, the real interest rate is the same as the nominal rate (e.g., 5% on the lower line in the chart). Inflation makes the real interest rate lower than the nominal rate (see Chapter 9, page 178). When the rate of inflation reaches the nominal interest rate (e.g., 5%) the real interest is zero. And when inflation exceeds the nominal interest rate, real interest is negative. In the most extreme case shown in the chart, with nominal interest of 5% per period and 20% inflation, the real interest rate is *minus* 12½%.*

Now in earlier charts the real interest charge on inventories

**Chart 10.8** Outcome for the real interest rate at different nominal interest rates and rates of inflation

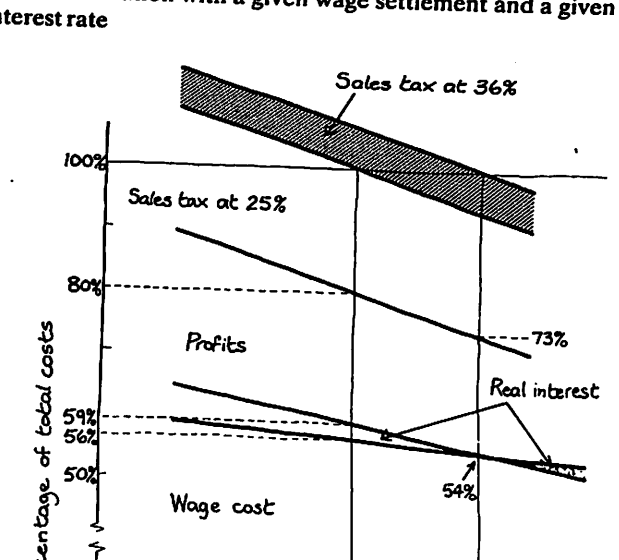





has always been shown as an addition to wage costs. But if the real interest rate is zero or negative, this will no longer be the case. With negative real interest the sum of real wage costs and real interest is *lower* than real wage costs alone. Whoever lends money to businesses is in effect subsidizing the process of production by lending for a negative real return.

Chart 10.9 above has exactly the same form as earlier charts except that we have now assumed a fixed 15½% nominal rate of interest, regardless of inflation. This, like nil indexation of

**Chart 10.9** Inflation with a given wage settlement and a given nominal interest rate




* The calculation is

$$0.125 = (1+0.05)/(1+0.2)-1$$

(see Appendix 9.1).

wages, is an extreme assumption which makes the lines in the charts as steep as they possibly can be.*

The chart once again illustrates the effect of a rise in sales tax from 25% to 36%. The effect on ongoing inflation is smaller than in Chart 10.7 because real interest falls when inflation accelerates.

### Profit mark-ups and interest

Nominal interest rates are not in practice invariant with respect to the rate of inflation. But Chart 10.9 above may not be unrealistic in its representation of profits and interest taken together. Up to now we have assumed that profit mark-ups are calculated on costs plus interest. But in practice many businesses which fix their own selling prices may fail to allow properly for changes in nominal interest rates. If prices are set by marking up costs excluding interest, the share of real interest and profits combined will behave *as if* there were a constant nominal interest rate. (The mark-up can be decomposed into a notional nominal interest charge calculated at some fixed rate of interest and a *notional* residual profit.)

Imagine that interest rates are indexed but that businesses ignore changes in interest rates when they set prices. In this case the share of profits after deducting actual interest payments will fall when there is an increase in the rate of inflation. the consequences could be illustrated by redrawing the real interest line in Chart 10.9 while leaving the profit line where it is. The gap between the two lines (profits net of interest) would narrow as the rate of inflation rises.

* The numbers used for interest rates and inflation rates will have invited most readers to think of time periods as years. Note that the magnitude of interest charges (positive or negative) is unrealistically high if the time period is taken to be a year, since the calculations assume an average period of production equal to the accounting period whereas in real-life economies it is less than a year.



### Conclusions

Each component of prices can be regarded as a claim on real income. We have portrayed inflation as a self-perpetuating process of adjustment which occurs when these real claims are mutually inconsistent. No single component – wages, interest, profits or taxes – can be regarded as causing the inconsistency by itself.

We have given no theory at all about what determines the various real claims. Instead we have concentrated on the process by which they are reconciled. If all components of prices were fully protected against this process (fully indexed) inflation would be totally unstable, accelerating rapidly and indefinitely whenever the real claims were inconsistent. The fact is that inflation is not so unstable from year to year despite substantial exogenous shocks from changes in tax rates, government incomes policies, interest rates and – in open economies – prices of imports and exports. The observed element of stability in inflation tells us that indexation is by no means complete and therefore that at least some real incomes are vulnerable to inflation.

We have seen that the rate of inflation is likely to be quite sensitive to exogenous pressures affecting real claims in the longer run. The level of unemployment and the pressure of demand on productive capacity may have an important influence. In an open economy the rate of exchange for the national currency and prices in world markets may be important. Political and social factors also come in because they influence wages and tax rates. We very much doubt whether any purely economic theory can 'explain' the rate of inflation or indeed whether it is fruitful to seek any general explanation.

## 14.A2 The determination of the vintage technology and the rate of return on investment

The general procedure used to determine the vintage technology, i.e., the technology embodied in each vintage of investment, can be briefly sketched as follows:

1. The vintage technology can be characterized by its capital productivity, labor productivity, and its discard schedule associated with its average service life.
2. On the basis of the investment flow and the description of the vintage technology, it is possible to reconstruct the average technology.
3. We choose parametric expressions for the three variables characteristic of the vintage technology, as functions of time, and the vintage technology is estimated by regressing the series describing the average technology.

A first assumption is that the two productivities vary with time as new investments in new productive combinations are realized, but once a given technology has been adopted, its features cannot be modified: technology is putty-clay. This model certainly overstates the rigidity of technology to some extent, but gives a more realistic description of technological change than the putty-putty model implicit in most studies. A second assumption is that the productive power is measured by the gross (and not net) stock of capital. This is equivalent to saying that a building or machine can be used productively independently of its age, as long as it has not been discarded. The net stock of capital accounts for the loss of value due to the limited time span in which it can still be used productively, not for its present productive power.

Once the vintage technology has been determined, it is possible to compute the sequence of returns (or gross profit, i.e., the sum profit plus depreciation). The returns in period $t'$, for one unit of fixed capital invested in $t$ is denoted $\pi(t,t')$. The BEA provides an estimate of the fraction $W(t,t')$ of an investment realized in $t$ and still in use in $t'$. ($W(t,t')$ declines from 100 percent to zero when $t'$ increases.) With $p$ denoting the relative price of investment in comparison to GNP, the RRI, $r$, corresponding to an investment realized in $t$, is determined by the following equation:

$$p(t) = \sum_{t'=t+1}^{\infty} \frac{W(t,t')\pi(t,t')}{(1+r)^{t'-t}}$$



Since $W(t,t')$ is equal to 0 if $t'$ is large in comparison to $t$, the series is a polynomial in $1/(1+r)$, whose degree is equal to the maximum number of periods of use.

The proof of the existence of a unique positive root in the above equation is straightforward, since all coefficients in the polynomial are positive. From this, the existence and uniqueness of a RRI greater than $-1$ both follow.

A more explicit account can be found in Duménil G., Lévy D. (1990(c)), where this method is applied to Manufacturing.

Joan Robinson

# COMMENT ON SAMUELSON AND MODIGLIANI

Footnote 1, p. 271, seems to have been whispering a useful hint to the Professors from M.I.T. but they mistook it for a joke.

In any period, the gross profit from the sale of consumption goods is approximately equal to the wage bill for gross investment plus the excess of spending out of profits over saving out of wages. (We are assuming a closed system, no government, and income exhaustively divided into wages and profits.) This is not a truism but a statement of how the market works. Goods are being sold, week by week, for more than their prime cost, and the expenditure to pay for them must come from income exceeding that generated by their prime costs.

Finance out of profits

For simplicity of exposition we postulate no technical progress, so that the "natural" rate of growth, $n$, is the rate of growth of the labour force. Values are reckoned in terms of consumption goods.

When the rate of growth of the economy, $g$, is constant through time and normal prices rule, we can conduct the argument in terms of net income per annum, $Y$, net profit, $P$, and net investment, $I$, which are otherwise ambiguous concepts; $W$ is the wage bill and $C$ annual consumption; $s_p$ is the proportion of profits saved and $s_w$ the proportion of wages saved.

$$\begin{aligned} Y &\equiv P+W \equiv I+C \\ C &= (1-s_p)P+(1-s_w)W \\ P &= I+C-W \\ &= I+(1-s_p)P-s_wW. \end{aligned}$$

Net profit is equal to net investment plus the excess of consumption out of profits over saving out of wages.

Dr Pasinetti divides $s_p$ into two parts, $s_c$ which applies to profits accruing to capitalists, $rK_c$, and $s_w$ which applies to profits on the part of capital owned by workers, $rK_w$. The rate of profit, $r$, is uniform on all capital.

In a Pasinetti equilibrium, with the share of capital owned by each class equal to its share in net saving, he shows that the extra expenditure out of profits accruing to workers (due to the excess of $s_c$ over $s_w$) offsets saving out of wages. Net profits are then equal to net investment plus expenditure by capitalists $(I+(1-s_c)rK_c)$ and the rate of profit is equal to $g/s_c$.

When there is a choice of known techniques (which at M.I.T. means differences in the quantity of putty-capital per man employed) and it is postulated that investment is embodied in profit-maximising form, we can draw up a pseudo-production function (this is Professor Solow's name for it) showing output per man employed, real wage, and value (in terms of consumption goods) of capital per man, corresponding to each rate of profit. Then in a Pasinetti golden age, with $g = n$ and $r = n/s_c$, we find the appropriate value of $K/Y$ and so determine the share of profit, $rK/Y$.

The M.I.T. professors (following Professor Meade) are able to strike a blow for $K/Y$ by showing that it enters into the determination of the limits within which a Pasinetti golden age is possible. Pasinetti stated the condition as $s_w<I/Y$; this, of course, is perfectly correct, but it does not bring out the effect of the share of wages in income upon the share of workers' saving in investment. The condition is most perspicuously stated as $s_wY<s_crK$.

When $s_wY>s_crK$, equilibrium with the rate of profit constant through time requires the whole capital to be owned by workers (for if the proportion of capital owned by

workers, $Kw/Kc$, is changing as total capital increases, the rate of profit will not be constant). Then two classes of savers do not exist and the system reduces to a Harrod equilibrium with $Y = \frac{1}{s} I$.

For a Harrod-equilibrium golden age, $K/Y$ must be equal to $s/n$. In order to show that a Harrod equilibrium is possible for all values of $s$ and $n$, the professors postulate a "well behaved" pseudo-production function, with $K/Y$ a smooth, continuous decreasing function of the rate of profit. They now admit (in footnote 1, pp. 290-1) that there is no logical reason why the pseudo-production function should be of this form. They just assume that it is so. After putting the rabbit into the hat in full view of the audience it does not seem necessary to make so much fuss about drawing it out again.

But it is not sufficient to postulate that $K/Y$ *can* assume any required value. Is there some mechanism to *cause* it to be equal to $s/n$? For the professors this is no problem. Saving consists in accumulating putty. When $s/n$ is greater than $K/Y$, putty per man employed is rising as time goes by, the rate of profit falling and $K/Y$ rising. Contrawise when $K/Y$ is greater than $s/n$. Thus $K/Y$ is always being pushed towards equality with $s/n$. Most of their paper seems to be concerned with an analysis of the process of accumulating putty under conditions of Say's Law.

It is a pity that Pasinetti seemed to encourage the tiresome neoclassical habit of confusing comparisons of equilibria with historical processes by talking about an ultimate equilibrium which the economy is approaching. It would be better to say that a golden age is a logical construction without history, in which there is no distinction between the future and the past. In a Pasinetti golden age the two classes always have been saving in the postulated proportions and already own the corresponding shares in the stock of capital.

In a Harrod golden age, putty or not, $P$, annual net profit, is equal to $I+(1-s)P-sW$, but to know the rate of profit, $P/K$, we have to look at the pseudo-production function to find $K$. We know that $K/Y$ is equal to $s/n$, simply because if it were not this would not be a Harrod golden age. Thus, given $s$, $n$ and a "well behaved" pseudo-production function there is one rate of profit at which a Harrod golden age is not impossible; if the pseudo-production function is badly behaved there may be several or none; with Pasinetti assumptions there can be a golden age at any rate of profit with any pseudo-production function provided $s_w Y < s_c r K$; when $s_w = 0$ a golden age is possible at any rate of profit; in the von Neumann or neo-neoclassical optimum golden age $s_w = 0$, $s_c = 1$ and the rate of profit is equal to the rate of growth.

When the shape of the pseudo-production function and the behaviour of savings or the initial conditions are such that no golden age is possible, it does not mean that the economy will not support life. It only means that steady growth would not be associated with a constant rate of profit. For instance, when, at a particular moment, the share of capital owned by workers is less than proportionate to their share in savings, the rate of profit corresponding to a given rate of growth is less than that shown by Pasinetti's formula. As the share of capital owned by workers grows relatively to total capital, as time goes by, so that the share of profit accruing to workers rises, expenditure out of profits increases (since $s_w < s_c$) while the saving out of wages remains constant, so that the rate of profit corresponding to any given rate of accumulation is rising through time.

This must be supposed to have repercussions upon the rate of accumulation and the choice of technique, which we must then bring into the story.

The assumptions about savings that have been offered so far—$s_w = 0$, $0 < s_w < s_c$ and $s_w = s_c$—provide models that are extremely simple. Before appealing to reality, and claiming support from statistics about the U.S.A., we need to allow for some further complications, including the fact that no period of actual history is a golden age.

*Cambridge*

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