The original documents are located in Box 9, folder "Kahn, Herman (1)" of the Richard B. Cheney Files at the Gerald R. Ford Presidential Library.

Corporate Environment Program

RESEARCH MEMORANDUM # 2

OIL PRICES AND ENERGY IN GENERAL

Herman Kahn

HI - 2063/3 - P August 1974

Hudson Institute

POLICY RESEARCH
IN THE PUBLIC INTEREST

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Oil Prices and Energy in General

By
Herman Kahn

HI-2063/3-P August 1974

This paper is an explanatory commentary on three accompanying tabular presentations: "Current and Future Energy Issues and Policies"; "OPEC Issues and Scenarios"; and "Problems of Models" and "Energy Systems Command, Control and Communications Service Facility."

I am indebted to Ernie Schneider for summarizing and editing this material.

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CURRENT AND FUTURE ENERGY ISSUES AND POLICIES

(1)* reminds us that government actions brought about the energy crisis in this country. It took all four of the key mistakes listed here to create a situation which otherwise would not have existed. Two distinct types of mistakes were made: forgivable and unforgivable. Thus, it is not surprising that some ecological, environmental, and safety measures (point C) were misconceived. It is almost always necessary to overshoot in new programs of this kind before a consensus emerges which reflects balanced trade-offs among new objectives and other considerations. By contrast, the other three mistakes (gas prices, Alaska pipeline, and reserve capacity) should clearly have been avoided. Indeed, most Hudson Institute staff members would have argued, if asked in the mid/late '60s, that given the clear likelihood of an energy crisis in the early '70s, these three mistakes would not occur. In that sense, the mistakes were relatively unpredictable. It must be understood that government decisions have not only proved critical in the past, they can prove equally critical in the future--either for good or evil. Many of the ideas set forth here are, hopefully, in the nature of a self-fulfilling prophecy. We hope to influence strongly the prospect for successful programs.

(2) gives a list of mistakes made by the industrialized, non-Communist world (which, for convenience, we refer to as the OECD nations without necessarily focusing on that organization but only on its members). These "mistakes" were, on the whole, more controversial and/or forgivable than the mistakes of (1).

I am ready to argue that, barring bad luck, additional mistakes of a comparable magnitude would have to be made to prevent our current energy problems from being satisfactorily resolved in a reasonable period of time. Such mistakes would as likely be sins of commission as of omission. But we must have certain vigorous high-priority programs if we are to find our way out of current energy difficulties, even with luck--and we need other programs to hedge against bad luck.

(3) shows that the energy crisis was at least partially predictable. Corporate Environment Program members who attended the Aspen meeting in September 1972 or some subsequent Hudson conferences will remember this presentation. (It has been only very slightly revised in the meantime.) Curve I reflected the then prevalent belief among big oil companies and government officials that the price of oil would soon reach about $3 per barrel f.o.b. Persian Gulf, and then steadily rise for the next ten or fifteen years. I suggested at that time that in the history of price movements such a pattern rarely, if ever, occurred--or, at least, that I was unable to find such a pattern in the past. This curve reminds us that

*The symbol (n) below refers to Chart n on page ___ or on other pages as indicated by the text.

businessmen and government officials sometimes indulge in fashionable mis-expectations simultaneously. Agreement between these two influential groups, therefore, should not be taken as proof that they are on the right track. In fact, the usual pattern would involve an immediate drop in oil prices (such as occurred after the 1951 Paley report on commodities). The second most likely pattern is a boom-bust scenario shown by Curve II. We deliberately showed a rather arbitrary drop in prices as occurring about 1982 in order to dramatize our position. At the time, 1972, almost all the major oil companies were operating ten-year programs to bring new energy sources on line in the early eighties. If the drop in prices did occur as indicated, it would then happen just as these new supplies became available. In reality we thought that the price break could occur at any time in the late seventies or early eighties. Curve III represents our recommendations at that time; that the U.S. government and perhaps other major oil-consuming nations work out agreements with Arab oil-producing countries. We suggested that such agreements should increase the price of oil quite early to about $5 per barrel, partly in order to moderate the boom-bust cycle and partly to prevent excessive dependence on Iran and Saudi Arabia. This scenario envisaged a peak price high enough to justify a diversity of sources and guarantees by producers for a reliable supply (perhaps assured by withholding payments for twelve months or so). Western governments could have bargained for such a delay in payments in return for what would have looked like very generous prices; this strategy would in effect have given the Arabs a powerful incentive to live up to promised delivery schedules--and also supplied a politically palatable rationalization for such reliability. We also felt that such an arrangement would lessen U.S. dependence on Middle Eastern oil which, among its other undesirable effects, offered temptations which some Arab leaders might find irresistible. It would, furthermore, have protected other high price producers elsewhere in the world. Although the October 1973 war rendered many of these considerations academic, it also confirmed the basic realism of many of the arguments put forward at that time.

④ presents some of our past predictions which I feel are holding up very well. The solid line shows that we expected a sharp drop in "spot prices"* in early 1974 from the very high prices being paid in January, such as $11.50 or more for a barrel of an average Arabian light crude; it would then stabilize for a few months at about $10 per barrel, and then start a relatively rapid decline. We did not suggest that such a scenario was inevitable. Our line of reasoning was that an effort by the OPEC to keep prices at very high levels would cause a decline in the volume of production, followed within two or three years by an enormous collapse of prices. We foresaw that the June 1974 OPEC meeting would probably not increase oil prices--indeed would accept a de facto decrease caused by inflation. The failure of the June meeting to take any significant price action represents such a de facto decrease of the price of spot oil by over 25 percent from December/January levels. Thus, the currencies which Arabs

*We distinguish between the average price which we call the transactional price and the spot price which is an immediate short-run market price.

receive in payment have depreciated, while prices actually paid for "spot" or marginal oil are off by almost 20 percent. We are referring here to a reduction from sober prices, not to the prices caused by panic buying. Of course, the "transactional" price at which oil has been sold on the average has been well below these "spot" levels because of standing agreements between the oil companies and producing nations. (However, at the moment the free market spot price is about equal to the transactional price.) Still looking at (4), the solid line representing events, if consuming and producing nations pursue likely policies, still looks pretty good. At this point I would point even more strongly to the possibility of even lower prices (indicated by the arrows).

The dotted line on (4) suggests that, if OPEC holds together and reduces production so as to maintain the price at around $10 a barrel, the price could then even go up a bit as indicated by the arrow. As argued below, under these circumstances OPEC will probably lose, every year, sales of about a billion to two billion barrels a year in its potential share of the world market, leading to an eventual price collapse sometime in the late seventies. The three different endings of this dotted line represent estimated effects of various OECD and OPEC policies.

Prices seem certain to collapse under this scenario for several reasons. For one thing, many countries will simply be unable to finance or otherwise pay for the oil they need. This situation would not only cut effective demand for oil, but would quite possibly cause a serious recession or even a depression in many consuming nations--which would depress the demand for oil even further. The possibility of this last contingency should not, of course, normally be used in bargaining with OPEC countries. It would probably be a serious blunder for the developed world to argue that such a depression would be bad for OPEC because it would create political instability--even if this is true. We should not be overstating OPEC's power, and we should not be ascribing to generosity and solicitude for the West actions likely to be taken for other reasons. If this line of thought is used at all, one should simply note that the price of oil is too high to be sustained, adding that unless substitutes for OPEC oil are quickly generated, demand will drop because of conservation by consumer nations, or simply non-consumption resulting from temporary economic retrogression. It is important that OPEC nations not be encouraged to overestimate their bargaining strength or economic prospects.*

My guess about the elasticity of the price of oil is something like this. Only 90 percent of OPEC 1974 sales are likely to be consumed, 10 percent going into inventory and other increased storage. This means that price stability will bring about decreases of at least 10 percent in consumption of OPEC oil and a flattening of shipments (as opposed to the more than 10 percent increase over 1973 that would have occurred in the absence of the great rise in price) before the year is out. These "drops" will be partly due to the current recession, presumably to be made up if there is a subsequent recovery. But at least half represents a genuine decrease in demand.

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*In fact, the exact opposite has been happening. Statement after statement by observers in consumer nations has suggested that OPEC can charge whatever it wants for as long as it wants, and that only political action is likely to change this. There has also been general agreement with the idea that "the best bank in the world is a barrel in the ground."

POLICIES MAKE A DIFFERENCE

(1) MAJOR U.S. MISTAKES

A. THE PRICE OF NATURAL GAS WAS TOO LOW

1. CAUSED DEPLETION OF GAS RESERVES
2. NATURAL GAS DROVE COAL FROM MARKET
3. R & D FOR ALTERNATIVES INHIBITED AND MISDIRECTED

B. DELAY IN BUILDING THE ALASKA PIPELINE:

1. DISCOURAGED ALASKAN AND PERHAPS CANADIAN DEVELOPMENT
2. LED TO A MISUNDERSTANDING OF SIZE OF U.S. RESERVES
3. DELAYED PRODUCTION PER YEAR OF:
   - 1 TO 2 BILLION BARRELS OF OIL
   - 1 TO 5 TRILLION CUBIC FEET OF GAS

C. SOME ENVIRONMENTAL, SAFETY AND ECOLOGY MEASURES WERE:

1. BADLY TIMED AND FORMULATED
2. INTRODUCED TOO RIGIDLY AND APPLIED TOO RAPIDLY

D. U.S. RESERVE CAPACITY AND FLEXIBILITY ALLOWED TO BECOME DANGEROUSLY TIGHT

(2) MAJOR OECD MISTAKES

A. STORED RESERVES INSUFFICIENT

B. WEAK POLICIES TOWARD OAPEC COUNTRIES

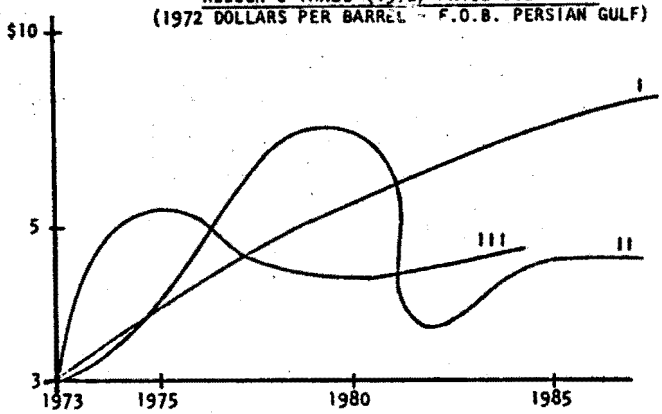
1. TOO GREAT RELIANCE ON OAPEC
2. INSUFFICIENT INDUCEMENTS FOR OAPEC COUNTRIES TO LOCK THEMSELVES INTO STABLE PRODUCTION
3. TOLERANCE OF PALESTINIAN TERRORISM AND ARAB "DISCRETIONARY BEHAVIOR"

C. OECD ALLOWED PRICE OF OIL TO RISE TOO SLOWLY

D. DUBIOUS FOREIGN POLICY ANTECEDENTS

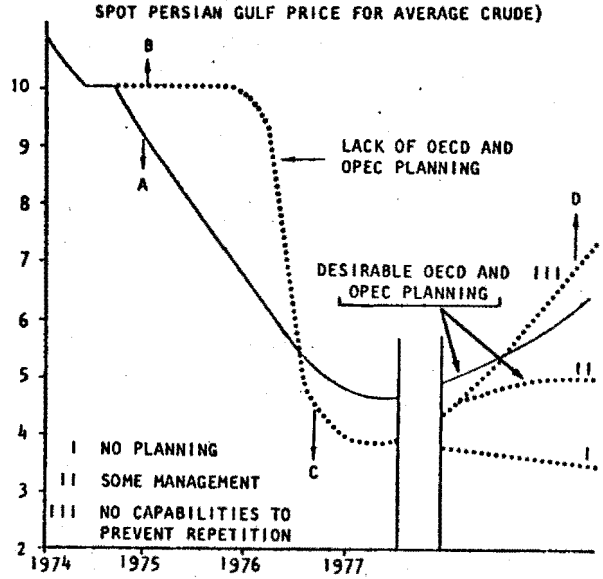
1. INCOMPETENTLY LAUNCHED 1956 SUEZ EXPEDITION; U.S. LEGALISTIC ATTITUDE
2. 1972 BRITISH WITHDRAWAL FROM PERSIAN GULF
3. JAPANESE LOW PROFILE
4. PREMATURE CEASEFIRE IN THE OCTOBER 1973 WAR
5. GENERAL WEAKNESS, DISUNITY AND SELF-SERVING NATIONAL POLICIES

(3) HUDSON'S THREE (1972) PRICE SCENARIOS
(1972 DOLLARS PER BARREL - F.O.B. PERSIAN GULF)



I LARGELY EXPECTED
II BUSINESS-AS-USUAL
III DESIRABLE

(4) TWO FIVE-YEAR PRICE SCENARIOS
(1973 DOLLARS PER BARREL - SPOT PERSIAN GULF PRICE FOR AVERAGE CRUDE)



(5) TWO ESTIMATES OF ULTIMATE U.S. OIL RESERVES

LOCATION	Undiscovered recoverable oil and natural gas liquids (billions of barrels)			Undiscovered recoverable natural gas (trillions of cubic feet)		
	Mobil Expected Value	USGS Low	USGS High	Mobil Expected Value	USGS Low	USGS High
			ONSHORE			
ALASKA	21	25	50	104	105	210
LOWER 48 STATES	13	110	220	65	500	1000
SUBTOTAL ONSHORE	34	135	270	169	605	1210
			OFFSHORE			
ATLANTIC	6	10	20	31	55	110
ALASKA	20	30	60	105	170	340
GULF OF MEXICO	14	20	40	69	160	320
PACIFIC COAST	14	5	10	69	10	20
SUBTOTAL OFFSHORE	54	64	130	274	395	790
TOTAL UNITED STATES	88	200	400	443	1000	2000

Mobil estimates include water depths to 6000 feet, whereas USGS now stops at 660 feet. Mobil's numbers represent the median value of a probability distribution. For instance, there is a 90% chance that total U.S. oil is greater than 50 billion barrels and less than 150 billion; the expected value is 88 billion.

SOURCE: Science, 12 July 1974

① A POSSIBLE SCENARIO FOR U.S. ENERGY INDEPENDENCE WHICH EMPHASIZES DOMESTIC PRODUCTION OF OIL[1]

Assume U.S. use of oil goes from 6.5 billion bbls/yr. in 1974 to 7.5 in 1981 (2 percent growth/yr.)[2] and then to 10 in 1990 (3.2 percent growth/yr.)[2]. This implies U.S. will need less than 100 billion bbls. in the period 1981-1990. Assume vigorous programs in all five of the areas listed below.

Source	One Reasonable Scenario for:	
	Proved Reserves[3] in 1981	1981 Production Capacity[4]
Improved Tertiary Recovery of old fields	10 - 20	1.0
On-shore lower 48[5]	15 - 30	2.5
All Alaskan Oil[6]	30 - 60	2.0
Off-shore lower 48	15 - 30	1.5
O.C.S. of lower 48	5 - 10	.5
TOTAL	75 -150	7.5

NOTES:

[1] Based on estimates by U.S. Geological Survey, U.S. Navy, private sources, the imagination of Herman Kahn, and a self-fulfilling prophecy.

[2] We assume a relatively slow growth when oil is high priced--a relatively fast growth once the price has dropped to about $6/bbl (in 1973 dollars). However it should be noted that an even slower growth rate is possible--particularly if measures that facilitate the use of coal and the conservation of oil are instituted. This would make the attainment of oil independence even easier--as would also some willingness to rely on reliable foreign sources and on increased stockpiles.

[3] Billions of bbls.

[4] Billions of bbls/yr.

[5] Includes use of advanced tertiary recovery and also assumes continuation (for a few years) of current growth in drilling.

[6] Assumes crash program of almost wartime urgency for the development of Naval Petroleum Reserve #4 and other promising areas in Alaska

A POSSIBLE SCENARIO FOR U.S. ENERGY DEPENDENCE WHICH EMPHASIZES DOMESTIC PRODUCTION OF OIL

I would stress that this outcome can occur only if:

1. Coal production is expanded vigorously and appropriate R&D in new coal technologies given high priority.

2. Oil companies pursue very vigorous oil exploration programs, and

3. Naval Patroleum Reserve #4 is soon opened up to large-scale and intensive exploration--i.e., the current ten-year program is replaced by a greatly expanded two year program of exploration and a 2-3 year program for development--both conducted with close to wartime urgency.

4. And perhaps the dropping or modification of price controls on oil and gas.

One way to achieve point one would be for the government immediately to announce that the domestic price of oil will not be allowed to drop below a level of about $6 per barrel (in fixed 1973 dollars). This would inform the world that oil prices are expected to drop, and simultaneously assure American coal companies that they can afford to expand production. Making this expectation known would in itself facilitate reduction in world oil price levels. A policy of this kind would not, incidentally, represent a break with past practice. Americans were paying about $3.40 per barrel of oil when foreigners were paying little more than half this amount. If, in the absence of such a minimum price, oil prices were to drop to $3 or $4, many coal mines which had opened up or expanded production would be wiped out and railroads badly hurt.

Coal companies and railroads have been through this "boom-bust" cycle before. Since 15 to 20 years are required to amortize their investments, very few of these firms are willing to take any chances about expanding production and transportation capability until and unless they have long-term contracts or other guarantees. At Hudson we are examining various solutions to this problem. We would be most interested in any ideas which Corporate Environment Program members may have as to how the government can offer effective incentives to producers of coal and other oil substitutes at reasonable cost to the taxpayer.

When the President in late 1973 announced the intention of achieving energy independence for the U.S. by 1980, the almost universal reaction among oil companies and other expert observers was extreme skepticism. I do not share this fashionable view that Project Independence is pure rhetoric. Quite the contrary. I believe that much of the President's goal could be attained if dynamic programs are vigorously pursued. Such programs need not necessarily involve much liquefaction of coal or oil

shale (or even tar sands unless the scheme we suggested some time ago* is adopted)--though all of these should be pushed, at least to a degree, for insurance and hedging purposes. "In situ" liquefaction or gasification and "normal" gasification of coal are more likely to be economic and make an important contribution to self-sufficiency, but almost all techniques should be tried in both R&D and prototype programs. But most of the energy for any short-term effort is going to come from relatively conventional sources--e.g., oil, gas, and coal.

In particular, I would argue that the kinds of estimates recently released by the U.S. Geological Survey (⑤ on Side A, Page 4) are reasonably likely to prove correct, as opposed to the Mobil Oil estimates also included in the table.

Vigorous programs should be quite successful in finding oil. As suggested in the Corporate Environment Study Final Report, the north slope of Alaska may be as rich in oil as some parts of the Persian Gulf. Programs of the highest priority at least to verify or deny this possibility would be of the greatest value. To give an extreme example, let us imagine that such a program of wartime urgency were to explore Naval Petroleum Reserve #4 (which may contain between 20 and 100 billion barrels of oil). According to this scenario, "hedged" programs to double track the Alaska pipeline by 1978 and to triple track it by 1979 are instituted in anticipation of the high probability that at least some of this oil (or other Alaskan oil) will be found. (It would be perfectly possible to "hedge" by buying the pipe, but not actually starting construction of the most expensive parts of the project until the existence of the oil had been verified.) Furthermore, an additional pipeline would be completed by 1980 or 1981 down the Mackenzie River in Canada. The third Alaskan pipeline would represent insurance against emergencies, while the other two in Alaska and that along the Mackenzie River would supply the oil needs of the western United States in the late seventies and in the eighties. This oil could be delivered for less than $6 per barrel in 1973 dollars.

My impression is that most of the big oil companies think in terms of $9 to $13 per barrel as a reasonable price range for the early 1980s. Academic experts in this country seem to consider a $7 to $11 range to be more realistic, while many American government officials focus attention on a slightly lower range: $7 through $9. Some of us at Hudson tend to think in terms of a $3 to $7 range, skewed toward the upper figure as a long-term price (all c.i.f. at an average U.S. port). I would expect many coal companies, including some owned by oil interests, to think in terms quite similar to ours, perhaps because $7 oil is not very competitive with coal, but $3 oil drives coal out of the market.

The reasons for these variations are not very mysterious. The oil companies are painfully aware of the practical barriers to action

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*See Hudson Institute paper, "Proposal for an Athabasca Oil Sands Development Project," HI-1968-DP.

(bureaucratic red tape, shortages of men and materials, etc.); they therefore tend to keep their expectations low. Academicians usually understand that what goes up (including oil prices) almost always comes down; they also expect operational problems to be overcome fairly promptly and are aware of how quickly shortages often turn into surpluses. Government people are generally rather confident that official programs will produce the results desired (and many of them have listened to a number of Hudson briefings reasonably sympathetically). We at Hudson tend to be even more confident on this score, while defining success somewhat differently.

OPEC ISSUES AND SCENARIOS

I would now argue that, unless production drops significantly, a drop in the price of oil is likely in 1974. A scenario for such a medium-term future appears on the opposite page. Under "factors," the first column is the estimated number of barrels and the second is the estimated average price in 1973 dollars. My "HK estimate" should be compared with the low "typical estimates" which were made by many banks and some big oil companies in early 1974. As of July 1974, the typical April estimate still seems overly pessimistic. Most of these estimates assumed that predictions of OPEC production and sales through 1985 made before the October War (when the price of oil in the Persian Gulf was about one-quarter of current levels) would still hold despite enormous price increases in the meantime. In other words, they multiplied the pre-October estimates by the post-January prices. The sheer size alone of the payments required to OPEC countries practically rules out this scenario. As I said last January, scenarios of this kind strike me as close to ludicrous.

The basic point here is, of course, painfully simple. OPEC countries sold about 11 billion barrels of oil in 1974. If they had not raised the price much over $3 per barrel, they probably would have sold about 12.5 billion barrels in 1974. Our best current estimate for OPEC sales this year is slightly more than 11 billion barrels. Thus the OPEC countries are losing almost one and a half billion barrels of increased sales. Of the 11 billion barrels to be sold, we expect that about one billion will go into inventory rather than consumption. Building up such stocks puts the world in a much better position to withstand future oil crises, and, incidentally, facilitates the writing of credible scenarios for an early decline in oil prices. The question marks in the HK estimate remind us that prices could drop even lower, particularly if OPEC discipline breaks down.

A VERY ROUGH ESTIMATE OF TOTAL PAYMENTS FOR CRUDE OIL BY NON-OPEC NATIONS TO CURRENT OPEC NATIONS
(In Billions of 1973 Dollars)

YEAR	LOW BUT TYPICAL ESTIMATE* (Jan.-Apr. '74)		A MEDIUM H.K. ESTIMATE	
	$	Factors**	$	Factors**
1974	105	11+ x 9+	95	11+ x 8+
1975	110	12- x 10-	70	10+ x 7-
1976	120	12 x 10	60	11 x 5+
1977	130	13 x 10	(?)50	11 x 4.5(?)
1978	130	14 x 9+	(?)40	12 x 3.5-(?)
1979	130	15 x 9-	(?)40	13 x 3-(?)
1980	130	16 x 8+	(?)50	14 x 3.5-(?)
Total '74-'80	850		(?)400	
Financed by Imports	(?)300		(?) 200	
Other financing required '74-'80	(?)550		(?) 200	

*Actually most estimates, such as that by the World Bank, were much higher.

**(Billions of barrels exported by OPEC) x (Average dollars received per barrel in 1973 dollars). The second factor includes the likely impact of concealed discounts, rebates and concessionary financing.

Note that by the end of 1976 the payments would total $330 and $220 billions respectively. Assuming imports of $160 and $120 respectively, this would imply a surplus for which financing other than imports may be required, at least in theory, to be about $170 and $100 billion respectively.

The second is difficult; the first is probably impossible; particularly if the problem is increased even more from 1977 on, so that temporary financing measures for the near future would appear to just make the problem worse later on.

WHY OPEC WILL PROBABLY NOT MAINTAIN HIGH OIL PRICES OVER MANY YEARS

I. THE PAST RECORD OF CARTELS IN GENERAL (AND OPEC IN PARTICULAR)

A. FIXED PRICES ARE DIFFICULT TO POLICE

B. QUOTAS FOR PRODUCTION AND INVESTMENT ARE DIFFICULT TO AGREE ON (SEE II BELOW)

C. "CHEATING" IS TOO EASY AND TEMPTING AND LIKELY TO ESCALATE

D. OTHER REASONS FOR DIFFERENCES IN INTERESTS OR PRACTICES

II. OPEC'S CURRENT INTERNAL DIFFERENCES AND WEAK INTERNAL DISCIPLINE

A. OPEC MEMBERS EXPECT QUOTAS AND PRICES TO BE BASED ON DIFFERING OBJECTIVES AND CIRCUMSTANCES:

1. SAUDI ARABIA: WOULD EMPHASIZE LARGE RESERVES--EMPHASIS ON LONG-TERM INCOME--CONCERN FOR NOT CREATING A DEPRESSION--AND LACK OF INTEREST IN SACRIFICING FOR THE INTERESTS OF IRAN AND IRAQ
2. KUWAIT: TRADITIONAL MARKET SHARE
3. IRAN: SHAH'S OBJECTIVE OF ATTAINING GREAT POWER STATUS BY LATE 1980s
4. IRAQ: NEED FOR DEVELOPMENT AND DEFENSE

ALL THE ABOVE WOULD ALSO EMPHASIZE THE LOW COST OF THEIR OIL AND GAS WHILE THE FOLLOWING WOULD EMPHASIZE:

5. NIGERIA: ENCOURAGE RATE OF DISCOVERY
6. INDONESIA: GOOD CUSTOMER RELATIONS AND INCREASE RATE OF EXPLORATION
7. LIBYA: FOREIGN POLICY PRIORITY--CONVENIENT GEOGRAPHICAL LOCATION
8. ALGERIA: ECONOMIC DEVELOPMENT PRIORITY AND CONVENIENT GEOGRAPHICAL LOCATION

B. IN ADDITION THERE ARE MANY POSSIBLE EXTERNAL PRESSURES AND INDUCEMENTS

1. THE REST OF THE WORLD HAS:
   a) TOO MUCH OIL
   b) TOO MUCH COAL
   c) TOO MUCH ENERGY IN GENERAL
2. COUNTERVAILING COALITIONS MAY ARISE
3. SPECIFIC PRESSURES, RETALIATIONS OR INDUCEMENTS MAY BE APPLIED (INCLUDING LIKELY "MINI-CRISIS" BY END OF YEAR BECAUSE OF LACK OF STORAGE CAPACITY)
4. POSSIBILITY OF TECHNOLOGICAL BREAKTHROUGHS FOR BOTH CONSERVATION AND COMPETITIVE SOURCES AND NEAR CERTAINTY OF "LEARNING CURVES" AND COMMITMENT TO CONVENTIONAL NON-OPEC SOURCES.

OPEC ISSUES AND SCENARIOS (CONT'D)

It is important to note that most cartels fail. Of course, we do not tend to remember the failures, but only the 5 or 10 percent that succeed and thus gain a misleading impression of the likely success of cartels in general. The reasons for the high failure rate are given on the opposite page (Side B of card on OPEC ISSUES AND SCENARIOS).

PROBLEMS OF MODELS

(1) lists the highly unusual circumstances where complex and detailed models can be used satisfactorily. (2) shows that such models tend to be unsatisfactory, if not disastrous, under many commonly encountered conditions. (3) indicates that a variety of not implausible changes in the supply and demand of energy could undermine assumptions underlying some models currently being used. (5) provides an elementary exposition of the so-called "cobweb" theory of economics. For example, if (as is currently true) oil consumers and producers agree that the price of oil will remain around $10 (in fixed dollars), resultant overproduction and underconsumption would bring about a spectacular collapse to $2 or $3 a barrel or less. But if consumers and producers actually plan on an expected $2 price, then it is likely to remain at $10, or return there very quickly. In other words, any widespread belief in curve B on (5) would produce curve C, and vice versa. Curve A, however, indicates that a certain in-between curve would be self-fulfilling prophecy; belief by consumers and producers in this tends to bring it about, other things, of course, being more or less equal. (6) suggests that rationing and allocation should normally be avoided in this country, mainly because of our prevailing commitment to a market economy.

PROBLEMS OF MODELS

(1) COMPLEX AND DETAILED MODELS ARE OFTEN USEFUL WHEN BASED ON:

1. RELATIVELY SIMPLE, CONTINUOUS, AND TIME STABLE SITUATIONS
2. WELL UNDERSTOOD APPLICABLE (AND USUALLY LINEAR) THEORY (OR LINEARIZABLE THEORIES)
3. SMOOTH INTERPOLATION OF KNOWN DATA
4. "OTHER THINGS EQUAL" EXTRAPOLATIONS
5. SMALL AND CUSTOMARY FORCES, CHANGES, ADJUSTMENTS
6. OBTAINING QUALITATIVE UNDERSTANDING
7. USING EMPIRICAL PHENOMENOLOGICAL ADJUSTMENTS
8. SOMETIMES IN "DEAD RECKONING" FROM KNOWN POINTS
9. CALCULATING DIFFERENCES RATHER THAN ABSOLUTE AMOUNTS
10. DETAILED ACCOUNTING AND MONITORING IS ESSENTIAL

(2) SUCH MODELS OFTEN DON'T WORK WHEN:

1. NEW PROBLEMS ARISE
2. NEW SOLUTIONS ARE NEEDED
3. INPUT DATA MUST BE ACCURATE AND RECENT
4. DIFFERENCES OF LARGE NUMBERS OR OTHER REQUIREMENTS FOR ACCURACY
5. RELEVANT THEORY DOES NOT EXIST (OR EXISTENT THEORY NOT APPLICABLE)
6. SITUATION IS ACTIVE AND CONSPIRING AGAINST MODEL
7. NECESSARY EMPIRICAL OR ANALYTIC EFFORT IS TOO GREAT OR TOO COMPLEX TO BE PRACTICAL

(3) FACTORS WHICH MAY SWAMP ANY MODEL

A. SHIFTS IN THE DEMAND PATTERN WHICH DO NOT AFFECT INDUSTRIAL AND AGRICULTURAL ACTIVITY, LIFE STYLES, ETC., BUT ARE STILL SO LARGE THAT COMPLETELY DIFFERENT PRODUCTION PATTERNS COULD MEET THESE DEMANDS, AND

B. DRASTIC SHIFTS IN PRODUCTION PATTERNS IN UNEXPECTED TIME PERIODS. FOR EXAMPLE:

1) AN INCREASE OF ALMOST 35% IN COAL PRODUCTION WITHIN A YEAR;

2) THE COMPLETION OF THE ALASKAN PIPELINE IN 18 MONTHS OR 2 YEARS RATHER THAN 7 YEARS AND THE USE OF TANKERS DURING THE SUMMER TO BRING OIL FROM THE NORTH SLOPE OF ALASKA FROM THE HIGH PRIORITY, QUICKLY DRILLED WELL BEFORE THE PIPELINE IS COMPLETED;

3) THE SHIFT FROM HIGH BTU GAS AND NUMBER 2 OIL TO LOW BTU GAS GENERATED ON THE SPOT FROM COAL;

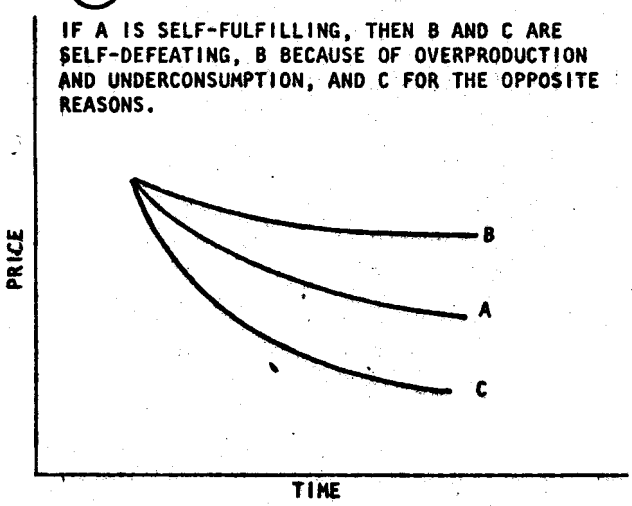
4) TAPPING NAVAL RESERVE NUMBER 4, AND OFF-SHORE FIELDS MUCH MORE RAPIDLY THAN ANTICIPATED.

(4) "UNLIKE THE RESULTS OF PURE THEORY, WHICH CAN BE DERIVED WITH MATHEMATICAL RIGOR, THE EMPIRICAL ESTIMATES OF THEORETICAL COEFFICIENTS AND LAG STRUCTURES CANNOT BE DETERMINED WITH CERTAINTY. LACK OF CONTROLLED EXPERIMENTS, SMALL SAMPLES, AND MANY OTHER STATISTICAL PROBLEMS VIRTUALLY ASSURE THE RESEARCH WORKER THAT HIS DEGREE OF PRECISION WILL BE MUCH SMALLER THAN DESIRED, AND EVEN THEN WILL ALMOST CERTAINLY BE OVERSTATED BY THE STANDARD STATISTICAL TESTS. THUS IT IS NOT SURPRISING TO FIND ALTERNATIVE THEORIES PRESENTING CONFLICTING EMPIRICAL EVIDENCE OR THE SAME THEORY TESTED OVER DIFFERENT SAMPLE PERIODS GIVING SIGNIFICANTLY DIFFERENT RESULTS FOR EACH PERIOD. WORSE STILL, THE SAME EQUATION ESTIMATED OVER THE SAME SAMPLE PERIOD SOMETIMES GIVES INCONSISTENT RESULTS WITH PREREVISED AND POST REVISED DATA. SUCH RESULTS HAMPER EFFORTS TO DETERMINE "BEST" ESTIMATES OF THESE COEFFICIENTS AND GIVE SKEPTICS A LARGE ARSENAL OF WEAPONS WITH WHICH TO ATTACK EMPIRICAL METHODS IN GENERAL."

SOURCE: MICHAEL K. EVANS, MACROECONOMIC ACTIVITY, (HARPER & ROW, NEW YORK, 1968), PP. 1, 2.

(5) THREE KINDS OF PRICE FORECASTS

IF A IS SELF-FULFILLING, THEN B AND C ARE SELF-DEFEATING, B BECAUSE OF OVERPRODUCTION AND UNDERCONSUMPTION, AND C FOR THE OPPOSITE REASONS.



(6) WHEN IS RATIONING/ALLOCATION APPROPRIATE?

1. PROBLEM IS OF SHORT (CRISIS?) INTENSITY OR OF IMPLEMENTING A TRANSITION
2. NORMAL MARKET HAS BECOME TOO DISORDERLY, COMPLEX OR UNCERTAIN TO FUNCTION SMOOTHLY AND ACCURATELY (BUT THEN RATIONING OR ALLOCATION MAY NOT WORK)
3. COUNTERVAILING BARGAINING OR ALLOCATIVE POWER IS NEEDED
4. SPECIAL AND/OR PRECISE ALLOCATION IS NEEDED
5. ALTERNATIVES ARE DEFECTIVE OR UNACCEPTABLE

ENERGY SYSTEMS COMMAND, CONTROL AND COMMUNICATIONS SERVICE FACILITY

(1) ASPECTS OF CRISES

1. TURNING POINTS ARE PERCEIVED AT THE TIME OR PROSPECTIVELY.
2. DECISIONS AND ACTIONS (OR INACTIONS) ARE REQUIRED.
3. THREATENS LOSS OR PROMISES GAIN (WHICH NOT LIKELY TO BE AVAILABLE AGAIN).
4. OUTCOME WILL SHAPE THE FUTURE: DECISION WILL CHANGE THE COURSE OF EVENTS DECISIVELY, DETERMINATIVELY, OR DEFINITELY.
5. EVENTS CONVERGE SO THAT THE CRISIS IS OVERDETERMINED OR, AT LEAST, THE RESULT OF MULTIPLE CAUSES.
6. UNCERTAINTIES INCREASE. FELT NEED FOR INCREASED INFORMATION AND THE PENALTY FOR LACK OF INFORMATION BOTH DRAMATICALLY INCREASE.
7. CONTROL OF EVENTS IS DECREASED INCREASING THE PERCEPTION OF THREAT AND DECREASING CONFIDENCE FOR INNOVATION.
8. URGENCY INCREASES, INCREASING STRESS AND ANXIETY. PREPARATION REDUCES THIS EFFECT. LACK OF PREPARATION CAN LEAD TO EMERGENCY AND/OR DISASTER.
9. INFORMATION MAY BECOME MORE INADEQUATE. CHANGED CONDITIONS RENDER MUCH DATA OBSOLETE, AND THERE MAY BE GREAT DELAY OR DIFFICULTY IN THEIR ANALYSIS.
10. TIME PRESSURES INCREASE. INADEQUACY OF DECISION INPUTS INCREASES WHAT NEEDS TO BE DONE IN THE AVAILABLE TIME. EVEN WITH PREPARATION THERE IS TIME PRESSURE TO FIT THE PREPARED SOLUTION TO THE SPECIFIC, MULTIFOLD SITUATION.
11. INTERRELATIONS AMONG ACTORS ARE CHANGED. PREVIOUS STANDARD MODES OF INTERACTING ARE DESTROYED BY TIME PRESSURE. NEW RELATIONS ARE ESTABLISHED.
12. SYSTEM TENSION INCREASES. SYSTEM BEHAVES AS IF RELATIONS BETWEEN ACTORS WERE MORE TENSE.

COSTS AND BENEFITS OF PLANNING

COSTS

1. INTER AND INTRA AGENCY POLICY DISPUTES.
2. DIVERSION OF RESOURCES FROM DAY TO DAY MANAGEMENT.
3. DANGER OF DEVELOPING ROUTINIZED RESPONSES (E.G. ODD/EVEN).
4. MAY UNDERMINE MORALE.
5. SUPPORT MAY BE DISSIPATED.
6. CAN BE USED AS AN ALTERNATIVE TO LONG-TERM POLICY STUDY.

BENEFITS

1. MAKES IT LESS LIKELY THAT THE CRISIS WILL GET WORSE THAN THIS LEVEL OF PLANNING.
2. INCREASES ABILITY TO MAKE SUITABLE, SELECTIVE, SWIFT AND EFFECTIVE ACTIONS.
3. MAY DEVELOP PARTIAL RESPONSE SYSTEMS WHICH ARE GOOD AGAINST A BROAD RANGE OF POSSIBILITIES. ENABLES ONE TO USE THE PERIOD OF GATHERING TENSION EFFECTIVELY.
4. THE MORE CONTINGENCY AND OTHER PLANNING IS DONE THE LESS IT "COSTS," ORGANIZATIONALLY AND OTHERWISE, FOR EACH PARTICULAR PLAN.
5. REDUCES UNCERTAINTY AND ANXIETY INCREASING THE ABILITY TO TAILOR APPROPRIATE SOLUTIONS.

(2) COMMAND AND CONTROL

I. PREPARE FOR CRISES BY:

A. GATHERING DATA

1. DETERMINE AREAS OF SPECIAL INTEREST AND ALLOCATION OF EFFORT
2. GATHER AND ACCEPT INFORMATION
3. PROCESS IT
4. STORE IT IN A RETRIEVABLE CONDITION
5. REQUEST MORE INFORMATION

B. DISSEMINATING DATA

1. DISPLAY RELEVANT DATA
2. DISTRIBUTE TIMELY INFORMATION TO PROPER RECIPIENTS
3. ANSWER QUESTIONS
4. PERFORM OTHER "LIBRARY" TYPE ACTIVITIES

C. EVALUATING INDICATORS

1. PRELIMINARY DECISIONS
2. WARNING AND REACTION
3. IMMEDIATE COORDINATION

II. ASSIST DECISION-MAKING DURING CRISES IN:

A. ADMINISTRATION

1. PROVIDE FOR EMERGENCY TEAMS
2. PROVIDE EMERGENCY POSTS
3. COORDINATE INTERNAL AND EXTERNAL INFORMATION AND ACTIVITIES
4. FACILITATE SPECIAL CONFERENCES AND CONSULTATION
5. PROVIDE COMMUNICATION CENTRALS

B. PLANNING

1. UPDATE OR DEVISE ALTERNATIVE EMERGENCY PLANS
2. MAKE PRELIMINARY EVALUATIONS AND COLLECT COMMENTS
3. SAME FOR CONTINGENCY PLANS
4. COVER AS MUCH OF THE PLANNING CYCLE ON BOTH EMERGENCY AND CONTINGENCY PLANS AS SEEMS DESIRABLE BEFORE THE ACTUAL CRISIS
5. HELP DECISION-MAKERS CHOOSE EMERGENCY AND CONTINGENCY PLANS

C. EXECUTION

1. MONITOR ACTIVITIES
2. PROVIDE CONTINUOUS EVALUATION AND PROGNOSTICATION
3. MAKE CREATIVE SUGGESTIONS
4. AID BARGAINING AND COMMUNICATION WITH OPPONENT

(4) MISSIONS

1. MONITOR AND FORECAST SUPPLY AND DEMAND INCLUDING COSTS AND PRIORITIES.
2. DEVELOP CRISIS SCENARIOS FOR ENERGY INCLUDING SUPPLIES.
3. DEVELOP ENERGY SYSTEM MODELS.
4. DEVELOP AND MAINTAIN SHORT-TERM AND MID-TERM CONTINGENCY PLANS AND POLICIES BASED ON CRISIS SCENARIOS.
5. ESTABLISH AN ENERGY INTELLIGENCE GROUP.
6. ESTABLISH FEEDBACK (INCLUDING AN ENERGY OFFICE OMBUDSMAN TO LISTEN TO COMPLAINTS).
7. ESTABLISH AN IMPACT ASSESSMENT GROUP TO MEASURE, NEAR-TERM AND MID-TERM, CRISIS PLANNING AND POLICY IMPACTS.
8. DEVELOP AN ENERGY POLICY INTEGRATION GROUP.

ENERGY SYSTEMS COMMAND, CONTROL AND COMMUNICATIONS SERVICE FACILITY

The general discussion of crises points up the pros and cons of trying to plan ahead for such situations. The serious costs involved in any effort of this kind help to explain why planning so seldom occurs.

We are currently preparing a report on this study which will be made available to Corporate Environment Program members.

Corporate Environment Program

RESEARCH MEMORANDUM #1

DEPRESSIONS, INFLATION AND INDEXING

Herman Kahn

HI-2054/3-P August 1974

Hudson Institute

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POLICY RESEARCH
IN THE PUBLIC INTEREST

Depressions, Inflation and Indexing

By
Herman Kahn

HI-2054/3-P August 1974

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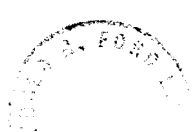


THREE 20 YEAR, $20,000, 5 PERCENT LOAN CONTRACTS

END OF YEAR	NO INFLATION				INFLATION	INTEREST CORRECTION				PRINCIPLE CORRECTION				
	INT.	PAY.ON PRIN.	TOTAL PAY.	PRIN.		INT.	PAY.ON PRIN.	TOTAL PAY.	PRIN.	INT.	PAY.ON PRIN.	TOTAL PAY.	AFTER INDEX'G BEFORE PAY.	PRIN. AFTER PAY.
1	1,000	1,000	2,000	19,000	10%	3,000	1,000	4,000	19,000	1,100	1,100	2,200	22,000	20,900
2	950	1,000	1,950	18,000	10	2,850	1,000	3,850	18,000	1,150	1,210	2,360	22,990	21,780
3	900	1,000	1,900	17,000	10	2,700	1,000	3,700	17,000	1,198	1,331	2,529	23,958	22,627
4	850	1,000	1,850	16,000	0	850	1,000	1,850	16,000	1,131	1,331	2,462	22,627	21,296
.	--	--	--	---	-	--	--	--	---	--	--	--	---	---
.	--	--	--	---	-	--	--	--	---	--	--	--	---	---
.	--	--	--	2,600	-	--	--	--	2,000	--	--	--	---	2,662
19	100	1,000	1,100	1,000	0	100	1,000	1,100	1,000	133	1,331	1,464	2,662	1,331
20	50	1,000	1,050	0	0	50	1,000	1,050	0	67	1,331	1,398	1,331	0

A SLIGHTLY OPTIMISTIC SCENARIO[1]

(BASIC MEDIUM ROUNDED OFF AND PARTLY ADJUSTED PROJECTION)

	1975			1985			2000		
CATEGORY	POP.[2]	GROSS PRODUCT[3]	G.P./CAP[4]	POP.	GROSS PRODUCT	G.P./CAP	POP.	GROSS PRODUCT	G.P./CAP
WORLD	4.0	5.0	1250	4.9	8.5	1700	6.4	17.0	2700
RICH	1.2	4.0	3300	1.3	6.5	5000	1.4	12.0	8600
LDC'S	2.8	1.0	360	3.6	2.0	560	5.0	5.0	1000
COMMUNIST ASIA	.85	.2	240	1.0	.45	450	1.2	1.35	1100
"COPING"[5]	1.05	.7	670	1.4	1.40	1000	2.1	3.35	1600
"POOR"[6]	.9	.1	110	1.2	.15	125	1.7	.30	180

[1] Almost all numbers rounded off.

[2] Population in billions of people

[3] Gross Product in trillions of 1973 dollars

[4] In 1973 dollars per person

[5] "Coping" implies more than $300/cap. or rapidly rising GNP/cap.

[6] "Poor" actually means "traditional" (i.e., $100-$300/cap. and not changing rapidly)

Bicentennial

yr. to build for future
change focus to yr. 2000
can do it in '76 - but not '50's
educ. change needed -
all pubs. rebuilt by yr. 2000.

Stevens - N.S.F. - grant.

Natl. ~~Hum~~ Endowment Humanities

TWO CHARACTERISTIC CURRENT VIEWS ON TECHNOLOGICAL AND ECONOMIC GROWTH

(A) Neo Malthusian Beliefs and Conclusions

1. **Fixed Pie:** We have a fairly good idea of what this world can provide. Therefore, "the finite pie" or "fixed bowl" are good metaphors, particularly in thinking about non-renewable or limited resources. We must share more fairly the limited supplies and room of "spaceship earth." Otherwise, even if the rich grow richer, the poor will grow poorer. Nor should we irresponsibly deny our grandchildren by using up or destroying the common patrimony of man.

BASIC MODEL

2. **Diminishing Returns:** New technology and additional capital investment, necessary to extract marginal resources, will vastly increase pollution, probably to lethal levels and markedly accelerate the approaching exhaustion of resources. In any case, we shall have to cope increasingly with diminishing marginal returns and utilities—increasingly facing situations in which the effort required for the returns gained increases dramatically.

MORE TECHNOLOGY AND MORE CAPITAL

3. **Likely Failure:** The rapidity of change, the growing complexity of problems, and increasing by conflicting interests will all make the effective management of resources, control of pollution, and resolution of other conflicts surprisingly difficult. Some sort of slowdown of change, simplification of issues, and centralized region-wide (or worldwide) decision making is imperative—even if this requires revolutionary or other drastic actions.

MANAGEMENT AND DECISION MAKING

4. **Rapid Depletion:** Man is rapidly depleting the earth's food, energy and mineral resources, and even running out of space for getting rid of pollution products. Many key resources will soon be seriously depleted. While most of these problems will not arise in catastrophic form until early in the next century, current pollution problems, food and energy shortages, and increasing shortages of materials and resources generally, are not only becoming critical now but are clearly precursors of more disastrous events in the medium- and long-term future.

RESOURCES

5. **Uncontrolled Exponential and/or Cancerous:** Even if the current level of population and production could be sustained indefinitely, current exponential growth in both (for example, gross world product doubles every 14 years, world population every 33) will accelerate dramatically the approaching exhaustion of resources and of our ability to cope with pollution —indeed unless stopped soon by drastic programs, it will make an early and catastrophic collision with resource limitations or pollution constraints inevitable.

CURRENT GROWTH

(B) Post-Industrial (and Super-Industrial) Perspective

1. **Growing Pie:** No one knows accurately what the earth holds or can produce—or what new uses may be made of new or old materials. But "growing pie", "expanding bowl", "exercised muscle" (or skill) are all good metaphors—i.e., within limits, the more one produces, the more one can produce. Furthermore, increases in productivity, wealth and affluence anywhere often create conditions that allow or encourage similar increases almost everywhere.

2. **Absolutely Necessary:** New technology and capital investment are necessary not only to increase production to desirable levels, but to help protect and improve the environment, to keep resource costs down, and to provide an economic surplus for problems and crises. In any case, if we are reasonably prudent and flexible we will not have to contend with any really serious shortages in the medium run and the long run looks even better. (*But we must be on alert for far-fetched and unlikely but potentially catastrophic events due to misunderstood innovations or inappropriate growth.)*

3. **Probable Success:** The systematic internalization of relevant external costs and the normal use of the price and other market mechanisms can deal with most issues. Some low but practical degree of public regulation and international cooperation can deal with most or all of the rest. *With some possible exceptions, the level of management required is not remarkably high,* particularly if the system normally learns from experience—even if slowly and painfully. (But good management can increase the speed and accuracy of reaction and reduce the pain.)

4. **Adequacy:** *Leaving aside for the moment some very specialized and/or far-fetched issues,* it would be possible to support, more or less satisfactorily (*at least by likely middle class standards)* world populations of 20 or 30 billion at levels of 20 or 30 thousand (1974) dollars per capita for centuries, indeed, we could do this largely using only current and near current technology. Given likely technological progress we should do much better. Further, it is exactly technological progress and large economic surpluses which make it likely that we can deal with these specialized and/or far-fetched issues if they arise.

5. **Eventually a Transition to Stability:** While such long run projections are inherently uncertain, one can make a plausible case for world population stabilizing in the 21st century at about 15 billion, GWP/cap at about $20,000 and GWP at about $300 trillion. Give or take factors of, say, two, three and four respectively. (In other words, population should be between 7 and 30 billion, GWP/cap between $5,000 and $60,000 and GWP between $50 and $1,000 trillion.)

Column (A) cont'd.

6. **A Trap:** New discoveries of resources, new technologies, and new projects may postpone the immediate need for drastic actions, but not for long. Such postponement will make the eventual collapse more severe and possibly even earlier. Prudence demands immediate restraint and cutbacks. There must be a basic change in values and objectives, the time for short run palliation is past.
7. **Gaps Increase:** Dangerous gaps in income (both domestic and international) are widening rapidly. A worldwide "class war" or a series of desperate political crisis is imminent. The likelihood of these tragedies occurring is heightened by increasing growth in the rich nations, particularly when these selfishly consume —even squander—the resources of the poor nations obtained at bargain prices.
8. **A Disaster:** Further industrialization of the third world would be disastrous, and further growth of the developed world worse. Therefore, the rich should halt their industrial growth and share their present wealth with the poor. Further, the poor nations should not sell their increasingly valuable resources so cheaply or so rapidly.

9. **Growth Vs. Quality of Life:** Continued economic or population growth means further deterioration of environment, destruction (or ecology) (particularly of marshes and wilderness), overcrowding, suburban sprawl, and a society suitable for automobiles, trucks and planes but not for human beings. We must change our priorities. In particular, market demand is not the same as need; GNP is not wealth; high technology is not the same as the good life; automation and appliances do not necessarily increase human happiness.

10. **The Current Emergency is Total:** Unless revolutionary changes are soon made, the 21st century will see the greatest catastrophe since the black death. Large-scale damage is a plague to the environment and to the ecology of many areas. Billions will die of hunger, pollution and/or wars over shrinking resources. Other billions will have to be held down by harsh authoritarian governments. Indeed it may be better to have some die today than to have many die in the furture. The crisis is grave and some draconian measures may be justified now to alleviate the extent and intensity of the future collapse.

INNOVATION AND DISCOVERY

INCOME GAPS AND POVERTY

INDUSTRIAL DEVELOPMENT

QUALITY OF LIFE

LONG RANGE OUTLOOK

Column (B) cont'd

6. **Huge Improvements:** New resources and technology and economic growth often produce new problems and crises but they can still be used to solve problems, improve efficiency and upgrade the quality of life to a permanently high plateau. Even more important they increase the toughness and flexibility of the economy and society thus giving us insurance against bad luck or incompetency.
7. **Poverty Decreases:** The next century will likely see worldwide abolition of most absolute poverty. However, some arithmetical gaps will probably increase until the middle or end of the century. Both the rich and the poor will get richer, but some will continue to be much richer than others. But it is exactly these growing gaps and improved technology which make it easy to accelerate economic development for the poor.
8. **Must Continue:** Industrialization of the third world will (and should) continue. It is foolish to imagine that the rich nations will voluntarily share to the extent of deprivation for the rich. And it probably is nonsense to believe that the poor will be strong enough in the foreseeable future to seize much of the wealth of the rich by force. Nor can they benefit greatly from resources left in the ground.
9. **Eventually A High Quality of Life for All:** If one does not *adequately* internalize *appropriate* external costs, growth can cause much unnecessary destruction of important values. But the key words are "adequate" and "appropriate" and by whose criteria. Much of what some elites or esoteric groups consider destructive, many others consider constructive. Once there is *adequate internalizing of appropriate external costs* (by the criteria of most members of society) the complaints may still be very shrill and visible but largely inappropriate or very specialized.
10. **Things Are Going Reasonably Well:** The 21st century is likely to see a post-industrial economy in which the more desperate and seemingly eternal problems of human poverty will have largely been solved or greatly alleviated. Most misery will derive from the anxieties and ambiguities of wealth and luxury, not from physical suffering due to scarcities. While doubtless many tragic mistakes and much suffering and damage will mark this historical transition to a materially abundant life for almost all, the ultimate prospect is breathtakingly superior to traditional poverty and scarcity. The post-industrial society and culture which will eventually accompany the post-industrial economy should be close to a humanistic utopia by most historic standards.

One's attitude toward the positions may determine his attitude toward many other things. Thus, a believer in column 1 would regard a man who "drops out" as doing God's work, and a project to improve productivity as a crime against humanity. Column 2 adherents would take the exact opposite view. Therefore, (we would like) the reader might wish to imagine that the above perspectives are being advanced as a basis for programs by two political parties and he is asked to choose between them, even if neither reflects his exact position.

ADDITIONAL NOTES ON DEPRESSION/INFLATION/INDEXING

Side A

(1) WHY CURRENT FEARS OF A DEPRESSION?

1. GROWING HOSTILITY TO "UNCONTROLLED INFLATION"
2. EXCESSIVE SPECULATION AND EXCESSIVELY HIGH COMMODITY AND RESOURCE PRICES
3. OIL PAYMENTS PROBLEMS
4. GENERAL LOSS OF FAITH IN FIAT CURRENCIES
5. EXPECTATION OF PANIC, CRISIS OR DEPRESSION--OTHER SELF-FULFILLING PROPHECIES
6. INCREASINGLY POWERFUL INTERESTS AGAINST ECONOMIC DEVELOPMENT AND ECONOMIC GROWTH
7. MANY GOVERNMENTS, BUSINESS AND FINANCIAL INSTITUTIONS UNDER FINANCIAL STRAIN
8. PRESSURES FOR "EXPORT OF DEFLATION" AND OTHER "BEGGAR THY NEIGHBOR" POLICIES
9. OVER-EXTENDED EURO-DOLLAR MARKET AND LACK OF RESPONSIBLE "LENDER OF LAST RESORT"
10. MANY OTHER POSSIBILITIES FOR A BREAK IN THE "CHAIN OF PAYMENTS" OR OF SETTING OF "DOMINO EFFECTS"

(2) PROBABILITY OF A DEPRESSION *

PROBABILITY	PERIOD	
	1974/1975	1976/1979
~1/6	D	?
~1/6	ND	D
~2/3	ND	ND

*D = DEPRESSION IN THE PERIOD
ND = NO DEPRESSION IN THE PERIOD

(3) LEADERSHIP QUALITIES NEEDED TO SOLVE INFLATION PROBLEMS

WITHOUT INDEXING	WITH INDEXING
COURAGE INTEGRITY WISDOM COMMON SENSE POWER	10% AS MUCH

(4) INDEXING CAN: (IF APPROPRIATELY USED)

1. REDUCE OR ELIMINATE EXPECTATIONS OF INFLATION AND RESTORE FAITH AND CREDIBILITY IN MONEY AND CONTRACTS
2. PREVENT INFLATIONARY GAINS TO GOVERNMENT AND OTHERS
3. INCREASE FLEXIBILITY OF PRICES AND WAGES AND OTHERWISE FACILITATE A SOFT LANDING FROM AN ONGOING INFLATION
4. SERVE ENDS OF RELATIVE SOCIAL JUSTICE AND BUSINESS STABILITY
5. PREVENT DISASTROUS "ANTI-INFLATIONARY REACTIONS" TO A NEAR INFLATION BY A POPULATION WHICH HAS ALREADY BEEN MADE "ALLERGIC" OR AT LEAST EDUCATED
6. ENCOURAGE SAVINGS AND MOBILIZE CAPITAL
7. CAN MAKE ACCOUNTING REALISTIC AND OTHERWISE IMPROVE OPERATION OF ECONOMIC SYSTEM
8. BE DONE GRADUALLY

(5) INFLATION/INDEXING ANALOGY TO HEROIN/METHADONE

1. MODERATE USE IS NOT EXACTLY HARMFUL OR EVEN "ADDICTING" (I.E., DOES NOT NECESSARILY REQUIRE INCREASED DOSES)
2. HOWEVER, EVEN MODERATE USE CAUSES SUBTLE AND USUALLY OVERLOOKED HARM. FURTHER, IT IS CLEARLY ESCALATION PRONE
3. THEREFORE, THE BIG PROBLEM IS MORE HABITUATION THAN ADDICTION
4. BOTH METHADONE AND INDEXING CAN HELP PROVIDE A "SOFT LANDING" AND PREVENT EARLY READDICTION
5. BOTH REQUIRE DISCIPLINE AND CAUTION
6. BOTH CAN BE EASILY ABUSED, CAUSING SERIOUS PROBLEMS
7. BOTH RAISE SERIOUS MORAL, PSYCHOLOGICAL, ETHICAL AND POLITICAL ISSUES

(6) INAPPROPRIATE INDEXING CAN HURT--EVEN CAUSE A DISASTER

1. CAN TRY TO COMPENSATE FOR THE UNCOMPENSABLE
2. CAN DESTROY CERTAIN AUTOMATIC COMPENSATORY MEASURES
3. CAN ELIMINATE IMPORTANT LAGS, AUSTERITIES, AND POLITICAL PRESSURES
4. CAN DESTROY IMPORTANT UTILITIES ASSOCIATED WITH THE MONETARY ILLUSION
5. CAN CAUSE DEGREE OF INFLATION TO BE EVEN MORE POLITICALLY MOTIVATED AND IN EFFECT CREATE A NEW AREA FOR "BUNGLING GOVERNMENT INTERFERENCE" AND FOR MAKING THE SIMPLE COMPLEX

(7) HOW GOVERNMENT GAINS FROM UNANTICIPATED INFLATION

1. AS RECIPIENT OF SEIGNIORAGE PROFITS--(CAN BE CONSIDERED AS A DEBASEMENT OF CURRENCY OR A TAX ON CASH BALANCES)
2. AS A DEBTOR AND DISBURSOR OF FIXED PAYMENTS (PENSIONS, WELFARE, ETC.)
3. AS A TAX COLLECTOR
4. AS AN EMPLOYER
5. AS AN ADVOCATE OF FULL EMPLOYMENT, HIGH FARM PRICES, ETC.
6. AS A PERMISSIVE UMPIRE AND BARGAINER
7. AS A SUPPORTER OF SATISFACTION AND CONTENTMENT (E.G. CAN EXPLOIT MONEY ILLUSION) AND A RELUCTANT APPEASER OF SQUEAKING WHEELS AND STRONG OR ACTIVIST PRESSURE GROUPS

(8) SOME CANDIDATES FOR A GRADUAL INDEXING PROGRAM

1. TAXES: ESPECIALLY INCOME TAX BRACKETS, DEPRECIATION ALLOWANCES, AND CAPITAL GAINS
2. GOVERNMENT BONDS
3. PRIVATE BONDS
4. GOVERNMENTAL WAGES, SALARIES, WELFARE, PENSIONS
5. PRIVATE WAGES, SALARIES, WELFARE PAYMENTS, PENSIONS
6. BOTH SIDES OF SAVINGS AND LOAN AND OTHER INTERMEDIATE INSTITUTIONS
7. ALMOST EVERYTHING ELSE

(9)

IN SHORT, INDEXING IS AN IDEA WHOSE TIME HAS COME, WHICH MAY BE FORCED ON MANY COUNTRIES, AND WHICH IF DONE PROPERLY COULD BE DESIRABLE

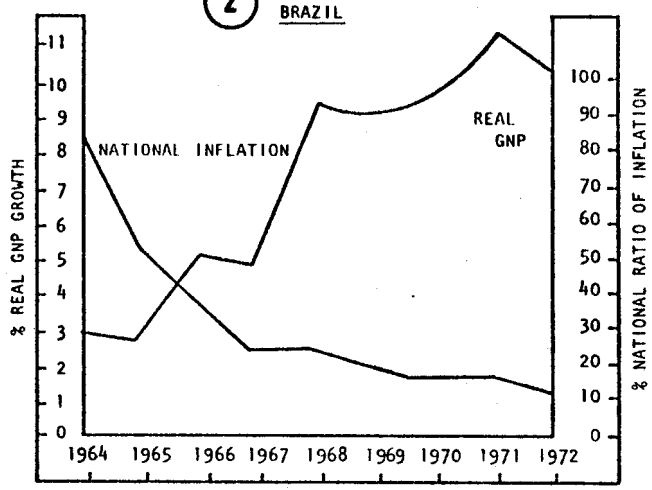
INDEXING (CONT'D)

(1) BRAZILIAN MONETARY CORRECTION

1. STRICT CONTROL OF BUDGETARY DEFICIT (0.4% IN 1970 COMPARED TO 5% IN 1963).
2. EXPORT PRICE REGULATION (GOVERNMENT PROFITS IN LIEU OF TAXES).
3. WAGE RESTRAINT--REAL WAGES WERE GOING DOWN FROM 1964-1967; SINCE 1967 A STEADY RISE OF ABOUT 3-4%.
4. "CRAWLING PEG": CRUZEIRO IS REVALUED AT FREQUENT BUT IRREGULAR INTERVALS, ON THE BASIS OF A MONTHLY ASSESSMENT OF INFLATION TRENDS INSIDE THE COUNTRY. TAKES AWAY THE SHOCK OF A MAMMOTH DEVALUATION ONCE A YEAR; REDUCES SPECULATION AGAINST THE CRUZEIRO.
5. MONETARY CORRECTION: MOST THINGS WITH A PAPER VALUE--CAPITAL, EARNINGS, PENSIONS, RENTS, SAVINGS, LOANS, GOVERNMENT BONDS, PRIVATE SECURITIES, FIXED ASSETS, COMMERCIAL CONTRACTS--ARE ADJUSTED TO ACCEPTED PRICE INDICES.
6. MONETARY CORRECTION GAINS ARE TAX-FREE. BRAZILIAN COMPANIES CAN WRITE UP THE VALUE OF PLANT EQUIPMENT AND WORKING CAPITAL EVERY YEAR IN ACCORDANCE WITH THE STANDARD INDEX. THESE PAPER GAINS ARE NOT TAXABLE AS LONG AS THEY ARE CAPITALIZED.

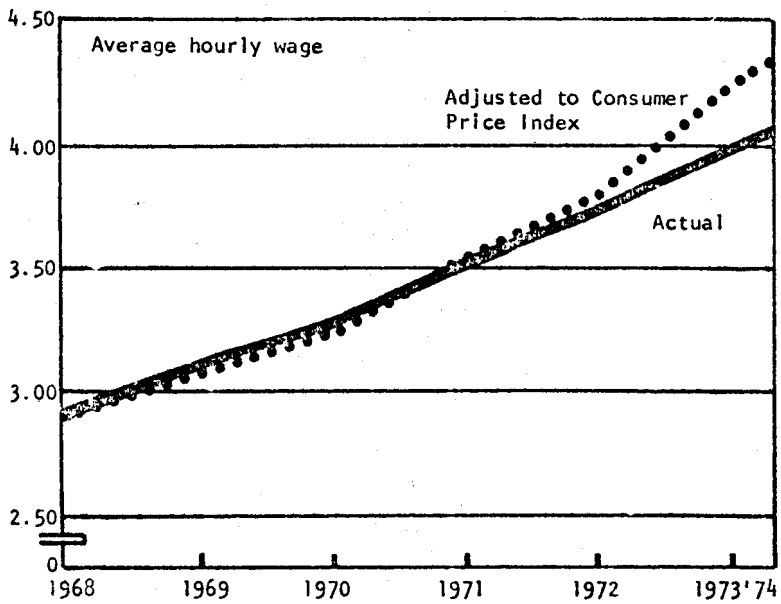
   THIS ALSO MEANS THAT COMPANIES CAN CHARGE REALISTIC DEPRECIATION.

(2) BRAZIL



SOURCE: VARGAS FOUNDATION

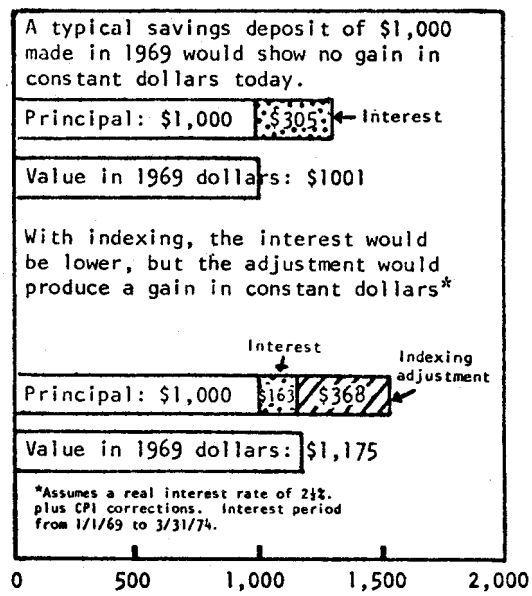
(3) WHAT INDEXING MIGHT HAVE DONE TO WAGES



Scale based on yearend figures; 1974 as of March.

Source: Bureau of Labor Statistics; BW est. Indexed wage includes productivity increases.

...AND TO SAVINGS



Source: Savings Bank Assn. of New York State; BW est.

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DEPRESSIONS, INFLATION AND INDEXING

By
Herman Kahn*

People who are well-informed about economic realities in this country and abroad are increasingly concerned about the international monetary system and the possibility of a severe downward trend in the business cycle. These apprehensions about a future depression are not entirely misplaced. Some time ago I argued that the odds against a serious depression in the seventies were at least five to one. However, I now believe the odds against a depression before 1980 are only around two to one. That is, I think the chances are about one in six for the immediate future (1974-75), or, if it does not happen then, one chance in six during the 1976-79 period (of course, the chances of two depressions before 1980 are extremely small, unless the first one is small and "incomplete,") but a 1974-75 depression might continue into 1976 and less likely even longer. The following chart summarizes the estimated chances:

PROBABILITY OF A DEPRESSION

PROBABILITY	PERIOD	
	1974/1975	1976/1979
~ 1/6	D	?
~ 1/6	ND	D
~ 2/3	ND	ND

Making numerical odds like these for or against a future depression is obviously a highly subjective exercise. The important point is that my odds are rather reassuring when compared to much prevalent expert opinion today: a growing number of serious, competent observers would be more pessimistic. Economists and businessmen tend to be more optimistic than bankers and financiers, perhaps because they are less conscious of some of the current pressures and strains.

Why has a serious depression grown more likely in the near future? The most fundamental reason is that inflation has gotten out of control during the past two years, and the problem has been highly exacerbated by the increase in the cost of imported oil. General business confidence is seriously undermined by widespread knowledge that important financial-credit institutions are shaky. Not only have the troubles of the Franklin

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*I am indebted to Ernie Schneider for summarizing and editing this material.

National Bank of New York and the Bankhaus Herstatt of Cologne been well publicized, but several similar organizations are known to be relatively weak. Further, even strong financial organizations such as big U.S. banks often have an extraordinarily high percentage of their deposits in the form of short-term and highly volatile certificates of deposit owned by foreigners. Other financial organizations are afflicted by the disintermediation* phenomena, while non-financial organizations are uncontrollably dependent on having short-term rolling credit renewed. Such normally credit-worthy governments as the Italian and British are experiencing financial difficulties so serious that emergency measures may be necessary to avoid their defaulting on certain obligations in the near future. Furthermore, since most of the world's major economies are simultaneously in the same basic phase of the business cycle, it is highly plausible that a major downward turn in a few countries would soon be felt in other countries because of a break in the chain of payments, a drastic decrease in liquidity, a disastrous loss of business, a break in prices, or just a pervasive loss of confidence in the future. Indeed even if such events did not occur on a disastrous worldwide scale, the temptation on the part of the most depressed countries to export deflation would still be very strong and could still touch off a worldwide disaster.

Very general apprehensions of this sort are intensified because the current crisis grows out of more fundamental troubles which have been with us for some time. Most prominent of these are, of course, inflation and international monetary issues. In addition the crisis over the use and availability of energy has produced deep uncertainties: a feeling that everything is going to change, and specifically, a lack of any consensus--or even any plausible scenarios--on how to finance payments to the Arab nations.

Three additional basic conditions make a 1929-type depression at least thinkable for the rest of the seventies:

1. A general lack of faith in fiat currencies everywhere, a feeling that the international monetary system is very fragile, all national currencies are unreliable and a real possibility of a crisis due to competitive or forced devaluations, loss of competence or other events causing disastrous strains.

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*Intermediation refers to the banks and savings and loan associations acting as intermediaries between savers and borrowers: they borrow in normal times at say 4 percent and lend long-term at perhaps 6 percent. Disintermediation takes place when--as is occurring today--interest rates climb so high that those institutions are by-passed by their normal customers who know they can get a higher return than the banks and S&L's are permitted to pay. Meanwhile these institutions are locked into long-term loans at earlier levels of interest. Under these circumstances, a well-run organization can go bankrupt through no fault of its own.

2. A widespread belief that we now have a "mature economic system," such as was believed (for different reasons) after the 1929 depression. The basic idea is that the period of worldwide and rapid economic growth is now over; that the "joy ride" is finished; that we must now pay the price for our past excesses in growth and consumption on the one hand and of pollution and depletion of irreplaceable raw materials on the other. In many parts of the world, there is a great deal of grim satisfaction in this expectation, accompanied by "I told you so" reactions. Whether one views the prospect of "stabilization" with pleasure or apprehension, belief in this "maturity" can be disastrous if held sufficiently widely and firmly.

3. For the first time we have a serious pressure group working against economic growth in both specific projects and as a general proposition, usually basing their position on the quality of life, pollution, or non-renewable resource type arguments. Their influence is worldwide, and dominates the prestige universities and press, and upper-middle class elites almost everywhere, but particularly in the Atlantic Protestant culture area and Japan. Various members of this group oppose even investments and economic development that might be most effective in preventing or alleviating a severe depression or in alleviating material shortages of various sorts. In a way, some of these people are fighting for a depression or resource shortages, even though they would be outraged by the accusation--others have a more defendable position but the results are still to exacerbate our current position and to make the future less promising economically and financially.

Under present conditions large companies and financial institutions can fail or get into deep trouble through such phenomena as inventory and foreign exchange losses or disintermediation--over which management often has little direct control. A sort of chain reaction can ensue under which third institutions feel extraordinary pressures because a firm or government which is indebted to them or on which they count for business can no longer live up to its obligations.

In many countries a bank of last resort, such as our Federal Reserve system, will step in to prevent any major financial or business operation from going under--precisely to head off such ripple effects. However, some foreign countries feel that such assistance should not be automatic if a particular company has seriously misbehaved; this seems to have been part of the problem with the Herstatt Bank. Indeed some central banking authorities expressed this general position at the most recent meeting of the Bank for International Settlements. In my view, "unworthy" companies should be bailed out under present circumstances, even if this stretches the rules somewhat. We know, however, that public sympathy for aiding

manufacturing enterprises is very weak: the help extended to Lockheed has been bitterly criticized even though the government was at least partly responsible for the firm's problems, and, of course, no bank--or even government--likes to accept open-ended liabilities.

In any case, current uncertainties are producing a sudden inability to finance much short-term so-called "rolling credit." To an astounding extent, many businesses have rejected the onerous terms of the long-term capital markets and now depend on short-term credit which must be regularly refinanced. Any serious lessening of the availability of this credit would be extremely dangerous. This is also true of normal credit to smaller banks (which currently may pay one or two percent more interest premium than usual over that paid by the largest banks--and, in the U.S. at least, often still cannot get credit).

Today almost everyone trusts short-term U.S. Treasury Certificates, but few people feel the same way about even first class private financial institutions. Similarly, small banks everywhere are being squeezed because people have more faith in big banks. To some extent people are emulating the example of James D. Slater, a noted British financier who is reported to have shifted $100 million from other assets into cash and near cash. In terms of mathematical odds the Slater strategy could be sound if the estimate of one chance in six for a serious depression in the next eighteen months is judged to be valid. In this case, the chances are five out of six of losing money by going into "near cash" like treasury certificates. In one chance out of six--a depression--this strategy preserves capital, making it immediately available for buying up bargains which may be had for a fraction of their real value during a very serious depression. Of course, if no depression occurs, chances are still five out of six of doing better by investing in something more lucrative than treasury certificates--and most people will prefer following the odds rather than mathematical expectations.

In any case we seem to be in a highly delicate situation where perhaps the greatest danger could come precisely from reports like this which, if they have an extensive impact (as this one is not likely to have), could confront the crucial question of confidence. Under certain circumstances confidence can be a double-edged sword. Right now it is terribly important to influence people toward greater caution in order to reduce high-risk situations and improve the capability of any given institution to cope with current pressures. But people must not overreact--into timidity or panic--which would tend to produce the very result we are trying to avoid. Many, including myself, are looking for the right position on this particular razor's edge.

The possibility of a panic should be balanced against my estimated five to one odds against a depression soon. In reality, a series of largely unrecognized factors are working against panic and depression. For example:

1. The alertness of central banking authorities everywhere to prevent a panic and their basic willingness to intervene if necessary.

2. The prevalent "good behavior" of countries, even when in rather dire straits; thus they have in general abstained from trying to export deflation to each other.

3. Growing acceptance of the Hudson Institute thesis regarding oil, i.e., the likelihood that a relatively early decline in prices, and soon afterward in the cohesiveness of OPEC, will render the problem temporary and localized rather than all pervasive and prolonged. Even if the thesis is wrong, its acceptance makes the problem of the next year or so easier to deal with.

4. The availability in many countries of very large gold stocks which could readily be re-valued to perhaps $150 per ounce, thus providing liquidity for a variety of purposes. (But probably, despite the recent action of the IMF Committee of 20, Italy could not use its gold for new loans since it is already pledged to old loans--though the gold could be sold).

5. The peak of U.S. inflation has probably been reached; the rate should be down to about 6 percent or less in a year or so. (The inflation in the second quarter of 1974 at 8 percent is already down by a 1/3 from the 12 percent of the first quarter). The above assumes that current tight money policies, commodity prices, and growing recessions in many countries (and therefore a decrease in the worldwide demand for goods) will all continue.*

6. The stock market has deflated by more than half in real terms and commodity prices have turned down without touching off a panic.

Given the existence of these stabilizing influences, some sort of real mismanagement or bad luck would have to happen to bring about the kind of troubles we are discussing. This attitude is not Pollyannaism. Unless some serious problems are dealt with properly, we won't be able to navigate the present period smoothly or prevent similar situations from recurring in the future.

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*However, recent bad news about food crops may cause a change in this estimate.

How Did We Get There?

The most important single problem is inflation, and the general distrust of currencies that goes along with inflation. This distrust was nourished inter alia by the Bretton Woods system. This system of fixed exchange rates tended to force countries to defend their currencies by pumping indigenous currencies into the system to buy up dollars flowing in from the United States. The most relevant case in point was caused by the outflow of dollars from the U.S. from 1969 to 1973 (about 60 billion to foreign treasuries as well as an additional large amount to private holders). The earlier outflow was not particularly inflationary; it probably did more good than harm. I am not arguing that the Bretton Woods system was misconceived. On the contrary, it worked extraordinarily well for a long time. To use Marxist terminology, every system has internal contradictions which can cause serious trouble if allowed to develop too far. In my view, the chances are fairly good that reasonably adequate new monetary institutions and mechanisms will be developed soon.

The problem of coping properly with inflation has been rendered more difficult by the evolution over time of the terms of the trade-off between inflation and unemployment. When Professor A. W. Phillips first published his famous analysis in 1958, he was quite right in pointing out that unemployment tends to decline as inflation mounts. Although the Phillips curve remains theoretically valid today, ever larger doses of inflation seem necessary in order to "buy" a given increment of decline in joblessness (see Charts 4 & 5 on Side B of green sheet "The Forces Behind Postwar Inflation"). One result is the "stagflation" of recent years which sometimes combines the worst of all worlds: declining production and growth, mounting inflation, and persistently high unemployment. When post-World War II governments pledged themselves to maintain full employment, they generally were willing as a matter of policy to pay the price of inflation rates in the one to three percent range. Over time such inflation, of course, became rather predictable, and the price of allowing "acceptable inflation" has become progressively higher. We may have reached the point where very high inflationary rates have no appreciable effects on unemployment. In reality, an alternative to inflation can also be used to decrease unemployment: a long-term effort to create jobs through investment, development of new industries, manpower training programs, work relief projects, vocational guidance, help in finding employment, etc.

It is important to understand that the effects of anticipated inflation are quite different from those produced by unanticipated inflation. Since governments everywhere tend to gain substantial benefits from inflation, they often encourage it implicitly or explicitly. This phenomenon helps account for the prevalent notion that a certain reasonably mild level of inflation is "acceptable"*. Governments usually gain from inflation--particularly unanticipated inflation--as follows:

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*This "acceptable" level is also becoming inflated. Today the West German government is considered successful in holding the rate to seven percent, which is not a bad achievement under current circumstances. Much of the professional literature of inflation seemed not to realize that escalating the acceptable number to three makes it much much easier to reach an actual rate of five or more--and so on.

1. As recipient of "seigniorage" profits--which can be considered a debasement of currency or a tax on cash balances.

2. As a debtor and disburser of fixed payments, such as pensions and welfare benefits.

3. As a tax collector.

4. As an employer (wage increases normally lag behind inflation).

5. As an advocate of such expansionist policies as economic growth, full employment, and high farm prices.

6. As a permissive umpire and bargainer.

7. As a supporter of general satisfaction (e.g., can exploit money illusion) and a reluctant appeaser of "squeaking wheels" and strong or activist pressure groups.

Indexing*

Indexing is an anti-inflationary device which seemingly operates on the principle: "if you can't beat 'em, join 'em." Increases in the consumer price index automatically trigger a series of compensatory adjustments in other areas of the economy such as taxes, wages, principal or interest, and many other financial contracts or obligations. Used to varying degrees by many countries, indexing has been successfully applied on a large scale in Brazil, but worked badly in Chile. At a minimum it eliminates or decreases inequities caused by inflation.

If inflation continues in this country for another year or two at the current exceptionally high levels (or even at the lesser levels we indicated were likely) pressures are certain to grow to adopt indexing--perhaps in a series of steps and partial measures--as a way out of what appears to be an insoluble problem. A sort of snowball effect can be foreseen. The U.S. economy now has more indexing than is generally realized. Over five million workers are covered by cost of living clauses in labor contracts. Social security payments to 29 million people and government pensions to 2 million retired workers are directly affected by changes in the consumer price index. More and more banks and businesses have index or escalation type clauses. Such arrangements are likely to spread as inflation persists. In time more and more special interest groups will insist on being included in the system. Although indexing can, as I anticipate, come into effect gradually, for both political and financial reasons the system cannot be expected to operate for very long on only part of an inflationary economy. If this is attempted, the indexed part has an enormous and unjust advantage over the unindexed part. Eventually, a broad demand for social justice or the effects of financial competition will lead to general indexing for the entire economy.

For example, the U.S. could easily persuade some Arab nations to invest in indexed government bonds. If this were done, however, such bonds would soon have to be offered to the general public. Government bonds should be indexed in any case if the government does not want to cheat its own citizens by using inflation to undercut the value of its own obligations. Indexed private bonds are already being made available, mostly in large denominations. A recent offer by City Corporation and the Chase Bank clearly suggests that such bonds will soon be offered to the ordinary investor. Canada has already indexed income tax brackets and taxable income. This practice seems only just; if, say, $600 is set as the minimum income upon which taxes must be paid, and inflation cuts the real figure to $300, then an index mechanism is needed. Depreciation allowances are a similar example. At this stage of the game, companies are paying out not only profits but also some capital in taxes because depreciaton allowances, if not corrected for inflation, underestimate

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*While this idea may seem unfashionable, it is beginning to find its advocates. See, for example, Milton Friedman's article, "Using Escalators to Help Fight Inflation," Fortune, July 1974.

actual replacement costs. A similar remark holds for most "inventory profits." Current nominal profits are often really capital. People who sell a house and reinvest the proceeds in another house are not charged a capital gains tax. It would be robbery to do so if, as is increasingly true, the so-called capital gain really represents inflation. It is equally robbery to charge capital gains if a seller chooses not to invest all the money in a new house. In all these cases, indexing would perform the important function of preserving the original intent of government policy and legislation which often are eroded or even negated by inflation. In general, pressure to index taxes will become overwhelming once the device gains a real foothold in the economy. The alternative soon becomes tax evasion on a massive scale. Thus the elementary principles of fairness can lead to indexing even in the absence of a conscious decision to index.

If indexing is done properly, it would probably be desirable and represent, furthermore, a relatively permanent improvement in the world monetary system. It is important to understand that indexing is not a panacea, nor is it cost free. For example, it would be very dangerous to try to use indexing to protect everyone's living standards if some event lowers them. By eliminating inequities associated with inflation, indexing of course also eliminates certain benefits associated with these inequities. By compensating for inflation, indexing may weaken political pressures against inflation. While indexing can help to restore faith in currencies and contracts, the resultant emphasis on money as a function of an index number (rather than existing in its own right) may undermine important utilities associated with the monetary illusion.

Haphazard or clumsy indexing combined with an unwillingness to carry out other necessary economic policies can indeed lead to explosive inflation, much worse than would have occured in the absence of indexing. This has already happened in some countries, such as Great Britain, which have linked salaries in a simple, direct way to the cost of living.

Strangely enough, indexing does not in itself directly affect inflation. However, an effective system of indexing, or one that is merely expected to be successful, can eliminate the expectation of inflation which is a highly important anti-inflationary measure. An even more powerful anti-inflationary benefit of indexing is that it eliminates most of the benefits which governments normally receive from inflation; indeed some of these gains may be transformed into losses. At the same time, indexing tends to decrease political pressures from groups which otherwise would oppose inflation; if they feel protected by indexing, their incentive to fight inflation is obviously diminished. The weakening of these pressures shouldn't make much real difference, since governments usually needn't be pressured into maintaining such normal services as sewage or public order, in which a stable currency should be included. Fighting inflation may, however, require more public support than, for example, keeping law and order; after all no big lobby openly represents crime.

Indexing tends to influence government behavior in anti-inflationary directions for still another reason. Under normal circumstances a government which is encouraging inflation may be able to avoid paying any direct or indirect political or economic price because the inflationary consequences of given policies can be so diffused and delayed that the public does not connect them with their original cause. Under indexing the effects of inflationary acts are seen immediately and unmistakably, and governments therefore are much more likely to be held accountable for tolerating inflation. The first government to learn this lesson may not like it, but subsequent governments will presumably be restrained from again encouraging inflation.

In closing, a brief word about labor and inflation. Many people have been puzzled by the relative restraint of American labor unions in wage negotiations during the past several years. Let me suggest several explanations.

1. The labor movement has itself been frightened by inflation, and been unwilling to risk being identified as the villain of the piece.

2. Labor has obtained very substantial non-monetary fringe benefits which weren't numerically included in wage settlements. In terms of the total package, workers did very well, and union leaders could justifiably claim to have done well by them.

3. Many unions, such as those in the construction trades, made extraordinary wage gains in the late sixties--before inflation settled in with a vengeance. They realized that such gains could not go on indefinitely without distorting the whole economy.

None of these considerations are valid today. Therefore, in the absence of indexing (and perhaps even in its presence), there may well be such excessive pressures to raise wages that our estimate of a 6 percent inflation rate a year or so from now may be over-optimistic.

ADDITIONAL COMMENTARY ON CARDS ON

DEPRESSIONS, INFLATION AND INDEXING

DESCRIPTION OF THE POSTWAR INFLATION

(1)--Wholesale Price Level in the U.S.--shows that our current inflation is an essentially new phenomenon. Commodity prices have not in fact shown a tendency to rise throughout modern history. Thus the inflation which characterized all of our wars was always followed by a deflation which restored prices to more or less normal levels--except after World War II. In other words, an inflationary bias has been built into the system only since 1945. The same situation applies to England and Western Europe.

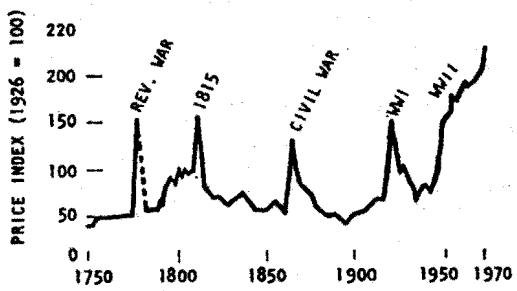
(2)--Inflation Growth Rate--shows that even the relatively mild creeping inflation of the fifties and sixties very effectiveiy eroded the value of pensions and savings. The public has now become so alert and sensitive to this problem that they are unlikely to permit it to be repeated--without serious political repercussions. The third column shows the lack of any clear correlation between inflation and GNP growth rates. From a business point of view, this table shows that any depreciation allowance set up in 1950 would in most countries have covered only 40-60 percent of the estimated cost of replacement in 1970; this missing 40-60 percent would have wrongly been considered a profit. Today, in 1974, the situation is spectacular--for many facilities the cost of replacement has doubled in the last 3-4 years. Huge excessive taxation is taking place because of false (nominal) inventory profits and understated depreciation allowances. Since systematic indexing would eliminate this problem, businessmen have strong reasons to welcome the prospect of indexing the entire economy.

(3) and (4)--Consumer Prices for Selected Countries and Warning Signals for Continued Inflation--remind us that inflation was well under way long before the energy crisis. The crisis exacerbated an endemic problem which can't be blamed on Arab oil producers. In (5), Robert Triffin implies that current crises could be used to bring about reforms which would help governments to avoid such crises in the future. (6) quotes the divergent views of three noted authorities on economics to show the apparent bankruptcy of their current prescriptions. This disarray among the leading professionals is highly disturbing. In any case, when experts disagree this radically, the average man has little choice other than to rely on his common sense. The Coolidge quote in (7) serves the purpose of showing that we are not suffering from at least one failing: complacency. Indeed, our problem may well be the opposite.

DESCRIPTION OF THE POSTWAR INFLATION

Side A

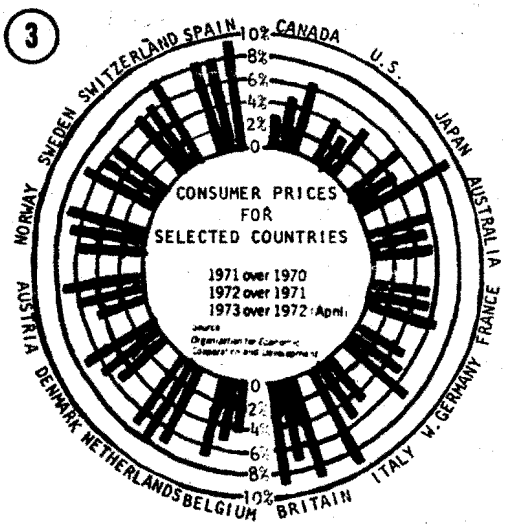
(1) WHOLESALE PRICE LEVEL IN THE UNITED STATES 1950-1970



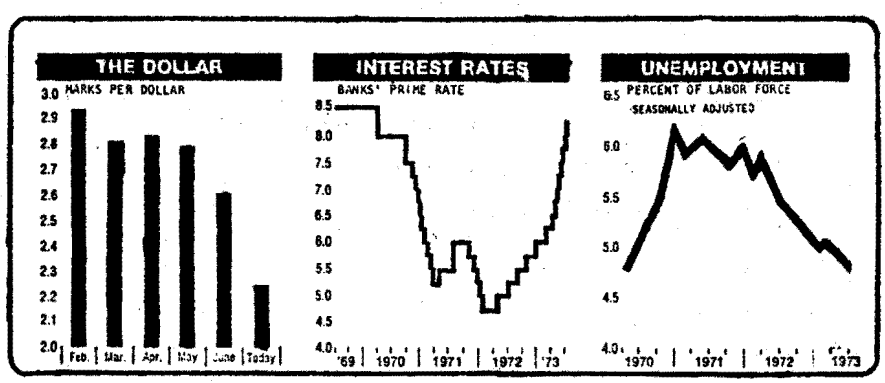
(2) INFLATION GROWTH RATE

COUNTRY	RATE OF INFLATION: 1970 VALUE OF MONEY AS % OF 1950 VALUE	RATE OF INFLATION: ANNUAL RATE OF DEPRECIATION COMPOUNDED (%)	REAL GNP GROWTH (%)
SWITZERLAND	62	2.3	4.2
WEST GERMANY	61	2.4	5.9
CANADA	61	2.6	4.5
UNITED STATES	60	2.5	3.6
AUSTRALIA	56	2.9	4.3
ITALY	51	3.3	5.5
SWEDEN	48	3.6	4.1
UNITED KINGDOM	48	3.6	2.8
NETHERLANDS	48	3.6	5.0
JAPAN	44	3.9	9.6
AUSTRIA	43	4.0	4.8
MEXICO	42	4.2	6.0
FRANCE	41	4.4	4.8
INDIA	40	4.5	3.8
ISRAEL	35	5.1	9.0
SPAIN	35	5.1	5.9
YUGOSLAVIA	20	7.7	
VIETNAM	14	9.4	
CHILE	7	12.5	3.9
BRAZIL	5	14.0	6.0

(3)



(4) WARNING SIGNALS FOR CONTINUED INFLATION



SOURCE: NEWSWEEK, JULY 16, 1973, p. 63.

(5) ROBERT TRIFFIN

"FOR OVER TWENTY YEARS ONE SIMPLE OBSERVATION HAS GUIDED MY STUDY OF THE MONETARY SYSTEM....

"THIS RELATED TO THE ORIGIN AND ROLE OF THE PERIODIC CRISES WHICH, IN THIS FIELD AS OTHERS, SHAKE OUR INSTITUTIONS. THESE CRISES NORMALLY SPRING FROM OUR DELAY IN ADAPTING THE INSTITUTIONS TO NEW CONDITIONS AND NEW NEEDS. THEY ARE ALSO AN INDISPENSABLE SPUR TO THE NECESSARY REFORMS WHICH GOVERNMENTS, BUREAUCRACIES AND PUBLIC OPINION WILL NOT OTHERWISE ACCEPT.

"THESE CRISES SERVE THE SAME PURPOSE IN THE BODY SOCIAL AS ILLNESS DOES IN THE HUMAN RACE. A MAN DOES NOT WORRY ABOUT HIS LIVER UNTIL IT HURTS HIM. IN THE SAME WAY, WE HAVE NOT BEGUN TO UNDERSTAND, AND CORRECT, THE MALFUNCTIONING OF OUR SUCCESSIVE MONETARY SYSTEMS--FROM THE GOLD STANDARD TO THE GOLD-EXCHANGE STANDARD AND NOW THE PAPER-EXCHANGE STANDARD--UNTIL THEY HURT US."

(6) GEORGE SHULTZ

"CERTAINLY YOU CANNOT MAKE ANY CASE THAT WHAT HAS HAPPENED TO WAGE INCOME IS RESPONSIBLE FOR INFLATION...FISCAL AND MONETARY FORCES PRODUCED THE INFLATION."

JAMES TOBIN

"THERE'S NO QUESTION THAT EXCESSIVE LABOR COSTS ADD TO INFLATION. BUT IF YOU WANT TO PUT FIRST THINGS FIRST, HAVE A LOOK AT THE ROLE OF PROFITS."

PAUL A SAMUELSON

"CREEPING INFLATION IS THE MALARIA OF THE MODERN MIXED ECONOMY. LIKE MALARIA IT IS UNCOMFORTABLE TO LIVE WITH AND JUST WILL NOT GO AWAY. BUT UNLIKE THE CASE OF MALARIA, THERE SEEMS TO BE NO KNOWN CURE FOR CREEPING INFLATION THAT IS BETTER THAN THE DISEASE."

(7)

"NO CONGRESS OF THE UNITED STATES EVER ASSEMBLED, OR SURVEYING THE STATE OF THE UNION, HAS MET WITH A MORE PLEASING PROSPECT THAN THAT WHICH APPEARS AT THE PRESENT TIME. IN THE DOMESTIC FIELD THERE IS TRANQUILITY AND CONTENTMENT...AND THE HIGHEST RECORD OF PROSPERITY.

PRESIDENT COOLIDGE
DECEMBER 4, 1928

THE FORCES BEHIND THE POSTWAR INFLATION

Side B

(1) SOME POSTWAR EXPANSIONARY FORCES

1. INITIAL HUGE PENT-UP DEMAND
2. HIGH SAVINGS/INVESTMENT RATIO
3. EMPHASIS ON ECONOMIC DEVELOPMENT
4. EXPANSION OF WORLD TRADE AND OF INTERNATIONAL SPECIALIZATION AND INTERACTION
5. INCREASING POPULATION
6. NEW TECHNOLOGIES
7. TRANSNATIONAL CORPORATION BECAME AN ENGINE OF DEVELOPMENT
8. ECONOMIC MIRACLES
9. FOREIGN AID
10. COLD WAR
11. WELFARE STATE POLICIES
12. FULL EMPLOYMENT POLICIES
13. DEFICITS FELT TO BE TOLERABLE
14. OTHER REASONS FOR RAPID ECONOMIC DEVELOPMENT ALMOST EVERYWHERE
15. INFLATION

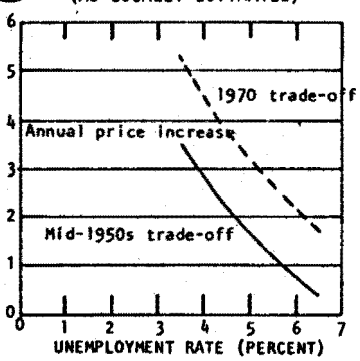
(2) SOME OTHER POSTWAR INFLATIONARY FORCES

1. THE UNWILLINGNESS OF SOCIETY AS A WHOLE AND OF LABOR IN PARTICULAR FOR WORKERS TO BEAR THE MAJOR COST OF RECESSIONS--AT LEAST NOT IN QUITE AS EXTREME AND DRAMATIC A FASHION AS HAS BEEN CUSTOMARY IN INDUSTRIAL SOCIETY
2. CREEPING INFLATION IS NOW OFTEN CONSIDERED ACCEPTABLE
3. THE ONE-SIDED READING OF KEYNES BY ALMOST ALL WESTERN GOVERNMENTS AND THE CORRESPONDING TENDENCY TOWARD INFLATIONARY FISCAL AND MONETARY POLICIES
4. THE CURRENT POLITICAL, SOCIAL AND CULTURAL FORCES THAT ADD TO THE NORMAL ECONOMIC AND BARGAINING ASPECTS OF COST-PUSH PRESSURES BY LABOR UNIONS
5. THE HIGH PROPORTION OF CONSUMPTION TO GNP IN THE UNITED STATES, THE CORRESPONDINGLY LOW PROPORTION OF U.S. GNP SAVED AND INVESTED, THE USE OF BALANCE-OF-PAYMENTS DOLLAR DEFICITS TO FINANCE U.S. FOREIGN ACTIVITIES AND INVESTMENTS--SOME SPECIAL CHARACTERISTICS OF THE "GOLD EXCHANGE" SYSTEM--AND MOST IMPORTANT OF ALL DECREASING CONFIDENCE IN THE DOLLAR AND PAPER CURRENCIES GENERALLY AND CONTINUED EXPECTATIONS OF INFLATION
6. SEIGNIORAGE AND OTHER GOVERNMENTAL PROFITS ENCOURAGE INFLATIONARY POLICIES
7. OTHER SOCIETAL FUNCTIONS FULFILLED BY INFLATION AND SOME OF THE COSTS OF CHOOSING THIS TACTIC TO PERFORM THOSE FUNCTIONS
8. THE EFFECT ON THE AVAILABILITY AND ALLOCATION OF CAPITAL WHEN LONG-TERM INTEREST RATES CONTAIN AN ALMOST PERMANENT HEDGE AGAINST INFLATION
9. THE MOMENTUM ALREADY BUILT UP BY INFLATION
10. THE OBVIOUS INEFFECTIVENESS OF CURRENT GOVERNMENTAL PROGRAMS TO PREVENT INFLATION OR EVEN TO LIMIT IT TO A FEW PERCENT A YEAR

(3) INADEQUATE PRODUCTION FACILITIES

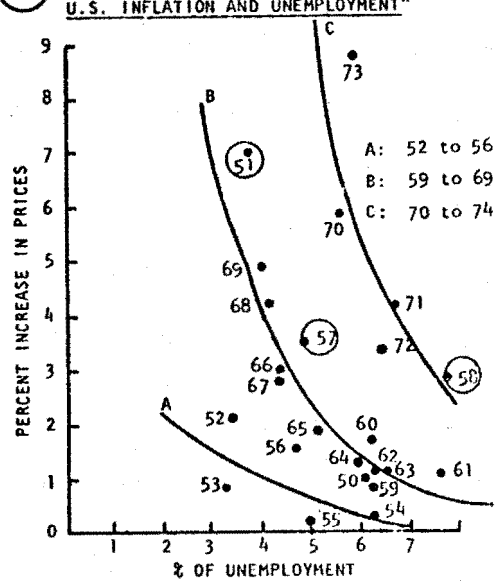
1. "INADEQUATE VISION"
2. LOW RATE (REAL) OF RETURN ON INVESTMENT (E.G. PRICE CONTROLS, LABOR SHORTAGES, LOWERED PRODUCTIVITY OF LABOR, AND OTHER RISING COSTS)
3. LOW SAVINGS RATE AND LOW RATE OF PRODUCTIVE INVESTMENT (INFLATION BOTH LOWERS REAL RATE OF RETURN AND INDUCES COMPETING NON-PRODUCTIVE INVESTMENTS)
4. HIGH NOMINAL (INFLATION INFLUENCED) INTEREST RATES INCREASE APPARENT OPERATING COSTS--AND REAL RISKS
5. DIVERSION OF CAPITAL TO ANTI-POLLUTION AND ENVIRONMENTAL PROGRAMS
6. DISCOURAGEMENT OF MIO'S (MARGINAL INPUT ORGANIZATIONS)
7. UNDERSTATED (BECAUSE OF INFLATION) DEPRECIATION
8. HIGH TAXES ON (INFLATION INFLATED) EARNINGS AND/OR RETAINED EARNINGS
9. FEAR OF UNRELIABLE INPUT SUPPLIES
10. SOARING CONSTRUCTION COSTS

(4) THE U.S. PHILLIPS CURVE (AS USUALLY ESTIMATED)



Source: New York Times

(5) 1950-1973 ACTUAL RECORD OF U.S. INFLATION AND UNEMPLOYMENT*



*YEARS 51, 57 AND 58 SEEM ANOMOLOUS

(6) NET DEBTOR-CREDITOR STATUS OF MAJOR ECONOMIC GROUPS, 1939-70

	1939	1949	1960	1970
HOUSEHOLDS*	+ 87	+249	+337	+658
UNINCORPORATED BUSINESSES	+ 3	+ 16	- 21	- 90
NONFINANCIAL CORPORATIONS	- 25	- 17	- 67	-187
FINANCIAL CORPORATIONS	- 3	+ 17	+ 32	- 63
GOVERNMENTS	- 68	-263	-251	-326

(IN BILLIONS OF DOLLARS)

*PENSION FUND RESERVES OF $91 BILLION IN 1960 AND $234 BILLION IN 1970 ARE INCLUDED IN MONETARY ASSETS, ALTHOUGH SOME OF THESE (E.G., $64 BILLION IN 1970) WERE INVESTED IN COMMON STOCKS.

SOURCES: R. GOLDSMITH, A STUDY OF SAVINGS IN THE UNITED STATES (PRINCETON, 1955), TABLES W-14-16; FEDERAL RESERVE FLOW-OF-FUNDS ACCOUNTS.

THE FORCES BEHIND THE POSTWAR INFLATION

(2)--Some Other Postwar Inflationary Forces--indicates some of the reasons why developed nations, and notably the U.S., have not been able to deal effectively with postwar inflationary forces. Since these forces are likely to persist, some new mechanism like indexing is needed to mitigate their effects and to lessen the need for strong moralistic rules which would remove the decision from the political arena. This is true even though in principle flexible policies are normally preferable to rigid policies.

(3)--Inadequate Production Facilities--points up one of the surprises of the most recent inflationary period: the rapidity with which the economy ran short of production facilities, resulting in bottlenecks. The chart shows some reasons <u>why</u> the capability was inadequate without attempting to solve the mystery of why the capability was overestimated.

(4) and (5)--The U.S. Phillips Curve and U.S. Inflation and Unemployment--illustrate the worsening of the terms of the trade-off between inflation and unemployment since the fifties. Indeed, the curve seems to have moved so far to the right and become so steep that unemployment may no longer be a viable tool for fighting inflation. The academic world seems to have underestimated this phenomenon. Professors of economics usually use the Phillips curve as shown in (4) when (5) seems to be a more accurate depiction of the actual empirical data.

(6)--Net Debtor-Creditor Status of Major Economic Groups--shows the enormous losses which inflation causes for households. Since the current figure for household assets is probably about one trillion dollars, a 1974 inflation rate of 10 percent (not inconceivable) would mean a loss of about one-hundred billion dollars. Better public awareness of this situation would strengthen anti-inflationary pressure groups at the risk of heightening feelings of alienation which tend to undermine confidence in the entire socioeconomic system.

INFLATION: DEFINITIONS, THEORIES, CHARACTERISTICS

(1) lists the kinds of money economists are normally concerned about; they usually focus their attention on M_2, virtually ignoring the effects of M_3.

(2) defines what is meant by inflation. Actually, inflation can either be caused or accelerated by increases in the velocity of money in circulation.

(4)--U.S. Interest Rate vs. Velocity of Money--indicates that this velocity is remarkably constant (a well-known theorem of the monetarist economists) and has, in the past, been almost completely determined by the interest rate.

(5) and (6)--Various Theories of Inflation and Factors Leading to Types of Inflation--show the amount of controversy among experts regarding the causes and cures of inflation--and/or the possibility that it may have multiple causes--or that in various circumstances the same causes can have different effects.

INFLATION: DEFINITIONS, THEORIES, CHARACTERISTICS

Side A

(1) KINDS OF MONEY

M_1: CURRENCY PLUS DEMAND DEPOSITS

M_2: M_1 PLUS TIME DEPOSITS AT COMMERCIAL BANKS OTHER THAN LARGE CD'S

M_3: M_2 PLUS DEPOSITS AT NON-BANK THRIFT INSTITUTIONS

MONEY STOCK MEASURES, 1964-1972
(Averages of daily figures; billions of dollars, seasonally adjusted)

YEAR	M_1	M_2	M_3
1964	161	274	423
1965	168	298	459
1966	172	314	481
1967	183	346	529
1968	197	378	573
1969	204	387	588
1970	215	418	634
1971	228.	465	718
1972	247	515	810

(2) DEFINITIONS OF INFLATION

A. AN "OVERALL" INCREASE IN PRICES

B. AN INCREASE IN APPROPRIATE PRICE INDEX (OR INDICES)

C. A OR B ACCOMPANIED BY AN INCREASE IN THE SUPPLY OF MONEY

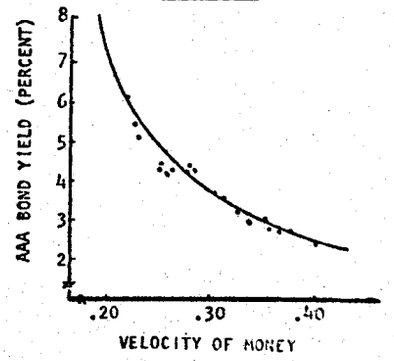
NOTE: MONETARISTS USUALLY ARGUE THAT A & C OR B & C ARE EQUIVALENT--THAT ONE CANNOT OCCUR WITHOUT THE OTHER

(3) DEFINITION OF VELOCITY OF MONEY

A. RATIO OF GNP TO M_1 OR THE AVERAGE NUMBER OF TIMES MONEY TURNS OVER IN A YEAR

B. ABOVE ASSUMES M_1 IS ONLY KIND OF MONEY

(4) U.S. INTEREST RATE VS. VELOCITY OF MONEY 1950-1970



(5) VARIOUS THEORIES OF INFLATION

THEORY	POSTULATED SOURCE OF INFLATION	IMPLIED SOLUTION
1. THE QUANTITY THEORY OF MONEY	THE CENTRAL BANK	CONTROL THE RATE OF MONEY AND CREDIT CREATION BY THE FED. AND THE BANKING SYSTEM (INCL. CHANGE IN BANK RESERVE REQUIREMENTS, ETC.)
2. INCOME THEORIES	BUSINESS PROFITS AND CONSUMER INCOMES	INCREASE TAXES TO ABSORB SURPLUS SPENDING POWER, AND ADJUST THE FEDERAL BUDGET ACCORDINGLY
	GOVERNMENT SPENDING	CHANGE FEDERAL PROGRAMS
3. COST THEORIES	NON-MONETARY FACTORS:	
A. WAGE-PUSH	LABOR UNIONS	IMPOSE WAGE (AND PRICE) CONTROLS
B. COST-OF-IMPORTS	CHANGES IN TERMS OF TRADE	ERECT COUNTERVAILING WORLD TRADE CARTELS--E.G., MONOPSONY TO OPPOSE MONOPOLY POWER, AND VICE VERSA
C. PRODUCTIVITY CHANGE		
4. STRUCTURAL RIGIDITIES	RESISTANCE TO DOWNWARD PRESSURES: ADMINISTERED PRICES, UNION RESISTENCE TO WAGE ADJUSTMENTS	INDEXING
5. ADMINISTERED PRICES	GOVERNMENT DECISIONS TO BRING ABOUT GIVEN PRICE AND INCOME ALLOCATION RESULTS, VIA SUBSIDY, TAX INCENTIVES, ETC.	CHANGE PRICE-SUPPORT OR INCOME-SUPPORT PROGRAMS. MODIFY THE EXISTING TAX AND SUBSIDY STRUCTURE.
6. FLOW-OF-FUNDS ANALYSIS	CONVERSION OF CAPITAL ASSETS INTO CURRENT MARKET DEMAND; HOARDING	CHANGE THE INVESTMENT ENVIRONMENT WHICH GOVERNS THE FLOW OF SAVINGS AND INVESTMENT, BY INFLUENCING EXPECTATIONS, BY ENACTING NEW LAWS AND CHANGING THE TAX STRUCTURE

(6) FACTORS LEADING TO:

COST PUSH	DEMAND PULL
1. OVERALL INCREASE IN COSTS	1. OVERALL INCREASE IN DEMAND
2. SECTORAL INCREASE IN COSTS	2. SECTORAL INCREASE IN DEMAND
3. REDUCED INVESTMENT IN PRODUCTIVE FACILITIES	3. OVERALL OR SECTORAL DECREASE IN PRODUCTION
4. WEAKENED BARGAINING OR PRICE RESISTANCE BY PRODUCERS	4. WEAKENED BARGAINING OR PRICE RESISTANCE BY PURCHASERS
5. INTEREST RATES (AMBIGUOUS EFFECT)	5. INTEREST RATES (AMBIGUOUS EFFECT)

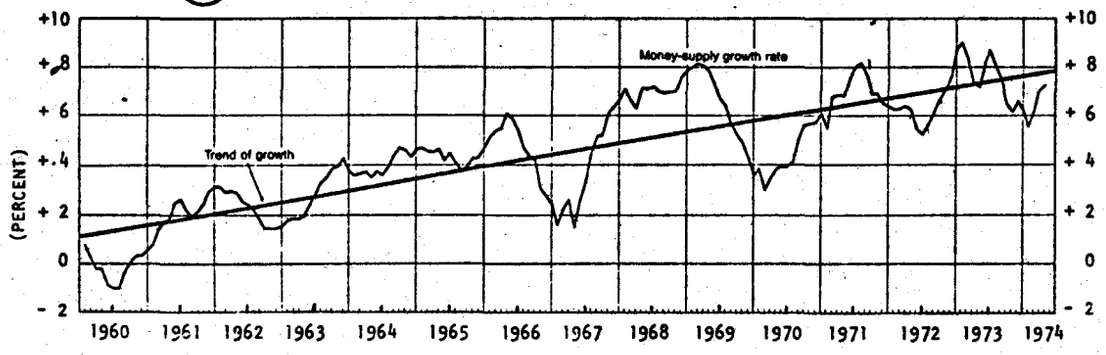
(7) SOME EFFECTS OF INFLATION

AN UNANTICIPATED INFLATION OFTEN DISTORTS THE FIRM'S BOOK-KEEPING AND OPERATIONS. TRANSFERS MONEY FROM CREDITORS TO DEBTORS, FROM RENTIERS TO PRODUCERS, FROM WELFARE RECIPIENTS AND THE POOR TO BETTER-OFF GROUPS, FROM SAVERS AND INVESTORS IN FIXED RETURN TO EQUITY HOLDERS.

SOME EFFECTS CAN BE CHANGED, EVEN REVERSED, IF MANY PEOPLE ANTICIPATE AND PREPARE FOR INFLATION

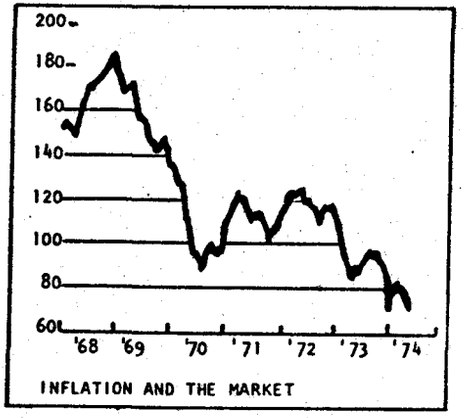
U.S. Fiscal and Monetary Policies

1 THE GROWTH RATE OF THE MONEY SUPPLY-DEMAND DEPOSITS AND CURRENCY



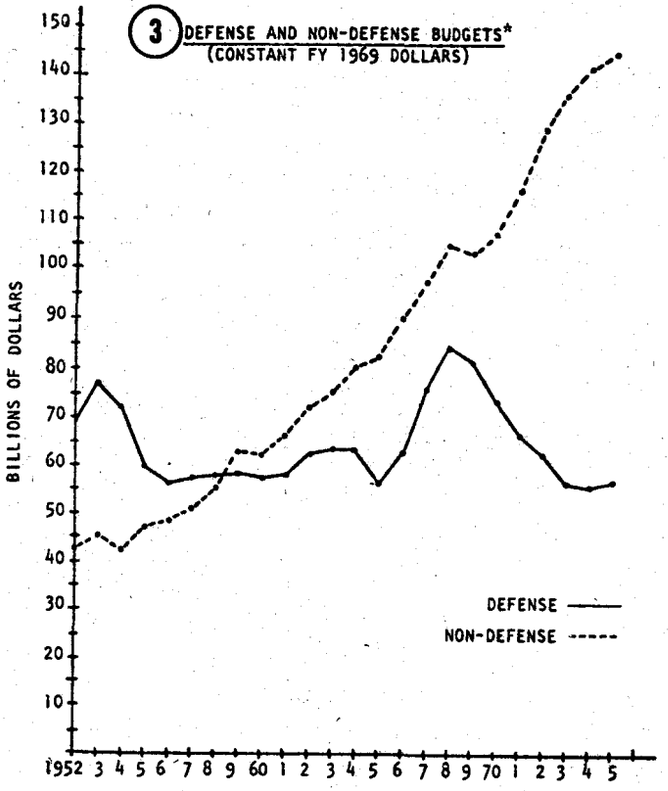
Source: Fortune Magazine, July 1974

2 VALUE LINE AVERAGE OF 1,537 STOCKS (WEEKEND CLOSE)



Source: Bureau of Labor Statistics

3 DEFENSE AND NON-DEFENSE BUDGETS* (CONSTANT FY 1969 DOLLARS)

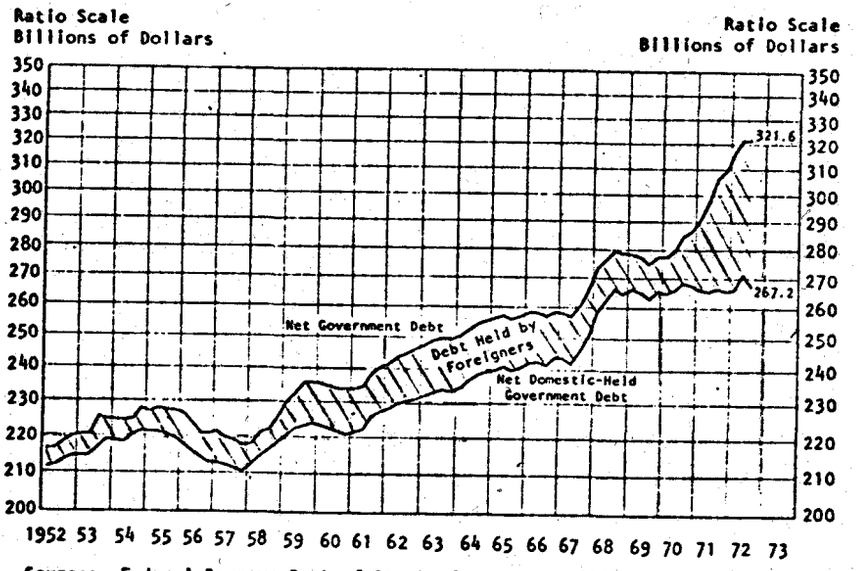


*ADJUSTED BY APPROPRIATE PRICE DEFLATORS

SOURCE: OFFICE OF MANAGEMENT AND BUDGET

4 OWNERSHIP OF FEDERAL GOVERNMENT DEBT

Quarterly Averages of End-of-Month Figures
Seasonally Adjusted



Source: Federal Reserve Bank of St. Louis, January 1973.

U.S. FISCAL AND MONETARY POLICIES

This card points out the enormous (likely) role which governmental monetary and price policies have played and are playing in causing inflation.

(1)--Growth Rate of Money Supply--shows the extremely inflationary monetary policy which has in fact been pursued since the late sixties instead of the steady 4% (or so) growth which has been recommended by Milton Friedman and some Congressional committees. It is precisely this erroneous earlier policy (which was allegedly caused by a sort of panic within the Nixon administration) which is now being rejected by the administration's current tight money policies.

(2)--Value Line of Average Stocks--shows that typical stocks have declined much more in value over the past four years than is indicated by the Dow Jones averages, which are concentrated among a few high performers. On an average, stocks have lost more than half their nominal value and nearly three-quarters of their real value. Thus, we are approaching net losses comparable to the great depression.

(3)--Defense and Non-Defense Budgets--shows that, contrary to much conventional wisdom, the Vietnam War was not the main cause of inflation. Thus, during the late sixties, government civilian expenditures increased much more than did military outlays; this is even more pronounced during the seventies. The Vietnam War nevertheless exacerbated the problem because it was expensive and, for political reasons, made increases in non-defense outlays less unpalatable.

(4)--Ownership of Federal Government Debt--shows the enormous increase since 1969 in the amount of U.S. government debt held by foreigners. This increase, about $60 billion, is roughly equal to the U.S. fiscal deficit during the same period. Thus, it can plausibly be argued that we have made life easy for ourselves and difficult for the foreigners by in effect "a forced landing" that financed our deficit spending.

ADDITIONAL NOTES ON DEPRESSION/INFLATION/INDEXING

③--Leadership Qualities Needed to Solve Inflation Problems--makes the point that indexing would put much less of a burden upon the quality of governmental leadership needed to fight inflation successfully.

④--"Indexing Can"--suggests that indexing can be terribly useful in a wide variety of ways. Rather than representing a simple capitulation to inflation, indexing significantly changes the rules of the syste in which inflation operates.

⑥--Inappropriate Indexing Can Hurt - Even Cause a Disaster--shows that, not unexpectedly, indexing is not a cost-free process. Potential costs must, of course, be weighed against potential benefits.

⑦ outlines an analogy between inflation/indexing and heroin/methadone which can promote rational discussion of inflation. Thus, t insights facilitated by the analogy do not depend upon the individual's ideas or theories about inflation. It can therefore help to produce fruitful exchanges about inflation between people who disagree about causes.

⑧--Some Candidates for a Gradual Indexing Program--shows that indexing can be implemented gradually. However, every item on this li is a political pressure point--which leads to the conclusion that inde ing may well occur even without a conscious policy decision to that effect. Every person who loses something by indexing one of the categories on this list is a potential lobbyist for indexing something els

ADDITIONAL NOTES ON DEPRESSION/INFLATION/INDEXING

Side A

(1) WHY CURRENT FEARS OF A DEPRESSION?

1. GROWING HOSTILITY TO "UNCONTROLLED INFLATION"
2. EXCESSIVE SPECULATION AND EXCESSIVELY HIGH COMMODITY AND RESOURCE PRICES
3. OIL PAYMENTS PROBLEMS
4. GENERAL LOSS OF FAITH IN FIAT CURRENCIES
5. EXPECTATION OF PANIC, CRISIS OR DEPRESSION--OTHER SELF-FULFILLING PROPHECIES
6. INCREASINGLY POWERFUL INTERESTS AGAINST ECONOMIC DEVELOPMENT AND ECONOMIC GROWTH
7. MANY GOVERNMENTS, BUSINESS AND FINANCIAL INSTITUTIONS UNDER FINANCIAL STRAIN
8. PRESSURES FOR "EXPORT OF DEFLATION" AND OTHER "BEGGAR THY NEIGHBOR" POLICIES
9. OVER-EXTENDED EURO-DOLLAR MARKET AND LACK OF RESPONSIBLE "LENDER OF LAST RESORT"
10. MANY OTHER POSSIBILITIES FOR A BREAK IN THE "CHAIN OF PAYMENTS" OR OF SETTING OFF "DOMINO EFFECTS"

(2) CURRENT ESTIMATE FOR PROBABILITY OF A DEPRESSION*

PROBABILITY	PERIOD	
	1974/1975	1976/1979
~1/6	D	?
~1/6	ND	D
~2/3	ND	ND

*D = DEPRESSION IN THE PERIOD
ND = NO DEPRESSION IN THE PERIOD

(3) LEADERSHIP QUALITIES NEEDED TO SOLVE INFLATION PROBLEMS

WITHOUT INDEXING	WITH INDEXING
COURAGE INTEGRITY WISDOM COMMON SENSE POLITICAL POWER	10% AS MUCH

(4) INDEXING CAN: (IF APPROPRIATELY USED)

1. REDUCE OR ELIMINATE EXPECTATIONS OF INFLATION AND RESTORE FAITH AND CREDIBILITY IN MONEY AND CONTRACTS
2. PREVENT INFLATIONARY GAINS TO GOVERNMENT AND OTHERS
3. INCREASE FLEXIBILITY OF PRICES AND WAGES AND OTHERWISE FACILITATE A SOFT LANDING FROM AN ONGOING INFLATION
4. SERVE ENDS OF RELATIVE SOCIAL JUSTICE AND BUSINESS STABILITY
5. PREVENT DISASTROUS "ANTI-INFLATIONARY REACTIONS" TO A NEAR INFLATION BY A POPULATION WHICH HAS ALREADY BEEN MADE "ALLERGIC" OR AT LEAST EDUCATED
6. ENCOURAGE SAVINGS AND MOBILIZE CAPITAL
7. CAN MAKE ACCOUNTING REALISTIC AND OTHERWISE IMPROVE OPERATION OF ECONOMIC SYSTEM
8. BE DONE GRADUALLY

(5) HOW GOVERNMENT GAINS FROM UNANTICIPATED INFLATION

1. AS RECIPIENT OF SEIGNIORAGE PROFITS--(CAN BE CONSIDERED AS A DEBASEMENT OF CURRENCY OR A TAX ON CASH BALANCES)
2. AS A DEBTOR AND DISBURSOR OF FIXED PAYMENTS (PENSIONS, WELFARE, ETC.)
3. AS A TAX COLLECTOR
4. AS AN EMPLOYER
5. AS AN ADVOCATE OF FULL EMPLOYMENT, HIGH FARM PRICES, ETC.
6. AS A PERMISSIVE UMPIRE AND BARGAINER
7. AS A SUPPORTER OF SATISFACTION AND CONTENTMENT (E.G. CAN EXPLOIT MONEY ILLUSION) AND A RELUCTANT APPEASER OF SQUEAKING WHEELS AND STRONG OR ACTIVIST PRESSURE GROUPS

(6) INAPPROPRIATE INDEXING CAN HURT--EVEN CAUSE A DISASTER

1. CAN TRY TO COMPENSATE FOR THE UNCOMPENSABLE
2. CAN DESTROY CERTAIN AUTOMATIC COMPENSATORY MEASURES THAT NORMALLY MITIGATE AN INFLATION AND ADD AUTOMATIC COMPENSATORY MEASURES THAT INCREASE AN INFLATION
3. CAN ELIMINATE IMPORTANT LAGS, AUSTERITIES, AND POLITICAL PRESSURES
4. CAN DESTROY IMPORTANT UTILITIES ASSOCIATED WITH THE MONETARY ILLUSION
5. CAN CAUSE DEGREE OF INFLATION TO BE EVEN MORE POLITICALLY MOTIVATED AND IN EFFECT CREATE A NEW AREA FOR "BUNGLING GOVERNMENT INTERFERENCE" AND FOR MAKING THE SIMPLE COMPLEX

(7) INFLATION/INDEXING ANALOGY TO HEROIN/METHADONE

1. MODERATE USE IS NOT EXACTLY HARMFUL OR EVEN "ADDICTING" (I.E., STOPPING USE DOES NOT CAUSE WITHDRAWAL SYMPTOMS AND THERE IS NO NEED FOR INCREASED DOSES)
2. HOWEVER, EVEN MODERATE USE CAUSES SUBTLE AND USUALLY OVERLOOKED HARM. FURTHER, IT IS ESCALATION PRONE
3. THEREFORE, HABITUATION CAN BE AS BIG A PROBLEM AS ADDICTION
4. BOTH METHADONE AND INDEXING CAN HELP PROVIDE A "SOFT LANDING" AND PREVENT EARLY READDICTION
5. BOTH REQUIRE DISCIPLINE AND CAUTION
6. BOTH CAN BE EASILY ABUSED, CAUSING SERIOUS PROBLEMS
7. BOTH RAISE SERIOUS MORAL, PSYCHOLOGICAL, ETHICAL AND POLITICAL ISSUES

(8) SOME CANDIDATES FOR A GRADUAL INDEXING PROGRAM

1. TAXES: ESPECIALLY INCOME TAX BRACKETS, DEPRECIATION ALLOWANCES, AND CAPITAL GAINS
2. GOVERNMENT BONDS
3. PRIVATE BONDS
4. GOVERNMENTAL WAGES, SALARIES, WELFARE PAYMENTS, PENSIONS
5. PRIVATE WAGES, SALARIES, PENSIONS
6. BOTH SIDES OF SAVINGS AND LOAN AND OTHER INTERMEDIATE INSTITUTIONS
7. ALMOST EVERYTHING ELSE

(9) IN SHORT, INDEXING IS AN IDEA WHOSE TIME HAS COME, WHICH MAY BE FORCED ON MANY COUNTRIES, AND WHICH IF DONE PROPERLY COULD BE DESIRABLE

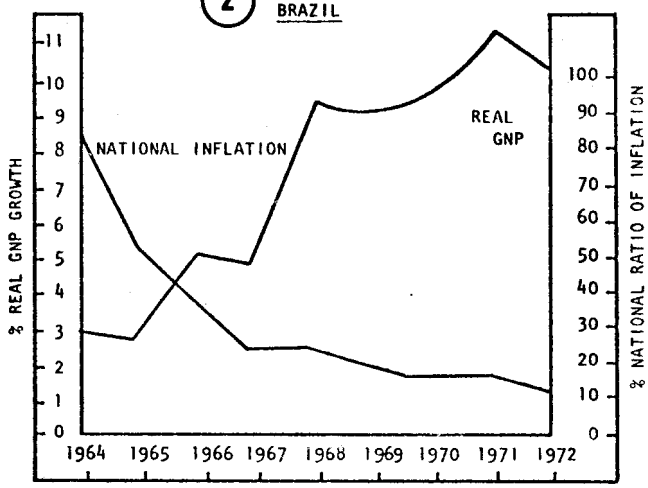
INDEXING (CONT'D)

(1) BRAZILIAN MONETARY CORRECTION

1. STRICT CONTROL OF BUDGETARY DEFICIT (0.4% IN 1970 COMPARED TO 5% IN 1963).
2. EXPORT PRICE REGULATION (GOVERNMENT PROFITS IN LIEU OF TAXES).
3. WAGE RESTRAINT--REAL WAGES WERE GOING DOWN FROM 1964-1967; SINCE 1967 A STEADY RISE OF ABOUT 3-4%.
4. "CRAWLING PEG": CRUZEIRO IS REVALUED AT FREQUENT BUT IRREGULAR INTERVALS, ON THE BASIS OF A MONTHLY ASSESSMENT OF INFLATION TRENDS INSIDE THE COUNTRY. TAKES AWAY THE SHOCK OF A MAMMOTH DEVALUATION ONCE A YEAR; REDUCES SPECULATION AGAINST THE CRUZEIRO.
5. MONETARY CORRECTION: MOST THINGS WITH A PAPER VALUE--CAPITAL, EARNINGS, PENSIONS, RENTS, SAVINGS, LOANS, GOVERNMENT BONDS, PRIVATE SECURITIES, FIXED ASSETS, COMMERCIAL CONTRACTS--ARE ADJUSTED TO ACCEPTED PRICE INDICES.
6. MONETARY CORRECTION GAINS ARE TAX-FREE. BRAZILIAN COMPANIES CAN WRITE UP THE VALUE OF PLANT EQUIPMENT AND WORKING CAPITAL EVERY YEAR IN ACCORDANCE WITH THE STANDARD INDEX. THESE PAPER GAINS ARE NOT TAXABLE AS LONG AS THEY ARE CAPITALIZED.

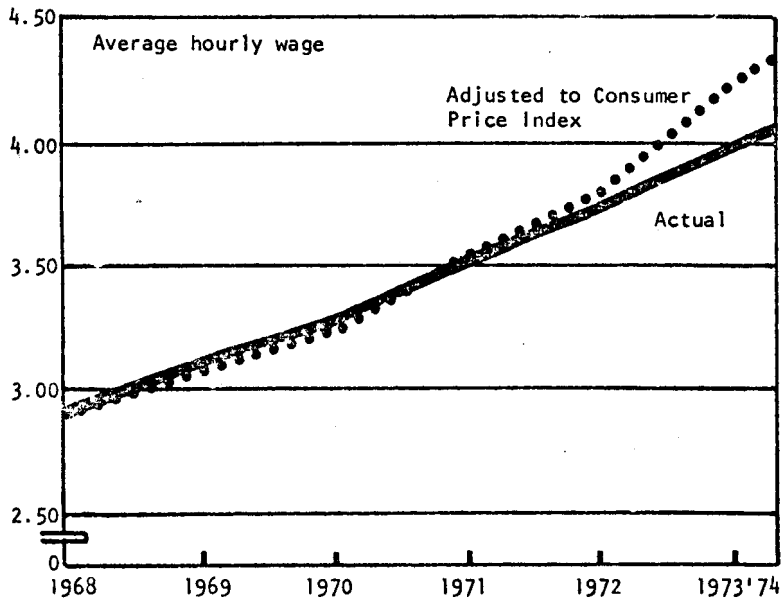
   THIS ALSO MEANS THAT COMPANIES CAN CHARGE REALISTIC DEPRECIATION.

(2) BRAZIL



SOURCE: VARGAS FOUNDATION

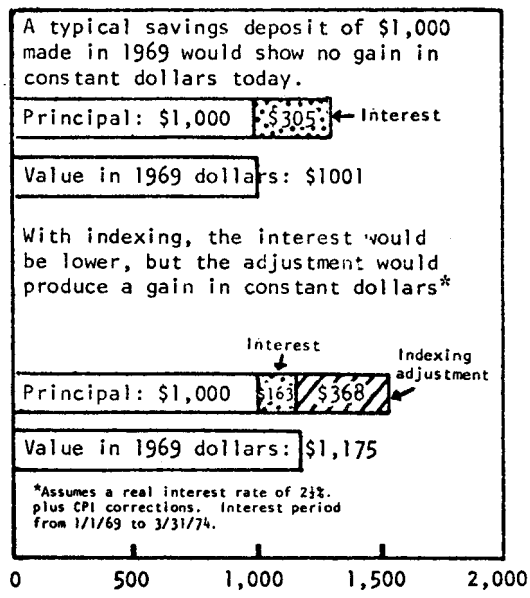
(3) WHAT INDEXING MIGHT HAVE DONE TO WAGES



Scale based on yearend figures; 1974 as of March.

Source: Bureau of Labor Statistics; BW est. Indexed wage includes productivity increases.

...AND TO SAVINGS



Source: Savings Bank Assn. of New York State; BW est.