COSTS AND CONSEQUENCES OF INFLATION

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I. Introduction

One approach to the microfoundations of macroeconomics problem takes the frame and the components of standard "neoclassical" theory as the given starting point. One asks what can be used and what needs modification for purposes of representing the movement of a macrosystem through time and into a future that is in some respects unknowable. The aim is to define and, if possible, solve the analytical problems that emerge at the levels of individual conceptual experiments, market experiments, and general equilibrium experiments. I have pursued this approach in other recent papers[1/] but am running into diminishing returns.

An alternative approach is to start from the other end with some "applied" problem, preferably one of such importance that no macroeconomist can really afford to dodge it, and consider the difficulties that arise in trying to handle it in a "reasonable" way with standard microtheoretical tools. From this viewpoint we get a different critical angle on the problems requiring solution if micro and macrotheory are to be made to mesh. This is the approach taken in this paper.

The "practical" macroquestion to be considered here is that of the social costs and consequences of inflation. A new view of the welfare costs of inflation has emerged in the last ten or fifteen years. It trivializes the cost of inflation. This new view is undergirded by essentially "neoclassical" theoretical constructions and may, indeed, be regarded as a byproduct of work primarily oriented toward seeking neoclassical foundations for macrotheory. In the analytical exercise that is central to this view, inflation is treated as a foreseen tax on money balances and its costs are seen to lie in the productive and transactional inefficiencies induced by

such a tax. Even a quite high rate of inflation will not imply a very sizeable tax as taxes go in modern mixed economies; the inefficiencies that it may induce will be correspondingly trivial.

Some economists will feel that this work has helped us put the undesirability of inflation into proper perspective by dispelling old and murky myths about its dangers. To those, my topic will not seem a promising avenue towards a fuller understanding of the trouble we are having with microfoundations.

It should thus be obvious and shall in any case be openly admitted that my choice of topic is predicated on the prior conviction that in advocating or letting go unopposed this new view of inflation we have been guilty of profound and appalling naiveté. I fear that the spreading influence of the new view is dangerous insofar as it directly or indirectly influences policy.

The new view on inflation is not altogether unassailable on its own terms. But the questions about it that may be raised strictly within the neoclassical framework are probably not the important ones. Neoclassical theory -- or, more precisely, its scope -- is itself at issue. The social consequences of inflation most germane to "wise" conduct of economic policy may fall largely outside its purview. For this once, I do not think inside ("immanent") criticism is the tack to take. This paper wilfully refuses obedience to the neoclassical rules of the game. We begin by taking an "institutionalist" view of monetary exchange.

The institutional approach has, of course, its own limitations. One cannot be perfectly "general" (i.e., refer to all times and all places) and still retain content. The time-space "reference coordinates" that I have had in mind in writing this paper are (i) the last ten years or so, and (ii) the United States. Similarly, the term "inflation" in the title is not

to be read as denoting a theoretically defined "pure" concept but as referring to inflationary processes "like" the one of recent years.

II. An Institutionalist Sketch of Monetary Exchange

> "Whether the true idea of money, as such, is not altogether that of a ticket or counter"?
> --Bishop Berkeley, The Querist

Some of the questions on the present theoretical agenda are much older than the current movement to provide microfoundations for macrotheory: Why do people hold money? Why is the set of goods serving as means of payment so small? Why are "indexed" contracts so uncommon? Etc.

One approach to these questions starts by interpreting the mathematical structure of a standard general equilibrium model as representing a multilateral "barter" system. One then seeks precise formulation of realistic assumptions about information imperfections and transactions costs that can be shown to lend a "monetary" transactions structure to the GE model. It is not part of my aim to criticize this research, much of which I find interesting and promising.

The point to be made here is simply that these conceptual experiments should not be given historical interpretations. The proposition that "barter is costly and inefficient" will no doubt be part of any explanation of the "use of money." That "the inefficiency of barter leads to the use of money," would, however, be false as a historical generalization. Monetary exchange systems have not evolved out of non-monetary exchange ("barter") systems but out of non-exchange systems. Both intertemporal and cross-cultural comparisons show us that in the spheres of economic activity where monetary exchange does not prevail, neither do we find predominantly "private" property rights, commercial contracting, and organized markets. (These are however institutional features presumed by the "non-monetary" GE model). We will still expect to

find a fairly extensive division of labor but the institutional arrangements -- the systems of rights and obligations governing the activities of individuals -- devised to ensure that the community can depend on the benefits from the division of labor will be different in kind. "Custom and Command", in the terms of Classical Economics, or "Reciprocity and Redistribution", in those of Anthropology, -- not barter exchange -- are the alternatives to monetary exchange.[2] The development of monetary exchange is, consequently, part of a complex evolution of institutions. Perhaps the best short statement is Wesley Mitchell's famous passage:

> "When money is introduced into the dealings of men, it enlarges their freedom.... By virtue of its generalized purchasing power, money emancipates its users from numberless restrictions upon what they do and what they get. As a society learns to use money confidently, it gradually abandons restrictions upon the places people shall live, the occupations they shall follow, the circles they shall serve, the prices they shall charge, and the goods they can buy."[3]

In largely non-monetary economies, important economic rights and obligations will be inseparable from particularized relationships of social status and political allegiance and will be in the same measure permanent, inalienable, and irrevocable.[4] Assurance of stability of the economic order is sought in tying economic functions to social roles that carry particular rights and duties vis-à-vis particular individuals or groups. In monetary exchange systems, in contrast, "the value to the owner of [his human capital or] a physical asset derives from rights, privileges, powers, and immunities against society generally rather than from the obligation of some particular person."[5] And, paraphrasing J.S. Mill, "competition is the governing principle of such contracts" as leave particular agents with a debt-claim relationship.

Neoclassical theories rest on a set of abstractions that separate "economic" transactions from the totality of social and political interactions

in the system.[6] For a very large set of important problems, this separation "works" -- since we are usually dealing with monetary exchange systems. But it assumes that the events that we make the subject of conceptual experiments with the neoclassical model of the "economic system" do not affect the "socio-political system" so as to engender repercussions on the economy of such significance as to invalidate the institutional ceteris paribus clauses of that model.

It is not "in the nature of things" that this assumption necessarily holds. There can be no epistemological guarantee that interactions between the "economic", the "political", and the "social spheres" of the system we study will be negligible. Double-digit inflation may label a class of events for which the assumption is a bad one. The neoclassical conceptual experiment of a steady-state inflation, which in time becomes accurately foreseen, and to which "everything adjusts" -- except property rights, contract forms, and the organization of markets[7] -- is at the very least a most instructive exercise. But that does not suffice to make it a good theory. It is a long-run theory. But its institutional ceteris paribus assumptions may not hold approximately true for that long.

We should at least keep an open mind to this disturbing possibility. We do not now have the empirical knowledge to rule it out. It may be the case that in the world we inhabit, before the "near-neutral" adjustments can all be smoothly achieved, "society unlearns to use money confidently" and reacts by restrictions on "the circles people shall serve, the prices they shall charge, and the goods they can buy."[8] If such reactions are in fact endogenous to the social system, we misidentify the consequences of inflation to the extent that we regard them as fortuitous "political" events exogenously impinging on "the economy."

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Mitchell uses the term "money" in a sense so broad as to cover not just all of money and banking but also the "Legal Foundations of Capitalism" (J.R. Commons) and even the psychological attitudes and calculating modes of decision-making that go with life in a society where the range of alternatives subject to the common measuring-rod of money is very wide. But something need be said also about how "money", in the narrow sense of "M", fits into such an institutionalist schema.

The stability of any social order requires (i) an exhaustive and consistent allocation of rights to economic resources, and (ii) rules for the transfer of these rights and means for keeping track of the legitimate succession to them. Disputes over the possession of rights, where the legal entitlement of the parties cannot be tracked down or otherwise "fairly" determined, must as far as possible be avoided -- since the residual method of settling conflicts will be the use of force.

In monetary exchange systems, the problem of keeping track takes a particular form. The "typical" basic forms of wealth are defined in terms of rights and immunities vis-a-vis "society in general". Transactors have discretion in what they choose to sell and buy and whom they choose to sell to or buy from. The institutional problem is to ensure that no one takes more out of the system than he puts in so that everyone is assured of being allowed to appropriate resources from the rest of society "equal" to what he has contributed to others.

Hawtrey's insistence that every transaction generates a claim and a matching debt is helpful here in leaving all questions of settlements temporarily open. The first problem is the measurement of debts and claims. We may assume them to be recorded at the prices in terms of unit of account

agreed upon by the parties. In the simplest multilateral exercise, we would have only "real" transactions -- involving the transfer of a physical asset, real good or service (or the forward contract for such a transfer) -- to consider. Assuming "rules" allowing no financial transactions or the running of financial surplus and deficits, a purely "imaginary money,"[9/] tied to no real numeraire good, could perfectly well serve as unit of account. The conceivable ways of "policing the rules" are legion.

As an illustration, suppose we find a short closed loop in this system where repeatedly real resources are transferred from A to B, from B to C, C to D, and from D to A, and all links in the chain happen to be quoted by the two parties at the same value in terms of "imaginary money." (1) We might decide to run a central social bookkeeping office charged with keeping the respective balance-sheets of A,B,C, and D continuously up-to-date by adding on the debts incurred and claims gained in each period. The object is simply to check that each balance sheet continues to balance. If accurate addition is cheap enough to come by, we could as well let the balance sheets go on lengthening indefinitely. Going through the motions of extinguishing debts would be superfluous. (2) We might feed all debits and credits arising from resource transfers into a computer programmed to hunt for "closed loops" and to wipe out all debts and claims (up to the largest common numerator) in all such loops found. Shrill bells should sound and red lights flash whenever the computer ends its daily exercise with a residue of net claims, etc. With this system, debts are systematically "extinguished", putting less of a burden on central archives, but they are not "paid." None of the goods in the system is identifiable as the "means of payment." (3) A social abacus might be cheaper than a central computer. We might issue little pellets, "tickets or counters" (called "Berkeleys"), pronounce them legal

tender and instruct every transactor to keep "paying" them out until his debts are zero. We could leave A,B,C and D alone to agree on how many Berkeleys extinguish a debt of one "imaginary" unit or we could try to help them out. Record-keeping and computational requirements will be drastically simplified by the expedient of handing "counters" around; even people who had trouble with arithmetic in primary school can participate. (4) We could allow any transactor able to acquire the trust of the others to issue IOU's (in "Berkeley's") and have them handed around (or transferred between agents on his books) instead.[10/] If experience tells us that people sometimes misplace their trust, we might intervene to force the "bank" regularly to extinguish its IOU's or stand ready to do so in either "our B's" or real goods. (5) Some transactor might be designated as a "credit card company" which allows others that it trusts to register the debts and claims arising from resource transfers between them on this company rather than on each other. The method or methods for extinguishing these debts and claims, we might leave to the company unless it proves prone to misplace its trust.

In a system where some mix of these (and perhaps other) arrangements is in operation, it is quite possible that we might find an empirically stable demand function for a suitably defined "M".[11/] Securing its microtheoretical foundations does not appear an easy task, however. Putting "real M" in utility-functions, for example, leaves one with a residue of fearful doubts; and proposals to reduce the marginal utility of M to zero seem of uncertain import.

The above sketch has not provided conditions assuring the stability over time of the relationship between "Berkeley's" and the imaginary accounting unit (IAU). Changes in the relation of B to IAU would, however, be of relatively limited concern as long as we deal with systems where the accounts

receivable and payable carried over through time are small or zero, as assumed above.[12]

Nor is a stable relation between the IAU and some "composite basket" assured by the sketch as far as we have carried it. The "IAU-value" of the basket could be any positive number. It is interesting, however, that between Charlemagne and the French Revolution the drift of the libra was rather slow[13] and, more to the point, without dramatic discontinuous jumps. Comparative static models, defined to exclude "money illusion,"[14] will provide no reasons to expect this. Yet, it is possible for an "imaginary money," without secure real anchorage, to drift slowly enough so as to preserve its usefulness for economic calculation of the advantages of alternative courses of action (and, apparently, retain some -- ill-understood -- superiority over "composite basket" contracting units). But this, it would seem, could only be the case if agents faced with the task of setting prices today seek help in the memory of yesterday's prices, i.e., find value in "precedent".[15]

A sketch of this sort will have to leave many loose ends. Here, they are beyond counting. But we resolutely turn our backs to all that, hanging on to but one strand -- that our various social bookkeeping devices have not been shown capable of "keeping track" in systems that allow nominally denominated debts and claims to remain outstanding from one "period" to the next.

III. Inflation and the Law

Mankind presumably has put more intellectual effort and ethical reflection over the centuries into the creation of the Law than has as yet gone into social benefit-cost analysis. If, then, repeated rounds of gradually improved social cost calculations for inflation keep repeating the

answer that it is relatively trivial, it gives one pause to note that the Law is helpless to assure justice in inflations.

Because of this impotence of the Law, inflations tend to accelerate the secular tendency of most Western countries to move away from the Rule of Law toward Rule by Men. Associated therewith, we expect to observe a tendency for the dominant popular conception of social justice in democratic societies to shift from Equality under the Law towards Income Equality. The first of these conceptions focuses on the evenhanded application of the rules governing social and economic activities irrespective of the identities of individuals and of the social status they occupy, etc. The second focuses on the ex post real outcome of individual economic activity.[16/]

The two linked tendencies are, of course, subject to divergent value judgments. Some would cheer them on, other wish that they could be braked, halted, or even reversed. Here we are concerned to argue only that the strength of these tendencies will be associated with inflation and, consequently, that this association should be considered in assessing the [illegible] consequences of inflation. One note might be added to this, namely, that inflations, even as they speed up the process, are likely to make orderly and coherent evolution in the directions indicated more difficult to achieve.

The Law is helpless to assure that a just real outcome is restored to contracts concluded in nominal terms. That is so for rather simple reasons. The expectations about the rate of inflation in prospect[17/] that the two parties originally held cannot be objectively ascertained after the fact.[18/] The only "evidence" for what they then were would be what the two contending parties now allege and it, of course, is useless to the courts.

No independently defined measuring rod suggests itself as a standard of justice. Measures of the inflation that has taken place over the term of

a contract cannot be imposed as a standard ex post.[19/] If both parties initially expected 5% inflation (in the price of some agreed-upon composite basket) and the actual rate was 10%, a court using the actual rate to recompute a contract would fix a debtor loss of 5% as the legally enforced outcome. By simply enforcing the contract in nominal terms as written, the result would be a creditor loss of 5% relative to the original intentions of the contract. If, on the other hand, both parties had expected a 15% inflation, a 10% actual rate means that the debtor loses 5% if the contract is settled without dispute; if a court were to adjust the contract by adding on the actual inflation the resulting debtor loss would be 15%.

The parties may have had discrepant expectations about the rate of inflation in prospect. In that case, it will be impossible in pure principle to find an adjustment coefficient such that, when applied to what the contract says, one succeeds in realizing the expected real outcome for both parties.

Finally, there will be a class of contracts in existence of which it is true that the parties would never have been able to come to terms -- i.e., would not have found any mutual gains from trade in prospect -- had their expectations (correct or not) about the future inflation rate originally been in agreement.

Consequently, the Law refuses to recognize inflations as a source of "unjust" outcomes. If suit were brought claiming that the legitimate expectations of one party to a contract (e.g., a U.S. Savings Bond) have been defeated by inflation, such a suit would be thrown out of court. The price-stability fiction -- "a dollar is a dollar is a dollar" -- is as ingrained in our laws as if it were a constitutional principle. Indeed, it may be that no "real" constitutional principle permeates the Law as completely as does this manifest

fiction. Inflations (or deflations) end up being ranged with those Acts of God for which parties are not held accountable. But this is not because jurists have misidentified the potentate responsible. It is because the Law cannot tangle with "him", whoever he is.

To see this in proper perspective, one should realize how very wide is the range of contingencies with regard to which the Law will adjudicate. The outcomes of any individual's efforts are contingent upon the present and future behavior of others. The Law seeks to provide a stable framework of social interaction within which people can form expectations about the outcomes of their actions sufficiently firm, if not precise, to allow them to plan their conduct accordingly. It does so, in the first place, by making certain broad classes of behavior permitted or forbidden, in the penal code, to everyone. For a socio-economic system dependent upon a very high degree of specialization of labor this will not suffice. The "rules of the economic game" (in the game-theoretic sense) must be given a more detailed, consistent structure or else the "positive sum" capable of being realized will be very modest and less than reliable. One system of design to accomplish this is to constrain the "strategies" of individual players or groups by restrictions of the type referred to by Mitchell. Individuals whose economic effort depends for its result on the behavior of "the shoemaker" are provided the assurance that he will <u>have to</u> "stick to his last" ... and his son after him, etc. The other system of design, of course, is that which provides the legal frame of "monetary exchange systems." One of its principal features will be provision for "free" contracting between parties. If your welfare is significantly dependent upon the behavior of shoemakers, you contract with <u>a</u> shoemaker -- depending upon the potential competition of other shoemakers to prevent him from holding you over the barrel. To work reasonably well,

therefore, this system of legal design requires competition as a "governing principle of contract." It also requires dependable "money" if people are to be "emancipated from restrictions on what they do and what they get" and be let loose to do as they please. The vast, overwhelming majority of contracts will specify receipt of "general purchasing power" as the main right of at least one of the parties.

One of the dominant concerns of the Law in an exchange system must then be to ensure the dependability of contracts. How is this to be done? It is a tempting, but most naive notion to envisage a system of Law that guarantees (in some sense) to everybody the realization of the expectations held when the contract was concluded.[20/] This is impossible even as just a general model of approach (e.g., with "scaled-down" guarantees -- "90% at a minimum", or whatever). Some of the reasons are obvious -- in particular, the omni-presence of a class of contingencies outside the control of the community as a whole: "Acts of God" and the behavior of people outside the Law's jurisdiction (OPEC). And, of course, people may and will sometimes expect more than they can get in any case. But the problem with outcome-guarantees is more fundamental than that.

It would not work even in a "closed system", i.e., a system "closed" off from the wars, pestilences, and natural disasters of a wrathful Deity and the greed of foreigners alike. For the expectations of parties can never be made either to mesh perfectly with each other or to match all conceivable contingencies -- putting aside the inconceivable ones that nonetheless materialize.[21/]

The recorded terms of a contract will never reveal the original expectations of the parties "in their entirety" (whatever that might be made to mean); nor will they ever anticipate all relevant contingencies and

specify outcomes preagreed upon for each. In part, the expectations held will be left unstated for the simple reason that the parties will often wish not to reveal to each other how they intend to "profit from the deal." But, more fundamentally, their expectations will in general not be completely structured; innumerable contingencies will be unanticipated, and not in the sense of being assigned a low or zero probability, but in the sense of not envisaging the situation, that would arise if and when they materialize, in the specifics of its behavioral structure. Expectations with regard to such contingencies are left "unformed". Contracts fail to state them not because of their "unspeakable avarice" (though that might often be a decent reason) but for reasons of a more Wittgensteinian profundity: "Whereof one cannot speak, thereof one must be silent."

The contingencies capable of significantly affecting the outcome to contracting parties will never be exhaustively enumerated. Again, one may explain this by reference to the "cost" of letting the fine print run on indefinitely. And this would be a true statement -- no contract will explicitly cover all those contingencies that can be envisaged, for it does not pay to do so. But, beyond that, the conditions of human understanding will not allow for the anticipation of every relevant contingency.[22/]

Economists, I firmly believe, need to do a great deal of further work in this direction. If we are ever going to get a firm grasp of what isomorphisms we may claim to obtain between our models and the real system, we need to understand much better than most of us now do <u>how</u> the Law seeks to reduce the uncertainties of human condition to (literally speaking) "manageable proportions" and, more importantly, <u>why</u> its solutions to this are structured in a particular way. But here we must leave off without attempts to transcend the naiveté with which the problem has been sketched above.

The point for present purposes is this: The set of contractually unspecified contingencies where the Law will step in to adjudicate the outcomes to parties is almost infinite. But it is not exhaustive. "Changes in the Value of Money" are left out.

In adjudicating disputes,[23/] the courts will, in effect, make a determination of what expectations the parties could legitimately entertain. The case will be settled so as to satisfy everybody's legitimate expectations, in this sense. Most often, this will be done by reference to precedents. A court will not hesitate to invoke precedents of which each party is and was manifestly totally ignorant. And it will make new law where no precedents are to be found. In so doing, it may argue from consistency with existing law, advancing the particular decision, as it were, as a novel "lemma" to long-established laws. More significantly, for our purposes, it may adjudicate a case without precedent by reference to general communal conceptions of what is and is not "fair," and hold the parties responsible for understanding and sharing these social conceptions. Among unprecedented cases, it is those with regard to which the public does not hold certain "Truths to be Self-Evident", that the Law normally would find it most difficult to cope with.

Yet, inflations -- apart from hardly being unprecedented -- are not like that. They are "unfair" -- "everyone knows that." No social convention could be stronger and more universally shared. But the Law is impotent. The next section attempts a preliminary analysis of the behavioral implications of this fact.

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One subject has been ignored: "indexation." It is potentially a large one. I have little to say on it, except that I do not believe it gives us a way out.

The Law is utterly permissive with regard to indexed contracts, escalator clauses and the like.[24] It will only recognize and enforce nominally defined debts and claims, it is true, but it will allow the parties very wide latitude indeed in specifying mutually agreeable formulae whereby this nominal sum is to be computed.

Having emphasized, first, the impotence of Justice in inflations and, now, the permissiveness of the Law with regard to stable purchasing power clauses, one can only go on to suggest that there are deeper problems to indexation than is revealed by recent discussion.

For "indexation" persists, of course, in failing the market test[25] long after the force of any initially prevalent social convention of "money illusion" type must have been dissolved. Even the most ardent proponents of indexing schemes are usually looking for government to take the lead and put it into effect. But why are not governments, saddled with the borrowing requirements common today and given their record of printing money to "redeem" debt, forced by the competition of the private sector to rely on index-bonds? We have seen some spread of escalator-clauses in labor contracts. That only makes the situation more odd, however, since these are of short term[26] -- short enough, generally, for models of "foreseen inflation" to possess some measure of putative relevance.

The fact that the system does not spread by itself, one must suppose, probably contains a few lessons for macroeconomists habituated to index-deflated "real magnitudes" as variables of scientific analysis. If

transactors found no problem in finding a mutually agreeable composite basket, and saw no novel and potentially serious risks from using it, is it at all plausible that the system should not spread rapidly in the present age?

The mutually agreeable basket is not necessarily a problem so trivial as to be swamped by perception of the uncertainty of inflation rates. Even in the simplest case of the "pure consumption-loan" between two parties of identical, homothetic, time-independent tastes, we might expect to find some wrangling over the virtues of Laspeyre vs. Paasche and over "the" rate of interest which should go with one or the other. Where the specialization in production of at least one of the parties is part of the raison d'être of contracts, things get murkier. Suppose, both "shoes" and "apples" are in the composite basket used in comprehensive indexation of contracts. If the apple harvest fails badly, the shoe-producer finds himself obliged to increase wages. The apple harvest would not normally be a business risk that much concerned him. If demand shifts from shoes to apples and apple prices promptly go up, the shoe-producer might have to raise his own price in face of falling demand.[27] And so on.

With regard to the use of indexation to provide not just predictable prices and wages but predictable incomes, the work of S.N. Afriat shows that use of one common index number to scale up nominal income proportionally will not leave the real income distribution among income classes unaffected. In general, a different "marginal price index" should -- in fairness -- be used for each income-class and even that will fail to take care of individuals with atypical tastes in a given income-class.[28]

When the Law draws a line between legitimate and "illegitimate" expectations of contracting parties, the result is, as we have indicated, a line between contingencies for which a party can and cannot seek redress at

court. Inherited Law thus embodies a "choice" of the adverse contingencies that parties must accept without recourse as well as of profitable outcomes that they need not share. Since the system as a whole does not possess "certainty in the aggregate", the Law must necessarily contain some set of rules allocating risks in this manner. The particular rules that we have inherited might have a functional basis. If so, it is one ill-understood by the economics profession at the present time. In any case, it is clear that private parties contracting on an index basis will thereby (a) redefine the sets of adverse and favorable contingencies for themselves, and (b) within the former set give novel definition to the subset for which some measure of redress can be sought. And, to repeat, they are not doing it.

There remains the question: Suppose everybody did, what would be the systemic consequences? Until we gain a better understanding of the considerations sketched above, we cannot hope to get a full answer to this one. But the point forcefully made in a recent paper by Davidson and Kregel suffices, in my opinion, to settle the question of the desirability of trying to bring it about. It would, they argue, "institutionalize" and give legal force to unitary elasticity of price-expectations. A system where expectations generally had this property would, as Hicks point out long ago, be on a knife-edge at best. Any small disturbance increasing one price could set "the price level" going up without end. And monetary restriction, Davidson and Kregel add, could then only serve to break virtually every index-contract in existence.[29/]

IV. Social and Political Consequences of Inflation

In 1919, Keynes began a short piece on inflation by paraphrasing Lenin as having declared that "the best way to destroy the Capitalist System was to debauch the currency." And Keynes agreed: "Lenin was certainly right.

There is no subtler, no surer means of overturning the existing basis of Society...."[30] So, we have two thinkers with some influence on our times concurring that inflation is not to be trifled with. This sweeping judgment that they shared obviously differs not just in degree but in kind from that of those latter-day students of the problem who seek the social cost of inflation in the effects of a predictable tax on money balances.

But appeal to "authority" does, of course, exactly nothing to elucidate the issues for us. Indeed, to the extent that these are scarecrow authorities to some people, it may confound the issues. Besides, neither man has a spotless record as a social scientist. We are obliged to ask whether they knew what they were talking about. And if at the time they did, does it still apply to the world of the 20th century's last quarter? Keynes, for example, was much preoccupied with the effect of inflation on the saving-habits of the Victorian middle and upper classes. The bourgeoisie of the 19th century is no longer with us. So it is not at all obvious that Keynes' and Lenin's obiter dicta have any bearing on how the social consequences of inflation in the "mixed economies" of our age are to be assessed.

Keynes, moreover, can be pretty discouraging:

> "The process (of inflation) engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose."[31]

Any individual is entitled to the claim of being one in a million -- in some respect. But not in this one. This famous line is quoted here only to lodge the complaint that the United States is short of the 200-odd experts on the "Social Consequences of Changes in the Value of Money" that, on Keynes' reckoning, we are entitled to.

What may be attempted at this stage, given how the whole problem area has been neglected in recent decades, can be little more than to state some of the questions that need to be attacked.

The social cost calculations of the output-loss attributable to inflation have had the dominant share of economists' attention in this area in recent years. It seems natural to start from them, therefore. Two sets of questions suggest themselves. First, have they gotten the "strictly economic" effects of inflation right? Second, are the redistributive consequences of inflation correctly derived and are they then appropriately weighed on an acceptable scale of redistributive justice?

From the given state of the debate, these are the "natural" questions to pursue. They are questions that certainly may not be avoided in any attempt to assess the social consequences of inflation. But natural or not, I submit that they do not now belong on top of our agenda. The assumption that, once the output-loss (if any) attributable to inflation has been estimated and taken into account, the Social Consequences of Inflation end with its redistributive incidence may be the single most serious stupidity to which economists are prone when discussing inflation.

In trying to think analytically about the question, we would do well to concentrate, to begin with, on a thought experiment that puts all the problems of the ex post redistributive incidence of inflation to one side. There will be an incidental benefit in so doing for, once those problems are brought onto the agenda, emotive political and ideological considerations inescapably impinge on our thinking. It is important that we direct our attention away from such divertisements, for as long as this can legitimately be done, and onto questions of the behavioral implications that flow from the experience of inflation. Its redistributive consequences are not the "final outcomes" of inflation; there are the further questions of how people experience them, of how their perceptions of society are thereby affected, and of how they adapt their behavior in society as a consequence. And these

may be the most important questions of them all; whether that is so or not, they are the questions that can put us on the trail of what Lenin and Keynes were talking about.

In order to set aside the immediate redistributive consequences, therefore, let us proceed "as if" we were dealing only with a set of individuals that are "representative" in the limited (and somewhat peculiar) sense that their ex post redistributive gains and losses cancel each other out in approximately the same way as for the economy as a whole.[32/] To illustrate: For all I know, I may be such a "representative" individual. I am being swindled on my life insurance and my pension but am getting a sizeable stream of ill-gotten gains on my home mortgage. Suppose these things cancel.

Does that mean that for people in this "representative" position inflation does not matter? Of course not. How silly ever to think so. That ex post real net worth may happen to be unaffected does not mean that such an individual is living in the "same world" as provided by a regime of price stability. His socio-political attitudes will not be unaffected, unless he is uncommonly obtuse; his behavior will change and adapt, unless he is "irrational."

What are for such an individual the most salient facts about inflation sum up to the sadly trite cliché: Two wrongs do not make a right. You may happen to come out even, as the dice fall, but the game is not inherently fair. At no point in time do its rules make sense. Besides, "the House" will switch them on you without warning. (That in a society with progressive income taxes, the House also takes a cut we here ignore).

We can see that substitutions among patterns of socio-economic activities in two broad directions are indicated.

IV:A Being efficient and competitive at the production and distribution of "real" goods and services becomes less important to the real outcome of

socio-economic activity. Forecasting inflation and coping with its consequences becomes more important. People will reallocate their effort and ingenuity accordingly.

The relative significance of two types of capacity for adaptation to changing conditions have changed. The product designer who can come up with a marginally improved or more attractive product, the production manager who in a good year is capable of increasing the product per manhour by a percent or two, the vice president of sales who might reduce the real cost of distribution by some similar amount, etc., have all become less important to the stable functioning and/or survival of the organizations to which they belong. Other functions requiring different talents have increased in importance: the vice president of finance with a talent for so adjusting the balance sheet as to minimize the real incidence of an unpredictable inflation rate is an example. But the "wise guy" who can do a good job at second-guessing the monetary authorities some moves ahead is the one who really counts. Smart assessment of the risks generated by the political game comes to outweigh sound judgment of "ordinary" business risks. Other roles will gain in importance also (for reasons that we will come to). Among them is the lawyer capable of finding ways to minimize the impact of sudden new governmental interventions and that of the "operator" who is quick to spot ways of making profit (or avoid loss) from new subsidy, quota, or price control schemes.

In short, being good at "real" productive activities -- being competitive in the ordinary sense -- no longer has the same priority. Playing the inflation right is vital.

Perhaps, we had better consider these to be primarily "economic" rather than "social" consequences. One had better not presume that their social aspects are negligible. But philosophizing on what effects on the "quality of life" in society may follow from changing the relative rewards of "hard

work" and "huckstering" seems neither inviting nor promising. If we postpone these considerations until we come to the Economic Consequences of Inflation we will at least find the jargon in which to talk about them more comfortable.

One exception has to be made, however. The most important of the effects of this type will straddle the boundary between "economic" and "socio-political" consequences no matter how we choose to draw that line. It concerns the great majority of workers. They, too, are put in a situation where individual effort and performance at work have become a less effective way of augmenting or just maintaining family real income. The increases in wages that an individual could hope to gain in any given year through bonuses or upgrading of his job classification, etc., are of little consequence in a double-digit inflation. Collective action becomes correspondingly more important. He will have to put increasing reliance on his union.

Since the United States has a lower proportion of workers unionized than most Western countries, the "theory" that puts the "blame" for inflation on union "militancy" has gained less currency in the U.S. than elsewhere. This should be to our advantage in trying to address our problems rationally, since this "cost-push theory" basically misidentifies the forces at work, making the "cause" for inflation out of what is a predictable consequence of inflation, namely, observably increasing union activism.[33/] In any case, we should note that the association between high inflation and union activism, out of which has been conjured the inflation theory most "popular" in some other countries, is observable also in the United States. Unions will not only bargain harder and more frequently, they will also lobby more energetically and continuously in Washington and in State capitals. This brings us to our second set of observations about the behavioral adaptations that we expect to find.

IV:B People will rely relatively less on private contracts and relatively more on political compacts in trying to ensure for themselves a reliable frame for their economic lives.

Inflation, and particularly a ragged inflation, renders private agreements less reliable in their outcome. Inflation also renders private agreements less "agreeable" -- shall we call it? -- in the simple sense that the fact that both parties initially entered into an agreement "voluntarily" carries much less of a guarantee that it can be carried out amicably and without rancour than is the case in a regime of stable prices.[34/]

The "economic interest" of individuals goes beyond consuming food, clothing, shelter, health care, entertainment, and so on. We all strive to control our fates, to shape our lives, and to gain some sphere of relative autonomy in the midst of a world which "in the large" is quite beyond our control. Most of us are conscious that the trouble with unemployment and with poverty lies less in the reduced size of the "consumption basket" -- which at other times and in other places has allowed people to live content and with dignity -- than in the loss of control and autonomy in this sense that individuals experience. Were it otherwise, a program of adequate hand-outs could eradicate the social problem -- a barbarous presumption.

In a regime of unstable money, it is not rational for people to rely on private contracts and agreements to the same extent as in a stable money regime. The substitute instrumentality is political.[35/] We expect people to use their votes and lobbies increasingly to help insure for themselves a predictable real income. Such activity may take the form of demands on the government itself for adjustment of taxes, for transfer payments, for "free" or subsidized government provided services. Less obviously perhaps -- but more importantly, probably -- we expect our "representative" individual to rely less on competition and contractual agreements and more on legislated

or administered regulation to control and constrain the activities of those other groups and agents in society on whose present and future behavior the outcome of his own efforts most significantly depends.

The following observations seem pertinent in relation to this substitution of public political for private economic ways of goal seeking.

(i) Consider the polity as a feedback regulated machinery. If our political institutions allow unemployment to grow, the feedback will be in unmistakeable clear text: You'd better do something about unemployment or else....! If they err on the side of inflation, there will be widespread and general complaining about rising prices to be sure, but that diffuse message is quite drowned in the rising babble of specific demands and concrete proposals from identifiable interest groups -- to compensate me, to regulate him, to control X's prices, and to tax Y's "excess profits," etc., etc.

The political demands triggered by unemployment are to reduce unemployment; those triggered by inflation are for the most part not obviously identifiable as "instructions" to stop inflating. There is an informational bias to the process.

(ii) Inflation-induced political activities are not likely to be "neutral" in their budgetary implications. The "representative" individuals whose undeserved losses are balanced by ill-gotten gains might be expected to lobby rather earlier and rather harder for compensation for their losses than for taxation of their gains. There is then a bias towards deficits to the political game of trying to re-redistribute the redistributions via governmental budgets. Growing deficits will make it harder to brake the inflation down even as the realization that it does after all have deleterious social consequences spreads. And the economy generating the taxes is not going to get better at it from the proliferation of regulations and controls -- even if these were not often half-baked as such interventions go, but fully studied, carefully considered, and intelligently implemented.

(iii) The efficiency of the polity as a "productive organization" should also be considered, however. Is it, perhaps, subject to laws of diminishing marginal returns to input of "issues"? It seems more than likely that inflation-induced politicking is overloading our political institutions. There are limits to what they can handle intelligently and wisely in any given session. Inflations create more "wrongs" than legislatures can put "right."[36/]

Much has been made in U.S. media of the legacies of Vietnam and Watergate as explaining the obviously mounting ill-temper of public debate, and impatience with "the system". How big a part of the story these events make is impossible to tell. But it is simply foolish not to note that the same phenomena are prominent in other countries, such as Britain, who were not involved in the Vietnam War and have had no Watergate but who have also failed to control inflation.

(iv) The overloading of political institutions is exacerbated by another factor. Inflation will unsettle a number of political compacts and compromises reached in the past.[37/] Consider minimum wages, for example. Economists are apt to think of the erosion of minimum wage barriers to the employment of the young and of minority groups as a reminder that "there are good things about inflation too." But our professional disapproval of minimum wage laws is not really to the point as long as the basic distribution of economic-political interests and the ways in which we have constitutionally agreed to let them take expression are as they are. All it means is that the lobbying, log-rolling, and so on will have to be done over again. With minimum wages we expect this to happen regularly, predictably, and in short order. But presumably this is not always the case. Issues regarded as long settled may be irrelevant in elections; politicians make no promises relating to them, and groups with a significant interest in them decide how to vote

on other grounds. When such compacts come unstuck, the political "equilibrium" of which they were part will not necessarily be quickly reformed. Rights and privileges won in constitutionally fair political contests become more impermanent. Thus, the polity too becomes less reliable in delivering the goods.

Private economic contracts, we know, will be concluded for shorter contract terms, and, even so, be more uncertain as to their real outcomes. Both statements can be made also for political agreements.

(v) The Law and the political agreements in force embody the rights and privileges, immunities, duties and obligations that constitute the framework of social order within which individuals live their social lives and pursue their economic goals. A totally inflexible such framework prevents necessary adaptations to the social order in a changing world and will ultimately break. A totally "flexible" one is not a social order at all. Some measure of basic continuity must be present, must be maintained. One cannot treat <u>all</u> the laws and political compacts as perpetually "fresh" issues, up for renegotiation or open to fundamental reform in every season. This is so not so much because "change" will thwart particular individuals or groups in achieving their goals (whatever they may be and whatever we may think of them). It is rather because some continuity is necessary for any individual to "make sense" of his social setting, to be able simply to <u>set</u> goals for himself and his family and to formulate plans to work towards them. The rights, immunities, and obligations with which one goes to bed at night must be there in the morning and not found unpredictably reshuffled or a meaningful social existence becomes impossible.

Any society must strike and maintain a balance between conservatism (in the literal sense) and reformism.

There is a third bias to the inflationary process viewed in terms of its socio-political rather than "purely" economic consequences that should be pointed out in this connection. Consider once again the hypothetical individual that is "representative" of society at large in that his gains and losses from inflation balance. As long as the economic machine continues to turn out the goods in roughly the same volume, his consumption standard, etc., will not be impaired. He is suffering undeserved losses and will identify certain institutional arrangements as the instrumentalities whereby this has occurred, certain groups or organizations as the "privileged" recipients of the corresponding gains, and certain immunities of the law as barring restitution. He will side with others seeking reform of one or more of these features of the inherited social order which he sees as having combined to produce a manifestly unjust outcome. In the nature of the case, the set of institutional arrangements that produce his ill-gotten gains will not be (completely) the same. Those members of society that directly or indirectly are paying for his inflationary gains will be out to reform a different set of laws and political compacts.

When inflation gets into double digits by a good margin, one thus has to expect that virtually all the institutions providing the framework of economic order will in this way come under attack. To some extent, of course, they always are -- there will always be critics with some following among dissatisfied groups. But normally most such "movements" will be ineffective; at any rate, we expect only a very few of them to make significant headway at any one time. Great inflations, however, are capable of letting loose a social epidemic of effective but uncontrolled and incoherent pressures for institutional change.

For where could we expect the defenders of continuity to come from? Whence the reserves of "countervailing powers"? Ordinary, decent, honest

people will not stand up for the laws and institutions producing the gains they know to be ill-gotten.[38] Conscience forbids it and conscience, despite impressions to the contrary, is a widespread attribute. Our "representative" individual, who has so far come out even, is not likely to defend his ill-gotten gains when they come under political attack by others; he is more likely to respond by redoubling his efforts to remove the sources of his own losses.

The "representative" citizen will, on balance, be on the attack against, not on the side of the defense of, the inherited order.

(vi) All of the above concerns the "rational", relatively deliberate and unemotional adaptations that people are apt to make to the experience of a rapid, but ragged inflation. But to assume that the degree to which they maintain their deliberate rationality is itself unaffected by the process runs counter to the most casual observation. The process is ill-understood by everybody; it is controlled by nobody; relatively few people will know themselves to benefit systematically, predictably, and lastingly from it. But the notion that "somebody is behind it", somebody who is in control and who is doing it for profit will be almost inescapable to a great many people. The habit of confusing the allocation of "blame" with the description and explanation of historical processes is almost universal. Thus public opinion increasingly acquires paranoid overtones. Opinion-making entrepreneurs make careers from such suspicions. The legislation process itself can not remain -- does not remain -- entirely uninfected by irrational expressions of social strife.

V. Inflation and Resource Allocation

Observations about the "purely economic" effects of inflation -- or, more accurately perhaps, about the state of our knowledge regarding them --

are collected in this section. They are collected under three sub-headings; it will be obvious that these are not exhaustive of the issues. In this section, we attempt to retreat in good order -- hopeful of avoiding a rout -- to within the boundaries of standard economic theory. Constructive discussion requires that we now obey the neoclassical "rules of the game" -- more or less.[39/]

Some remarks on the relationships of neoclassical constructions to what has gone before may aid in transition. (1) The standard model treats the economy as a subsystem whose interactions with the rest of the socio-political system may be ignored for the purpose at hand. The definition of protected property rights, permitted and enforceable contract forms, the kinds and extent of political intervention, are treated as parametric. The good x_i is x_i and stays x_i and that is that. (2) The model leaves no room for the production manager, product designer, distribution expert et al. to whom we made reference in the last section. It represents a world without need for people whose Sisyphean job it is to try to keep you on the minimum cost curve, judge where the demand-curve is at, keep things "running smoothly" when somebody calls in sick or the coffee-machine breaks down. The "efficient loci" are there for anyone to see and you will not drift off them if nobody pays attention. (3) It is at least unclear whether money is needed as a means of payment on a regular basis. Transactors apparently hold it as a buffer-stock against unplanned, temporary deficits in their balances of payments on current account but the representation of the system leaves the possibility open that most debts incurred might be extinguished by the delivery of (arbitrary?) baskets of non-monetary goods. (4) "Money" is not needed as an aid to economic calculation. Convex production sets and convex preferences meet for a cooly tangential kiss -- hygienically separated by the cellophane of a hyperplane -- without such mercantile intermediation. A huge steel

corporation, say, can be just as efficiently run by calculating all values in terms of apples as the numeraire (and will, as we have seen, not be embarrassed by ending up a profitable fiscal year with a rather long position in apples). (5) Since transactors are good at solving n-dimensional decision-problems simultaneously under "uncertainty", they make no use of other devices for simplifying calculation either. In particular, they have no need for Hicksian "precedents." Of course not all the constructions of standard theory represent worlds in which memory is of no use and the global equilibrium is recomputed from freshly gathered information in a daily before-breakfast tâtonnement. Memory, even if limited to the somewhat non-vertebrate capacity of storing no more than some half-dozen lagged GNP terms, may well be essential to the formation of transactor's "expectations" in such models. But ex post values of observed variables do not enter into the decision-rules that agents use to guide their actions given these perceptions of their opportunities.[40/]

Fair enough. Now what is there left to say about inflations?

* * * * *

V:A Price Adjustment Processes and Price Signals. The first thing to say, surely, is that we know very little about how inflations work their way through the economy. Our empirical knowledge is scant[41/] which becomes less surprising once one notes that the theoretical work needed to lend it analytical structure has been neglected too. The neoclassical monetary general equilibrium growth model has inflation as "near-neutral" as makes no difference. The Austrian tradition has inflation associated with systematic and serious distortions of the price system and hence of resource allocation. It is difficult to see that we have the empirical knowledge that would discriminate between the two. My own "hunch" with regard to present day conditions

would be that the price distortions are apt to be less systematic than in the Austrian view but nonetheless serious. There is no good evidence for this view either. The procedure of arriving at indirect measures of "real GNP" by index-deflation of money value data gives us little indication of how sizeable the losses might be.[42] But we might entertain the hypothesis that, when "everybody" complains of being worse off in the face of reportedly unchanged real per capita GNP, they may be right. The more popular hypotheses adducing epidemics of "money illusion" or spontaneous outbreaks of mendacious greed are not necessarily true.

How does the price-rise process work through the system? It depends on what type of markets we are talking about.[43]

For securities and commodities traded on the organized exchanges the usual "auction" model is probably good enough. So these we pass over with the observation that, in the U.S., the prices of (the not very oil-intensive) basic food-stuffs have in the last years severed a long, close association with the other components of CPI and wandered off on their own, while individual markets -- meat, sugar, etc. -- show rather uncommonly severe "hog-cycling" patterns.[44] It is not the case that everything is well in our "flex-price" markets.

For most manufactured goods, we have "fix-price" markets. For such market, "my story" -- obviously both impressionistic and incomplete -- would go as follows.[45] An original increase in monetary demand, increases rates of sales and reduces inventories faster than anticipated. Prices, I assume, are most often not put up at this stage. Some producers may have "sticky" prices simply because they are wary of the competition; others will prefer to "stick" because they hope over the medium-run to cash in on hitherto unexploited increasing returns. Orders to restock are passed backwards through the chain of intermediate goods producers, leading to inventory reductions at these

levels. At various places down the line we finally run into producers who find themselves unable to expand output at constant cost. Now, price-increases begin to be passed forward through the same maze of interlocking customer-supplier chains. The demand-impulse comes back on the rebound as "cost-push." Cost increases that a supplier can be confident he has in common with his competitors will be passed on in fairly short order -- also, I assume, by sellers who, if assured of a permanently higher turnover, would find their present prices very profitable. Reservation-wages of labor will react in the same way to cost-of-living increases. We observe "mark-up pricing" in operation.

We know little about the overall lag-time of this process. How much "inflation" is still in train at some date following the termination of the demand-impulse will be almost impossible to predict. This matter was probably rather badly misjudged around 1964-65 in the U.S. and reaction-patterns have undoubtedly adapted to the experience since that time.

Presumably, the process of inventory depletions running backward and price increases passing forward does not proceed at uniform speed between sectors and industries. In some lines of business, moreover, the practice will be to adjust prices in fairly small steps at fairly frequent intervals; in others, to use a larger step-size with longer intervals of posted "fix-price."

Consequently, even if the inflation were balanced, it works its way through jerkily. At double-digit rates (on some smoothed average), one may expect sizeable price increases on some subset of goods to be announced every week. What are the implications? They can hardly be discussed without at least bending the "rules of the game" a bit.

First, of course, it becomes a bother to keep up with it all. Scale-economies will affect who does and who does not try hard to do so. Traders

expecting to transact large quantities will invest considerable resources in keeping track of prices. (Still, one would not expect a 10-20% inflation to be "enough" to call forth inflation-trading specialists in large numbers -- die Gulaschbaronen are not yet prominent amongst us). Most households will not try to maintain their stock of price-information at the "quality" they normally desire -- even as they spend more effort at it. If beef prices go up in every odd-numbered week and potatoes every even week, sensible beef-and-potato eaters will resign themselves to a constant proportions diet that is inoptimal every week -- and curse the statisticians who assert their real income is unaffected by it all.

Perhaps that sort of thing is not important. But another proposition, I feel, is: Transactors will not be able to sort out the relevant "real" price signals from the relative price changes due to these inflationary leads and lags. How could they? Messages of changes in "real scarcities" come in through a cacaphony of noises signifying nothing ... and "sound" no different. To assume that agents generally possess the independent information required to filter the significant messages from the noise would, I think, amount to assuming knowledge so comprehensive that reliance on market-prices for information should have been unnecessary in the first place. Some adjustments in resource allocation that are needed will not be made. Some will be made that should not have been. Between the omissions and commissions, the vector of effective excess demands is distorted and the "hunt" for the GE solution vector goes off on false trails.

Transactors will gradually lose all firm conception of where the equilibrium neighborhood for relative prices lies. Setting prices and determining reservation wages becomes a more difficult problem -- and also a problem that no longer "makes sense" in the way it used to. We may safely

assume that, even in more stable times imposing less pressing short-run information requirements, agents have not been used to consider the problem in n dimensions. Rather, your own past price was used as the main "precedent" to be revised in the light of new information on changes in demand and on developments in a relative small set of markets -- for the main inputs and substitute products. With prices "popping all around" and in irregular sequence, such a partial "Marshallian" method makes less and less sense -- the pot in which all its ceteris paribus presumptions have been thrown together is boiling furiously and cannot be ignored.

Consider the task of somebody put in charge of price control. When is it safe to freeze relative prices? Not right now is always the answer. Could they be regulated by some "rule of proportion" relating them to prices obtaining in a less discoordinated state at some date in the past? What date? Obviously, there never is a particularly "good" one to pick. Yet, price-controllers invariably find themselves making decisions based on changes from some past date or dates -- although the economic theory they learned at school probably never featured decision-making based on precedents. Economic agents "at large" will have more and better information than, but possess no secrets of efficient decision-making not accessible to, price controllers.

What "value" -- in some "real" sense -- is the rest of society willing to pay for one's marginal product? We lose track of what can be expected. In the process, conceptions of what is "fair" also dissolve.[46/] In their original choice of specialization, producers are guided by expectations of what real rewards society accords this role in the overall division of labor, what frequency of unemployment might be expected in it, how this is affected by seniority, and so on. The role is voluntarily chosen and most people are, actually, fairly well acculturated to the understanding that the real

reward is not socially guaranteed if tastes change or someone comes up with a better way to make a mousetrap. The irregular changes in the real purchasing power of nominal income that occur in a ragged inflation cannot be traced to such understandable changes in what the rest of society will accord you.

We will tend to end up, therefore, with symptomatic struggles over "fair shares." It is not necessary to postulate that people's envy is excited by inflations to explain this. It suffices to note that the normal basis for making (reservation) price-decisions and forming income expectations has badly eroded. People are forced to look around for some reasonably simple, even though inferior, guideline. What one used to earn relative to others is it.

Beyond this point we cannot go without ending up back in Section IV. We have bent the neoclassical rules of the game here but to bring in the further complications to efficient adaptation by transactors that political feedback will cause would be to break them entirely.

V:B The Fisher equation. In the models, from which it is argued that the cost of inflation is relatively trivial, the Fisher equation plays a crucial role. A full discussion of the questions surrounding this relation would ramify into all corners of monetary theory.[47] Here, I want to take up only one question. Letting $\dot{p}^e$ stand for $(1/P)(dP^e/dt)$, the relation is normally written:

$$(1) \qquad i = r + \dot{p}^e,$$

where i is the observed, nominal market rate of interest and r, called "the real rate", is interpreted as the real return facing savers and the real opportunity cost of funds to investors.

It would be much preferable, I believe, if our convention were to write it instead as follows:

$$(2) \qquad (r_i^e + \dot{p}_i^e) = i = (r_j^e + \dot{p}_j^e),$$

where i and j denote individual contracting parties. We are dodging the additional formalism required to distinguish risk-classes and time-structures of contracts. We should think of (2) as referring to the market for a particular type of contract.

The first requirement for efficient allocation of a good is always that a single price should rule in the market. It is such an analytically trivial proposition that we get in the habit of passing quickly to more intriguing exercises in welfare theory.

Here, we may assume that competition establishes a unique value of i. If all individuals (somehow) perceived the same real rate in prospect, then trading in this market would go on until, at the margin of the positions taken, inflation-expectations were uniform -- to put it very roughly. If inflation-expectations were uniform to begin with, then competitive trading would go on until perceived marginal real rates of return were equal. If we find it difficult to justify one or the other of these two assumptions, we cannot conclude that competition will produce $r_i^e = r_j^e$ and $\dot{p}_i^e = \dot{p}_j^e$ as separately holding conditions. But, presumably, one would like to establish some such proposition as part of one's case for the "near-neutrality" of (foreseen) inflations.[48/]

Consider first the assumption that a common perception of real rates of intertemporal transformation is autonomously given. For a Crusonia world -- does the plant still flourish on the South Side of Chicago? -- this makes sense. Only use of money and inflation do not. Perhaps, it might be stretched to Fisher's paradigmatic two-period case, where a homogenous present good is subject to a diminishing marginal rate of transformation into a physically identical future good. Accepting the assumption in that context amounts, however, to assuming that the pricing-process works as if "dichotomized."

A single input, single (but transformed) output case might still do, at least if it is also point-input, point-output. But multiple stream-inputs, multiple stream outputs makes computation of "real rates" virtually impossible to conceive of[49/] -- unless, of course, fixed relative prices at a constant rate of depreciation of money were (somehow) guaranteed. But that would be the second case.

I can see no "mechanism" that we could plausibly adduce which would tend to bring inflation rate expectations into conformity. If we assume a world which has already been experiencing an unvarying rate of x% for a generation or two, one has to agree that it is plausible people will expect it to continue -- unless they learn of developments that might threaten the institutional arrangements of this peculiar "monetary standard." The analysis of this possibility is useful for various theoretical benchmark purposes. But surely one might justifiably postpone taking it seriously as a theory of how the world behaves until such time as somebody actually brings the trick off? Here, at any rate, it is simply left aside. Without it, it is still plausible that there will be some substantial degree of conformity with respect to the inflation rate in prospect for the more immediate future -- i.e., that people will share some general autocorrelation notion: "Things won't change much overnight". But beyond that, what can we say?

While acknowledging that more theoretical work is needed, my own tentative position is as follows. Future inflation rates are not to be drawn from one of Nature's Urns. Decision-makers can hardly assume that current observations are drawn from some "normal distribution". What the rate will be five or ten years down the road is "uncertain", but it is not an uncertainty in that domain of their "natural" expertise where transactors have learned to make (implicit) probability judgments. Farmers cope with uncertain harvest outcomes. In speaking theoretically of "decision-making under

uncertainty" as a general rather than specific skill we tend to blind ourselves to important aspects of behavior. To have learned to manage rationally despite the vagaries of weather, however, will not leave much experience applicable to coping with the consequences compounded from the vagaries of voters in future elections, of legislatures and governments, and of Central Bank responses to the contingencies that the polity produces. Nor do "rational expectations" models provide assurance. They require an underlying, relatively swift and sure "survival of the fittest" process anchored in relatively stable conditions of "real scarcities" for their results to be plausible.[50/] Do we have something of the same sort governing the price level?

Benjamin Klein has discussed this matter in terms of the theory of monetary standards.[51/] (1) With the old gold standard, it was "rational" to expect (roughly speaking) reversion of the price level back to its old level following a rise or decline. (2) From the mid-thirties through the early sixties or so, "rational expectations" (for Americans) might have been to count on the monetary authorities to revert to a zero rate of change "as soon as feasible." (3) Klein refers to the situation of recent years as one of a "purely fiduciary standard." This is a fair description -- but how would describe the operating "rules" that would govern the "probability distributions" of future price levels?

I would not even try.[52/] My impression is that the international monetary "system" has for some time been in a period of unstructured experimentation and "innovation". Whether this will converge to a stable institutional arrangement and, if so, what it will be like seems obscure indeed -- if for no other reasons than that those doing the innovating do not understand what they are tampering with or know what their criteria of design should be.

In the United States, a transactor might listen to those economists who argue that policy should not be employed to reduce inflation, but at most to stabilize it. If he believes they rule the world, he will get unity as the lower bound to the elasticity of his price-level expectations.[53/] Another transactor, looking back over the past ten years, might be more impressed with the fact that the Fed will still, whenever unemployment is "tolerable", listen to Congressional complaints of "high" (nominal) interest rates and take the chance to deflate. If we surveyed people's expectations about "the price level" in 1980 -- assuming that they are tolerant enough to answer such a "dam'-fool question" -- and found them bimodally distributed, who is "irrational"?

The most plausible conjecture, I submit, is that perceived "real rates" are not brought into line so that "capital" is being misallocated all over. Question: Would this be favorable to the employment of labor?

Integrating the analysis of "ragged" price-rise processes (spot and forward) from V:A with that of intertemporal allocation under conditions of non-uniform inflation-expectations is left as "an exercise for the reader."

V:C The demand for Flexibility. With a tax on "money", we expect people to substitute into longer placements and to reduce non-interest earning accounts receivable. With nominal contracts more uncertain, we expect people to substitute into "real" assets. The first-mentioned tendency would operate endogenously to accelerate inflations. If this has been happening, increasing "velocity" has had less to do with it than expected. With regard to the second tendency, stock-markets have not been noticeably firmed up by inflation.

When the future becomes more "uncertain", but the risk that increases is not a simple "actuarial" one, we expect people to avoid long-term

commitments in favor of more "flexible" positions.[54] You steam slow waiting for the fog to life (and sound your bullhorn a lot). The demand for flexibility is expressed by going "short and nominal".[55] Thus, this tendency will tend to counteract the two mentioned earlier.

That resource allocation will be affected is obvious. We will not elaborate on it. Flexibility is brought up here because I believe it ranks in significance with the two topics already discussed, not because I have anything new to say in general terms. Instead, two pieces of "casual empiricism" plus a comment:

(a) In the United States, short rates have been plummeting since last summer (1974). Long rates are staying up. We expect short rates to move with greater cyclical amplitude than long rates. Yet, this time there may be a bit more to it. First, the weakness of long markets is properly appreciated only when the uncommonly short average duration of the massive Federal debt is recognized. Secondly, the fall in the short rate is to some extent deceptive. Many corporations (and New York City) have had their credit-ratings written down (Aaa to Baa, etc.). Reports in the press indicate that underwriters are hardly to be found for floating Baa bonds. Some borrowing demands are being rationed out. These prospective borrowers are missing from the supply side of bond markets. Lenders are going for short and safe placements in this kind of market. The fall in interest rates gives an exaggerated impression of all-around "credit ease."

(b) In Britain, during the Fall of '74, the inflation rate was close to 20%. Yet, much of the banking system was at or beyond the "prudential limits" conventionally deemed safe. The corporate manufacturing sector and much of agriculture was in bad liquidity straits with serious immediate cash-flow problems. Banks were unable to render further help which would require

additional long lending against short borrowing. Meanwhile, the government was running a deficit such as to give a borrowing requirement corresponding to 10% of GNP while, at the same time, the "fiscal drag" from inflation was proving negative (and sizeable). With a rate of investment lower than desirable, the country was running a balance of trade deficit equal to 10% of national consumption, mostly financed by "petro-money" inflows so short as to increase the strain on banks. Money and liquid assets were piling up in the "personal sector" and in the portfolios of such institutions as Oxbridge colleges and insurance companies -- "earning" their holders obviously negative real rates. No positive and safe real rates were perceived. Alternative placements would include lending to transactors to whom banks would not lend or purchase of shares in corporations whose equity might be expropriated by government as a condition for assistance with ready cash.

A rather different picture from the Quantity Theory of balance inflations where one expects to find "dollars burning holes in every pocket"! An economist, ignorant of the rate of inflation, taking a look at the "real" situation by sectors of the British economy would see it as in dire need of "reflation."

In a 1973 article[56], I outlined what was there (none to happily) termed a "corridor hypothesis" of the adjustment capabilities of (monetary) market economies. In brief, I proposed that within some range around its "equilibrium" time-path, such systems will tend to exhibit predominantly self-stabilizing properties of the basic type that neoclassical models presume. Outside the corridor, on the other hand, (Keynesian) "effective demand failures" would increasingly impair the ability of market homeostats to get the system back on course. Two subsidiary hypotheses, proposed in this paper, about system behavior outside the corridor seem relevant here: (i) we

should expect to observe the emergence of distribution effects loosening the normal empirical relationships among monetary aggregates and between them and aggregate demand; this would be associated with increasing spreads between interest rates on safe and risky claims and with increasingly prevalent rationing of borrowers with low or deteriorating credit ratings; (ii) in such situations, monetary policy action should be expected to be less effective than normally -- and particularly if operated against the current of a contrary fiscal policy.

This 1973 paper was written, out of ivory-tower mental habit, with prolonged large-scale unemployment as the problem foremost in mind. I would now like to add to it the claim that the Gestalt of the theory sketched there is one that will accommodate discussion of double-digit inflation -- including that stage of it where unemployment still stays safely within the "single digits."

VI. Concluding Remarks

I have attempted to point out a number of issues that appear to me germane to the task of providing microfoundations for macrotheory. Still other issues are implicit above. An attempt at systematic summary and assessment would seem to little purpose here. Readers who have actually survived to this point might, I hope, agree.

Some concluding remarks on the "attitude" of the writer may save time in discussion. It will have emerged that I am (again) critical of general equilibrium theory and "neoclassical" models more generally and on several counts. Among those others that share my critical view (and would add to them), some will ask why one should bother with these branches of theory at all.

When faced with methodologically profoundly difficult problems of "relating" -- never mind "integrating" -- branches of economics that for long periods have developed along separate and independent lines, the easiest posture to take is outright and wholesale rejection of one approach or the other. Almost always, I strongly believe, this will prove "too easy" a way out. Epistemologically sophisticated and convincing cases why this or that aspect of reality can, in pure principle, not be captured *via* some particular approach will not often be much to the point. Such philosophical "impossibility theorems" have a bad track record in the history of science. All too often, "some damn fool" will go ahead and do it anyway and clean up his methods, or have others do it for him, afterwards.

In any case, this writer has never come close to considering "junking" neo-Walrasian constructions. If I have been more harpingly critical of this branch of theory than of any other, it is because in its highly developed modern form it gives us something *precise* to refer to. Although my own "beliefs" about how real world economies behave cannot be adequately represented by current neo-Walrasian models, I find that -- for my "personal use" -- they provide, as it were, clear *benchmark* reference motions that I would not do without. I do not expect other critics to share this mental habit, nor is there any point in attempting to convince them that they should.

The result, of course, of trying to hang on to achievements gained by as yet methodologically incompatible approaches will be a bit of a muddle. It is easily productive of sundry analytical tangles that will be merely tiresome to others. There is no wonder at all that many economists will see the incentives to plump for one exclusive approach.

This paper is a good muddle. It will have been evident to the reader that it draws on Marshallian, Austrian, and Institutionalist as well as

Neo-Walrasian sources. The predominantly critical tone towards the last mentioned branch of economics is due, in the author's mind, simply to disproportionate reliance -- with attendant diminishing marginal returns symptoms -- on this branch in recent discussion of the paper's topic.

The time for deciding what approach to economics should be it, I believe, is not yet. Probably pretty far off, in fact. Meanwhile, we need all the help that we can get. Drawing from disparate traditions for "insight" means that one still accords legitimacy to "intuitionism" in Economics, even as some of its branches develop so as to increasingly resemble some sort of science.

Hence, there is still in my view an important element of "Art" in Economics. With regard to the very broad problems in particular, one is obliged to "play it by ear." Whether the "chord" of Marshallian, Austrian Institutionalist, and Neo-Walrasian "notes" struck here makes acceptable "harmony" to others, I do not know. Yet, in trying to understand the consequences of inflation, one should, I believe, search for some such balance.

APPENDIX

Inflation and the Economists: Critique

1. About ten years ago, our collective confidence in what economists could accomplish in the area of stabilization policy crested and we were not reluctant to tell anybody who would listen what we could do. The policy record (in the U.S.) since that time has been thoroughly lamentable, featuring mounting inflation and a "stop-go" pattern of policy response of increasing severity.

2. Five times the U.S. public has been promised a campaign to end inflation:

(1) The "Art of Central Banking" credit crunch of 1966
(2) The "Keynesian" tax surcharge.
(3) The "monetarist" crunch of 1969-70.
(4) The price freeze of Fall '71 plus the price control "stages".
(5) The 1974 biggest crunch of them all.

Rounds (2) and (4), in one sense, should not count. They were interludes during which the monetary system was stoked up for a resumption of worse inflation. In another sense, they do count, namely, as parts of the pattern showing our policy-institutions consistently failing to deliver on bally-ho'ed promises. The public has come increasingly to doubt that policy-makers will persevere with their stated policy-intentions and that standard fiscal and monetary policy instruments can do the job. Quite apart from exogenous complications (OPEC, etc.) therefore, our situation has gotten steadily more difficult to manage:

(i) anti-inflationary policy becomes more difficult and costly to conduct, and the lags in its effects more tricky to predict, when you are playing it "against" a public that does not believe its goals will be realized. Stabilization policy is easier to conduct when the private sector regards the stated policy-intentions as good, strong predictors of the future state of affairs.

(ii) The mistakes of past years have constantly buffeted the system every which way. The economy is today (Spring 1975) in a more disorganized state than at any time since 1950 or so. We know a fair amount about how the economy behaves in the neighborhood of "full" employment and with reasonably stable prices. We cannot have at all the same confidence in our knowledge about how it will behave and will respond to policy actions in the present situation. Our accumulated store of quantitative information is less reliable for purposes of extrapolative forecasting.

Round (5) -- the harsh monetary restraint of last year -- is now regarded by some media commentators as having "licked inflation" at last. They cite the sharply reduced rate of increase particular of the whole-sale price index in the last couple of months. Not many economists share the view, even as we look forward to more months of the same as efforts to reduce inventories and weak commodity markets continue. The last downward kick of the whip-saw has simply been the hardest kick so far -- plunging us into serious recession. The policy machine has already been put into reverse and is picking up maximum steam in the opposite direction. We have yet to see how a $80-billion deficit

will be financed. The second half of the 1976 and 1977 should tell whether 1974-75 was when we snapped out of inflation or was "merely" another phase in a time-pattern of divergent oscillations. I think the odds are on the latter.

3. Economists have not controlled events, of course. One can tell this deplorable story as a sequence of hard-to-handle exogenous disturbances combining with abnormal obstacles to the formulation and execution of a consistent, coherent stabilization policy -- Peruvian sardines conspiring with Arabian shieks to make things difficult; first a President intent on "guns and butter", then one inattentive because of Watergate; a Congress too preoccupied with Vietnam or Watergate to produce the right fiscal policy with short enough lags; and, of course, the always accursed Fed. The "full" story of the last ten years would be a very complex tale indeed; obviously, having that tale told right would be useful. But the trouble with a complex tale is that one cannot draw a simple Moral from it.

Could it be that through this tangled web of events there runs a skein of systematic error in policy-response? If so, why -- and why not earlier? And, if we systematically fail to do things right, does the economics profession have any part of the responsibility?

It may be that simple Morals follow only from outright Fables. Perhaps my impressions add up to no more than a Fable.

4. It has become a widespread view among American professional economists that the economic costs and social dangers of inflation tend to be grossly overestimated by the general public and among policy-makers, particularly in relation to the social costs and dangers of unemployment.

I disagree with this "New View." Indeed, I am apprehensive that the undesirability of inflation is, if anything, underestimated by politicians, media commentators, and the public. Hence, as an economist, I am quite untypically fearful of inflation. In any scientific field, the untypical view is most likely to be quite wrong.

But the Economics profession as a whole has not done its homework on inflation. We have little in the way of well-validated knowledge about inflationary processes, such as the one of the last decade, and of their economic, social, and political consequences. Theoretical analysis and empirical research alike have been neglected -- presumably because of the attitude that inflation is not such a serious social problem. The New View just is not on solid ground. Where science is ignorant, one does not get at Truth by attitudinal surveys among scientists.

The general type of statement with which I want to take issue may be exemplified as follows:

(a) "For the purpose of abating inflation it will almost never be worth incurring any non-trivial increase in aggregate unemployment."

(b) "If the action required to reduce the inflation rate by 10% will increase the unemployment rate by 1% (for t quarters), it ought not to be done."

(c) "It is always a better policy to stabilize the ongoing inflation rate (whatever it happens to be) than to reduce it, since the latter alternative will always create some unemployment."

Some economists hold opinions adequately paraphrased in this manner. A probably far greater number see an obvious, serious, known social cost to unemployment while recognizing that, in terms of present day economics teaching, the costs and dangers of inflation appear uncertain, intangible and possibly trivial. The feeling that it would be irresponsible to countenance incurring known costs for benefits considered "speculative" in nature and unknown in extent makes the policy-pronouncements of this latter group for all practical purposes of the same import as the advice of those who express opinions, such as those paraphrased, with conviction.

5. The policy-making institutions are endogenous to the system the behavior of which we are concerned with. A change in the perceived ratio of the costs associated with inflation relative to those associated with unemployment will change the response-pattern of the policy-making "sector" and thereby the dynamic behavior of the system as a whole. A reduction in the perceived ratio of inflation to unemployment "damages" will imply a tendency for the historical "stop-go" pattern to change toward longer, harder "go"-phases and shorter, more hesitant "stop"-phases; it would make you more prone to use your major, proven policy instruments to keep employment high and to try doubtful, ad hoc measures to hold inflation down, "hoping for the best". It also brings with it a tendency toward more myopic, short-horizon decision-making on policy. The cost of unemployment that comes first to mind is that of the output irrevocably lost right now, whereas the benefits of price-stability are those of a lasting regime. The politick "Short View" tends to take precedence over the statesmanlike "Long View." You go hard for the best feasible policy-outcome this year and cross next year's bridges when you come to them.

Changes of this sort in the pattern of policy response can, of course, suffice to change significantly the dynamic behavior of the system. They could account for the emergence of gradually divergent policy-oscillations around an underlying trend of mounting inflation in a system previously showing much more "favorable" behavior. Is this what has happened? To make a convincing case that it is would admittedly be very difficult.

A change of the ratio of perceived costs would in any case not be the whole story. Lack of policy coordination and an inappropriate allocation of responsibilities for "national goals" among Congress, the Executive and the Federal Reserve has also been part of it. There was no significant alteration in these institutional arrangements in the early sixties, however. Yet, their weaknesses did not show up in such a serious way earlier. The new attitude towards the costs of inflation, on the other hand, was gaining ground in the economics profession from the early sixties on.

6. Now, I "feel" that the New View on inflation is "unsound" and would use the same word for the various statements about the "ratio of social costs" or the "social marginal rate of substitution" between the two ills of unemployment and inflation. I say "unsound" rather than "wrong" because it is unclear whether the categories "true" or "false" are pertinent to them. It is no less unclear, moreover, whether categories of ethical judgment or of political preference, etc., apply to their appraisal.

They are statements of a sort that is difficult to debate. What kind of propositions are they? What are their basis? Where do they come from? The last of these questions looks easiest.

7. The notion of a stable Phillips Curve is gone. By now, everybody's P.C. shifts and tilts and loops, now clockwise, now counterclockwise -- and goes north by east when the Gods are against you. The original idea has evaporated. But it has left us a curious legacy -- the empty space where it used to be. And we stay there, spinning perilous confusions in it.

The original problem was to explain the rate of change of money wages. Suppose, like other prices, they move in response to "excess demand". How measure it? Unemployment must surely reflect "excess supply" of labor. Suppose observed unemployment is a stable proxy for the theorist's concept of "excess supply". A reasonable hypothesis that deserves a try. Phillips tried it and thought the results encouraging enough to warrant further pursuit of the general approach. But the hypothesis was falsified in the same paper where it was advanced. The "loops" in the data and the vertical scatter at low unemployment showed that the two variables were not related by a (single-valued) function.

In a famous 1960 paper[57], Samuelson and Solow used a P.C. regression as the basis for a discussion of the policy-maker's "Dilemma" -- he cannot have price-stability and a tolerable level of unemployment at the same time. This Dilemma discussion set the context in which the P.C. became popularized, quickly gaining entry to the textbooks and from there into the financial pages.

The change in the perception of the Phillips-curve construct that this came to entail was of considerable significance. The Dilemma discussion tentatively treated P.C. regression results, in effect, as information about an "opportunity set" facing policy-makers. Although this seems a natural enough extension of Phillip's attempt to predict the rate of wage-inflation from unemployment data, the opportunity set notion turned developments onto a completely new track. To non-economists the notion had tremendous appeal -- the P.C., in this version, promises to dispense with the need to learn a lot of "technicalities" of inflation and unemployment theory, wrapping up what you need to know about both subjects in one neat package. But economists too were influenced -- much of subsequent research and discussion has been in pursuit of the opportunity set P.C. rather than "merely" wage-inflation prediction.

The change in the perception of the P.C. has had two effects:

(a) It entirely changes the research question. Finding what variables will give a good proxy for the excess supply of labor and thus provide an equation predicting wage-inflation is one research task. Finding a stable reduced form relating inflation and unemployment is a completely different one. One task may be feasible and promising and the other a fool's quest. In any case, they are not the same. Much of the later P.C. literature strikes one as confused in this regard.

(b) It recast the theory of stabilization policy as a "choice problem" exercise in the conceptual space given by the two axes of P.C.

With (a), we will not concern ourselves. The entire tangle of problems referred to as the "P.C. controversy" is irrelevant to what follows. We will be concerned with (b) only.

8. The inflation rate and the unemployment rate are considered as "outcomes" of policy. To alternative policy programs under consideration there will correspond combinations of the two forecast ("for next year") with more or less accuracy. The locus of these combinations is thought of as an opportunity set boundary for policy-makers. It may shift, tilt, etc., but at any given date, there it is.

The habit of thinking of any consciously undertaken action as requiring if it is to be intelligible, a preference ordering over the alternative "outcomes" now takes over. Where there is an "opportunity set" there must be "tastes." Otherwise, how could one decide at all? So a preference ordering with the "outcomes" of alternative policy actions as its arguments must exist. Except for being defined over "bads" rather than "goods", why should it not have all the same general properties that give stability, convexity, etc., to a consumer's utility-function (for, say, apples and oranges)? Except, of course, that this one ought, in a democratic society, to be a "social welfare function" -- i.e., a hypothetical preference ordering over alternative "states of society" that does not represent the policy-maker's own interests and sympathies but is derived, somehow, from similar preference orderings held by individual members of society.

Voilà. We have managed to squeeze a very complex question of what is a "wise" course of policy for a nation into a two-dimensional conceptual space (with, let us say, the unemployment percentage on one axis and the rate of CPI (inflation on the other). And we have partitioned the problem "neatly" into questions of feasible "opportunities" and of appropriate "tastes."

What are the consequences of accepting this conception of the problem and of purveying it in public places?

The practical consequences we have experienced and are still experiencing. But leave that aside. What twist will acceptance of the conception give to the work and discussions of economists?

The partitioning of the problem complex into questions of "opportunities" and of "tastes" appears very nearly to be a partitioning between questions about which one makes, respectively, "positive" and "normative" statements. Suppose we take it that way.

Then the economist will tend to think of his strictly professional responsibilities as confined to the determination of the "policy options", i.e., to the tasks of forecasting. On this side of the partition, where positive statements rule, the disciplined Popperian process of Conjectures and Refutations will operate.

Having defined the rest of the problem for himself as "a matter of preferences" he will tend to ignore the factual consequences of inflation and unemployment as subjects of research. Value judgments he knows to be statements irreducible within economics itself. Economic inquiry halts where it runs up against normative propositions and does not trespass on the ground beyond them.

Since the political process does not in fact grind out a social welfare function, no one knows what it is. For an economist who looks at this as "a matter of preferences", it is by that token also a matter on which "everyone is entitled to his say" including, of course, he himself. At the same time, however, to such statements about what "should be" done will apply that part of the professional credo which runs: De gustibus not est disputandum. Here, then, we do not necessarily expect to see a Popperian process in operation. So when economists earnestly lecture students, newspaper readers or members of Congress on what the public good dictates with regard to the inflation-unemployment trade-off to be made next, what they say may not have been through any crucible of Popperian criticism. But they are likely to get a serious and attentive hearing anyway. Many people will defer to some degree to our opinions on the rather natural assumption that, selectively filtered through personal value judgments as these normative recommendations may be, what has been thus filtered must still be a much more detailed, objective knowledge of what inflation and/or unemployment "means" than laymen would possess. But is not such deference quite misplaced?

"Values" and "knowledge" will be conflated in what they hear and read, all right. But how they are fused and how they might be disentangled is obscure. And when their expression takes the form of an indifference map in P.C. space, who is to distinguish shoddy ethics and sketchy knowledge from their genuine, warranted counterparts?

9. The unclear fusion of values and knowledge poses a nasty predicament for whoever thinks he sees "unsound" views gaining ground. To join debate means to get oneself entangled in the "rules of the game" associated with this entire conception. There seems to be no avenue by which the "real issues" can be reached that does not lead first through a quagmire of "ideology" and what not. Fastidious aversion to mud on your face will put you on the sidelines. So one wades in.

For example: In 1973 (say), someone who had retired on a private pension in 1966 or thereabouts had already been taken for 1/3d of his life's savings. Stabilizing the inflation rate as it was going would mean that he could only look forward to more of the same. At the same time, the unemployment rate was high but the average duration of unemployment was not yet such as to cause a substantial fraction of the unemployed to exhaust their rights to unemployment compensation. "Cyclical" or "non-structural" unemployment is to the individual a temporary status; he is partially compensated for it through transfer payments; he may possibly have options for investing in human capital that are profitable during the period when foregone current earnings are reduced; he may by his own subsequent efforts "undo" some of the loss of his lifetime earnings, and so on. None of which -- one is quick to add -- makes his unemployment a matter of social indifference. The man on a private pension shrinking in real purchasing power will not see his current real income loss reversed; he is not compensated for it; he is beyond the age where learning additional skills or working harder will get him back "nearly" to his pre-inflation wealth-position.

And so on. Hopeless, isn't it? These two hypothetical individuals are not the only ones affected. They are not "typical." Even if they were, such arguments could not lead to conclusions with which any decent person will be compelled to agree. They cannot settle what our social value judgments "ought to be."

Still, as matters stand, it is not pointless to pursue such discussion. On the contrary, reluctant as we will be to get into such a compromising, unscientific tangle, such debate cannot be dispensed with. For it will reveal to others (and remind us) of two things. First, it will reveal the immense, tangled complex of factual considerations -- meaning the fates of individuals -- relevant to any responsible judgment and how little we know about that. Second, it will make clear to everyone that there is no simple, coherent, widely acceptable ethic -- or, indeed, party platform -- such as to enable us, once the factual consequences are taken into account, to derive general (and time-independent) guidelines of the type "one unemployment percentage point is as bad as x inflation points."

In an older tradition of scientific inquiry, that posed Wertfreiheit as an approachable even if unreachable ideal, the economist was obliged to keep his social values to himself and out of his work. This conception no longer rules even in the natural science fields from which it was at one time presumed to have been imported. The "right" to state and argue for one's social value judgments is now no longer challenged. But this "right" may be on the way to something more -- to becoming a privilege with which to cloak sketchy analysis, casual empiricism, and shallow thinking on questions of gravity to the common weal -- and with which to shield the basis for judgments from critical scrutiny.

10. Since disputing over tastes is so fruitless, one is tempted to try another tack. Professional training may "pervert" an economist's attitudes to social questions to some degree, but they are naturally shaped very largely by the same influences that operate on everybody else. If disputing these attitudes is pointless and/or illegitimate, those critical of them are tempted into sociological reflection to "explain" them instead. For example:

(i) In some not too sharply defined sense most economists are egalitarian at heart. Do we think, implicitly, of the pensioneer (again) as someone who, if he "really" has a lot to lose from inflation, must by that token be "pretty well-to-do"? And of the "working classes", who risk unemployment, as prima facie poor? Does the reluctance to put a brake on inflation stem in part from a vague feeling that anti-inflationary measures amount to "regressive" economic policy? If so, are the generalizations about the groups affected behind that presumption sound ones? Or, are we concerned, in this illustration, with groups that, since they differ in age, differ also in their respective ratios of inflation-taxed net worth to relatively inflation-proof human capital? And, if it were the case that letting inflation rip is indeed the "progressive" thing to do, is it also the constitutionally and politically sound way to go about the redistribution of wealth?

(ii) The memory of the horrors of the Great Depression of the 1930's still runs deep in the American polity -- which, until now, has not experienced serious inflation. But the economic profession is probably the particular repository of this tribal memory of large-scale unemployment -- it is ingrained in assistant professors that were not born then in ways they are hardly aware of. (Meanwhile the intellectual immigrants from continental Europe who so greatly contributed to the flowering of Economics in the U.S., and who had experienced serious inflations first-hand, have moved out of influence in Academia into retirement -- promptly to be swindled out of their retirement income by inflation. Do their still active colleagues

sometimes send them a grateful thought?) The view that unemployment is the worst of all social ills is the lesson American economists have drawn from the 1930's. Their advice on the unemployment-inflation trade-off is heavily influenced by it. And that advice is contributing to impoverishing the retirement years of that very generation which suffered through the unemployment years of the 1930's (and then went to war).

(iii) We used to assume that equities and other real assets were inflation-proof. One lesson of the last several years is that human capital is virtually the only reasonably reliable store of value in periods like the present. Is it just coincidence that active academics (not the emeriti), media commentators and "intellectuals" in general think the rest of society makes too much fuss over inflation as a social problem? Or is it perchance the case that these groups -- who conduct the public debate on social, economic, and political issues -- are composed disproportionally of individuals on whose personal experience the consequences of inflation are not brought home with full force? The real value of top-grade "intellectual" human capital is insensitive to inflations and, for that matter, unless complemented by strong political convictions, to changes in political regime. Over the last century, the "intellectual classes" have a sorry record of toying with revolutionary notions. On occasion, the "man in the street" will show a ready appetite for them. Ordinary people who would, on such occasions, rather keep the hell out of the street will feel differently.

11. The last ten years have brought a spreading realization among economists that subjective value judgments on the relative social undesirability of inflation and unemployment are not good enough and that the presumed objective components of the policy recommendations made need be brought out in the open. One result of this has been a number of simple social benefit-cost (or, rather, comparative social cost) calculations on inflation and unemployment. The early examples of this brand of Political Arithmetick have produced numerical results that, on the face of it, strongly support the most complacent attitude about inflation: it takes an inflation rate well into double digits or even near triple digits to equal the social cost of one (additional) percent of unemployment.

Such "objectification" of the issue compels adoption of a common unit of social cost-measurement; this, of course, is unnecessary when the problem is left in "preference space". The results obtained depend overwhelmingly on the choice of measuring-rod for social cost that has been made. For unemployment, the choice has been the national product loss attributable to the market inactivity of the unemployed. At first sight, this may seem a "natural" measure for the social cost of unemployment. A second look is less reassuring. In any case, this choice necessitates measuring the cost of inflation also in terms of "output loss" -- a less obvious notion. What is thus quantified as the cost of inflation is some estimate of the productive and transactional inefficiencies associated with attempts to economize on the holding of money balances that will be induced by the negative real rate on money during inflations. This, of course, turns out to be a modest number. To the extent that inflation does not affect the size of the "GNP pie" annually turned out by the economy, it is considered to have zero social cost.

This social cost concept, then, is drawn from a social welfare function into which "distributive justice" arguments do not enter even in the sketchy, implicit, and haphazard way in which they tend to be present in expressions

of "social preferences." On the unemployment side, the "output-cost" is the same whether the unemployed receive compensation or not. It is similarly invariant to the time that individuals spend in an unemployment pool of given size. If one individual is "voluntarily" unemployed and full of hope that he can do better than the employment opportunities immediately open to him while another individual in despair and resentment sees no better alternative than criminal activity -- the measure of "social cost" is the same. On the inflation side, the neglect of all other consequences than aggregate output-loss may be given a semblance of respectability by assuming (a) that redistributive losers can be compensated, or (b) that they will be compensated, or (c) that, as the inflation is or becomes foreseen, transactors will be able to safeguard themselves so as to make compensation irrelevant. None of these (including the first one) is sound on the face of it. What particular mix of the three is relied upon in these cost-calculations is not always clear. The questions left dangling are without end: How is the probability of receiving or the ability of obtaining compensation distributed among losers? What is the probability that compensation will be paid by gainers? What institutional mechanisms exist or can be conceived to carry out re-redistribution? By what methods are the gains and losses to be ascertained and accurately measured? How are the skills required to conduct one's affairs successfully in an inflationary regime distributed in society? And assuming all these things to be known and settled, can we evaluate the results as if they were "final outcomes"? Or do, perhaps, further social consequences flow and economic implications follow from these "given" results?

Economists who have tried their hand at this sort of Political Arithmetick have not claimed anything more than rough-and-ready first approximations. The suggestion is rather that this type of "objectification" of "social preferences" gives us a starting-point for a Popperian Growth of Knowledge process of successive rounds of improved conjectures and more sophisticated refutations. Some work along this line, starting from one or another specific criticism, has been attempted. It has led to no more than trivial adjustments in the "numbers." What it has demonstrated is that the earliest such calculations were rough-ready-and-robust with regard to model specifications and estimating methods -- which is to say, it has demonstrated that the initial choice of "output-loss" as the commensurable unit completely dominates the results.

For societies in which "Man lives by GNP alone", is motivated in his conduct only by the collective total of GNP, and where it does not matter who gets it, by what rules, or through what institutional mechanisms, we can take it as firmly established that inflation is a trivial social problem. Further efforts to refine and adjust these estimates are superfluous. One may accept the result mentioned as an "arithmetical certainty."

Given what we have thus learned, it strikes one as odd -- funny, even -- that historians have all but invariably been so very harsh in their judgment of those statesmen and potentates who have presided over major inflations through the ages and that they have given such "inflated grades" to currency reformers and restorers of monetary stability. One infers that, as usual, historians have not had the right model. Having now learned better, thanks to modern quantitive methods, one must earnestly hope that our leaders will not be afflicted with an old-fashioned concern for those posthumous reputations that historians administer but will let their conduct be soundly guided by nought else than their prospects in the next election.

12. I know I have not lived up to customary standards of rational, objective discussion so far. I feel compelled to take up these "issues", but I cannot make sense of them. Not being able to make sense of what I am talking about cramps my style.

The benefit-cost arithmetic is not my basic problem. It is the more general, underlying Social Welfare Function conception -- of which these "output-loss" calculations represent a class of crudely "objectified" special cases -- that does not make sense.

Two axes metered in apples and oranges; their relative market price; the budget of an individual; his fruity tastes; a budget-line, a convex indifference curve, a tangency point -- and on to a "rational" solution to an economic problem. These are the notions that we have, by some analogy, transferred lock, stock and barrel into the conceptual space of the Phillips diagram. Inflation and unemployment are "bads" rather than "goods" but, mutatis mutandis, one naturally expects a "rational" solution to stabilization policy to pop out of this thing, if it is only handled right.

It is then disturbing that the policy-record does not strike one as more "rational" since this conception took hold than it was before. Perhaps the analogy needs checking? Consider:

(i) The polity is not "like" an individual consumer. The Crusoe metaphor, always farfetched, fails us totally, for example. Or should we write a New Chapter? Wherein Robinson takes a house-cure for idleness, gets that sinking numeraire feeling and imposes a ceiling price on apples in terms of oranges and follows it up with an excess profits tax on oranges?

(ii) Inflation and unemployment are not "like" apples and oranges -- unless, perhaps, we are thinking of Discordia's golden apple (which may have been an orange -- a tomato? -- also a matter of dispute).

(iii) Are inflation and unemployment in the "social welfare function" (SWF) as indices of social discord and political unrest, perhaps? At least, such a version reminds us of the uneven incidence of costs and benefits and hence of the presence of conflicting individual interests. If A and B have directly opposing interests on a given issue, we do not ordinarily proceed by supposing that sundry conditions for the aggregation of their "tastes" are fulfilled so that a collective utility function for the social group AB can be formed, which is then optimized to resolve the conflict.

Aggregation does not make sense. But, then, neither does the notion that individuals have preference functions that, in addition to the usual arguments, include the rate of change of some price index and the national average unemployment rate. There is nothing to aggregate in the first place. But what kind of SWF is it that is not built up by some specified aggregation procedure from the valuations of individuals? How do we "legitimize" it?

(iv) Leave legitimacy aside and consider whether this could be some dictator's utility-function. It had better be a dictator confident in his own caprice -- for transitivity, convexity, etc., will not go very far toward putting together a guiding Principle of Justice. But no matter -- the thought experiment allows us to ask whether there might exist an underlying general welfare theory, too complex and costly in its information requirements to be implemented

but in the operational version of which unemployment and inflation serve as "proxies" for the "real arguments" -- regrettably poor proxies, perhaps, but the best that can be done. Our dictator should be "knowledgeable", therefore, and able to keep track of every subject's fate.

We should start from detailed state-descriptions of the system. The dictator's utility-function is defined over such states. The elements of a state-description would reflect "how individual subjects are doing." Not in terms of their own utility, however, but in terms reflecting their unemployment and inflation experience separately. Otherwise, the notion of a SWF defined over unemployment and inflation "proxies" is lost from the start.

Consider unemployment first. Imagine a vector of some millions of elements, one for each working-age, able-bodied, sound-of-mind subject. Put a "1" for employed and a "0" for unemployed. We might suppose our Dictator to be ranking all such vectors and his ranking to be transitive and all that. We now notice, however, that he is neglecting the duration of unemployment, the probability of re-employment tomorrow, the distinction between "voluntary" and "involuntary" unemployment -- and many other things. So we should proceed to remedy these errors and omissions. Unfortunately, every step we take in this direction will carry us further away from a state-description for which a count of the unemployed could be a "proxy." It becomes clear, in fact, that the unemployment rate is if anything worse as a proxy for the relevant welfare consequences than it is as a predictor of money wage changes. So let us drop it and turn to inflation.

Here we might, as a first step, imagine a matrix where each column-vector gives the balance sheet of a subject household. Again, let the dictator know "how much he likes" any state thus described. Consider the matrix as our operand. Some certain inflation-rate -- say, 10% on CPI -- will be our operator. Applying operator to operand, we obtain a state transformation resulting in a new matrix. (Use of a price index, rather than individual prices, fudges the transformation, of course). The new state has a different value to the dictator. Note, however, that we do not and cannot assign "utility" to the operator -- the inflation rate; it is associated with changes in the value of the SWF. Note also that this association is not a stable one. Apply the same operator repeatedly and the successive transformations obtained are not the same. Nor can we have any guarantee that the process will settle down, after a limited number of steps, to repeated identity-transformations in such a way that evaluation of such steady states will serve as an acceptable approximation to the "utility" of the entire process. It may not settle down ever.

(v) In the single consumer example, the apples and oranges are "final" and "ultimate" consumer goods. He eats them and they are finished with. Bygone fruits are bygones and leave no lasting rot in the system. Tomorrow we start all over with essentially the same decision-problem.

Inflation and unemployment are not "like" apples and oranges in this respect either. With them you do not "step into the same river twice." Troy was never the same after Discordia's apple has been "redistributed."

They have further consequences. The behavior of our dictator's subjects adapts to the experience. He needs to keep track also of another matrix

(of individual "behavior coefficients") and evaluate the transformations that it undergoes as well. As a particular historical process unfolds, he will find, moreover, that the original matrix of balance sheets needs to be supplemented with additional information -- for the property rights and contract forms that underlie its definition are themselves being transformed.

But here we may as well cease and desist, for it is clear that wherever such a search for the ultimate arguments of a SWF of "true generality" might end up, the observed inflation rate will be utterly and totally hopeless as an "intermediate variable" in any reasonable procedure for evaluating such irreversible historical processes.

13. "The social welfare function is a concept as broad and empty as language itself -- and as necessary."[58/] Perhaps. With any given language, though, we need some set of injunctions: "Whereof one cannot speak..." etc.

The concepts of the "New" welfare economics at one time did useful service in identifying the dangers lurking in the "Old." Yet, in contexts such as the present one, what makes the SWF notion survive -- except fascination with its inexhaustible shortcomings, so many of which will look potentially remediable?

The Samuelsonian "necessity" of imagining a SWF follows only from prior acceptance of the "necessity" of conceptualizing any problem of policy in choice-theoretical terms. Of the concepts of choice-theory we may also say that they are "as broad and empty as language itself..." etc. Again, misuse of the language needs to be guarded against. Naiveté about the definition of the "outcomes" of choice may, as we have seen, set this engine of analysis to producing the most appalling muddles. But there are more serious questions to consider beyond such abuses. Is a choice-theoretical formulation always the sine qua non for "rational" conduct of policy? The "choice" may be between irreversible historical processes that we ill understand and which we can control only to the extent that a rodeo rider controls the Brahma bull. Squeezed into the apples and oranges frame, the world is portrayed "as if" understood and subject to precalculated control. When the "as if" clause hides more in the way of unrecognized distortion than of probabilistic approximation of the situation, the "constructivist error" is afoot. And that way lies the "Collectivization of Hubris."[59/]

We should be on guard against the type of mentality we are cultivating, or we will end up with students trained to translate human drama into jargon: Assume a young man named Oedipus X; his utility-function is quadratic, his opportunities strictly convex, and so, naturally, he....

Footnotes

*/ University of California, Los Angeles, I am thankful to Armen Alchian, Robert Clower, Ben Klein, John McCall and Sidney Afriat for comments and obliged to declare them free from responsibility. Financial support of the Liberty Fund is gratefully acknowledged.

1/ "The Varieties of Price Theory: What Microfoundations for Macrotheory?" UCLA Discussion Paper No. 44, January 1974, and "Maximization and Marshall", 1974-75 Marshall Lectures (forthcoming).

2/ All I can do at this point is to provide a personally favored select list of "further reading": J.S. Mill, Principles of Political Economy, (Ashley edn.), Book II, Ch. IV. F.H. Knight, The Economic Organization, New York 1965, Ch. 1. George Dalton, ed., Primitive, Archaic and Modern Economies: Essays by Karl Polanyi, esp. Dalton's Introduction. J.R. Hicks, A Theory of Economic History, Oxford 1969, and Critical Essays in Monetary Theory, Oxford 1967, Ch. 9. Michael Polanyi, "The Determinants of Social Action," in E. Streissler, ed., Roads to Freedom: Essays in Honor of F.A. vonHayek, London 1969.

3/ W.C. Mitchell, "The Role of Money in Economic History," Journal of Economic History, 1944, reprinted in F.C. Lane and J.C. Riemersma, Enterprise and Secular Change, Homewood, Ill., 1953. For a summary of Mitchell's views and further references to his writings, cf. Milton Friedman, "The Economic Theorist," in A.F. Burns, ed., Wesley Clair Mitchell: The Economic Scientist, New York, 1952, pp. 246-250.

4/ Feudal land-rents, for example, cannot be "decomposed" into a rental price on land "plus" a tax on the cultivator of it; nor can the overlapping rights and interlocking obligations of a peasant, of other village members, of the manorial lord, and of the sovereign with regard to a particular piece of land be disentangled in terms of modern notions of "ownership."

5/ Cf. M.L. Burstein, Money, Cambridge, Mass. 1963, p. 105.

6/ Exactly what all these abstractions are and what conditions will allow them validity, we are not very clear about. We are content to live with the correspondingly hazy definition of the boundaries between economics and other social sciences for, I think, the simple reason that most of the time our work is shaped by the "economic method" we use -- and letting "the way economists think" establish the limits to our "territorial imperative" will almost always be good enough.

7/ E.g., the line between legal and "black" markets.

8/ Historical processes are not reversible. The paraphrase of Mitchell here is not intended to convey some silly suggestion of a return to feudalism or even mercantilism. It is intended to convey the judgment that an analysis of inflation that does not attempt to take political feedback on the economic process systematically into account is, in contemporary jargon, "irrelevant."

9/ Luigi Einaudi, "The Theory of Imaginary Money from Charlemagne to the French Revolution," translated from 1936 original by G. Tagliacozzo, in Lane and Riermersma, eds., op. cit.

10/ Cf. Hicks, Critical Essays..., Ch. 1.

11/ At least as long as arrangements (1) and (2) or variants and permutations thereof do not come to dominate the others entirely.

12/ Horrible penalties for those found feigning the bishop's graven image on the counters or otherwise manufacture "money" have been historically helpful. Sovereigns and legislators usually end up exempt, however, leaving them with the capability of appropriating resources from the private sector by "money" issue. The consequences of such "inflation taxes" should not be very serious however -- as long as they do not also succeed in enforcing a fixed relation between the unit of legal tender and the unit of account in general use.

13/ Cf., Einaudi, op. cit., passim.

14/ The term "money illusion" is used here with apologies. Recent changes in professional usage has made it virtually useless as a technical term. Originally, it referred to individuals with a tendency to be fooled by currency reforms shifting the decimal point on all nominally denominated contracts or misers with an irrational passion for nominal money. This concept is trivial but clear-cut and useful. Later, in the Keynesian debate, the term came to be used with reference to the behavior of transactors lacking complete information on their alternatives of choice. (Cf. Leijonhufvud, On Keynesian Economics and the Economics of Keynes, New York, 1968, especially pp. 384-85). More recently still, in the literature on neoclassical monetary equilibrium growth models, some writers have used it to refer to agents who fail accurately to foresee the rate of inflation. This last step should signal general abandonment of the term..

15/ Cf., J.R. Hicks, "Expected Inflation," Three Banks Review, Sept. 1970, p. 19: "In imperfect markets prices have to be 'made'; they are not just 'determined' by demand and supply. It is much easier to make them, in a way that seems satisfactory (because it seems fair) to the parties concerned, if substantial use can be made of precedent; if one can start with the supposition that what was acceptable before will be acceptable again."

16/ In order to get on with the topic, this paragraph had better be left as is -- patently inadequate. Two references to cover my escape: F.A. Hayek, Law, Legislation, and Liberty, Vol. I, London 1973, and John Rawls, A Theory of Justice, Cambridge, Mass., 1971. The basic opposition between Hayek's emphasis on "spontaneous orders" and Rawls' equally evident "constructivism" need not, as far as I can see, produce a clash in the context of this section (the Appendix would be another matter -- but there I will avoid the issue).

17/ Here and elsewhere we make use of "the rate of inflation" as if both parties to a contract would define inflation, with regard to their own best economic interests, in terms of money-price changes of strictly identical composite baskets.
This fudge seems unavoidable if we are to go ahead with the argument. But -- could this condition every be exactly fulfilled (while leaving room for gains from trade between the two)? Assume two agents with identical, homothetic consumption tastes. If they are to trade, there must be division of labor (or differential endowments) between the two. No price will be more significant to their respective economic interests than that of the good that is the object of their specialization of labor. The prices of what they sell must be included in the respective welfare calculations... and we are in trouble.

18/ Note that the economist studying the "distribution effects" of inflation on the basis of data on the net monetary creditor or debtor position of transactors or groups will be in the same boat. The work of Armen Alchian and Reuben Kessel (reported in numerous articles) of some 15 years ago is subject to this uncertainty. The solidity of the inferences drawn depends on that of the assumption that both parties expected price stability at the time their contracts were negotiated.

19/ Some such standard may, in effect, be imposed via legislated price controls or incomes policies -- but the courts would and could never do it (which is a sidelight of sorts on what incomes policies imply).

20/ Proponents of guaranteed real income schemes for everybody had better give some thought to the underlying rationale of the structure of inherited Law in this respect. In Britain, during the Fall of 1974, there was some public debate of universal real income guarantees (by "indexing") as a notional device for snapping out of the "cost-push" syndrome. Some commentators envisaged guaranteeing the present real living-standards of the population -- at a time when the U.K. trade-deficit amounted to 10% of national consumption. This might be the simplest recipe for hyperinflation and unreconcilable social strife ever invented.

21/ I am, of course, denying any "jurisdiction" to Arrow-Debreu contingency market models in the present realm of discourse. Hopefully, it is superfluous to elaborate on this. My indebtedness to the works of Ronald Coase and Steven N.S. Cheung will, on the other hand, be evident in what immediately follows.

22/ The actual economic "game" that people find themselves "playing" has vast arrays of the "pay-off matrix" blank ex ante. Entire dimensions of the outcome space are left unspecified (also in probabilistic sense). What the parties will know about most of the "blanks" of the matrix, however, is that, if that is where they find themselves ending up, the courts will adjudicate, i.e., will provide an ex post definition of what the rules should have been understood to have been. They will expect, moreover, that such a ruling will most often, though not invariably, "make sense" to them. More importantly, they know that they will not end up deadlocked in an irreconcilable conflict.
One of the dimensions of the matrix should be reserved for changes in the value of money. Along that dimension, the above observations do not hold.

23/ My indebtedness to Hayek, op. cit., passim, will be evident here.

24/ Many countries do, however, prohibit index contracts. It may be that in most cases such prohibitions are of old standing going back to an age when sovereigns were struggling to establish their own coinage as a dominant money. Lending the powers of the Law to the enforcement of private agreements concluded in contracting units that do not correspond to the payment unit of government issued legal tender would entail a self-imposed constraint on the sovereign's ability to rely on inflationary finance in a pinch. But in Finland the prohibition is recent having been imposed following the abandonment of the celebrated Finnish experiment with indexation.

25/ Cf., Benjamin Klein, "The Social Costs of the Recent Inflation and Our New Monetary Standard: The Mirage of Steady 'Anticipated' Inflation," paper delivered at a University of Rochester Conference on Money, Unemployment and Inflation, April 1974 (forthcoming).

26/ Such short term employment contracts will not be affected by the capital gains provisions of Tax Law. It may be that it is chiefly the Tax Law that inhibits the development of longer term index contract markets. I doubt, however, that this could be the whole story.

27/ The point is Klein's.

28/ S.N. Afriat, "The Marginal Price Index Method -- Parts I and II," University of Ottawa Department of Economics, Research Paper No. 21.

29/ Paul Davidson and Jan A. Kregel, "Keynes's Paradigm: A Theoretical Framework for Monetary Analysis" (forthcoming).

30/ Cf. J.M. Keynes, Essays in Persuasion, [Collected Writings, Vol. IX], pp. 57-58.

31/ Loc. cit.

32/ For reasons already given in the last section, it is very doubtful indeed that we would be able to ascertain who exactly belongs to this set and who does not. But -- no matter....

33/ While this should be to our advantage in trying to understand the processes in which we are caught up, it is one that we squander by simply going witch-hunting among big business and food-chain middlemen, etc., instead. The natural sciences have gotten rid of "animism" all the way down through primary school but "social animism" still is a far, far way from falling in general disrepute.

34/ Cf. Hicks, "Expected Inflation," loc. cit: "...direct economic loss and (very often) loss of temper as well."

35/ In less developed countries, a slowing down or reversal of the movement out of the "subsistence sector" and into the "market economy" may be the more feasible adaptation. In highly developed industrial economies, to withdraw into economic activities the outcomes of which are largely not contingent upon what others do will not be a relevant option for any significant number of people. It is ignored here. The process of economic development is not reversible -- which is not to say that a developed economy could not unravel and come apart at the seams.

36/ In early 1975, President Ford attempted to get action on his own proposals by portraying the present Congress as a "do-nothing" Congress. He was rebuked by a Congressional leader who pointed out that the 94th Congress had already at that time passed a far greater amount of "significant legislation" than was passed by any of the Congresses where Gerald Ford was Minority House Leader. The number of "significant changes" per year in the laws governing a country would be an odd index to choose for either "wise" government or "health" of the polity. That number in any case is rising. But is there any indication whatsoever that our political institutions are thereby catching up with the demands for "Justice, Now!"?

37/ Again, cf. Hicks, loc. cit.

38/ Cf. J.M. Keynes, "Social Consequences of Changes in the Value of Money," Essays in Persuasion (edn. cited above), especially pp. 68-69.

39/ In my "Maximization and Marshall" I recently foreswore the use of the term "neoclassical" arguing that the conceptual differences separating Walrasians, Marshallians, and Mengerians are of greater significance to the microfoundations of macroeconomics debate than are whatever common denominators "neoclassical" might refer to. So much for New Year's resolutions. Here I need a broad blanket to cover standard micro-constructions of all sorts and, soggy as it is, "neoclassical" will do.

40/ "In "Maximization and Marshall," I interpret the role of the "constant marginal utility of money" assumption in Marshall's theory of consumer behavior along the lines hinted at in the text. Last period's MU_M -- an ex post magnitude and hence a "constant" -- is used by the consumer to simplify his n-dimensional decision-problem and achieve what he hopes to be a good approximation of the optimal outcome. Assuming cardinal, additive utility, the reliance on MU_M makes possible sequential decisions on purchases following the thumbrule to buy if and as long as:

$$(MU_X/MU_M) = P_x^d > \underline{P}_x$$

Inflation will obviously wreak havoc with this decision procedure.

41/ So scant that one is more than usually indebted to Phillip Cagan for his recent pamphlet, "The Hydra-Headed Monster: The Problem of Inflation in the United States," (American Enterprise Institute), Washington, D.C., 1974.

42/ E.g., if we move people from "real productive activities" into "inflation huckstering" (or price control bureaucracies, etc.) at unchanged salaries, "real GNP" might show no significant change. Suppose, for example, that the new price-controller's best efforts are precisely stalemated by the corporate manager newly assigned to precisely this task. The work of both may, to a first approximation, end up counted as "real service output" measured by their GNP-deflated salaries.

43/ The following discussion owes obvious debt to J.R. Hicks, particularly his recent The Crisis in Keynesian Economics, London and New York 1974. In a fuller treatment, I would lean more than is here done on P. Davidson, "Disequilibrium Market Adjustment: Marshall Revisited," Economic Inquiry, June 1974.

44/ I am indebted to my colleague Larry Kimbell for driving home this point to me -- with striking statistical illustrations.

45/ The basic "plot" is due to Armen A. Alchian and William R. Allen. Cf. their University Economics, 2nd eds., Belmont, California, 1967, pp. 86ff. Cf. also P. Cagan, op. cit., especially pp. 2-7, and 21-26.

46/ Cf., once again, Hicks, "Expected Inflation," loc. cit.

47/ Touching, for example, on several of the core issues that separate the modern monetarists from all the various macro-traditions (e.g., Mises-Hayek; Lindahl-Myrdal; Robertson-Keynes-Hicks) that accord Wicksellian themes a prominent role.

48/ We say "presumably" and "some such" here because, intuitively sensible as the notion seems, it appears almost impossible to give it precise analytical formulation for the general case. Some of the difficulties are hinted at below.

49/ The economic historical literature on late-medieval, early renaissance developments in accounting and the "rationalization" of business methods and on the innovations in business organization that such (necessarily) "monetary calculation" made feasible is very instructive in this context.

50/ E.g., the type of process we adduce in explaining to students why refraining from "destabilizing speculation" has survival-value in commodity markets.

51/ Klein, op. cit.

52/ The type of "uncertainty" envisaged in most standard economic models of decision-making under uncertainty may be illustrated by a game of dice. We know the properties of the mechanism generating the probability distribution of outcomes. If the agent does not know it -- the dice may be biased, say -- a Bayesian learning model may still be used to model his adaptive behavior. For most economic decisions, the game of chess may, however, be the better source of appropriate metaphors. Here we cannot exhaustively specify all the possible alternative future positions in a game. Consequently, the "actuarial calculus" cannot be applied to the decision-problems of the game (cf. also p. 14 and fn. 22 above).
Consider then major business decisions, the outcomes of which are crucially dependent upon the future rate of inflation, and which have to be made in a setting where no rules, ultimately constraining the rate of money creation, are accepted as "constitutionally binding" by the legislature and monetary authorities. Observed inflation rates are not "drawn" from a probability distribution generated by a law-abiding mechanism. The appropriate metaphor for this case, I suggest, is that of playing "chess" in the presence of an official who has and uses the power arbitrarily to change the rules -- i.e., a man who may interrupt at move 14 with the announcement: "From now on bishops move like rooks and vice versa ... and I'll be back with more later."

53/ Cf. again, Davidson and Kregel, op. cit.

54/ For the concept of "flexibility", cf. A.G. Hart, "Risk, Uncertainty, and the Unprofitability of Compounding Probabilities," (1942), reprinted in W. Fellner and B.F. Haley, Readings in the Theory of Income Distribution Philadelphia 1951. Long neglected in macrotheory, the concept is brought to prominence and the necessity of its inclusion in our tool-box driven home in J.R. Hicks, The Crisis in Keynesian Economics, op. cit., Ch. II.
With a "simple actuarial risk," I mean in the text to refer to cases where Hart's "compounding of probabilities" is not needed.

55/ This is what E. Janeway has been talking about in commercials for savings and loan institutions that have much upset American economists.

56/ Cf., "Effective Demand Failures," Swedish Economic Journal, March 1973.

57/ P.A. Samuelson and R.M. Solow, "Analytical Aspects of Anti-inflation Policy," American Economic Review, May 1960.

58/ Quoted from P.A. Samuelson, "Comment", in B.F. Haley, ed., A Survey of Contemporary Economics, Vol. II, Homewood, Ill. 1952, p. 37.

59/ Cf. J.J. Spengler, "Social Science and the Collectivisation of Hubris," Political Science Quarterly, March 1972.