GEORGE REISMAN

Capital, the Productive Process, and the Rate of Profit

This series, delivered at the Jefferson School's 1989 summer conference at the University of California, San Diego, represents a step-by-step exposition and development of Dr. Reisman's own, original theory of profit and capital accumulation, together with many of its leading applications. It is accompanied by a 6,000 word excerpt from the draft of Dr. Reisman's book *Capitalism: A Treatise on Economics* and by a 34 page lecture supplement. The supplement contains the numerous diagrams and tables carefully worked through in the lectures, as well as a detailed textual outline of the material presented. The series thus represents a combination of tapes and virtual mini-textbook. Each of the six lectures is approximately 90 minutes long, including question and answer period.

1. Methodological/Epistemological Introduction

Elements of sound economic theorizing: the proper treatment of money; the Aristotelian view of entities held by the British classical economists versus the Platonic-Heraclitean view of entities held by contemporary economists. Implications for the conception of aggregate production, aggregate spending, and the role of saving and productive expenditure versus consumption expenditure. Overthrow of the foundations of Keynesian economics.

2. Capital Accumulation and Its Causes

Saving and the relative demand for and production of capital goods. Technological progress and general economic efficiency as causes of capital accumulation. The fundamental role of economic freedom. Demonstration that in the absence of increases in the quantity of money, national income and capital accumulation are *inversely* related. Overthrow of the Keynesian doctrines of the balanced budget multiplier and the "conservatives' dilemma."

3. The Average Rate of Profit and Interest Under a Fixed Quantity of Money

Saving and productive expenditure as the source of equivalent sales revenues and costs deducted from sales revenues. Net consumption—essentially the consumption expenditure of businessmen and capitalists (financed by dividends, draw payments, and interest)—as the source of sales revenues in excess of productive expenditure and costs. The rate of net consumption as a manifestation of time preference.

4. The Average Rate of Profit and Interest Under an Increasing Quantity of Money

The rate of increase in the quantity of money and volume of spending as the source of an equivalent addition to the nominal rate of profit. The rate of increase in the production and supply of goods as the source of an equivalent addition to the real rate of profit. Why capital accumulation does not require a failing rate of profit. Why falling prices caused by increased production do not reduce the rate of profit or constitute deflation. Genuine deflation as a reduction in the quantity of money/volume of spending.

5. Further Applications of Reisman's Theory

Baselessness of the hostility to profits and interest. The fundamental neutrality of technological progress with respect to the average rate of profit. How taxes on profits and interest raise the pre-tax rate of profit and interest and simultaneously undermine capital accumulation and economic progress. How government budget deficits do the same. Mitigation of the harmful effects of government budget deficits by means of foreign investment and an excess of imports over exports. Why large fortunes under capitalism are a reflection of low consumption and high efficiency on the part of their owners.

6. Further Development of the Theory

Net investment and the rate of profit. The relationship between net investment and the increase in the quantity of money. The concept of the average period of production and why it need not go on lengthening as a condition of economic progress. Critique of underconsumptionism—how the demand for capital goods can permanently exceed the demand for consumers' goods and yet business is not in the contradictory position of buying for more at the same time that it sells for less. Why savings cannot outrun the uses for savings. Saving and the process of capital intensification. Depressions not caused by saving but by the need of business firms to increase holdings of money, which they have been led to run down by a government created environment of inflation and credit expansion.

The Jefferson School of Philosophy, Economics, and Psychology
The Intellectual Foundations of a Free Society IV
University of California, San Diego
AUGUST 6 - 20, 1989

Dr. George Reisman

CAPITAL, THE PRODUCTIVE PROCESS, AND THE RATE OF PROFIT

Supplement to Lectures

I. Methodological/Epistemological Introduction

a. Some immediate answers to the questions raised in the description of my lectures, which will be verified as we proceed.

1. The need for simplifying conceptual constructions

a. To answer such questions, the aid of simplifying conceptual constructions necessary—a kind of conceptual telescope.

b. Such constructions valid if they retain all of the essential features of the real world that we want to understand, and merely present those essentials in the most simplified form possible, so that we can grasp their mutual relationships.

c. For example, initially assuming that all capital goods have to be replaced every year (as I did in the TJS seminars in the Fall of 1988) and that all buying and selling for the year take place on just one day (as I will do in subsequent lectures at this conference.) This is a form of *processing knowledge* to make it manageable. (See Ayn Rand, *Introduction to Objectivist Epistemology,* New American Library edition, pp. 109f.)

2. Invariable money

a. Assumption of a fixed quantity of money and fixed volume of total spending for goods.

b. Separate analysis of the effects of changes in the quantity of money and the resulting changes in the volume of spending.

c. Then a combination of the two separate analyses to describe actual conditions. Analogous to procedure of physics.

d. Implicit procedure of Hazlitt's *Economics In One Lesson.*

3. Aristotelian View of entities in contrast to the platonic-heraclitian View Held by contemporary economics

a. Bread as bread vs. *bread as bread plus flour plus wheat—A is A* vs. *A is A+,* which latter is the implicit formula of a surprisingly large number of people when they talk about spending and is the almost explicit formula of contemporary economics. (See "Gross and Net National Product: A Defense of 'Double Counting,'" the excerpt from the draft of my book *Capitalism A Treatise on Economics,* distributed to all conference participants.)

Table 1
What is Produced in a Year?

YEAR	BUSHELS OF WHEAT	SACKS OF FLOUR	LOAVES OF BREAD
1	X_1	Y_1	Z_1
2	X_2	Y_2	Z_2
3	X_3	Y_3	
4	X_4		

II. Aggregate Production

1. **Reisman's view of what is produced—*see Table 1***

2. **Gross product, productive consumption, and net product.**

3. **Contemporary economics' view of production as merely the *gain* from production—the net product.**
   a. Confusion of who produces what.
   b. View of the product as the gain from production leads to the view that the *total product is the final product.* For every product except the final one is subtracted from production in the next stage.
   E.g., the notion that bread is the total product of wheat farmers, millers, and bakers follows from viewing the production of each of the producers as the difference between his product and his productive consumption. Thus, over Years 1 - 3 combined,

$$x_1 + y_1 - x_1 + z_1 - y_1 = z_1$$

   c. Note: *production is being conceptually obliterated insofar as it is productively consumed.* Only the production of consumers' goods is considered as real.

4. **Contemporary economics' *Platonic-Heraclitian view of entities.***
   a. The notion that the total product in the sense of total product additions is the final product supports the confusion that the final product *is* the total product in the sense not of mere "product additions," but in the sense of *actual physical entities.*

      Bread = Bread - Flour + Flour - Wheat + Wheat

      and its alternative formulations:

      a. Bread = *(Bread - Flour + Flour - Wheat + Wheat)* = Bread

      b. Bread = Bread - Flour + *(Flour - Wheat + Wheat)* = Flour + fade out

      c. Bread = Bread - Flour + Flour - Wheat + *(Wheat)* = Wheat + fade out

   b. On this view, a loaf of bread is not conceived of as a thing that exists independently, out there in reality—that is, as a simple loaf of bread. It is conceived instead as a bundle of abstractions: bread minus flour, plus flour minus wheat, plus wheat minus zero (zero, for the sake of brevity and simplicity).
   c. If all three of these abstraction are held together, as indicated by the placement of the parentheses and use of italics, then bread is conceived of as bread.
   d. If the abstraction bread minus flour is placed on dim, as it were, and allowed to fade from consciousness (as indicated by its removal from within the parentheses and appearance in roman type), the result is that the loaf of bread now appears as flour minus wheat plus wheat minus zero—that is, it now appears as flour.
   e. If, finally, the two abstractions bread minus flour and flour minus wheat are both placed on dim, (as indicated by their removal from within the parentheses and appearance in roman type), then the loaf of bread appears as wheat.
   f. In this way, a loaf of bread appears as a loaf of bread, a quantity of flour, and a quantity of wheat.
   g. It is on this basis that the value of the loaf of bread appears to count the value of the loaf of bread, the value of the flour from which it was made, and the value of the wheat from which the flour was made. And on this basis, counting the value of the bread, the flour, and the wheat separately appears to imply counting the value of the flour and wheat

more than once. (See Figure 10-1 on p. 10-25 of the excerpt from *Capitalism* and the equation on the same page showing how contemporary economics views $775 as counted by $300.)

h. Simple version: 6 "counts" 14.
6 = 1 + 2 + 3. Let 1 equal the value added by the baker, 2 the value added by the miller, and 3 the value added by the wheat farmer. Then, according to contemporary economics

a. 6 = (1+2+3), which is the value of the bread

b. 6 = 1 + (2+3), which is 1 plus the value of the flour

c. 6 = 1 + 2 +(3), which is 1 plus 2 plus the value of the wheat

i. In all of these cases, 6, the value of the bread actually counts *only* the value of the bread. But it is viewed by contemporary economics as counting the value of the flour and the wheat as well. It could count the value of the flour and wheat in addition to that of the bread only if 6 equalled (1+2+3) + (2+3) + (3), that is, only if 6 equalled 14. Ironically, it is contemporary economics that double counts: it counts the bread as counting the value of the bread plus the value of the flour plus the value of the wheat. This is double counting the value of the bread, which leads to the failure to count the actual flour and wheat, in the mistaken belief that they've already been counted.

j. What is present in contemporary economics is a Platonic-Heraclitian view of entities. It is a view of entities not as independently existing physical objects which man's mind must grasp, but as the creation of the human mind in the form of bundles of abstractions which can be put together and taken apart at will to form different entities. I call it Platonic in that it views entities as consisting of abstractions. I call it Heraclitian, in that it presents a kaleidascopic flux, in which a thing is alleged to be simultaneously itself and other things. Instead of the Aristotelian formula that *A is A*—a thing is itself—we have the formula that *A is A+*—a thing is itself plus more than itself

k. Contemporary economics' confusions about "double counting" and its belief that the final product counts the total product—that it *is* the total product—leads it to *ignore most spending in the economic system,* along with most of production. (Its confusions are supported by the confusions of many non-economists about the nature of entities and about what one buys when one buys it.)

III. Aggregate Spending

1. What is bought when it is bought?

a. The buyers of goods do not buy the means of producing the goods they buy, nor the means of producing similar goods in the future, nor the products that may be produced from those goods.

b. E.g., the buyer of a loaf of bread does not buy the flour, wheat, or labor services that were used to produce his loaf of bread—those things were bought by the producers at the various stages.

c. Nor does he buy the flour or labor services that the seller of the bread may subsequently buy, nor make the latter's research outlays, political or charitable contributions, or any other such outlay.

d. Nor does he buy a loaf of toast in buying a loaf of bread. He buys only the loaf of bread.

2. Absurdities of the Platonic-Heraclitian view of purchases:

a. Shadow purchases. Bread, flour, and wheat—all for the same money, all in the same wrapper, and all for the same calories. Contrast with *real* combined expenditures.

b. Amazing digestive powers.

c. The ice in the steam.

d. Why do producers need capital if it is the consumers who buy what they buy?

e. If you buy the inputs, you don't have to buy the output—you already own it; you buy the output because you *haven't* bought the inputs.

3. **Need for recognition of the *FULL PARITY OF EXISTENCE OF CAPITAL GOODS AND OF EXPENDITURE FOR CAPITAL GOODS AND LABOR.***

   a. Consistency of my procedure with Ayn Rand's view of the role of axiomatic concepts: "It is axiomatic concepts that identify the precondition of knowledge: the distinction between existence and consciousness, between reality and the awareness of reality, between the object and the subject of cognition." (*Introduction to Objectivist Epistemology, op. cit.*, p. 76.)

   b. My procedure vs. that of contemporary economics will serve as major illustration of the importance of applying axiomatic concepts in scientific thought: all the difference that is made by keeping in mind that a loaf of bread is only a loaf of bread and not bread plus flour plus wheat and that the spending to buy a loaf of bread is only the spending to buy a loaf of bread will serve as a demonstration of how profoundly *non*-trivial a redundancy is *A is A*

   c. The implicit Aristotelianism of the Classical Economists. John Stuart Mill's explicit recognition of the entity issue in his proposition "demand for commodities is not demand for labour."

> We pass now to a fourth fundamental theorem respecting Capital, which is, perhaps, oftener overlooked or misconceived than even any of the foregoing. What supports and employs productive labor, is the capital expended in setting it to work, and not the demand of purchasers for the produce of the labour when completed. Demand for commodities is not demand for labour. The demand for commodities determines in what particular branch of production the labour and capital shall be employed; it determines the *direction* of the labour; but not the more or less of the labour itself, or of the maintenance or payment of the labour. These depend on the amount of the capital, or other funds directly devoted to the sustenance and remuneration of labour....
>
> This theorem, that to purchase produce is not to employ labour; that the demand for labour is constituted by the wages which precede the production, and not by the demand which may exist for the commodities resulting from the production; is a proposition which greatly needs all the illustration it can receive. It is, to common apprehension, a paradox; and even among political economists of reputation, I can hardly point to any, except Mr. Ricardo and M. Say, who have kept it constantly and steadily in view. Almost all others occasionally express themselves as if a person who buys commodities, the produce of labour, was an employer of labour, and created a demand for it as really, and in the same sense, as if he had bought the labour itself directly, by the payment of wages. It is no wonder that political economy advances slowly, when such a question as this still remains open at its very threshold. I apprehend, that if by demand for labour be meant the demand by which wages are raised, or the number of labourers in employment increased, demand for commodities does not constitute demand for labour. I conceive that a person who buys commodities and consumes them himself, does no good to the labouring classes; and that it is only by what he abstains from consuming, and expends in direct payments to labourers in exchange for labour, that he benefits the labouring classes, or adds any thing to the amount of their employment.
> —John Stuart Mill, *Principles of Political Economy,* Ashley Edition, Reprints of Economic Classics, Augustus M. Kelley, Fairfield, New Jersey, 1976, pp. 79ff.

4. **Mill's proposition should be restated as *The Demand for A Is the Demand for A.***

IV. Aristotelian Entities and the Role of Saving in Spending

1. **An Aristotelian view of entities implies that most spending in the economic system is productive expenditure, not consumption expenditure.**
   a. All the spending for capital goods—*viz.*,all the spending for goods at wholesale, all the spending for machinery, equipment, materials, components, and supplies, and all the wage payments by business firms are made *by business firms, not* by consumers; they are not consumption expenditures, but *productive expenditures—viz. expenditures made for the purpose of making subsequent sales.* (Consumption expenditures, in contrast, are expenditures made not for the purpose of making subsequent sales.)
   b. The productive expenditure for wages, moreover, is the source of the great bulk of consumption expenditures.

2. ***Productive expenditure depends on saving*—on the portion of their revenues and incomes that people do *not* consume.**
   a. To the extent that people consume more of their revenues and incomes, and save less, their ability to make productive expenditures is less. If everyone did nothing but consume, there would be no productive expenditure.
   E.g., the case of buying goods from a store, whose owners used the proceeds to consume, which is followed by repeated rounds just of consumption out of sales revenues. Only additional consumption would exist in such a case. The only additional income would be *profit.*
   b. Application to critique of the Keynesian "income multiplier"—the only incomes raised by the successive rounds of consumption expenditure envisioned by the multiplier doctrine would be profits, not wages. Any rise in wages, in the demand for goods at wholesale, in the demand for capital goods of any kind depends on *saving,* which the Keynesians regard as a "leakage" and as allegedly diminishing the amount of subsequent incomes.

V. Aggregate Economic Accounting on an Aristotelian Base

1. **As shown, contemporary economics obliterates the role of saving and productive expenditure.**
   a. In its eyes, almost all of spending is consumption expenditure. The only other expenditure it recognizes is net investment or what it calls gross investment, which is actually nothing more than net investment plus depreciation allowances. The allegedly gross investment of contemporary economics is plant and equipment spending plus *net* investment in inventories. It is not truly gross at all.
   b. Contemporary economics' recognition of net investment is implied in its view of production as the gain from production. The following equation describes the full gain from production over Years 1 - 3 of Table 1:

$$z_1 - y_1 + y_2 - x_2 + x_3 = z_1 + y_2 - y_1 + x_3 - x_2$$

   c. To the extent that the production of the wheat and flour differs from their productive consumption, the production of the period is held to be the production of the bread plus the net change in the inventory of the wheat and flour.

2. **Reisman's conception of aggregate expenditure**
   a. All the expenditure that constitutes business sales revenues or wage payments.
   b. Most of such expenditure is productive expenditure, not consumption expenditure.

3. Reisman's conception of aggregate spending and its relationship to contemporary national income accounting:

KEY: s = aggregate business sales revenue

s_b = that part of aggregate business sales revenue paid by business firms and constituting part of productive expenditure

s_c = that part of aggregate business sales revenue paid by consumers and constituting part of consumption expenditure

w = aggregate wages

w_b = that part of aggregate wages paid by business firms and constituting part of productive expenditure

w_c = that part of aggregate wages paid by consumers and constituting part of consumption expenditure

d = aggregate costs deducted from aggreate business sales revenues in computing aggregate profits

C = aggregate consumption expenditure insofar as it constitutes business sales revenues or the payment of wages

B = aggregate productive expenditure insofar as it constitutes business sales revenues or the payment of wages

I = net investment

a. On the basis of the above, it can easily be shown that

$$s + w = C + B$$

b. It can also be shown that when d is subtracted from $s + w$ the result is national income (profits plus wages) and that when it is subtracted from $C + B$, the result is C + I (consumption plus net investment). (For an explanation of why productive expenditure minus costs equals net investment, hear Lecture 6 in my 1987 TJS series "A Theory of Productive Activity, Saving, and Profit" and see pages 14 and 15 of the lecture supplement that accompanied it. Time permitting, the subject will be explained again, later in the present series.)

c. When these points are understood, it becomes clear that in the framework of contemporary national income accounting most spending in the economic system is concealed under the heading of net investment, which stands as the visible portion of an iceberg, as it were.

VI. Developing Reisman's Conceptual Construction: Review of *Everyone's Stake in Capitalism II*

1. Capital accumulation and thus real wages as dependent on the relative production of capital goods and the productivity of capital goods

a. Real wages depend on the productivity of labor—viz., on the output per unit of labor, which depends on the supply of capital goods per worker.

b. The supply of capital goods depends on the demand for capital goods relative to the demand for consumers' goods. This determines the relative production of capital goods, which must exceed the proportion necessary for maintenance, if capital accumulation is to take place.

c. Capital accumulation also depends on the productivity of capital goods—*viz.*, on the output per unit of capital goods. *See Figures 1 and 2.* This determines the maintenance pro-

Figure 1. The Relative Production of Capital Goods in a Stationary Economy

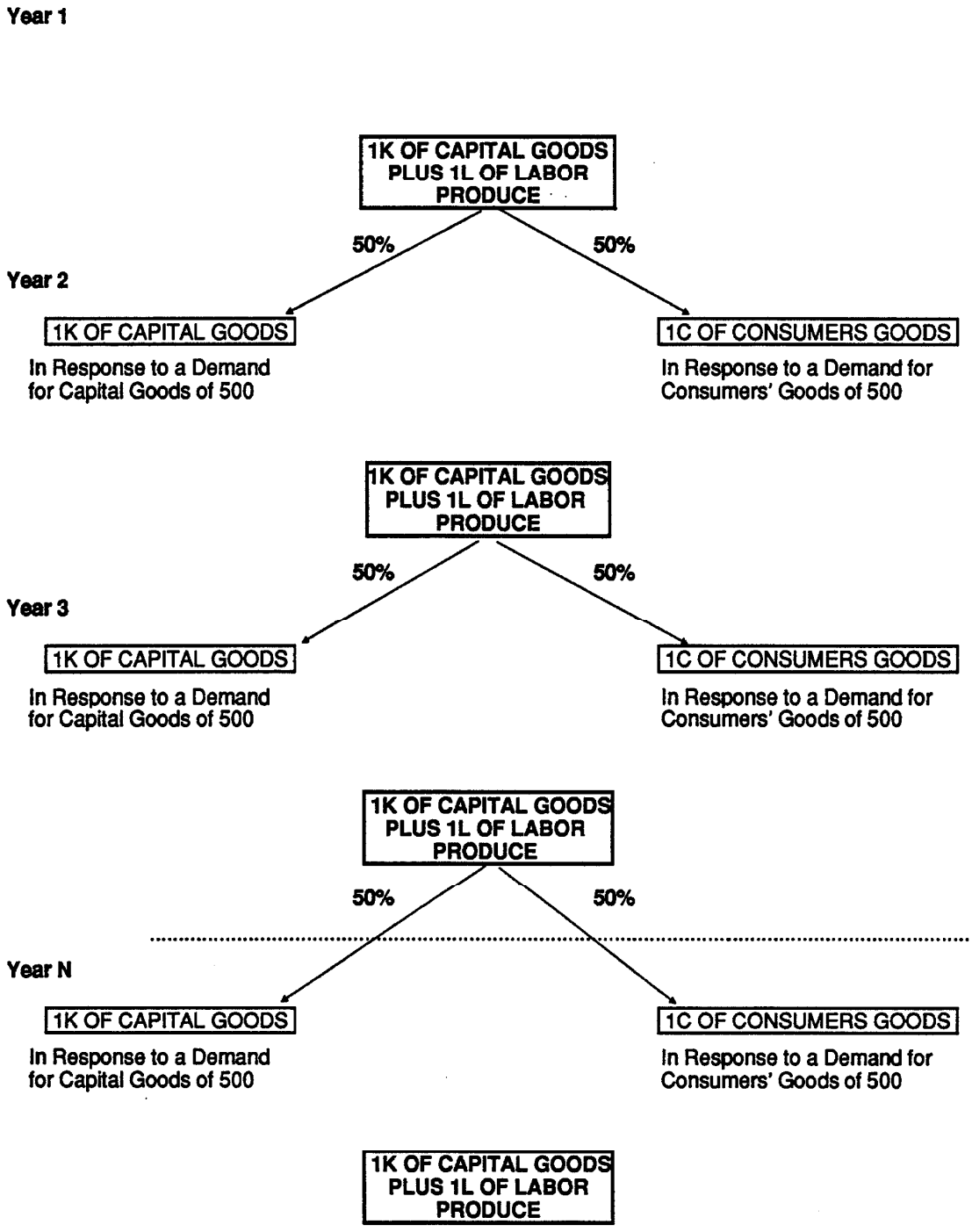
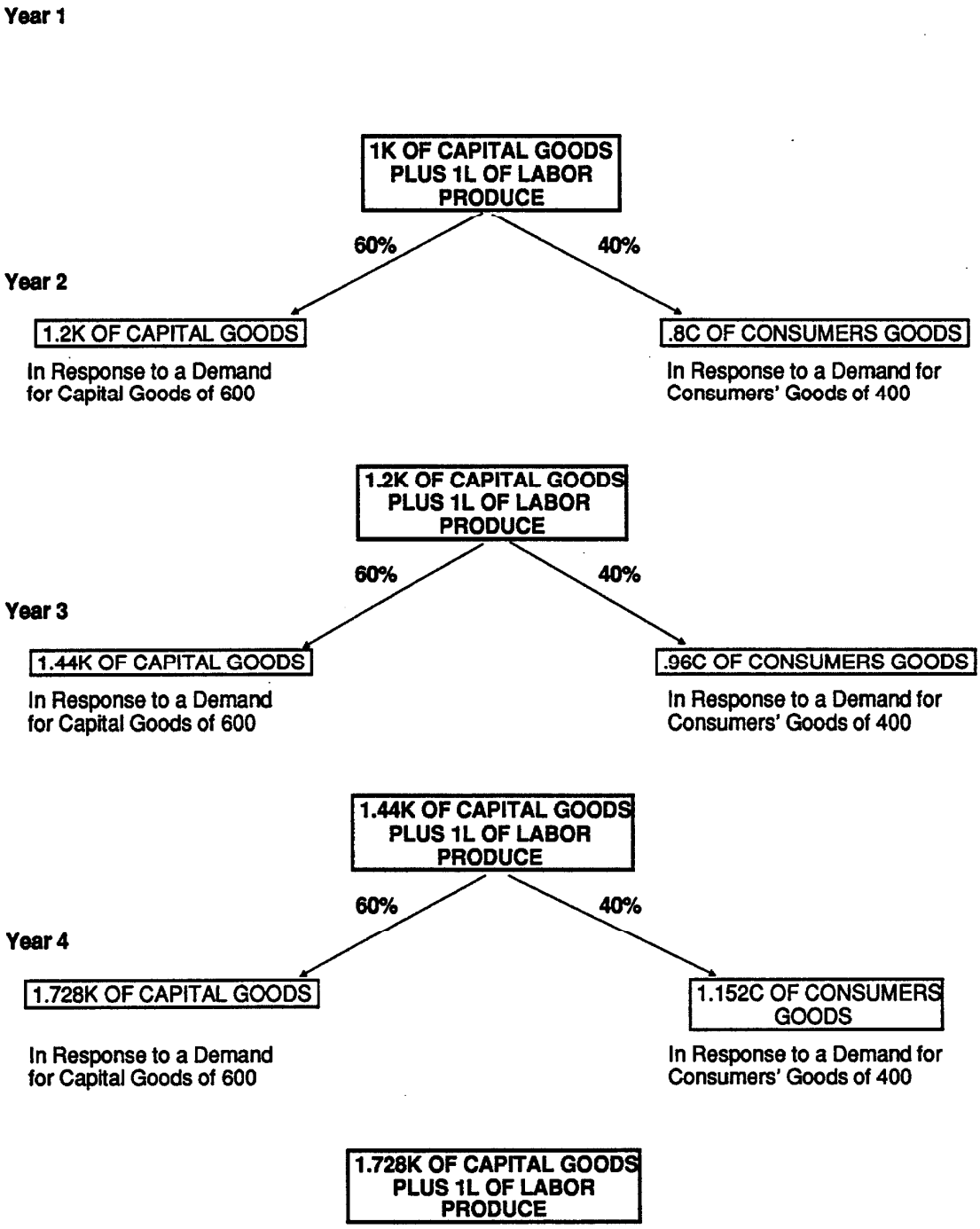


Figure 2. The Relative Production of Capital Goods in a Progressing Economy



portion and the ability of any given relative production of capital goods to result in capital accumulation.

d. A sufficiently high relative production of capital goods and a constant productivity of capital goods—sustained by technological progress and innovation—causes a *continuing* increase in the supply of capital goods and thus a continuing increase in the productivity of labor and in real wages.

e. Two further major points stressed in that lecture:

f. A reduction in government spending and in the taxation and regulation of businessmen increases the demand for capital goods relative to the demand for consumers' goods and raises the productivity of capital goods to a higher level.

g. Thus, the effect of a reduction in government spending and in the taxation and regulation of businessmen is a continuing increase in the supply of capital goods, in the productivity of labor, and in real wages.

2. The theoretical significance of giving parity of recognition to the production of capital goods:

a. This is what makes it possible to see how more capital goods are themselves a source of still more capital goods and the whole role of the productivity of capital goods, technological progress, and everything else that contributes to the productivity of capital goods—above all, economic freedom. For when more capital goods come into existence, it is clear that they are used to produce *capital goods* as well as consumers' goods and that the supply of capital goods *depends on everything that production and supply in general depend on.* These identifications are impossible if one proceeds as though all that is being produced are consumers' goods.

b. In combination with the assumption of invariable money, the recognition of the parity of existence of capital goods also makes it possible to see the role of saving in terms of force/acceleration, not simple motion.
A greater relative production of capital goods, greater saving and demand for capital goods relative to the demand for consumers' goods is not necessary for capital accumulation once a sufficiently high degree of saving and demand for capital goods exists—as seen, that's accomplished on the basis of the larger supply of capital goods in the year before, coupled with technological progress. More saving and demand for capital goods relative to the demand for consumers' goods would thus serve not to sustain but to accelerate capital accumulation.

VII. A Further Look at the Elementary Construction: Invariable Money and the *Inverse* Relationship between Capital Accumulation and Nominal National Income

a. National income as sales revenues minus costs on account of materials and machinery, which equals the sum of profits, interest, and wages.

b. Under an invariable money, a higher relative production of capital goods means higher outlays for capital goods deducted as costs from fixed aggregate sales revenues. Compare Figures 1 and 2 and Tables 2 and 3.

c. Implication of destructive nature of the Keynesian income "multipliers" if the multiplier doctrine were correct.

d. Overthrow of the balanced budget multipler doctrine and the doctrine of the "conservatives' dilemma" that is based on it.

Table 2

National Income in Figure 1

YEAR	DEMAND FOR CAPITAL GOODS	DEMAND FOR CONSUMERS' GOODS	SALES REVENUES	COSTS ON ACCOUNT OF CAPITAL GOODS	NATIONAL INCOME
1	500	500	1000	500	500
2	500	500	1000	500	500
3	500	500	1000	500	500
4	500	500	1000	500	500

Table 3

National Income in Figure 2

YEAR	DEMAND FOR CAPITAL GOODS	DEMAND FOR CONSUMERS' GOODS	SALES REVENUES	COSTS ON ACCOUNT OF CAPITAL GOODS	NATIONAL INCOME
1	600	400	1000	600	400
2	600	400	1000	600	400
3	600	400	1000	600	400
4	600	400	1000	600	400

Why National Income Equals Sales Revenues Minus Costs on Account of Capital Goods

Sales Revenues - Costs on Account of Capital Goods =

Sales Revenues - (Costs - Wages - Interest) =

Profit + Wages + Interest = National Income

National Income is defined as the sum of profit, wage, and interest incomes.

VIII. Further Development of the Construction: Invariable Money and the Nominal Rate of Profit—*See Figure 3.*

a. Figure 3 is Figure 1 with the monetary aspect elaborated. Three step analysis: opening assets of business every year, financial transactions all on the first day of the year, production over the rest of the year, followed by opening assets of the next year and fresh transactions and fresh production in the next year. A framework for the analysis of the determinants of the average rate of profit in the economic system.

b. Basis for placement of business at the center and all cash in the hands of business and constantly flowing back to it: *money comes to goods*; the "macroeconomic" dependence of the consumers on business, in contrast to the "microeconomic" dependence of the individual company and industry on the consumers—the reason being that competion is present only at the microeconomic level, but not at the macroeconomic level.

c. Basis for assumption of wages being paid in advance—correspondance to essential facts. Nothing fundamental changed if assumption made that workers work for a year before being paid—but analysis made more complicated.

d. Basis for provisional assumption of all wages being consumed—reasonable correspondance to actual facts concerning use of wage earners' savings.

1. **The meaning of the rate of profit (rate of return on capital): the amount of nominal—*viz.*,monetary—profit, gross of interest costs, divided by the amount of capital invested.**

   a. The average rate of profit in Figure 3 in every year is exactly 11.11%. See if you can figure out why.

   b. *Answer: every year there is 1000 of total sales revenue and 800 of total costs, so the amount of profit is 200. The total capital invested is 1800, equal to the sum of the value of the opening assets of business, including the money held by business of 1000. The profit of 200 divided by the capital of 1800 equals 11.11%*

2. **The relationship between productive expenditure, costs, and sales revenues.**

   a. Assumed equivalence, based on the assumption of all capital goods being consumed in each year, between the productive expenditure of any given year and the costs deducted from sales revenues in the next year.

   b. The productive expenditure of any given year generates equivalent sales revenues in that year.

3. **Profit in this context dependent on the *excess of sales revenues over productive expenditure*, since otherwise sales revenues could not exceed costs.**

   a. As is shown immediately below, and in Table 4, since the demand for capital goods enters equally into both productive expenditure and sales revenues, the excess of sales revenues over productive expenditure is necessarily equal to *the excess of consumption expenditure over wage payments.* I call this excess *Net Consumption.*

   b. Sales Revenues = $D_K + D_C$

   c. Productive Expenditure = $D_K + D_L$

   d. Sales Revenues - Productivie Expenditure = $D_K + D_C - (D_K + D_L) = D_C - D_L$*

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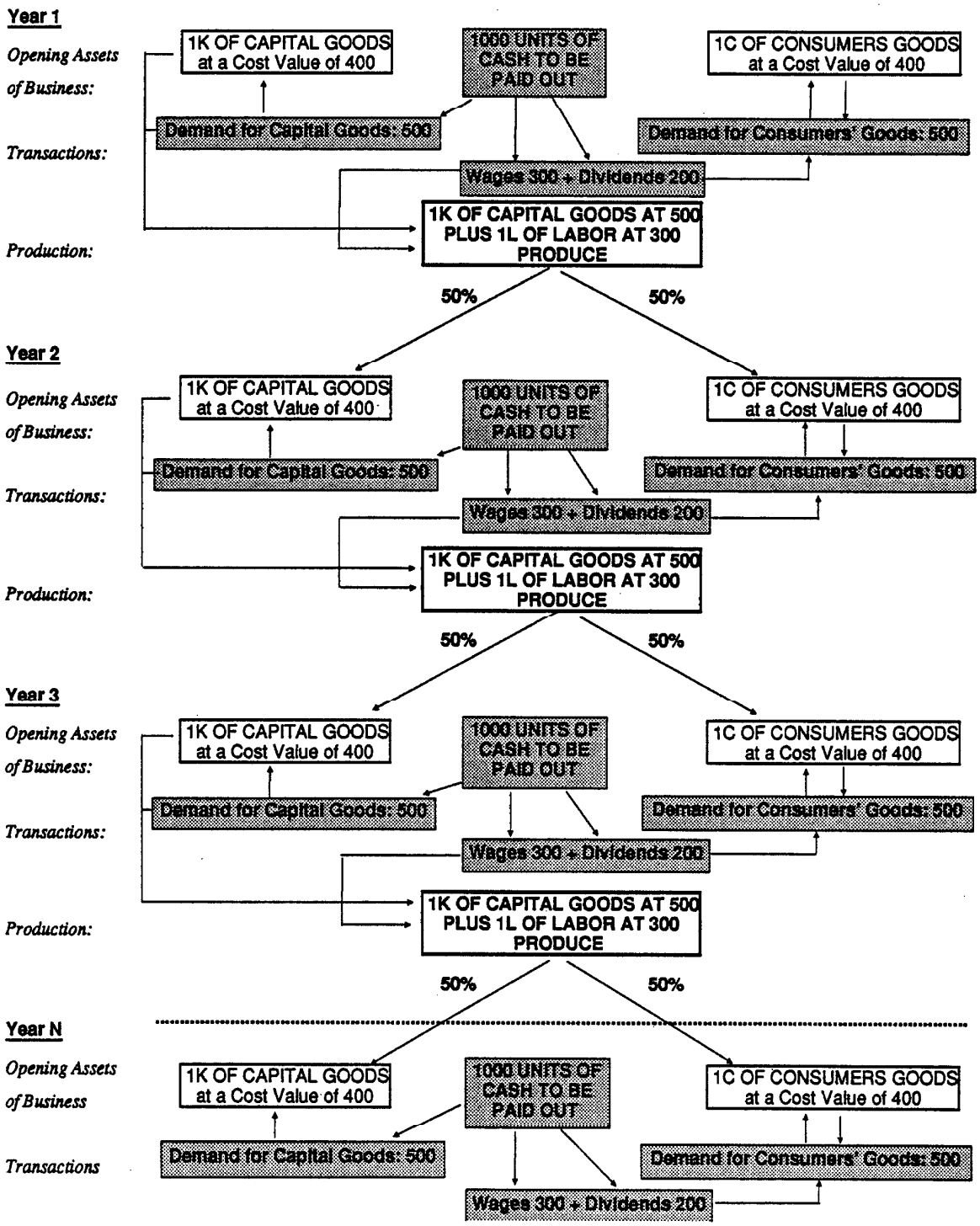
* In terms of the previous discussion of national income accounting, $D_K = s_b$, $D_C = s_c$, and $D_L = w_b$.

Figure 3. Profits in a Stationary Economy with an Invariable Money



4. Net consumption

a. Primarily the consumption of businessmen and capitalists. It is made out of sales revenues, without the intervention of a wage payment, and thus without the intervention of anything that contributes to costs deducted from sales revenues.

b. Dividends and the draw of funds from their enterprises by partners and sole proprietors are its most important sources. Consumption out of dividends and draw payments constitutes sales revenues of business, but has no counterpart in productive expenditure and thus no counterpart in the costs deducted from sales revenues. *It* is what enables sales revenues regularly and consistently to exceed productive expenditures and thus costs.

c. Consumption out of interest payments also represents net consumption. Interest payments by business are a part of productive expenditure and do show up in costs, but we are deliberately ignoring interest costs and viewing profits as gross of interest costs, that is, as pre-deduction of interest costs. Consumption out of interest is thus a source of sales revenues in excess of the productive expenditures and costs that we are considering.

d. Note: to the extent that dividends, draw, and interest payments are not consumed, but saved and productively expended, the effect is to add to productive expenditure and thus costs, and thus to reduce profits. The connection to profits is by way of *consumption.*

e. See Table 5 for a tabular illustration of the role of net consumption in the generation of aggregate profit in every year of Figure 3.

f. Table 5 implies that the rate of profit equals the rate of net consumption.

g. To test your understanding of the effect of net consumption, see what happens to profits if the consumption of the businessmen and capitalists rises from the 200 of Figure 3 and Table 5 to 300, at the expense of a corresponding decline in productive expenditure and ultimately in costs deducted from sales revenues. What happens if this consumption then rises to 900, to 990, 999, 1000, while productive expenditure and the demand for factors of production fall correspondingly?

5. Why an individual capitalist cannot increase his rate of profit by deciding to consume more.

a. The case of an individual firm with a capital of 9 while the economic system as a whole has the implied capital of Figure 3 of 1800. So long as the owners and creditors of this firm consume only 1 and keep their capital at 9, they earn 9 times the rate of profit of 200 over 1800, which amounts to a profit of 1. If they increase their consumption to 2 and correspondingly reduce their capital to 8, the rate of profit they earn is 8 times a rate of profit of 201 over 1799. Their additional consumpition does add to profits, but not to their own profits—it adds to the profits of other businessmen and capitalists who have not diminished their capitals.

b. Implications for the gravitation of relative wealth and income.

6. The net consumption rate as a manifestation of time preference.

a. Time preference as determined by the cultural influence of rationality and the security of property.

Table 4

The Sources of Sales Revenues

SOURCES OF SALES REVENUES		SALES REVENUES
PRODUCTIVE EXPENDITURE		
Demand For Capital Goods	=	Receipts From Sale Of Capital Goods
Demand For Labor	=	Receipts From Sale Of Consumers' Goods To Wage Earners
CONSUMPTION OF BUSINESSMEN AND CAPITALISTS (NET CONSUMPTION)	=	Receipts From Sale Of Consumers' Goods To Businessmen And Capitalists
Productive Expenditure Of The Previous Year	=	Costs Deducted From Sales Revenues In The Current Year

Table 5

Productive Expenditure, Costs, and Sales Revenues —the Elements Generating Profit In Figure 3

YEAR	PRODUCTIVE EXPENDITURE	COSTS	SALES REVENUES	PROFIT	NET CONSUMPTION
1	800	800	1000	200	200
2	800	800	1000	200	200
3	800	800	1000	200	200
4	800	800	1000	200	200

The table above shows that the productive expenditure of each year shows up as equivalent costs in the next year.
It also shows that a repetition of the same amount of productive expenditure in the next year generates sales revenues equal to those costs.
Finally, it shows that the excess of sales revenues over costs is determined by *net consumption.*

IX. The Addition to the Nominal Rate of Profit by Virtue of Increases in the Quantity of Money and Volume of Spending

a. Assumption of invariable money can be temporarily relaxed to see how increases in the quantity of money and volume of spending raise the nominal rate of profit.

b. Figure 3A repeats Figure 3 in every way, except that the quantity of money and volume of spending for capital goods, labor, etc. are shown to increase at a compound annual rate of 10%.

c. Table 6 extends and elaborates the data of Figure 3A. It shows a higher rate of profit corresponding to the repeated increase in money and spending. It also shows that if the increase in the quantity of money itself is added to sales revenues, as would be perfectly appropriate under a gold standard, where the *modest* amount of gold mined is the revenue of the gold mining concerns, the 10% annual increase in money and spending results in an addition to the nominal rate of profit of approximately as great a percentage.

d. Any rate of increase in money and spending can be substituted, and it will be found that an addition to the rate of profit takes place that is approximately equal to the rate of increase in money and spending.

Table 6

The Effect of an Increasing Quantity of Money and Rising Volume of Spending on the Nominal Rate of Profit

YEAR	M	NC	B	d	I	s	p	K	$\frac{p}{K}$ in %	$p+\Delta M$	$\frac{p+\Delta M}{K}$ in %	Rise in profit rate
1	1000	200	800	800	0	1000	200	1800	11.11	200	11.11	
2	1100	220	880	800	80	1100	300	1980	15.15	400	20.20	9.09%
3	1210	242	968	880	88	1210	330	2178	15.15	440	20.20	9.09%
4	1331	266	1065	968	97	1331	363	2396	15.15	484	20.20	9.09%
5	1464	293	1171	1065	106	1464	399	2635	15.15	532	20.20	9.09%

KEY:

*Note: Initial profit rate was 11.11%

M Money Supply

NC = Net Consumption

B = Productive Expenditure

d = Costs deducted from sales revenues

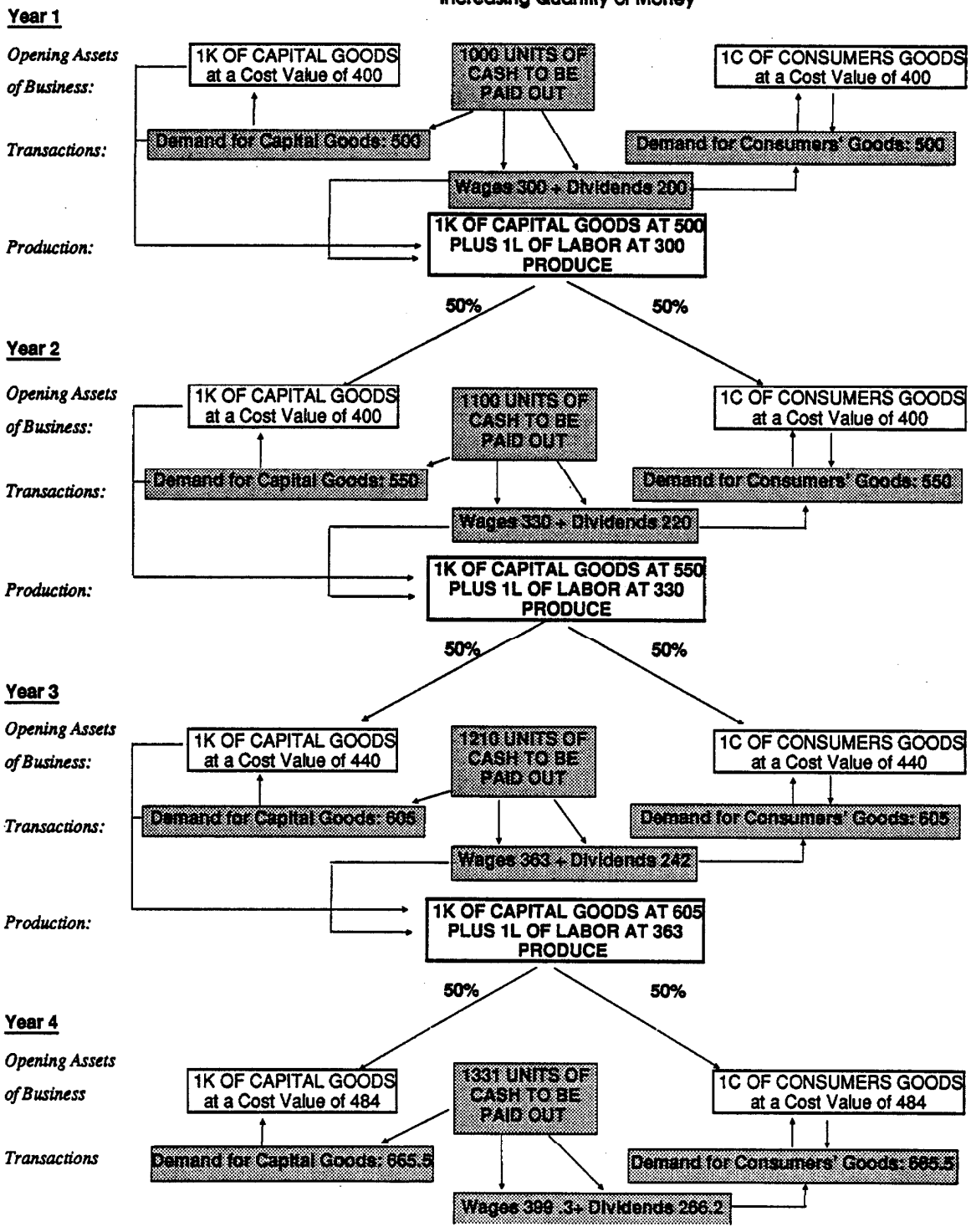
I = Net Investment (B-d)

p = Profits

K = Capital

ΔM = the increase in the money supply

Figure 3A. Profits in an Economy with an Increasing Quantity of Money



X. Increases in Production and Increases in the Real Rate of Profit

a. In the absence of increases in money and spending, increases in production cause prices to fall and correspondingly increase the buying power of any given sum of nominal capital plus its profit. E.g., a 5% increase in production and 5% fall in prices turns a 3% nominal rate of profit into an approximately 8% real rate of profit, for $1.03 can now buy approximately what $1.08 used to buy.

b. Increases in production serve to prevent increases in money and spending from raising prices as they raise the rate of profit. They thus transform increases in the nominal rate of profit into increases in the real rate of profit.

c. Under a gold standard, broadly based increases in productive ability almost inevitably spill over into mining, including precious metal mining. Thus, they are almost inevitably accompanied by an addition to the nominal, as well as to the real, rate of profit.

XI. Leading Further Implications of the Analysis of the Productive Process Under an Invariable Money

1. Capital accumulation, falling prices, rising real wages, all with no fall in the average rate of profit

a. All this is simultaneously evident from inspection of Figure 4. Also, technological progress and no *rise* in the average rate of profit.

b. What is shown in Figure 4 is a *non-repeatable* fall in the rate of profit accompanying the rise in the relative production of capital goods made possible by a fall in net consumption. Thereafter, no further fall in the rate of profit occurs, as capital accumulation takes place on the basis of past capital accumulation coupled with the exploitation of more advanced technologies.

c. The widespread view that capital accumulation causes a fall in the rate of profit is based in part on generalizing from the conditions of an individual industry; in part, on the necessary assumption of all other things equal—i. e., starting with a stationary economy and a given quantity of money—but then not carrying the analysis far enough.

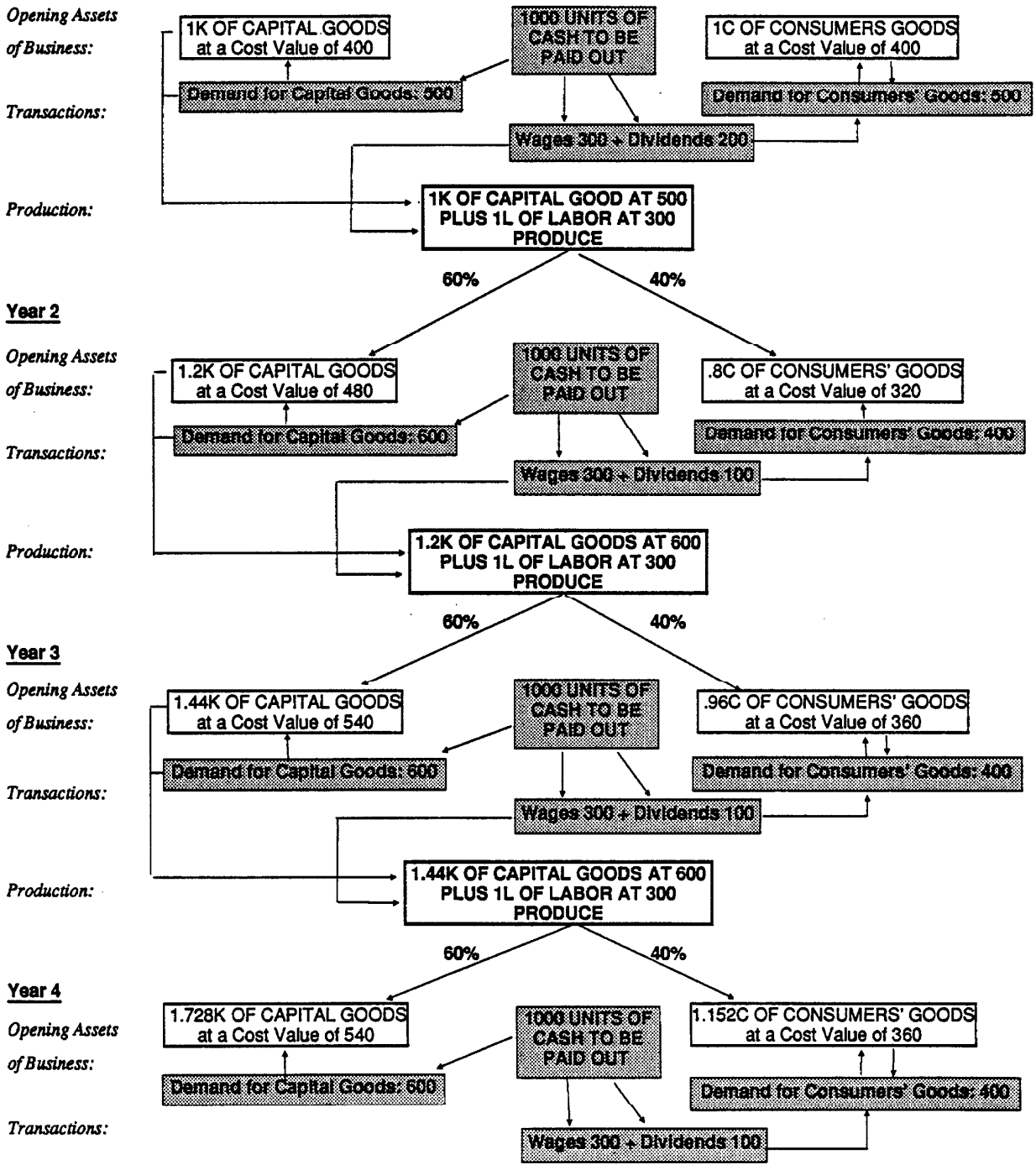
d. A lower net consumption rate achieves a larger relative production of capital goods and a higher degree of capital intensivity and implies a fall in the rate of profit. The rise in the relative production of capital goods and in the degree of capital intensivity inaugurates capital accumulation, *which, as shown, thereafter continues on the basis of prior capital accumulation plus technological progress*—no further fall in the rate of net consumption is required. Also, it should be borne in mind that the more rapid increase in the quantity of commodity money that almost inevitably accompanies a broadly based increase in production operates *to raise the rate of profit*—net consumption profits to this extent are replaced with profits based on an increase in the quantity of money.

2. The fall in prices accompanying the rise in production does not reduce the rate of profit

a. After the initial adjustment to the fall in net consumption, the fall in prices is always preceded by fall in the prices of capital goods and rise in the productivity of labor, both of which reduce unit costs of production to the same extent as product prices and ahead of product prices.

b. Further, it follows from the present discussion that falling product prices caused by increased production can take place in an environment in which the increase in the supply of commodity money resulting from the increase in production adds a positive monetary component to the nominal rate of profit. Thus, falling prices caused by increased produc-

Figure 4. Profits in a Progressing Economy with an Invariable Money



tion can be accompanied by a rate of profit that is not only not reduced by the fall in prices, but which is actually *increased* to some extent as part of the very same process.

c. Even in the complete absence of this additional component in the rate of profit, it cannot be stressed too strongly that falling prices caused by increased production are *not* deflationary. It is clear from Figure 4 that there is no fall in the aggregate amount or average rate of profit in the economic system after Year 3, no matter how much prices go on falling, nor is there any greater difficulty in earning any given sum of sales revenues at any time, provided only that one's own rate of increase in production conforms to the economy-wide average rate of increase. Moreover, if the interval during which the rate of profit does fall should be a problem, because it might be more difficult to pay interest if the rate of interest had not fallen at the same time or in anticipation of the fall in the rate of profit, then still, it is not the fall in prices which is essential but the delimited fall in the rate of profit. No debtor would be helped if production did not increase and prices did not fall or do so to as great an extent as they do. In that case, there would be the same delimited fall in the rate of profit, but no increase in the purchasing power of the funds one had available, or a lesser increase.

3. Real wages go on rising without the rate of profit having to fall

a. At most, a one time fall in the rate of profit corresponding to the fall in the rate of net consumption. *Thereafter, real wages and real profits increase together, through falling prices.*

b. Again, it must be stressed that the rise in production adds to the real rate of profit and the almost inevitably accompanying increase in the quantity of commodity money adds to the nominal rate of profit.

c. The nominal and real rate of profit as reflecting to a substantial degree nothing more than the rate of increase in the quantity of money and volume of production. Implied absurdity of attempts to seize profits for the benefit of wage earners.

4. Fundamental neutrality of technological progress

a. Figure 4 shows that technological progress does not raise the average rate of profit. It raises the profits of individual, innovative firms, while reducing the profits of their competitors.

b. Its overall effect on the rate of profit is *neutral,* except insofar as it affects the production of monetary commodities, namely, gold or silver, and thereby increases the quantity of money.

c. Technological progress increases the supply of capital goods and the productivity of labor. In these ways, it reduces the costs of production and prevents the increasing supplies and falling prices of consumers' goods and further capital goods from reducing the rate of profit.

XII. The Net Consumption Theory Versus Marxism

1. The primacy of profits

a. A leading application: invariable money and the net consumption theory as the basis for the primacy of profits doctrine I advanced against Adam Smith and Karl Marx (See George Reisman, "Classical Economics Versus the Exploitation Theory," in Albert Zlabinger, editor, *The Political Economy of Freedom, Essays in Honor of F. A. Hayek,* Philosophia Verlag, Munich, 1984. Also hear my 1987 TJS Lecture Series "A Theory of Productive Activity, Saving, and Profit.")

2. **What would be the effect on the rate of profit if there were no capitalists, but just sellers of products?**
   a. ***A Problem to Test Your Understanding:*** Adam Smith and Karl Marx postulated a simple state of affairs in which manual laborers produced and sold products, kept the whole sales proceeds, and did not act as capitalists, i.e., did not buy for the sake of subsequently selling. They believed that in such circumstances all income was wages, and no income was profits. They held that profits came into existence only with the development of "capitalistic circulation" (i.e., buying for the sake of selling) and were a deduction from what was originally all wages. You are given the following information with which to test these propositions in the light of the net consumption theory: Receipts from the sale of products are 1000, all of which is consumed and which constitutes a fresh 1000 of receipts from the sale of products in the next period. Using Figure 3 and Table 4 as your framework of analysis,
   b. State the amount of productive expenditure present.
   c. State the amount of wages paid in the production of products.
   d. State the amount of money outlays to be deducted from sales revenues as costs.
   e. State the amount of profits earned on the sales revenues.
   f. State the amount of nominal capital in existence.
   g. State the rate of return on capital.

3. **The productivity theory of wages**
   a. Along with providing the basis for demolishing the conceptual framework of the exploitation theory, Figures 3 and 4 provide insight into the whole productivity theory of wages I presented in my 1985 TJS series, "Introduction to Pro-Capitalist 'Macroeconomics.'"

XIII. Analysis of the Effects of Taxation and Government Budget Deficits on the Average Rate of Profit

a. As far as the taxes are paid with funds that otherwise would have been saved and productively expended, the effect is to raise the pre-tax nominal rate of profit and to reduce the relative production of capital goods, economic progress, and the ratio of the wages paid by business to consumption expenditure.

b. Government budget deficits: the effect is equivalent to that of increasing net consumption: namely, a rise in the nominal rate of profit accompanied by a drop in the relative demand for capital goods and the demand for labor. Consequent decline in economic progress.

c. How an "unfavorable" balance of trade helps to offset the destructive effects of government budget deficits.

XIV. Some Major Implications for the Theory of Saving

a. Capital accumulation and economic progress under an invariable money do not require continuious net saving in terms of money—*viz.*, continuous nominal net saving. This is apparent from examination of Figure 4, which shows national income and consumption equal at 400 monetary units in every year from Year 3 on, while capital accumulation and economic progress continue.

b. Implication that the fundamental connection of saving to capital accumulation and the productivity of labor is as a proportion of gross revenue devoted to productive expenditure and the demand for capital goods, and as a ratio of accumulated savings to consumption. As already indicated, under an invariable money, nominal net saving is not a one-to-one source of capital accumulation—it acts as force to acceleration in that it achieves a rise in the relative demand for and production of capital goods. For example, it occurs in Figure 4 in Year 2, in the transition from the stationary economy of Figure 3 to the progressing economy of the succeeding years.

c. Further net saving in terms of money in this context would be accompanied by a more rapid rate of capital accumulation and economic progress corresponding to a still higher relative production of capital goods.

d. Implication that continuous net saving in terms of money is required only in an economic system with an expanding quantity of money and rising volume of spending—to keep the relative production of capital goods and degree of capital intensivity the same.

e. Implication that the continuing net saving accompanying the increase in the quantity of money not only does not reduce the nominal rate of profit, but is largely made out of an elevated rate of profit—a rate of profit elevated by the increase in the quantity of money and volume of spending.

XV. More on the Nominal Rate of Profit Under an Invariable Money: Net Investment

1. **The difference between productive expenditure and costs is *net investment.***

   a. The existence of an aggregate profit in the economic system by virtue of the difference between productive expenditure and costs deducted from revenues in computing profits. (See Year 2 of Figure 4, where productive expenditure has risen to 900 but costs remain 800.) This situation can easily exist, especially if capital goods are not assumed to be used up all in a single year.

   b. The productive expenditure for buildings and equipment versus depreciation cost.

   c. The productive expenditure for materials, parts, and labor versus cost of goods sold.

   d. Other productive expenditures and costs are expensed expenditures and net to zero.

2. **Formula demonstration that productive expenditure minus costs equals net investment.**

$$B\text{-}d = B_1\text{-}d_1 + B_2\text{-}d_2 + B_3\text{-}d_3 = I$$

3. **An algebraic derivation of the fact that aggregate profits equal the sum of net conumption plus net investment:**

   a. profits = sales - costs

   b. profits = sales - productive expenditure + productive expenditure - costs

   c. sales - productive expenditure = consumption - wages = net consumption

   d. productive expenditure - costs = net investment

   e. *Substituting equations (3) and (4) into (2), we obtain,*

   f. profits = net consumption + net investment

4. **Formula for the rate of profit**

   a. Thus, under an invariable money, the average *rate* of profit in the economic system equals the amount of net consumption plus the amount of net investment all divided by

the amount of capital invested. By the laws of arithmetic, it also equals the sum of net consumption divided by the amount of capital invested (the net consumption rate) plus net investment divided by the amount of capital invested (the net investment rate).

b. But in an economy with an invariable money, net investment is always *tending to disappear,* along with nominal net saving: Costs tend to rise toward productive expenditure, while productive exenditure tends to fall because of rising net consumption based on growing accumulated capital. Thus, in an economy with an invariable money, *profit tends to equal net consumption alone, and the rate of profit tends to equal the rate of net consumption alone.*

c. However, the disappearance of net investment in such an economy could potentially be repeatedly postponed by virtue of a larger proportion of productive expenditure going for longer-lived assets, including assets with multi-year construction periods.

XVI. Net Investment and the Increase in the Quantity of Money

a. What perpetuates net investment is the increase in the quantity of money and corresponding rise in aggregate spending from year to year. This keeps productive expenditure permanently ahead of costs.

b. It can be shown that the addition to the nominal rate of profit resulting from an increase in the quantity of money and volume of spending in the economy tends to be manifested in an approximately equivalent net investment rate. E.g., a 10 percent annual increase in the quantity of money and volume of spending will tend to result in annual net investment equal to approximately 10 percent of accumulated capital. Thus the average rate of profit in the economic system can be understood as equal to the sum of the net consumption rate (net consumption over total capital invested) plus either the rate of increase in the quantity of money or the net investment rate (net investment over total capital invested).

c. See Table 6, above, for verification. (The very—and unrealistically—large size of the money supply relative to the rest of accumulated capital introduces a significant difference between the net investment rate when applied to capital inclusive of the money supply and the rate of increase in the money supply. The difference practically disappears if the net investment rate is taken as applying to capital other than the money supply, or if the relative size of the money supply were substantially lower, as it would be in reality.)

d. As previously explained, under a gold standard, the increase in the quantity of gold would represent the equivalent of sales revenues to the gold mining industry and should be added to sales revenues in the economic system and thus to profits. This brings the addition to the rate of profit caused by the increase in money and spending into close approximation with the rate of increase in the quantity of money.

e. **Further formulation of the determinants of the average rate of profit:** To be strictly accurate, since net investment can exist apart from the increase in the quantity of money, and in an economy with a precious metal standard and a growing quantity of money, the increase in the quantity of money itself must be added to sales revenues and profits, the average rate of profit should be stated as equal to *the sum of the net consumption plus net investment rates plus an allowance for the addition to profits consitituted by the physical revenues of the gold and silver mining concerns.*

XVII. Critique of Underconsumptionism

a. The seeming paradox in claiming that the demand for capital goods can be greater than the demand for consumers' goods.

b. This appears to be a paradox only because of the failure to recognize the parity of existence of capital goods. Only if consumption were the sole source of sales revenues could a greater expenditure for capital goods than consumers' goods present an apparent problem—for then, sales revenues would be less than the outlay for capital goods. But the demand for capital goods is fully as much a demand for goods as is the demand for consumers' goods.

c. In Figure 4, the demand for capital goods exceeds the demand for consumers' goods by 600 to 400. There is no problem of spending more for capital goods than comes in in sales, because the demand for capital goods is just as much a part of sales revenues as the demand for consumers' goods. The 600 of outlay for capital goods is not deducted from 400 of sales revenues from consumers' goods, but from *1000* of sales revenues that come both from consumers' goods *and capital goods*. And because the receipts from the sale of capital goods are greater than the receipts from the sale of consumers' goods, a larger part of the 600 outlay for capital goods is deducted as costs in the following year from the sale of capital goods than from the sale of consumers' goods—360 versus 240 (60% of 600 versus 40% of 600).

Table 7

How the Demand for Capital Goods Can Far Exceed the Demand for Consumers' Goods

YEAR	s	=	D_C	+	D_K	=	D_C	+	D_{K1}	+	D_{K2}	+	D_{K3}	+	D_{K4}	+	...
N	1000	=	100	+	900	=	100	+	90	+	81	+	72.9	+	65.61	+	...
N+1	1000	=	100	+	900	=	100	+	90	+	81	+	72.9	+	65.61	+	...
N+2	1000	=	100	+	900	=	100	+	90	+	81	+	72.9	+	65.61	+	...
N+3	1000	=	100	+	900	=	100	+	90	+	81	+	72.9	+	65.61	+	...
N+4	1000	=	100	+	900	=	100	+	90	+	81	+	72.9	+	65.61	+	...
...	...	=	...	+	...	=	...	+	...	+	...	+	...	+	...	+	...
N+n	1000	=	100	+	900	=	100	+	90	+	81	+	72.9	+	65.61	+	...

KEY:

s = Sales revenues

D_C = Demand for consumers' goods

D_K = Demand for capital goods

D_{K1} = Demand for capital goods to produce consumers' goods

D_{K2} = Demand for capital goods to produce the capital goods to produce consumers' goods

D_{K3} = Demand for capital goods to produce the capital goods to produce the capital goods described under D_{K2}

D_{K4} = Demand for capital goods to produce the capital goods to produce the capital goods described under D_{K3}

d. Extreme case of demand for capital goods exceeding demand for consumers' goods—see Table 7. In such a situation the great majority of capital goods would be employed in the production of further capital goods. As will be shown, all would ultimately still serve in the production of consumers' goods, but the "period of production" would be extremely long.

XVIII. The Average Period of Production

1. **All production is ultimately a production of consumers' goods, no matter how great is the relative production of capital goods.**

   a. Figure 5, which is a repetition of Figure 3 in every essential, illustrates this fact. Figure 5 shows that the labor and capital goods of any given base year not only serve 50% in the production of consumers' goods for the following year, but a further 25% in the production of consumers' goods for the year after that, and a further 12.5% in the production of consumers' goods three years later, and so on. As the years pass, the *cumulative* proportion of the labor and capital goods in existence in any base year that contribute to the production of consumers' goods comes closer and closer to 100%.

   b. The same principle applies to Figure 4. Its application is shown in Figure 6. The difference between Figures 5 and 6 is only that it takes *longer* in the conditions of Figure 6, for any given cumulative percentage of the capital goods and labor of the base year to show up in consumers' goods. E.g., a cumulative proportion of 90% is achieved in Figure 5 in less than four years. In Figure 6, it requires almost five years to reach this cumulative proportion ($.4 + .4x.6 + .4x.6^2 + .4x.6^3 + .4x.6^4$, *viz.*, 40%+24%+14.4%+8.64%+5.184%).

   c. Note that in Figure 6, the proportions of labor and capital goods in a base year serving the consumption of future years are *greater* than those of Figure 5 in every year from the third year following the base year on—14.4% vs. 12.5%, and then 8.64% vs. 6.25% . . . .

      Figure 6 can be said to represent *a longer average period of production* than Figure 5.

2. **Fallacy that capital accumulation requires a continuous lengthening of the average period of production.**

   Figures 4 and 6 represent a longer average period of production than Figures 3 and 5, and capital accumulation continues. It is not necessary for the period of production to become progressively longer—same fallacy as present in believing that capital accumulation requires a continuous increase in the relative production of capital goods.

3. **The contribution of the past to the present.**

   a. Note that looking backward from any year, the proportions of the labor and capital goods of past years serving the output of the present, base year are greater in Figure 6 than in Figure 5 and become relatively greater the more remote the past years. For example, 60% vs. 50% for one year past; 36% vs. 25% for two years past; 21.6% vs. 12.5% for three years past; 12.96% vs. 6.25% for four years past, and so on.

   b. *Implied limitation on ability of technological progress alone to achieve capital accumulation.* E.g., as far as technological advances apply to products of the kind requiring the employment of a substantial proportion of labor and capital goods several years or more in the past, the economy of Figures 4 and 6 has a major advantage over the economy of Figures 3 and 5. The necessary labor and capital goods are substantially more available in the former than in the latter economy.

Figure 5. The Average Period of Production Under a 50% Relative Production of Capital Goods

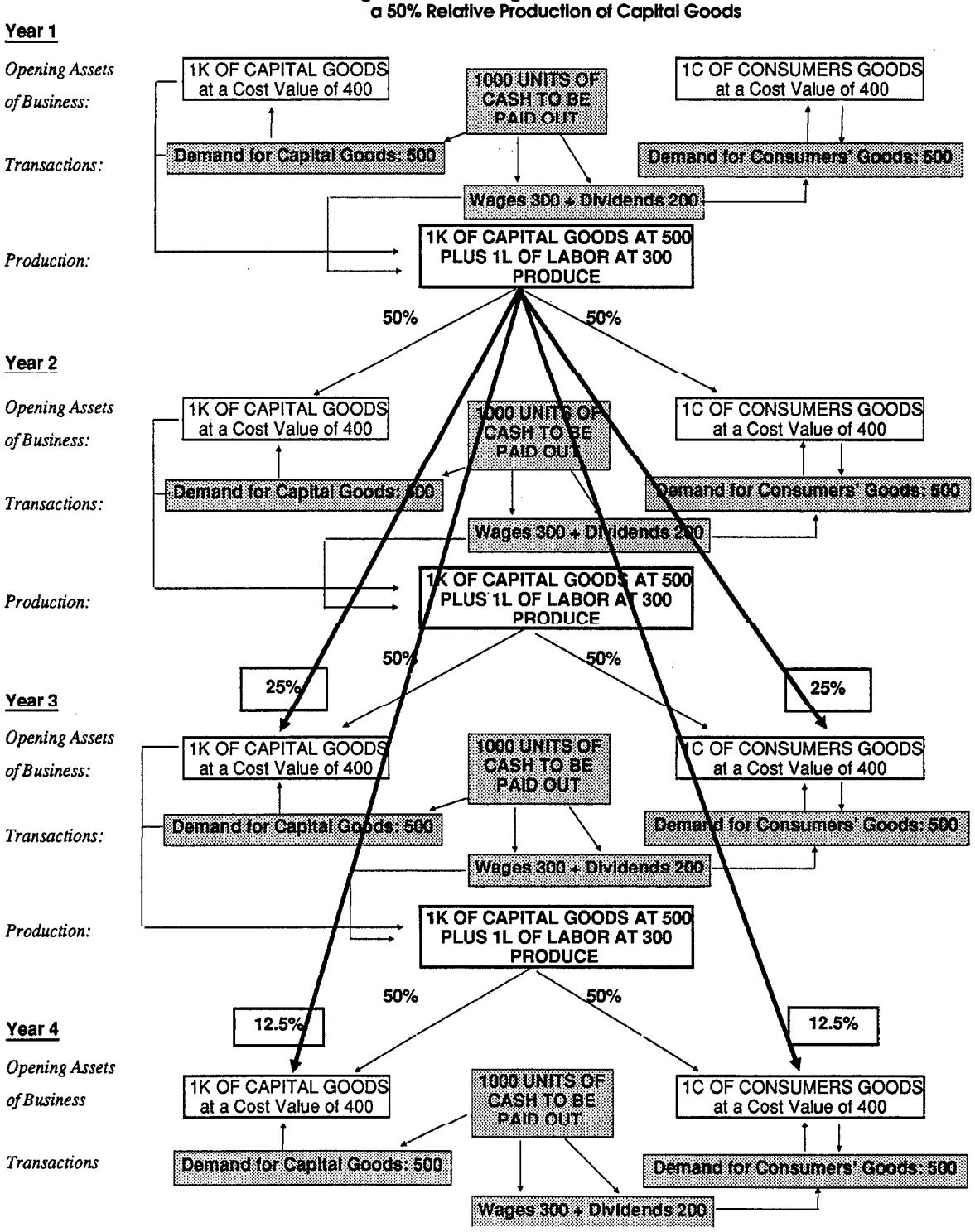
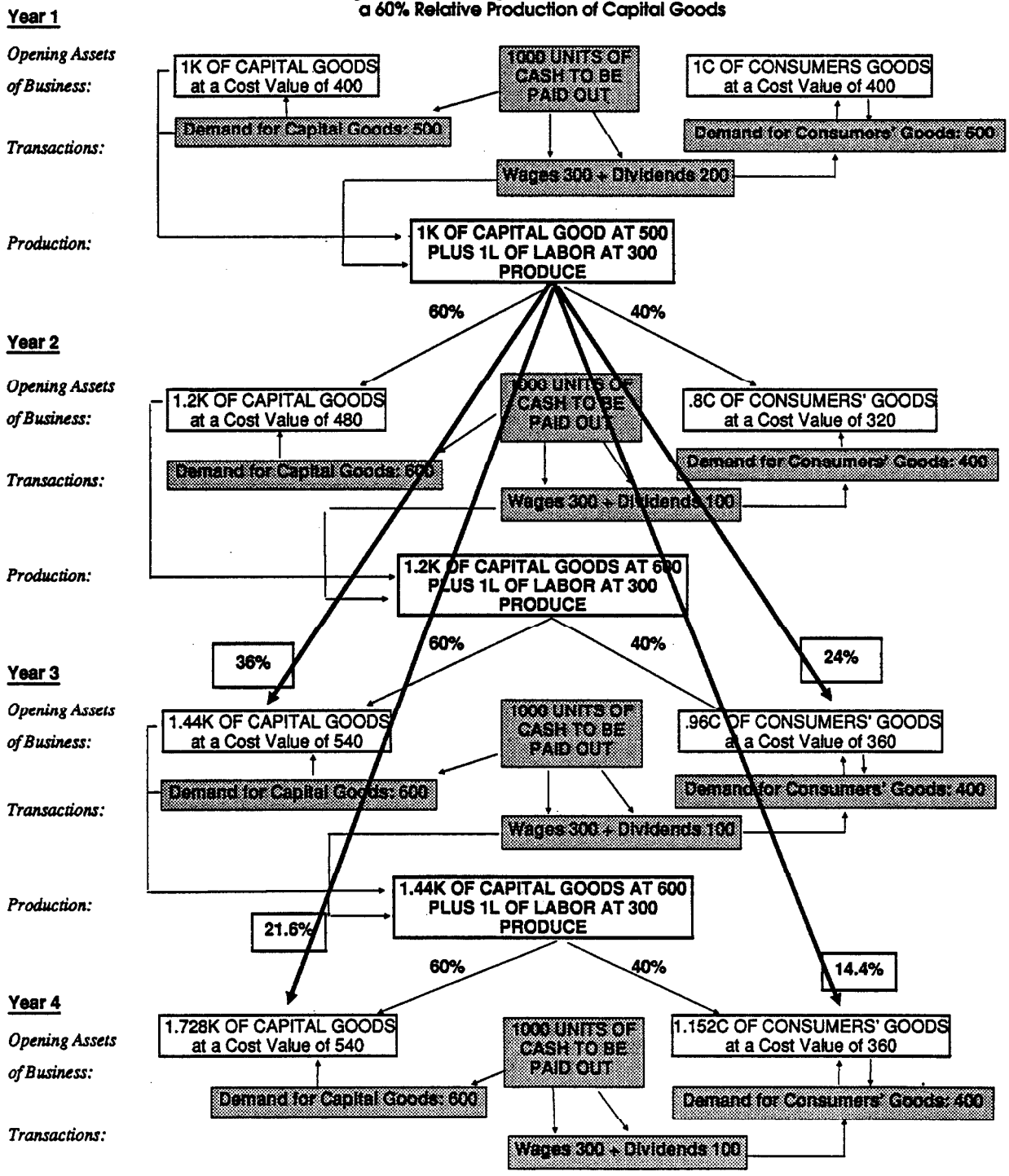


Figure 6.The Average Period of Production Under a 60% Relative Production of Capital Goods



4. **Further significance of a higher relative demand for capital goods and more of the labor and capital goods of the current year serving the future**

   a. The "cross-hatching of production": E.g., the motor vehicle industry concentrates more heavily on the production of trucks and diesel locomotives. The appliance industry concentrates more heavily on the production of machinery and components for use by businesses. The result is that the appliance industry is able to carry on its production both of consumers' goods and capital goods with the aid of more of the output of the motor vehicle industry, and the motor vehicle industry is able to cary on its production both of consumers' goods and capital goods with the aid of more of the output of the appliance industry. And the output of each that serves the other tends to benefit from a greater prior contribution of the output of the other. The result is that all of the output of the appliance industry is more efficiently delivered and all of the output of the motor vehicle industry has more going into it. (And, of course, because of the greater use of machinery and equipment in general, these and all other industries tend to be able to produce larger physical amounts of their improved outputs.)

   b. Such results are confirmed by examining the data of Figures 4 or 6 as the transition is made to a more capital intensive economy. Note that in Year 2 and thereafter the increase in the employment of capital goods in the production both of capital goods and consumers' goods is indicated by the rise in the total cost value of both kinds of goods from 480 and 320 respectively (at the opening of Year 2) to 540 and 360 respectively (at the opening of Year 3 and thereafter). Starting in Year 2 there is 100 worth of additional output of capital goods available from the year before, to serve production in the the current year, and it goes 60 to the production of capital goods to be available at the start of the following year, and 40 to the production of consumers' goods to be available at the start of the following year—in accordance witht the relative demands for consumers' goods and capital goods. Both the capital goods and the consumers' goods of each year are produced with the aid of a larger proportion of the ouptut of the previous year.

   c. Manifestations of a less capital intensive economy today in such things as thin walls of newer buildings compared with those constructed before World War II, and in products in general as not being as well made (apart from the problem of less care by workmen). Perception of less going into products is correct.

XIX. Critique of the "Investment Opportunity Doctrine"—Or Why Savings Cannot Outrun the Uses for Savings

1. **The potential uses for savings**

   a. More capital intensive methods of production, more capital intensive products, housing, land values. Includes bringing the non-industrialized world up to the degree of capital intensivity of the industrialized world, the less capital intensive plants and firms within the industriralized countries up to the standard of the most capital intensive plants and firms in those countries, and carrying further the degree of capital intensivity of the most capital intensive. Some examples of capital intensivity beyond being considered in the present day, even in the most capital intensive countries, because of the the limitation of the supply of savings, would be such capital intensive projects as tunnels under the North or Caribbean Seas or connecting Japan with South Korea. Too large a proportion of the total available savings would be required for too long a time to make these projects feasible, even though the annual profits they would bring in would probably represent a significant rate of return. During the lengthy period of construction, other industries would be deprived of too much capital.

2. Saving out of profits and saving out of wages the only sources of additional capital intensivity.

a. Saving in both cases limited by *time preference*—preference, other things equal, for consumption in the present rather than in the future or in the nearer future rather than in the more remote future. Time preference implied in the nature of human life and its valuation. Life is uninterruptible. Life in the present is the precondition of being alive in the future. All the valuation one attaches to life in the future must be attached to life in the present, as the indispensable condition of having life in the future. Plus, one values life in the present for its own sake. Thus, the evaluation of life in the present subsumes and exceeds the evaluation of life in the future. It follows that the evaluation of the means of life and enjoyment in the present exceeds the evaluation of the means of life and enjoyment in the future—that the valuation of present goods is greater than the valuation of future goods.

b. For wage earners, the ability to earn wages in the future is the main source of provision for the future. Wage earners are motivated to save primarily as the means of providing for periods of inability to earn wages—such as involuntary unemployment, illness, accident, and old age. Apart from that, their motivation to save is mainly limited to saving up to buy goods that are too expensive to purchase out of a single pay period, such as appliances, automobiles, and, especially, houses. Most of the savings made by wage earners not only end up ultimately being consumed, as when one dissaves during a period of unemployment or in retirement, or when one buys the consumers' good one has been saving up for, but, as previously explained, most of their savings are probably consumed almost immediately upon being set aside, or at least are matched by current consumption.

c. Of course, there are also wage earners who save in order to become businessmen. But when their savings become substantial, it is after they have begun to succeed as businessmen. At that point, they are saving out of profit income.

d. All of the savings wage earners would ever be likely to wish to accumulate relative to their incomes could probably easily be absorbed *just by housing alone*. Even if the average wage earner followed the conservative rule of personal finance of spending no more than a fourth of his income on housing, that would probably be sufficient to support an amount of savings invested in housing of five times the annual income of the average wage earner. For example, if his income is 100 per year, and he spends 25 on housing, of which 15 represents either the interest he pays on his mortgage or is the equivalent of the profit his landlord earns on him, then at a 3% rate of interest or profit, he can have a house or live in an apartment that is worth 500. (Note: if there were sufficient accumulated savings, and no increase in the quantity of money or volume of spending, a rate of profit and interest of 3% would actually be achievable.)

e. It follows, moreover, that if the *average* wage earner has accumulated savings of five times his income, those workers beginning retirement can have accumulated savings of *ten* times their income, balancing the zero accumulated savings of wage earners just starting out.

f. Thus, there is no problem of the savings of wage earners outrunning the uses for such savings.

g. Furthermore, it is impossible that savings out of profits could ever outrun the uses for savings. For as soon as the need for additional capital intensivity diminishes, net investment diminishes, and the rate of profit falls toward the rate of net consumption. Thus, saving out of profits declines precisely as the need for such savings declines.

Table 8

The Process of Capital Intensification or How More Capital Is Invested When the Demand for Consumers' Goods Falls

YEAR	K	C	I	$\frac{K}{C+I}$	$\frac{K_1}{C_1}$	$\frac{K_2}{I_1}$
1	1000	500	50	1000/500	1000/500	
2	1000	500	50	1000/500	900/450	100/50
3	1050	450	50	1050/500	945/450	105/50
4	1100	450	50	1100/500	990/450	110/50
5	1150	450	50	1150/500	1035/450	115/50
6	1200	450	50	1200/500	1080/450	120/50
7	1250	450	50	1250/500	1125/450	125/50
8	1300	450	50	1300/500	1170/450	130/50
9	1350	450	50	1350/500	1215/450	135/50
10	1400	450	50	1400/500	1260/450	140/50
11	1450	450	50	1450/500	1305/450	145/50
12	1500	450	50	1500/500	1500/500	
13	1500	450	50	1500/500	1500/500	
...	...	...	...	...	...	

KEY:

K is the value of the accumulated capital stock

C is the total expenditure for consumers ' goods in the current year

I is net investment in the currrent year, which is equal to saving out of net income

K/(C+I) is the ratio of total accumulated capital to current net national product

C_1 is the demand for consumers' goods in the following year

I_1 is the volume of net investment in the following year

K_1 is the portion of existing accumulated capital employed in the production of consumers' goods to be sold in the following year

K_2 is the portion of existing accumulated capital employed in the production of the portion of next year's nnp that is represented by net investment

3. **Capital accumulation under an invariable money**
   a. Savings and capital would be accumulated relative to current income up to a point determined by time preference, and would be accumulated no further unless something occurred to make time preference fall. Capital accumulation would go forward if the prevailing degree of time preference was sufficiently low and if technological progress took place.
   b. Saving and the process of capital intensification

XX. Summary

a. The determinants of the average rate of profit: the rate of net consumption, reflecting time preference; and the rate of net investment, which in the long run reflects the rate of increase in the quantity of money.

b. Saving and capital accumulation do not imply a falling rate of profit. Continued nominal net saving is the result of increases in the quantity of money and volume of spending, which add to the rate of profit. Most of the continuing nominal net saving takes place out of this *elevated* rate of profit. Physical capital accumulation is the result of a sufficiently high relative production of capital goods combined with technological progress and other factors contributing to the productivity of capital goods.

c. Technological progress neither raises nor lowers the average rate of profit. Those who adopt technological advances relatively early increase their profits at the expense of competitors, whose profits are correspondingly reduced. There is no effect on the overall average rate of profit. Only to the extent that it results in an increase in the quantity of commodity money does technological progress bring about a rise in the average rate of profit. For the rest, in increases the supply of capital goods and lowers their prices, and in this way, and in raising the productivity of labor, reduces unit costs of production, which prevent the fall in further selling prices from reducing profits or in any way constituting deflation.

d. Saving does not place business in the contradictory position of having to spend more for capital goods at the very time its sales revenues fall because the consumers spend less—the demand for capital goods is as much a part of the demand for goods as is the demand for consumers' goods.

e. Saving cannot outrun the uses for savings.

f. A major conclusion: *depressions not caused by saving or by increases in production.*

g. Actual cause of depressions is strictly monetary—credit expansion and the artificial reduction in the demand for money for holding, necessitating a later increase in the demand for money for holding.

h. Recovery from depressions depends on a fall in wage rates and prices, and write down of assets. Then net consumption and net investment operate as virtual *springs* to the recovery of profitability.

RECOMMENDED READINGS

1. Henry Hazlitt, *Economics in One Lesson,* New Edition, New York, Arlington House, 1979. Brilliant introduction to economics centering on the question of unemployment and all the things mistakenly believed to cause it.

2. Frederic Bastiat, *Economic Sophisms,* Irvington-On-Hudson, New York, 1964. A translation of a nineteenth century French classic on economic fallacies, especially mistaken ideas about free trade as a cause of unemployment.

3. James Mill, the chapters "Consumption" and "Of the National Debt" in *Commerce Defended,* which is reprinted in Donald Winch, editor, *Selected Economic Writings of James Mill,* University of Chicago Press, 1966. These two chapters provide the best exposition of Say's Law extant. Say's Law should more appropriately be called James Mill's Law. The chapters also contain excellent material on saving.

4. Ludwig Von Mises, *Planning For Freedom,* Fourth Edition, Libertarian Press, South Holland, Illinois, 1980. Many excellent essays on Say's Law, profits, saving, inflation, gold, and more.

5. Ludwig Von Mises, *Human Action,* Third Edition, Contemporary Books, Chicago, 1966, Chapters XVII - XXI, Chapter XXXI. Advanced discussions of money, interest, the business cycle, and wages. Indispensable reading for every serious student of economics, as is the rest of the book.

6. Eugen von Boehm-Bawerk, *Capital and Interest,* Huncke and Sennholz translation of the third German edition, 3 volumes in one, Libertarian Press, South Holland, Illinois, 1959. Presents a detailed history and critique of interest theories and Boehm-Bawerk's own positive theory of time preference and productivity.

7. For elaboration of the net consumption, net investment theory, see George Reisman, *The Theory of Aggregate Profit and the Average Rate of Profit,* Doctoral Dissertation, Graduate School of Business Administration, New York University, 1963; available in microfilm or xerox form from University Microfilms, Ann Arbor, Michigan.

8. Adam Smith, *The Wealth of Nations,* Cannan Edition, Book II, Chapter III; Book V, Chapter III. Important reading on saving and capital and government deficits.

9. David Ricardo, *Principles of Political Economy and Taxation,* Third Edition. Very difficult reading, often contradictory and open to misinterpretation of supporting Marxism, but contains many brilliant insights on demand, saving, capital accumulation, and, most surprisingly, profits. Should be read in conjunction with George Reisman, "Classical Economics Versus the Exploitation Theory" in Kurt Leube and Albert Zlabinger, editors, *The Political Economy of Freedom, Essays in Honor of F.A. Hayek,* Philosophia Verlag, Munich and Vienna, 1984.)

THE MULTIPLIER

We are now prepared to discuss one of the central concepts of modern macroeconomics—the multiplier. To see where the idea of a multiplier arises, recall that we have just discussed how the interaction of consumption and investment spending determines the level of national output. Clearly, an increase in investment will increase the level of output and employment. Thus, an investment boom may bring a nation out of a depression—by having a higher $C + I$ schedule cut the 45° line at a higher level of equilibrium GNP. In the Keynesian multiplier model described here, an increase in private investment will cause output and employment to expand; a decrease in investment will cause them to contract.

This is not a very surprising result. After all, we have learned that investment is one part of GNP, so when one of the parts increases in value, we should naturally expect the whole to increase in value. But that is only part of the story. Our Keynesian theory of output determination will give us a still more striking result, that an increase in investment will increase GNP by an amplified or multiplied amount—by an amount greater than itself. Investment spending is high-powered spending.

This amplified effect of investment on output is called the *multiplier*. The word "multiplier" itself is used for the numerical coefficient showing the size of the increase in output resulting from each unit increase in investment.

Some examples will make this terminology clear. Let there be an increase of investment of $100 billion. If this causes an increase in output of $300 billion, then the multiplier is 3. If, instead, the resulting increase in output were $400 billion, then the multiplier would be 4.

The **multiplier** is the number by which the change in investment must be multiplied in order to determine the resulting change in total output.

Woodsheds and Carpenters No proof has yet been presented to show that the multiplier will be greater than 1. But the discussion up to now indicates how, when I hire unemployed resources to build a $1000 woodshed, there will be a *secondary* expansion of national income and production, over and above my *primary* investment. Here is why.

My carpenters and lumber producers will get an extra $1000 of income. But that is not the end of the story. If they all have a marginal propensity to consume of $\frac{2}{3}$, they will now spend $666.67 on new consumption goods. The producers of these goods will now have an extra income of $666.67. If their *MPC* is also $\frac{2}{3}$, they in turn will spend $444.44, or $\frac{2}{3}$ of $666.67 (or $\frac{2}{3}$ of $\frac{2}{3}$ of $1000). So the process will go on, with each new round of spending being $\frac{2}{3}$ of the previous round.

The Chain of Respending Thus an endless chain of *secondary consumption respending* is set in motion by my primary $1000 of investment spending. But, although an endless chain, it is a dwindling chain. And it eventually adds up to a finite amount.

Using straightforward arithmetic, we can find the total increase in spending:

$$
\begin{array}{rcl}
\$1000.00 & & 1 \times \$1000 \\
+ & & + \\
666.67 & & \frac{2}{3} \times \$1000 \\
+ & & + \\
444.44 & & (\frac{2}{3})^2 \times \$1000 \\
+ & = & + \\
296.30 & & (\frac{2}{3})^3 \times \$1000 \\
+ & & + \\
197.53 & & (\frac{2}{3})^4 \times \$1000 \\
+ & & + \\
\vdots & & \vdots \\
\hline
\$3000 & & \dfrac{1}{1 - \frac{2}{3}} \times \$1000, \text{ or } 3 \times \$1000
\end{array}
$$

This shows that, with an *MPC* of $\frac{2}{3}$, the multiplier is 3, consisting of the 1 of primary investment plus 2 extra of secondary consumption respending.

The same arithmetic would give a multiplier of 4 if the *MPC* were $\frac{3}{4}$, for the reason that $1 + \frac{3}{4} + (\frac{3}{4})^2 + (\frac{3}{4})^3 + \cdots$ finally adds up to 4. If the *MPC* were $\frac{1}{2}$, the multiplier would be 2.

The size of the multiplier thus depends upon how large the *MPC* is; or it can be expressed in terms of the twin concept, the *MPS*. If the *MPS* were $\frac{1}{4}$, the *MPC* would be $\frac{3}{4}$, and the multiplier would be 4. If the *MPS* were $\frac{1}{3}$, the multiplier would be 3. If the *MPS* were $1/X$, the multiplier would be X.

By this time it should be clear that the simple multiplier is always the inverse, or "reciprocal," of the marginal propensity to save.[3] Equivalently, it is equal to

$$\frac{1}{1 - MPC}$$

Our simple multiplier formula is

$$
\begin{aligned}
\text{Change in output} &= \frac{1}{MPS} \times \text{change in investment} \\
&= \frac{1}{1 - MPC} \times \text{change in investment}
\end{aligned}
$$

In other words, the greater the extra consumption respending, the greater the multiplier. The greater the *MPS* "leakage" into extra saving at each round of spending, the smaller the final multiplier.

[3]The formula for an infinite geometric progression is

$$1 + r + r^2 + r^3 + \cdots + r^n + \cdots = \frac{1}{1 - r}$$

as long as the *MPC*, r, is less than 1 in absolute value.

Samuelson and Nordhaus, Economics, 13th Edition (New York: McGraw Hill, 1989, pp. 167f.

The table below is a corrected version of the Table 6 that appears on p. 16.

Table 6

The Effect of an Increasing Quantity of Money and Rising Volume of Spending on the Nominal Rate of Profit

YEAR	*M*	*NC*	*B*	*d*	*I*	*s*	*p*	*K*	*P/K* In %	*p+ΔM*	*(p+ΔM) ÷ K,* In %	*Rise in profit rate*
1	1000	200	800	800	0	1000	200	1800	11.11	200	11.11	
2	1100	220	880	800	80	1100	300	1900	15.79	400	21.05	9.94
3	1210	242	968	880	88	1210	330	2090	15.79	440	21.05	9.94
4	1331	266	1065	968	97	1331	363	2299	15.79	484	21.05	9.94
5	1464	293	1171	1065	106	1464	399	2529	15.79**	532	21.05**	9.94

KEY:

*Note: Initial profit rate was 11.11%
** Figures allow for rounding

M = Money Supply

NC = Net Consumption

B = Productive Expenditure

d = Costs Deducted from Sales Revenues

I = Net Investment (B-d)

p = Profits

K = Capital

ΔM = The Increase in the Money Supply