

flow outside of, and at the expense of, the productive sphere. The implications of this phenomenon will be explored in Chapter Six.

CHAPTER FIVE: THE CANADIAN ECONOMY--1947-1980

The preceding chapters provide the theoretical framework for the task undertaken in this chapter: to analyze the long-term trends of the fundamental quantitative relationships of the Marxian system and in this way to empirically evaluate the relevance of Marx's analysis of the laws of motion of capitalism.

The present empirical study has been limited to the period 1947-1980 for a number of reasons. First, although it would have been desirable to analyze the trends over a longer period of time (say, 1900 to 1980), reliable data is not readily available for the period prior to 1926 in Canada. Second, although data is available for the period 1926-1946, it was felt that the extraordinary nature of this period (which included the years of the Great Depression and World War II) would complicate the analysis in a number of ways, particularly in view of the fact that this period could be situated only in relation to what followed it and not in relation to what preceded it. Third, it can be plausibly argued that the post-World War Two period witnessed the emergence of a "new" material basis for capitalist accumulation both domestically and internationally. This new situation was the outcome of the wrenching restructuration of capital brought about by the Depression and the War, the increased weight of the capitalist state in the economy, and the changed relationship of class and international forces which appeared after WW II. In a sense, the immediate post-WW II period represented a "new

start" for capitalism; and it is therefore of considerable interest to examine how the laws of motion of capitalism have unfolded since then.

This study is concerned with examining the secular trends of the rate of profit, the rate of surplus-value, the organic composition of capital, the value composition of the gross product, gross and net productivity, and the growth of the real wage. With the exception of the value composition of the gross product (a concept introduced in Chapter Three), these relationships constitute the decisive co-ordinates of Marx's theoretical analysis of the capitalist mode of production. On the basis of this analysis, Marx made certain "predictions" concerning their long-term trends. These predictions will constitute the hypotheses to be tested in this study. They have been defined as follows:

Hypothesis One: The rate of profit will exhibit a secular tendency to fall.

Hypothesis Two: The organic composition of capital will exhibit a secular tendency to rise, a tendency which will bear a significant correlation to the tendency of the rate of profit to fall.

Hypothesis Three: The rate of surplus-value will exhibit a tendency to rise.

Hypothesis Four: Gross productivity will rise faster than net productivity.

Hypothesis Five: The rate of growth of the real wage will, in general, lag behind the rate of growth of net productivity.

To these hypotheses, a sixth has been added:

Hypothesis Six: The value composition of the gross product will exhibit a secular tendency to rise.

5.1 METHODS AND LIMITATIONS

Statistics Canada and other sources of official data have not made the task of undertaking a Marxist analysis of the Canadian economy an easy one. Once a firm grasp of the theoretical categories of the Marxian system has been achieved, it should be a relatively simple matter to "operationalize" them, provided the necessary data is available. Unfortunately, there are significant omissions in the official data which have complicated this study in a number of ways. Most importantly, the unavailability of data on the number of hours worked in particular sectors of the economy has made it impossible to make even a reasonable estimate of "socially necessary labor time" in the aggregate. This means that a value calculation of the ratios is precluded. (Sharpe's value analysis relied on input-output data which is not available prior to 1961; and Mage's value calculations for the United States were made possible only through the availability of disaggregated data on manhours worked.)

This problem has imposed an important compromise on this study. All the "value ratios" have been expressed in current dollars. Such a calculation leaves open the possibility that the true value expressions of the ratios might significantly deviate from their money correlatives. To this extent, the results obtained through such a calculation must be regarded as inconclusive. Nevertheless, it is important to bear in mind that the value rate of profit and the current-dollar rate of profit, while different in magnitude, are almost certainly not likely to be different in terms of long-term trends. This is not only a theoretically-informed assumption; it has been empirically verified by

Mage (who calculated both a current-dollar and a "labor-unit" rate of profit) and by Sharpe (1982).³

A different sort of problem is posed by the structure of the national income accounts. A large (though diminishing) sector of the Canadian economy is aggregated into a single category, namely "Net Income of Farm Operators and Net Income of Non-farm Unincorporated Business" (Table 31 in National Income and Expenditure Accounts). This "net income" could not be disaggregated into its constant capital (wages of unproductive employees, wage equivalent of working proprietors, etc.), variable capital (wages of productive workers), and surplus-value (profit, rent and interest) components.

In the national income accounts, the net income of this sector is treated entirely as "personal income," the vast majority of which goes to persons who are proprietors or employees of small businesses engaged in a) agriculture (roughly 1/3), b) wholesale and retail trade (roughly 1/4), c) community, business and personal services (roughly 1/4), and d) financial, insurance and real estate, or the "FIRE" sector (roughly 1/4). Manufacturing, transport, construction, mining, etc. account for a very small part of this "personal income"---less than 1/12. Since this study is concerned only with the non-farm economy, it may be assumed that the income of this sector (with the exception of agriculture) is almost entirely the result of transfers of value from the productive to the unproductive sector of the economy: payment of professional services, proprietors' wage equivalent, payment for (personal) financial

³ It should be pointed out, however, that the theoretical assumption underlying both Mage and Sharpe's "value rate of profit" calculations is that total value equals total price.

services, rental payments on personal dwellings, etc. With these considerations in mind, the best procedure for dealing with the problem is simply to assume that the surplus-value and variable capital components of this income are roughly equal (i.e. cancel each other out) and that no surplus-value is either generated or appropriated in this sector. The logic of this procedure is to abstract from this sector of the economy entirely; and this is precisely what has been done. This represents another "compromise" to be sure; but in the final analysis, it is not likely to be a significant one.

On the basis of what has already been said, the unit of analysis for the empirical testing of the hypotheses listed above may be defined as follows: the non-farm, incorporated business sector of the Canadian economy from 1947 to 1980. Table 1 provides a breakdown of the industries included in this sector of the economy, and a preliminary indication of their contributions to the calculation of the principal variables. It should be noted that the labor employed in the productive sector of the economy is treated as exclusively productive; and the labor employed in the unproductive sector is treated as exclusively unproductive. Of course things are not quite so simple in the real world. Most firms involved in productive activity have a staff of unproductive workers; and many firms classified as unproductive (particularly in the trading sector) employ workers engaged in productive activity (for example, cooks in restaurants).

Table 1: Included Industries

Productive Sector
(industries used in the calculation of capital stock, variable capital, and surplus-value):

1. Food and Beverages
2. Tobacco Products
3. Rubber and Plastic Products
4. Leather
5. Textiles
6. Knitting Mills
7. Clothing
8. Wood
9. Furniture and Fixtures
10. Paper and allied industries
11. Printing, Publishing and allied industries
12. Primary Metals
13. Metal fabricating
14. Machinery
15. Transportation Equipment
16. Electrical Products
17. Non-Metallic Mineral Products
18. Petroleum and Coal Products
19. Chemical and Chemical products
20. Miscellaneous Manufacturing
21. Forestry
22. Fishing
23. Mines, Quarries and Oil Wells
24. Construction

25. Air Transport
26. Railway Transport
27. Water Transport
28. Motor Transport
29. Urban and Suburban Transport
30. Pipelines
31. Toll Highways, Bridges and Warehousing
32. Grain Elevators
33. Broadcasting
34. Telephones
35. Electric Power and Gas Distribution
36. Water Systems

Unproductive Sector (industries used in the calculation of constant capital stock and surplus-value only):

1. Commercial Services
2. Trading (wholesale and retail)
3. FIRE Sector (finance, insurance and real estate)

5.2 DEFINITION OF THE VARIABLES

The hypotheses under consideration concern the following quantitative relationships:

1. The Rate of Profit: s/C , where s = aggregate surplus-value and C = the constant capital stock. Both are measured in current dollars.
2. The Organic Composition of Capital: $C/(st+v)$, where C = constant capital stock, s = aggregate surplus-value and v = variable capital flow. All are measured in current dollars.

3. The Rate of Surplus-Value: s/v , measured in current dollars.

4. Gross Productivity of Labor: GP/NW , where GP = the value of the gross product and NW = number of productive workers employed.

The value of the gross product is defined as the sum of the constant capital flow (c) and variable capital flow (v) consumed annually plus the aggregate surplus-value produced, i.e. $c + v +$ annually plus the aggregate surplus-value produced, i.e. $c + v +$

$s = GP$. GP is measured in constant 1971 dollars.

5. Net Productivity of Labor: NP/NW , where NP = the value of the net product (i.e. $v+s$). NP is measured in constant 1971 dollars.

6. Real Wage Rate: v/NW , where v is measured in constant 1971 dollars. Product: $c/(s+v)$, where $c =$

7. The Value Composition of the Gross Product: $c/(s+v)$, where $c =$ annual constant capital flow; c , s and v are measured in current dollars.

The procedures followed in measuring the five fundamental variables (c , v , s , NW) are described below.

Constant Capital Stock
The constant capital stock is composed of two components-- fixed and circulating constant capital. The calculation of both of these components posed a number of difficulties.

Current-dollar figures on the fixed capital stock in the non-farm business sector were obtained from the Statistics Canada bulletin, Fixed Capital Flows and Stocks, 1926-1978, and from a more recent bulletin for 1974-1980. These bulletins provide a current-dollar estimate of the value of fixed capital assets for the entire economy on both a "gross"

and a "net" basis. The difference between these two measures is explained as follows:

In the gross capital stocks capital assets are included at their full value during the entire time they remain in the capital stock. In other words, the deduction from gross investments are due to the fact that the assets in question have ceased to exist. An alternative set of measures of capital stocks is derived by adjusting the value of the assets in existence for the wear and tear and obsolescence they undergo during their service life; these estimates are known as net capital stocks. (Statistics Canada, 13-568 Occasional; p.viii)

For the purposes of this study, the use of the net capital stock figures was clearly indicated since they provide a more realistic estimate of the current value of the capital investment. The figures on the net capital stock include the value of four components of fixed capital expenditure and investment: building construction, engineering construction, machinery and equipment, and capital items charged to operating expenses.

The mid-year net fixed capital stock figures used in this study were arrived at in two steps. First, the current dollar figures provided under Total Manufacturing and Non-Manufacturing Industries (Excluding Housing) in the Statistics Canada bulletins were reduced by the aggregate value of the mid-year net stock in the non-business sector of the economy. (The excluded categories were agriculture, governments, schools, churches, hospitals, universities and other institutions.) Second, these figures were further reduced by an estimate of the value of the capital stock employed in the unincorporated business sector. A certain amount of arbitrariness was unavoidable in making this estimate inasmuch as the capital stock figures provided by Statistics Canada are not disaggregated into incorporated and unincorporated categories. The

most reasonable way of arriving at a realistic estimate of the percentage of the total fixed capital stock employed in the unincorporated sector seemed to be to determine the percentage share of total national income represented by this sector. Assuming a proportional relationship between the fixed capital investment and net income of this sector, the capital stock figures were reduced by this same percentage. The figures obtained through these procedures yield a measure of the value of the fixed capital stock in the non-farm, incorporated business sector of the economy; hereafter referred to as C1. (See Table 1 of the appendix to this chapter.)

A second measure of the fixed capital stock was obtained by adding the value of the net capital stock in the government sector (federal, provincial and municipal) to C1. This expanded measure, while not strictly in accordance with the Marxist definitions, provides an alternative method of measuring the rate of profit--one which takes account of the "investment sui generis" represented by state activity in the total production and reproduction process. This measure of the fixed capital stock has been referred to as C2.

Comprehensive data on the circulating component of the constant capital stock (i.e. raw materials, energy, etc. used in the total production and reproduction process) is not available for the entire economy. However data on this category of constant capital is available for the manufacturing sector, which unquestionably accounts for the largest percentage of the total circulating constant capital stock. The major problem with using this data concerns the tendency of the circulating and fixed components of the total capital stock to change in

proportion to one another. Thus, if the fixed component of the capital stock increases more rapidly than the circulating component (as Marx predicted it would), then the value of the total capital stock could be biased over time to the extent that the "weight" of the manufacturing sector declines in the economy. It was therefore crucial to determine whether or not the proportion of fixed capital in manufacturing to C1 changed over time in a way that was roughly parallel to the change in the proportion of circulating constant capital in manufacturing to C1. A preliminary calculation revealed the following results. In 1947, the ratio of fixed capital stock in manufacturing to C1 was .360; by 1978, this ratio had declined to .185. The ratio of circulating constant capital in manufacturing to C1 was .589 in 1947; and declined to .275 by 1978. The first ratio declined by 49%, and the second by 53%, indicating that there had been only a slight increase in the specific weight of fixed as opposed to circulating constant capital in manufacturing. While this factor should be recalled in the evaluation of the results, it was felt that the inclusion of circulating constant capital in manufacturing in the constant capital stock measures would not seriously bias the overall trends in which the capital stock is involved.

The circulating constant capital stock for manufacturing was obtained from the Statistics Canada bulletin, General Review of the Manufacturing Industries of Canada Vol. 1 (Catalogues 21-203 Annual and 31-209 Annual). It was calculated as the sum of "Cost of Fuel and Electricity" and "Cost of Materials and Supplies Used." The figures so derived were added to C1 and C2 to obtain measures of the total constant capital stock, i.e. $C1 + CC = C3$ and $C2 + CC = C4$.

Variable Capital

The category of variable capital corresponds to the value of the wages received by workers directly involved in the production of surplus-value; it is the value which enables productive workers to purchase those commodities required for the reproduction of their labor-power. Insofar as a portion of these wages is deducted for taxation, the gross (before-tax) wage does not provide an accurate measure of variable capital. Taxes on wages must be treated either as a component of the constant capital flow or as surplus-value which has been redistributed to the state. Accordingly, variable capital has been defined in this study as the after-tax net income of the productive workforce. This income was estimated by reducing the total wage bill of productive workers by an amount indicated by the prevailing tax rate for each year from 1947 to 1980. This tax rate includes both direct and indirect taxes, the latter including sales taxes, "transfer payments," etc. The estimated employer and employee contributions to unemployment insurance and pension plans were added to the after-tax wage figures to provide a measure of "actual" variable capital. Pre-tax variable capital is referred to as V1; after-tax variable capital (inclusive of UIC and pension contributions) is referred to as V2.

The current-dollar figures for V1 were obtained from the Statistics Canada bulletins, National Income and Expenditure Accounts Vol.1, 1926-1974 (Catalogue 13-531) and NIEA, 1967-1981 (Catalogue 13-201). Table 29 of these bulletins provide figures on "Wages, Salaries and Supplementary Labor Income" for fifteen sectors of the economy, of which ten may be considered productive. Excluded from consideration as

variable capital were wages and salaries paid out in agriculture, wholesale and retail trade, the FIRE sector, Public Administration and Defence, and community, business and personal services. The totals of the included sectors were reduced by 9% for each year from 1947-1980, this deduction representing an estimate of the "corporate officer share" of wages and salaries.

The "corporate officer share" estimate was arrived at in an unusually indirect way. Since the Statistics Canada data is not disaggregated according to the recipients of wages and salaries, or even between wage-earners and salary-earners, it was necessary to either treat all wages, salaries and supplementary income in the included sectors as V1 (which would be the same as assuming that corporate officers are recipients of variable capital rather than surplus-value, i.e. productive workers rather than capitalists) or to establish an unchanging percentage which could reasonably reflect the share of wages and salaries going to corporate officers as surplus-value. Using the much more detailed official data available in the United States, Mage was able to distinguish between wages received by productive workers and salaries received by corporate officers. When these categories are added together, the result is a total which corresponds closely to the content of the Statistics Canada category "Wages, Salaries...." It was found that between 1947 and 1960, the corporate officer share of this total was consistently in the range of 8% to 10%. On the assumption that the distribution in Canada is similar, a figure of 9% was selected to represent the corporate officer share of "Wages, Salaries and Supplementary Labor Income" for all years from 1947 to 1980.

The calculation of V2 from V1 required the construction of a comprehensive tax rate table, a table which was also used in the calculation of after-tax surplus-value. The problem of taxation represented one of the most serious obstacles to the operationalization of the value categories as they have been specified in this work. The labyrinth of direct and indirect taxes makes it extremely difficult to clearly differentiate between the effective tax rate on productive labor income on the one hand and surplus-value on the other. Undoubtedly, the weight of taxation falls unequally on labor and capital income, and changing tax policies will tend to shift the tax burden now to the side of labor, now to the side of capital. It would be a heroic task to try to construct two tax tables, one for labor income and one for capital income; and it was beyond the scope of this study to attempt this. As a compromise, it was decided to construct a single tax table for the period 1947-1980, which would derive an effective tax rate on all income. This table takes into account the three categories of taxation described and calculated in the national income accounts: direct taxes on persons, direct taxes on enterprises, and indirect taxes of all kinds. (See Tables 44-46 of the National Income and Expenditure Accounts.) These categories were added together to arrive at a measure of total taxes received by all levels of government. The ratio of these total taxes to "net national income at factor cost" (Table 1, National Income Accounts) was defined as the "effective tax rate on income." (See Appendix, Table 3)

In order to analyze the trend of the real wage, a third measure of variable capital was calculated, V3, which is simply V2 calculated in constant 1971 dollars. (See Tables 3-5 in Appendix)

Four measures of surplus-value were calculated for this study. The pre-tax measure S1 was obtained by adding profits and other investment income (exclusive of agriculture), as found in Table 30 of the national income accounts, to the estimated corporate officer share of "wages, salaries and supplementary labor income." From this figure, inventory valuation adjustment was subtracted to arrive at S1. The after-tax measure S2 was derived by deducting effective taxes from S1, according to the tax schedule already described. S2 may be regarded as the magnitude of surplus-value privately appropriated. To this was added S3, which is an estimate of the amount of surplus-value effectively transferred to the state as a result of a real increase in the tax flow. The resultant sum is S4, a measure of the aggregate surplus-value produced in a single year.

The only problem posed in these calculations was arriving at a realistic estimate of S3, the surplus-value transferred to the state in a given year. The reason for dealing with this problem at all has already been explained. Even though most of the state's tax income represents elements of the constant capital flow, the growth of the state's assets and activity presupposes a transfer of some currently produced surplus-value to the state. (The state can finance its growth by borrowing as well as through taxation; however it is clear that taxation does play a role in permitting the state to appropriate some of the new value required for its expansion.)

In order to estimate the size of S3, it was first necessary to add together V1 and S1 (pre-tax variable capital and surplus-value) and then

to multiply this total by the effective tax rate. This yielded a measure of the annual tax flow on newly-created value. An increase in the real tax flow from one year to the next was taken to signify a net transfer of surplus-value to the state; a decrease in this flow was taken to signify that no such transfer had occurred. In order to determine the magnitude of change in the real tax flow from year to year, the sum of S1 and V1 was calculated according to the value of the dollar in the preceding year. For example, the sum of S1 and V1 in 1950 was calculated in 1949 dollars. The current dollar 1949 figure was then subtracted from the "constant dollar" 1950 figure to determine the magnitude and direction of change in the tax flow from 1949 to 1950. If this magnitude was positive, it would be considered a measure of S3 and added to S2 to arrive at S4. If the magnitude was negative, it would be considered an indication that there had been no transfer of surplus-value to the state and therefore S4 would be the same as S2. It should be noted that, except for a few years, S3 represented a small percentage of S4. S3 represented more than 10% of S4 in only eight of the thirty four years studied. S3 was zero in six years (including as recently as 1975). In only one year did S3 represent a large percentage of S4 (in 1974, when it rose to over 25%). (See Tables 6-8 in Appendix)

Constant Capital Flow

The annual constant capital flow (C5) represents the annual consumption of those "factors" of the production and reproduction process that play an indirect role in the production of surplus-value. Only a rough estimate of the magnitude of this flow is possible given

the nature of the official data. The simplest way to calculate an estimate of the value of the constant capital flow for the sector of the economy under consideration is through a process of elimination. Accordingly, the constant capital flow has been defined as the difference between the value of the Gross National Product and the value represented by the following flows: surplus-value (S4), variable capital (V2), the accrued net income of farm operators and non-farm unincorporated business, and agricultural profits in the corporate sector.

It should be noted that C5 does not include the full value of the raw materials, fuel and energy used up in production (CC). The value of these elements of constant capital also find partial expression in S4 and V2 precisely because they too constitute commodities ("input" the national income accounts are structured and the inevitable temporal problem of distinguishing precisely between the old and new value embodied in input commodities, it was necessary to define C5 as a flow encompassing the following categories: capital consumption allowances and miscellaneous inventory valuation adjustments, taxes accruing to the state from the included sectors of the economy, and the costs of circulation (mainly the wage bill of circulation workers). Nevertheless, it should be noted that a comparison of the growth of C5 to CC (circulating constant capital) provides a useful way of distinguishing between the trends for productive and unproductive constant capital consumption.

One component of C5 has been singled out for separate calculation. It was This is the unproductive labor wage bill in the private sector. It was calculated as the sum of wages, salaries and supplementary labor income in the trading, FIRE and CBPS sectors of the economy. The before-tax value of this flow is referred to as C6; the after-tax value as C7. (See Tables 9 and 10 in the Appendix)

"Gross Surplus-Value"--S5

In order to calculate an estimate of the magnitude of "gross surplus-value" as it is defined more conventionally, it was necessary to add together S2, C7 and an estimate of the magnitude of total taxes flowing to the state from the sector of the economy with which we are concerned. Total taxes were reduced by the same percentage that unincorporated business (farm and non-farm) represents in net national income. (See Table 11 in the Appendix.)

Number of Productive Workers

An estimate of the number of productive workers employed (NW) was required in order to measure the trends of gross productivity, net productivity, and the average real wage. Data was obtained from Historical Statistics of Canada by Urquhart and Buckley for the period from 1947-1960 and from Economic Review (Department of Finance), April 1983 for the period from 1961-1980. Unfortunately, the latter bulletin provides no data for forestry, fishing and trapping. In order to render the series consistent, the number of productive workers was calculated from both sources as the number of workers employed in 1) Mines, Quarries

and Oil Wells; 2) Manufacturing; 3) Construction; 4) Transportation. This means that the number of workers employed is inconsistent with the number of workers receiving variable capital. Unfortunately, there does not appear to be a way around this problem. However, the inconsistency is not a major one, since the number of workers employed in forestry, fishing and trapping, together with the other categories that should be included (broadcasting, telephones, power and gas distribution, etc.), is comparatively small, and overall probably has not changed much as a percentage of the total productive workforce over the thirty four year period covered.

5.2 OPERATIONALIZATION OF THE VARIABLES

The operationalization of the variables has been grouped into four categories:

Category A--Evaluation of the Hypotheses:

The following ratios were computed for the purpose of evaluating the hypotheses listed at the beginning of this chapter:

For Hypothesis One:

S2/C1, S4/C1, S2/C3, S4/C3 (the first two representing the rate of return on fixed capital investment; the last two the rate of return on total constant capital investment.)

For Hypothesis Two:

$C1/(V2+S4)$, $C3/(V2+S4)$; also $C3/V2$ (the value composition of capital).

For Hypothesis Three:

$S4/V2$

For Hypothesis Four:

GNP/NW, GP/NW, NP/NW

For Hypothesis Five:

$V3/NW$

For Hypothesis Six:

$C5/(S4+V2)$

Category B--The Before-Tax Ratios:

The following before-tax ratios were computed in order to assess the impact of taxation on the rate of profit and on the rate of surplus-value: $S1/C1$ and $S1/V1$ respectively.

Category C--Other Measures of the Rate of Profit:

Since it is quite common to treat the capital exchanged for labor-power as part of the capital "advanced," the rate of profit has also been computed as: $S4/(C1+V2)$, $S4/(C3+V2)$, $S4/(C3+V2+C7)$. The rate of profit has also been computed as $S4/C4$ in order to take the fixed capital of the state sector into account.

Category D--S5 Trends

Finally, in order to examine the fundamental trends as these would be represented if the value specifications corresponded to the "conventional" method of calculating "gross surplus-value," the following ratios were computed: "Gross Rate of Profit": $S5/C3$, $S5/(C3+V2)$; "Gross Rate of Surplus-Value": $S5/V2$; Organic Composition of Capital: $C3/(S5+V2)$.

Fundamental Ratios
Category A

Year	S4/C1	S2/C1	S4/C3	S2/C3	C3/Y2	C3/(Y2+S4)	C1/(Y2+S4)	S4/Y2
1947	0.120145	0.120145	0.081884	0.081884	5.8178	2.94059	2.47831	0.475387
1948	0.135602	0.135602	0.085286	0.085286	5.6741	3.82357	2.40510	0.483978
1949	0.149043	0.149043	0.086188	0.086188	5.6512	3.86085	2.36284	0.543537
1950	0.170336	0.155487	0.110528	0.100900	5.8699	3.58011	2.31011	0.648781
1951	0.165356	0.140833	0.106866	0.091103	5.1842	3.72204	2.40774	0.661499
1952	0.167107	0.156323	0.111914	0.104891	5.9123	3.55807	2.38288	0.661671
1953	0.146055	0.139051	0.089818	0.096127	5.8371	3.72647	2.54835	0.593233
1954	0.128225	0.128225	0.090455	0.090455	5.2869	4.00776	2.80535	0.568881
1955	0.149237	0.137098	0.104102	0.085534	5.3269	3.81448	2.88086	0.58843
1956	0.148742	0.134208	0.103478	0.083387	5.4514	3.88878	2.88142	0.887578
1957	0.123873	0.119302	0.118218	0.085728	6.8234	4.18408	2.89781	0.580611
1958	0.116216	0.116216	0.085728	0.085728	6.8234	4.18408	2.89781	0.580611
1959	0.123971	0.110823	0.091777	0.082043	7.2389	4.34838	3.20811	0.584372
1960	0.109176	0.104667	0.081971	0.078888	7.4394	4.52128	3.46874	0.608818
1961	0.107974	0.104284	0.081821	0.078010	7.7021	4.72466	3.68030	0.630198
1962	0.114150	0.105140	0.085704	0.078939	7.9183	4.71712	3.54183	0.678830
1963	0.111497	0.108237	0.083138	0.080707	8.0705	4.82882	3.60139	0.670989
1964	0.128452	0.112117	0.095287	0.080912	8.1418	4.58485	3.40112	0.775821
1965	0.117960	0.108352	0.087738	0.080577	8.6076	4.80405	3.64683	0.755202
1966	0.117006	0.102666	0.087337	0.078648	8.0380	4.72262	3.64683	0.755202
1967	0.109288	0.097045	0.082704	0.073438	8.2089	4.88841	3.52513	0.702012
1968	0.108834	0.099741	0.082860	0.075248	8.4218	4.96024	3.74210	0.878907
1969	0.105887	0.094458	0.080626	0.071824	8.6416	5.09205	3.74210	0.897819
1970	0.090570	0.088010	0.088852	0.068335	9.0143	5.83134	4.26610	0.628670
1971	0.088819	0.082544	0.089117	0.084234	9.2336	5.68542	4.38817	0.628202
1972	0.085214	0.088087	0.073803	0.082238	9.2844	5.50028	4.26048	0.882830
1973	0.086597	0.084487	0.073803	0.072198	9.2801	5.51134	4.26048	0.882830
1974	0.119111	0.087704	0.080878	0.088692	10.3810	5.35030	4.08652	0.888840
1975	0.080008	0.080008	0.084621	0.082877	8.7044	5.03778	4.08652	0.840278
1976	0.107530	0.084037	0.084621	0.074002	8.6805	5.32138	4.72242	0.602278
1977	0.082476	0.088074	0.073035	0.070348	10.0166	5.78471	4.18766	0.818174
1978	0.098032	0.083833	0.076683	0.073888	10.5860	5.83913	4.57941	0.814853
1979	0.108873	0.104884	0.084962	0.081182	10.8337	5.84118	4.36224	0.820458
1980	0.100386	0.098026	0.078852	0.077588	11.2182	5.98915	4.68898	0.882182

TABLE IIIa

TABLE IIIb

YEAR	$\frac{GNP}{NW}$	$\frac{GP}{NW}$	$\frac{NP}{NW}$	$\frac{V3}{NW}$	$\frac{C5}{S4+Y2}$
1947	16.4883	13.2550	4.8205	3.28510	1.74868
1948	16.8512	13.5909	5.2843	3.56020	1.57207
1949	16.5704	13.5921	5.4084	3.50343	1.51322
1950	17.7030	14.8222	6.0047	3.64218	1.43511
1951	18.0626	14.8203	5.8839	3.60692	1.47250
1952	18.8006	15.7026	6.1950	3.72647	1.53459
1953	19.4252	16.5194	6.2319	3.91105	1.65070
1954	19.8324	17.1834	6.1172	3.89965	1.80911
1955	21.1615	18.2570	6.7875	4.09691	1.68573
1956	21.4833	18.6947	6.9386	4.16170	1.69432
1957	20.9690	18.5136	6.5285	4.10375	1.83528
1958	21.5222	18.8575	6.5611	4.11533	1.87408
1959	22.4707	19.8628	6.8284	4.16109	1.86683
1960	23.2531	20.6547	6.8204	4.23688	2.02844
1961	24.0492	21.5257	6.9420	4.25780	2.10084
1962	24.7704	21.8771	7.1254	4.24354	2.08439
1963	25.3681	22.4775	7.1424	4.27487	2.14701
1964	25.9447	23.3016	7.6478	4.30830	2.04689
1965	26.3326	23.7555	7.3014	4.15914	2.25353
1966	26.8576	24.1561	7.7535	4.54611	2.11552
1967	27.6601	25.2662	7.7510	4.61610	2.25982
1968	29.4681	26.9208	7.9654	4.68995	2.37977
1969	30.3710	27.7734	7.8500	4.68589	2.49358
1970	31.5345	28.9416	7.7221	4.73843	2.74798
1971	32.8860	30.1580	8.0665	4.92400	2.73867
1972	34.1005	31.4119	8.5241	5.06468	2.68505
1973	34.7412	31.7566	8.6107	5.07859	2.68602
1974	34.2365	31.4494	8.3135	4.80126	2.37679
1975	36.4450	32.7910	8.8784	5.52789	2.80591
1976	37.8399	35.5059	10.3898	5.70920	2.41735
1977	38.3105	35.9937	9.8254	5.73105	2.62643
1978	39.6474	37.2062	10.6939	5.88938	2.47915
1979	39.2384	36.9366	11.0429	5.77892	2.34486
1980	39.2991	36.7452	10.8777	5.77892	2.37802

Fundamental Ratios
Category A

Fundamental Ratios
Categories B-C

YEAR	$\frac{S1}{C1}$	$\frac{S1}{V1}$	$\frac{S4}{C1+V2}$	$\frac{S4}{C3+V2}$	$\frac{S4}{C3+V2+C7}$	$\frac{C4}{S4}$
1947	0.18328	0.48467	0.10220	0.06973	0.08531	0.08142
1948	0.19177	0.49177	0.10524	0.07251	0.06778	0.08485
1949	0.20502	0.52288	0.11697	0.08173	0.07251	0.08485
1950	0.21533	0.52288	0.11697	0.08173	0.07251	0.08485
1951	0.20502	0.52288	0.11697	0.08173	0.07251	0.08485
1952	0.22424	0.52288	0.13228	0.09207	0.08416	0.08450
1953	0.20010	0.52288	0.13228	0.09207	0.08416	0.08450
1954	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1955	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1956	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1957	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1958	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1959	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1960	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1961	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1962	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1963	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1964	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1965	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1966	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1967	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1968	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1969	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1970	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1971	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1972	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1973	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1974	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1975	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1976	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1977	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1978	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1979	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538
1980	0.18487	0.52288	0.11720	0.08572	0.08884	0.08538

TABLE IV

Fundamental Ratios
Category D

YEAR	$\frac{S5}{V2}$	$\frac{S5}{C3}$	$\frac{C3+V2}{S5}$	$\frac{C3}{S5+V2}$
1947	1.92354	0.330627	0.282123	1.89000
1948	1.77968	0.313850	0.266654	2.04128
1949	1.83193	0.324187	0.275428	1.98553
1950	1.81718	0.328816	0.279072	2.01217
1951	2.00118	0.323583	0.278551	2.08060
1952	2.05235	0.347130	0.286911	1.93688
1953	2.00250	0.337283	0.288684	1.87740
1954	2.09223	0.332792	0.287122	2.03313
1955	2.12742	0.336251	0.290358	2.02303
1956	2.13577	0.331053	0.286625	2.05737
1957	2.14495	0.323645	0.281364	2.10604
1958	2.18981	0.317037	0.277098	2.16840
1959	2.30721	0.318722	0.280037	2.18884
1960	2.37960	0.318884	0.281983	2.20127
1961	2.51553	0.326801	0.289070	2.18088
1962	2.80440	0.328810	0.282029	2.18684
1963	2.65935	0.329518	0.293188	2.20544
1964	2.77774	0.341167	0.303848	2.20544
1965	2.87594	0.334117	0.289341	2.22077
1966	2.74273	0.341222	0.303468	2.14762
1967	2.88416	0.351347	0.313184	2.11342
1968	3.10306	0.368485	0.329356	2.05252
1969	3.25794	0.377007	0.337804	2.02853
1970	3.33995	0.370518	0.333519	2.07704
1971	3.37352	0.365352	0.329851	2.11125
1972	3.48193	0.376246	0.339555	2.06482
1973	3.50813	0.377403	0.340727	2.06187
1974	3.78387	0.384500	0.332473	2.17000
1975	3.48194	0.358801	0.325282	2.15522
1976	3.62764	0.374738	0.339852	2.09188
1977	3.84856	0.364252	0.331188	2.18477
1978	3.70163	0.348343	0.318218	2.25368
1979	3.83575	0.354058	0.324139	2.24033
1980	3.67518	0.345489	0.317217	2.30067

TABLE V

TABLE IX

YEAR	$\frac{C1}{V1}$	$\frac{C2}{V1}$	$\frac{C3}{V1}$	$\frac{C4}{V1}$	$\frac{C5}{V1}$
1947	0.10000	0.10000	0.10000	0.10000	0.10000
1948	0.10000	0.10000	0.10000	0.10000	0.10000
1949	0.10000	0.10000	0.10000	0.10000	0.10000
1950	0.10000	0.10000	0.10000	0.10000	0.10000
1951	0.10000	0.10000	0.10000	0.10000	0.10000
1952	0.10000	0.10000	0.10000	0.10000	0.10000
1953	0.10000	0.10000	0.10000	0.10000	0.10000
1954	0.10000	0.10000	0.10000	0.10000	0.10000
1955	0.10000	0.10000	0.10000	0.10000	0.10000
1956	0.10000	0.10000	0.10000	0.10000	0.10000
1957	0.10000	0.10000	0.10000	0.10000	0.10000
1958	0.10000	0.10000	0.10000	0.10000	0.10000
1959	0.10000	0.10000	0.10000	0.10000	0.10000
1960	0.10000	0.10000	0.10000	0.10000	0.10000
1961	0.10000	0.10000	0.10000	0.10000	0.10000
1962	0.10000	0.10000	0.10000	0.10000	0.10000
1963	0.10000	0.10000	0.10000	0.10000	0.10000
1964	0.10000	0.10000	0.10000	0.10000	0.10000
1965	0.10000	0.10000	0.10000	0.10000	0.10000
1966	0.10000	0.10000	0.10000	0.10000	0.10000
1967	0.10000	0.10000	0.10000	0.10000	0.10000
1968	0.10000	0.10000	0.10000	0.10000	0.10000
1969	0.10000	0.10000	0.10000	0.10000	0.10000
1970	0.10000	0.10000	0.10000	0.10000	0.10000
1971	0.10000	0.10000	0.10000	0.10000	0.10000
1972	0.10000	0.10000	0.10000	0.10000	0.10000
1973	0.10000	0.10000	0.10000	0.10000	0.10000
1974	0.10000	0.10000	0.10000	0.10000	0.10000
1975	0.10000	0.10000	0.10000	0.10000	0.10000
1976	0.10000	0.10000	0.10000	0.10000	0.10000
1977	0.10000	0.10000	0.10000	0.10000	0.10000
1978	0.10000	0.10000	0.10000	0.10000	0.10000
1979	0.10000	0.10000	0.10000	0.10000	0.10000
1980	0.10000	0.10000	0.10000	0.10000	0.10000

5.4 RESULTS

Tables III - V provide numerical values of the relevant ratios in all categories for the years 1947-1980.

Category A: Evaluation of the Hypotheses

The ratios grouped into Category A refer to the central hypotheses of this empirical study. Accordingly, the results will be reported with a view to evaluating the strength of these hypotheses.

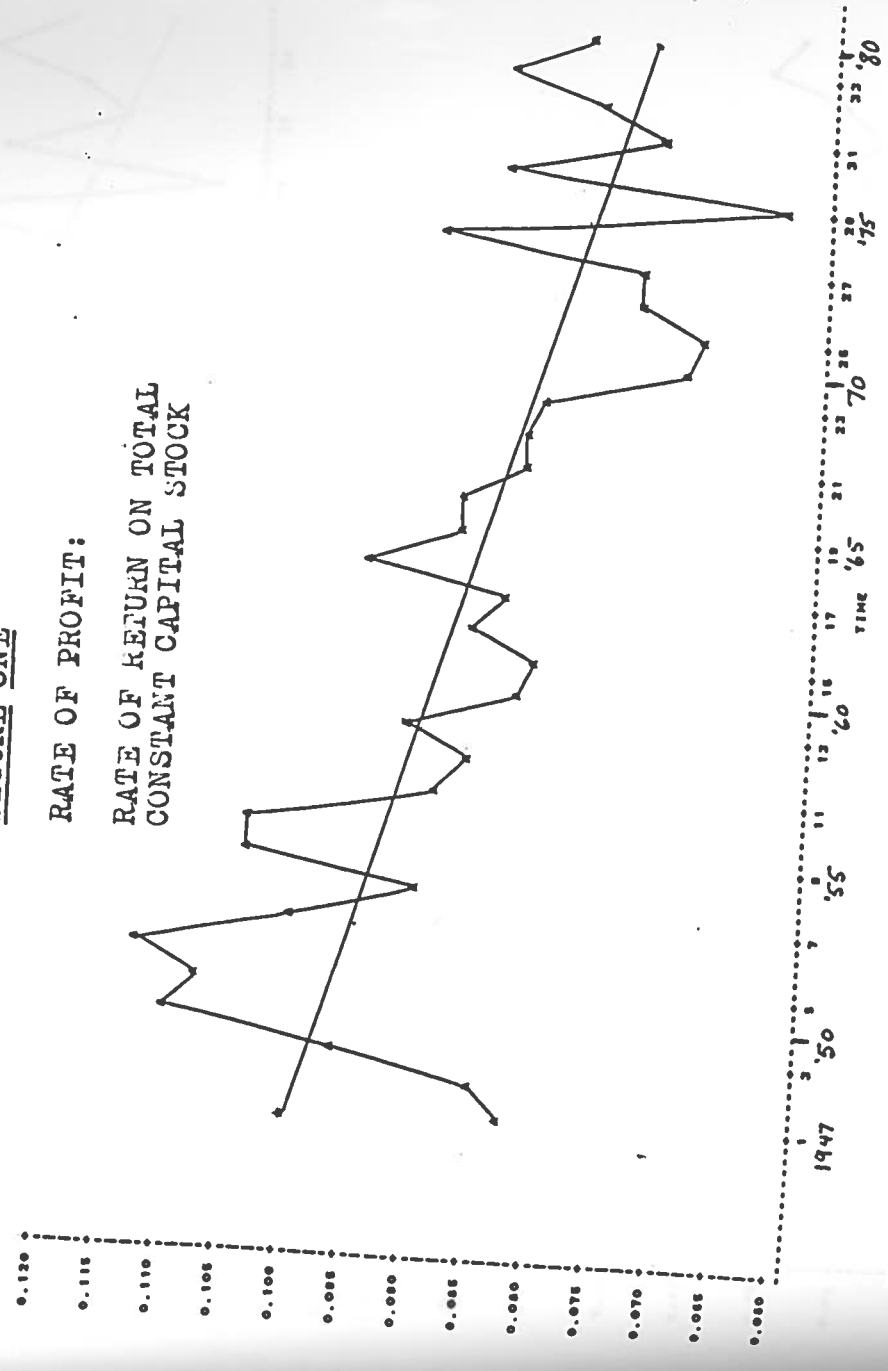
Four ratios under Category A bear on the evaluation of Hypothesis One which states that the rate of profit will exhibit a secular tendency to fall. Linear regression analysis establishes that all four of these ratios evinced a statistically significant downward trend over the period 1947 to 1980. With time as the independent variable and these "rate of profit" ratios as dependent variables, the following results were obtained: S2/C1, which measures the rate of private surplus-value appropriation on fixed capital investment, declined more rapidly than any other ratio. Its peak year was 1950 with a value of 0.155497 (or 15.5%); and its low point was reached in 1975 with a value of 0.080008 (or 8.0%). The trend (regression) line falls from .144 in 1947 to .081 in 1980 and explains fully 76% of the variation (r-square of .76, $p < .0001$). S4/C1, which measures the rate of aggregate surplus-value appropriation on fixed capital investment, has a trend line which falls from .151 in 1947 to .088 in 1980 (r-square of .66, $p < .0001$). S2/C3, which measures the rate of private surplus-value appropriation on total constant capital stock investment, has a trend line which falls from .095 in 1947 to .067 in 1980 (r-square of .62, $p < .0001$). Finally, S4/C3,

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which measures the rate of aggregate surplus-value appropriation on total capital investment, has a trend line which falls from .100 in 1947 to .074 in 1980 (r-square of .46 $p < .0001$). The downward slope of the trend lines for all four ratios provides strong support for Hypothesis One, particularly in view of the relatively high r-squares obtained for at least the first three ratios (See Figures One, Two and Three.)

S4/C3

FIGURE ONE

RATE OF PROFIT:
RATE OF RETURN ON TOTAL
CONSTANT CAPITAL STOCK



TIME: 1=1947
33=1979

FIGURE TWO
RATE OF PROFIT:
RATE OF RETURN ON
FIXED CAPITAL STOCK

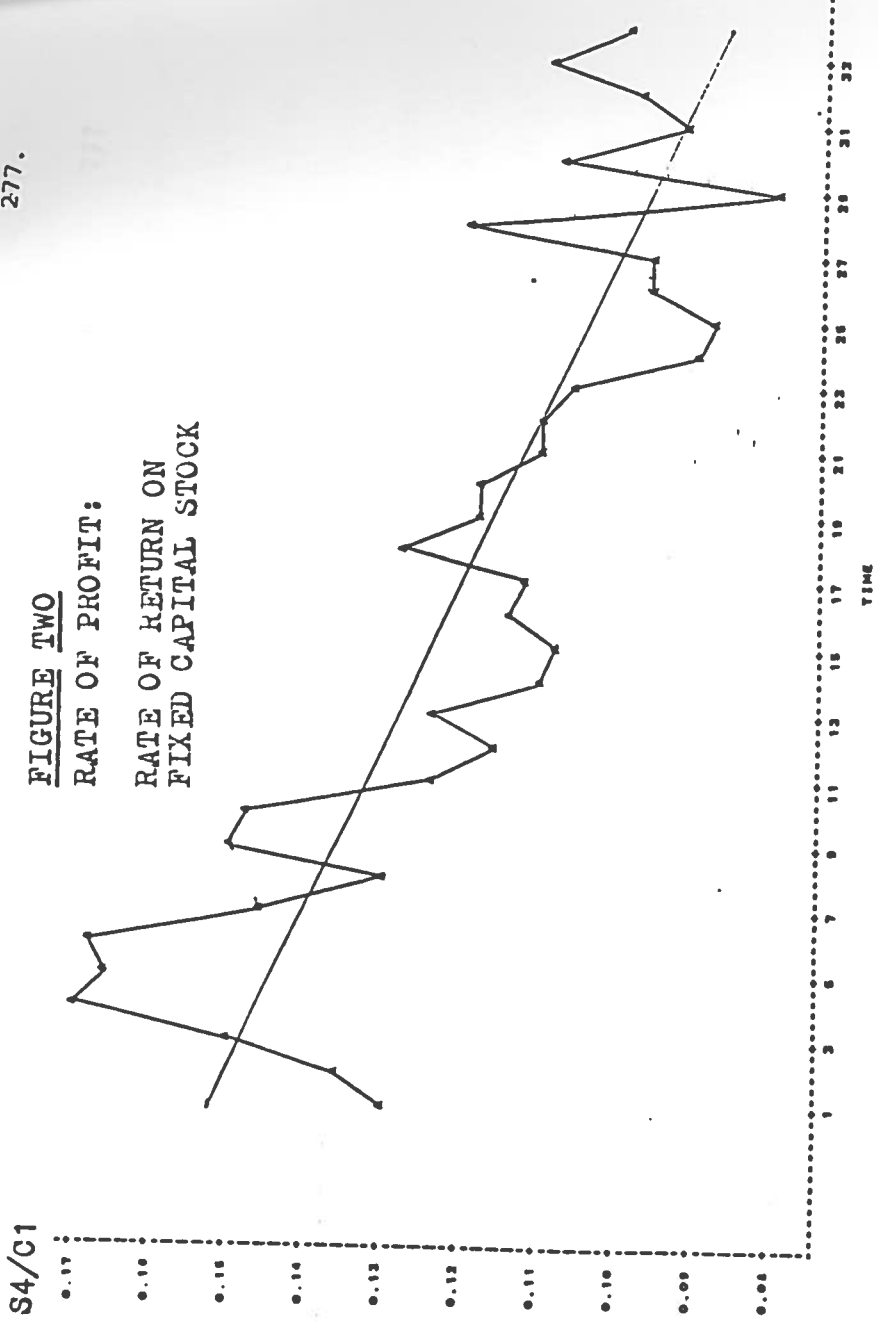
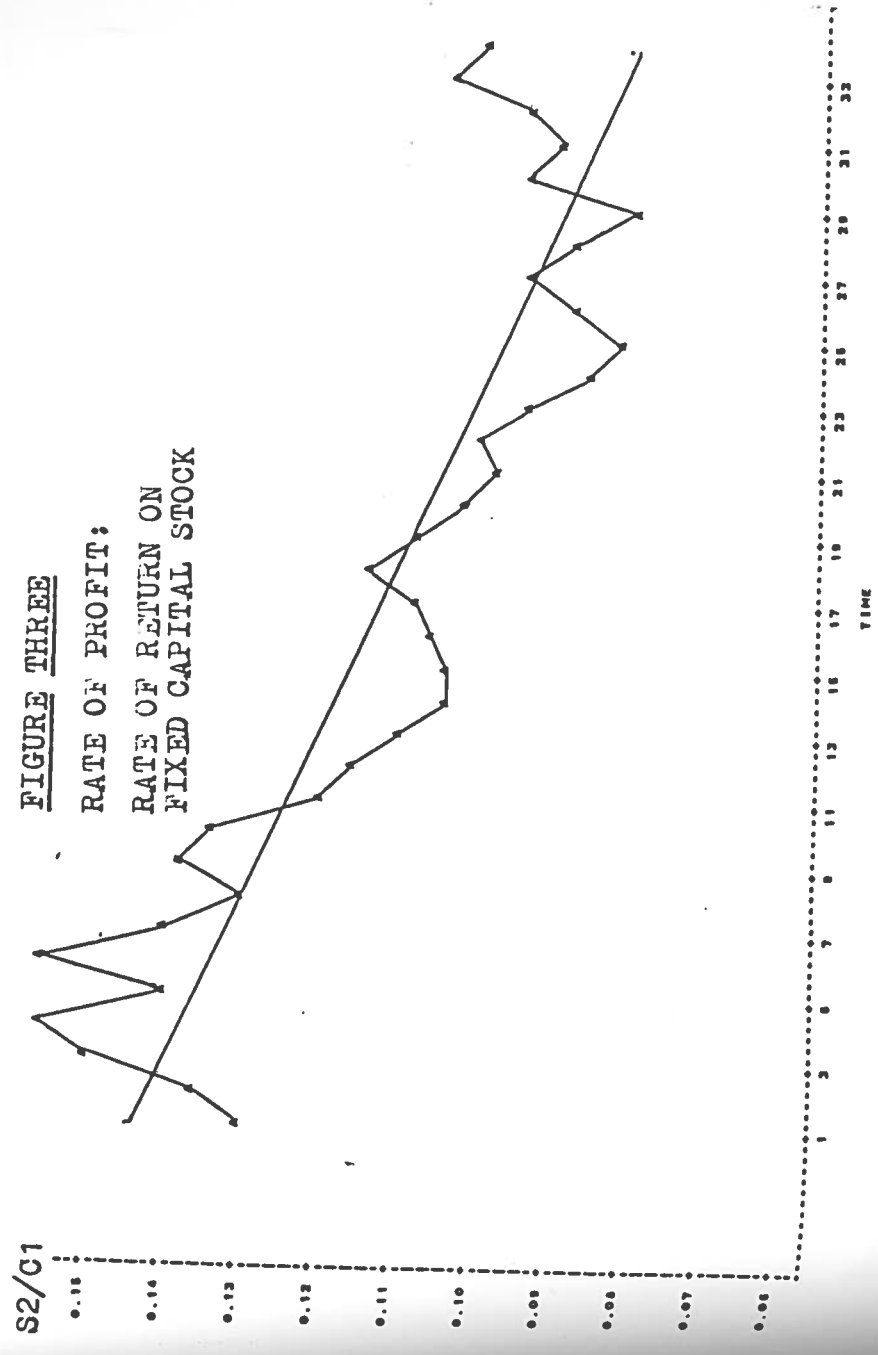


FIGURE THREE
RATE OF PROFIT:
RATE OF RETURN ON
FIXED CAPITAL STOCK



TIME: 1=1947
33=1979

Three ratios bear on Hypothesis Two which states that the organic composition of capital will exhibit a secular tendency to rise. Once again, the results strongly support the tested hypothesis. All three ratios exhibit a strong tendency to rise over time. The "fixed-capital" ratio $C1/(V2+S4)$ has a trend line which rises from 2.24 in 1947 to 4.75 in 1980 (r-square of 0.95, $p < .0001$); the "total capital stock" ratio $C3/(V2+S4)$ a trend line which rises from 3.48 in 1947 to 5.97 in 1980 (r-square of 0.93, $p < .0001$); and the "value composition of capital" ratio $C3/V2$ a trend line which rises from 5.26 in 1947 to 10.70 in 1980 (r-square of 0.98, $p < .0001$). When the organic composition of capital was used as an independent variable and the rate of profit as the dependent variable, it was found that the upward trend of the OCC explained a large amount of the variation in the downward trend of the rate of profit. (An r-square of 0.83, $p < .0001$ was derived with $S4/C1$ as the dependent and $C1/(V2+S4)$ as the independent variable; an r-square of 0.69 was obtained when $S4/C3$ was the dependent variable and $C3/(V2+S4)$ the independent variable.) (See Figures Four and Five.)

Hypothesis Three, which posits a rising trend for the rate of surplus-value, was also confirmed, although less dramatically than Hypothesis Two. The trend line for $S4/V2$ rises from .546 in 1947 to .810 in 1980 (r-square of 0.56, $p < .0001$). Interestingly, the rate of surplus-value appeared to fluctuate throughout most of the 1950's and 1960's within a relatively narrow range (between 0.55 and 0.70), rising sharply only in the late 1970's. (See Figure Six.)

FIGURE FOUR

ORGANIC COMPOSITION
OF CAPITAL: $C3/(V2+S4)$

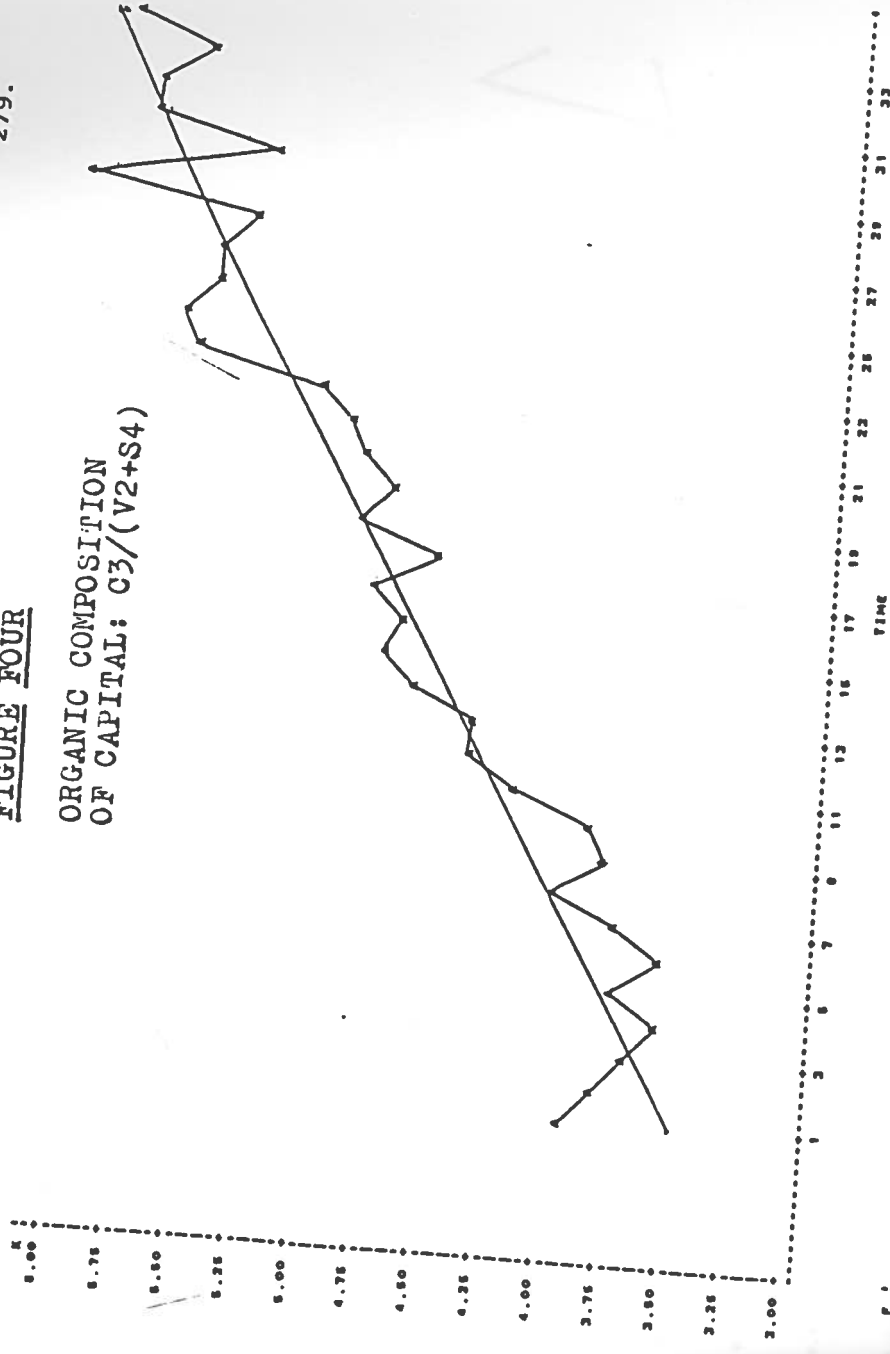
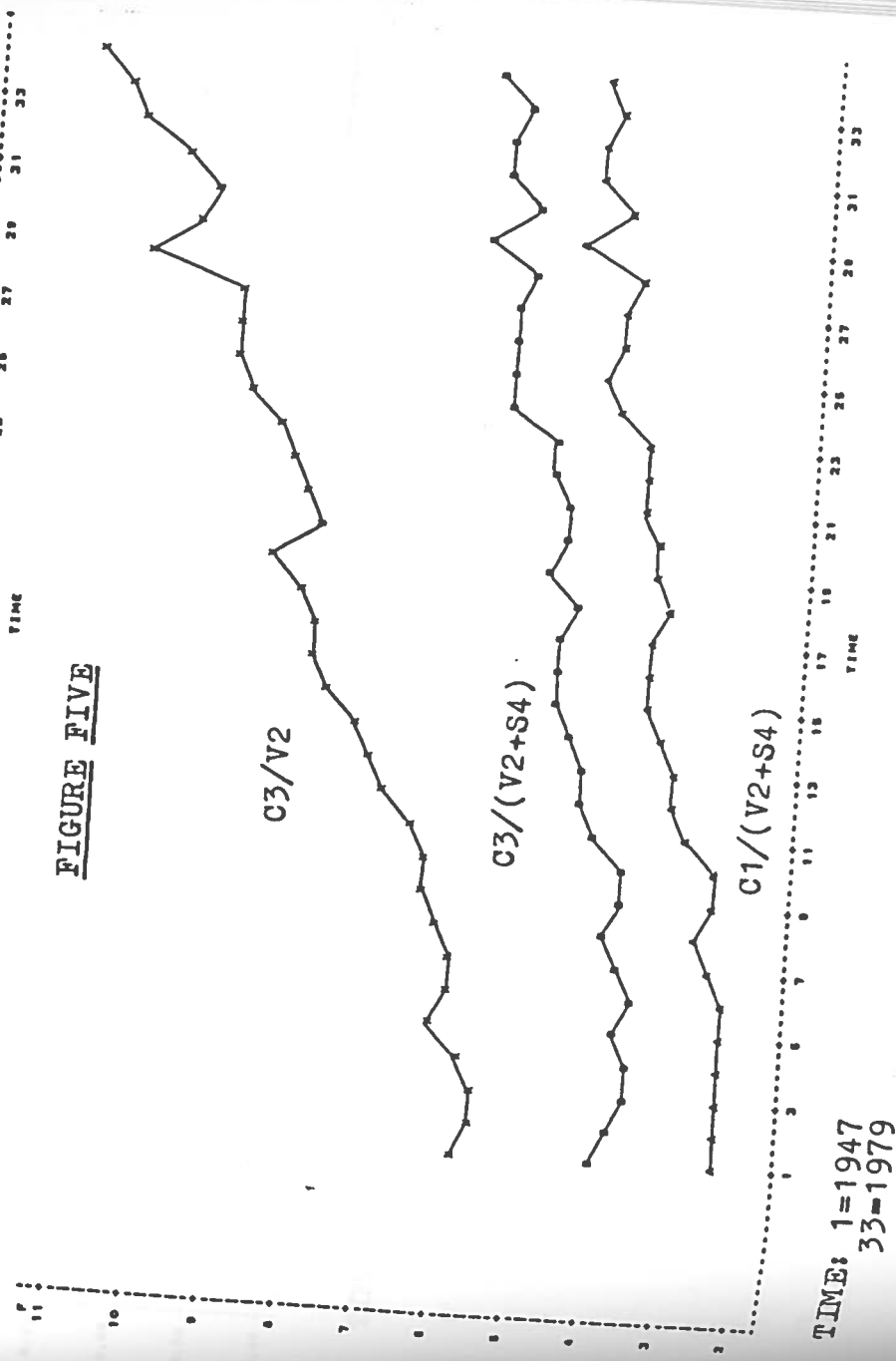
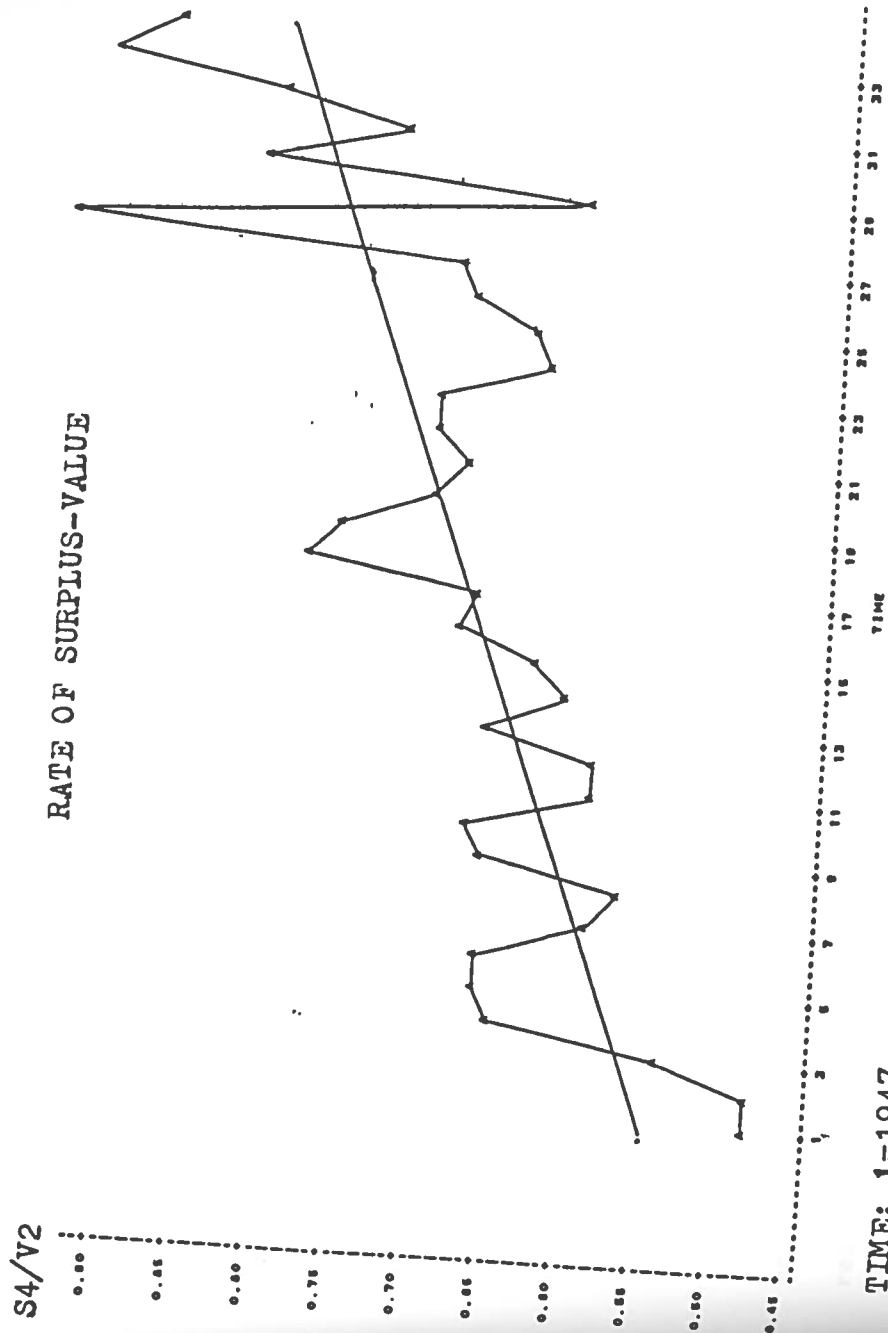


FIGURE FIVE



TIME: 1=1947
33=1979

FIGURE SIX
RATE OF SURPLUS-VALUE



TIME: 1=1947
33=1979

Three ratios bear on the evaluation of Hypothesis Four which states that gross productivity will rise more rapidly than net productivity. The trend line for GNP/NW rose from 14.50 in 1947 to 39.25 in 1980 (r -square of 0.98, $p < .0001$), and the trend line for GP/NW rose from 11.30 in 1947 to 36.65 in 1980 (r -square of 0.99, $p < .0001$). On the other hand, the trend line for NP/NW rose from 5.03 in 1947 to 10.165 in 1980 (r -square of 0.92, $p < .0001$). In other words, gross productivity roughly triples over the thirty four year period, while net productivity roughly doubles. These results strongly support Hypothesis Four. (See Figure Seven.)

Hypothesis Five, which states that the growth of the real wage will lag behind the growth of net productivity, is also upheld, although not altogether clearly. The trend line for V3/NW rose from 2.57 in 1947 to 5.88 in 1980 (r -square of 0.92, $p < .0001$). While this increase suggests that the real wage has grown slightly more than net productivity (229% for V3/NW, as compared with 203% for NP/NW), Figure Seven shows that increases in the real wage have consistently followed increases in net productivity. It should also be noted that comparison of the trend line results for V3/NW and NP/NW can be misleading, since, unlike V3/NW, NP/NW actually fell in one year, 1970. Overall, it is clear that NP/NW has grown somewhat more than V3/NW over the entire thirty-four year period; and this is particularly true for the 1975-1980 period.

Finally, Hypothesis Six, which states that the value composition of the gross product will exhibit a secular tendency to rise, is also confirmed. The trend line for C5/(S4+V2) rises from 1.49 in 1947 to 2.74 in 1980 (r -square of 0.82, $p < .0001$). It is, however, interesting to

note that the trend with respect to this ratio is not as clear cut as the trends for the organic composition of capital and the value composition of capital. This would appear to be attributable in part to the vicissitudes of taxation as a component of the constant capital flow. (See Figure Eight.)

FIGURE SEVEN

GROSS PRODUCTIVITY: GP/NW
 NET PRODUCTIVITY: NP/NW
 THE REAL WAGE: V3/NW

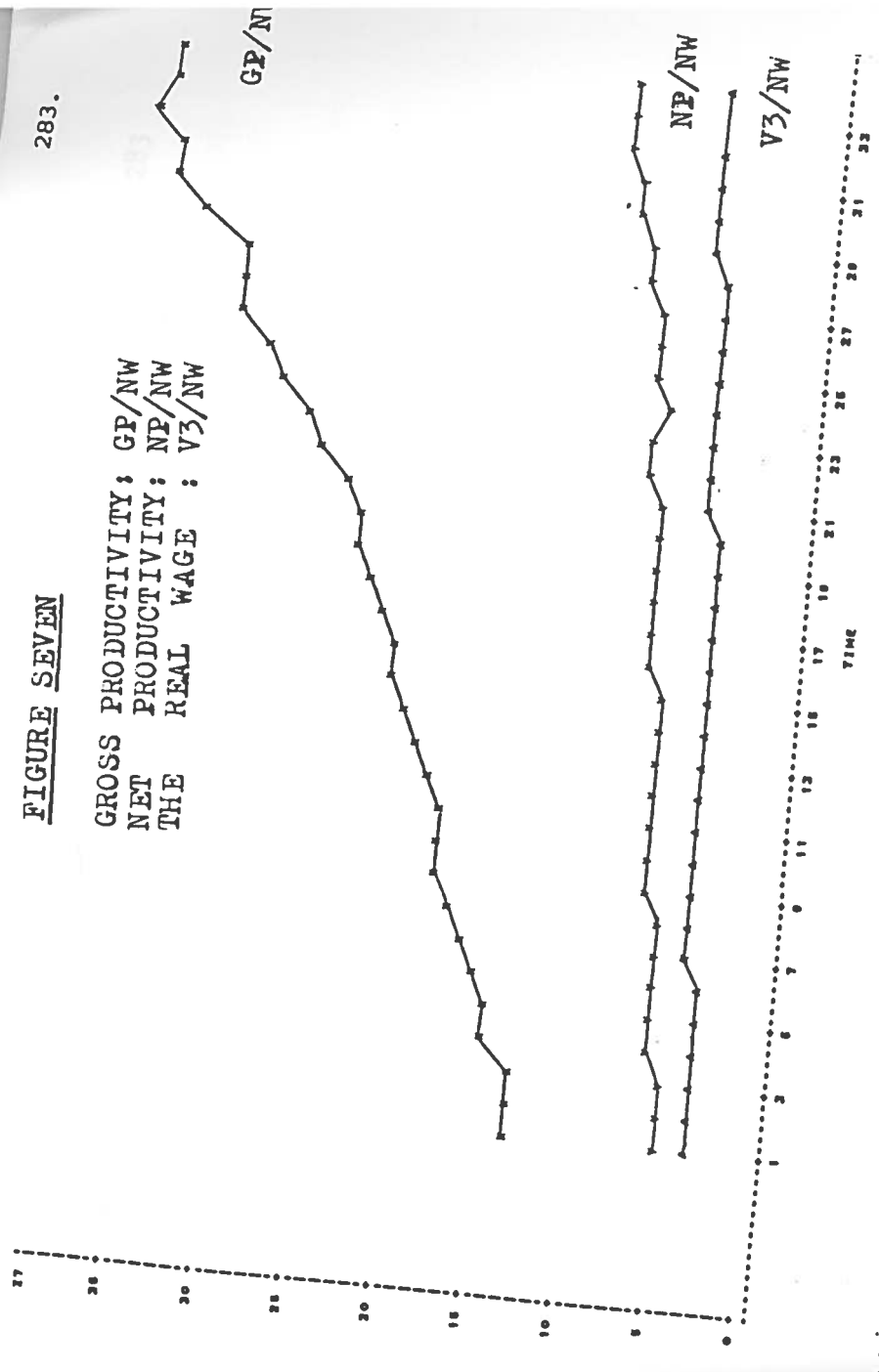
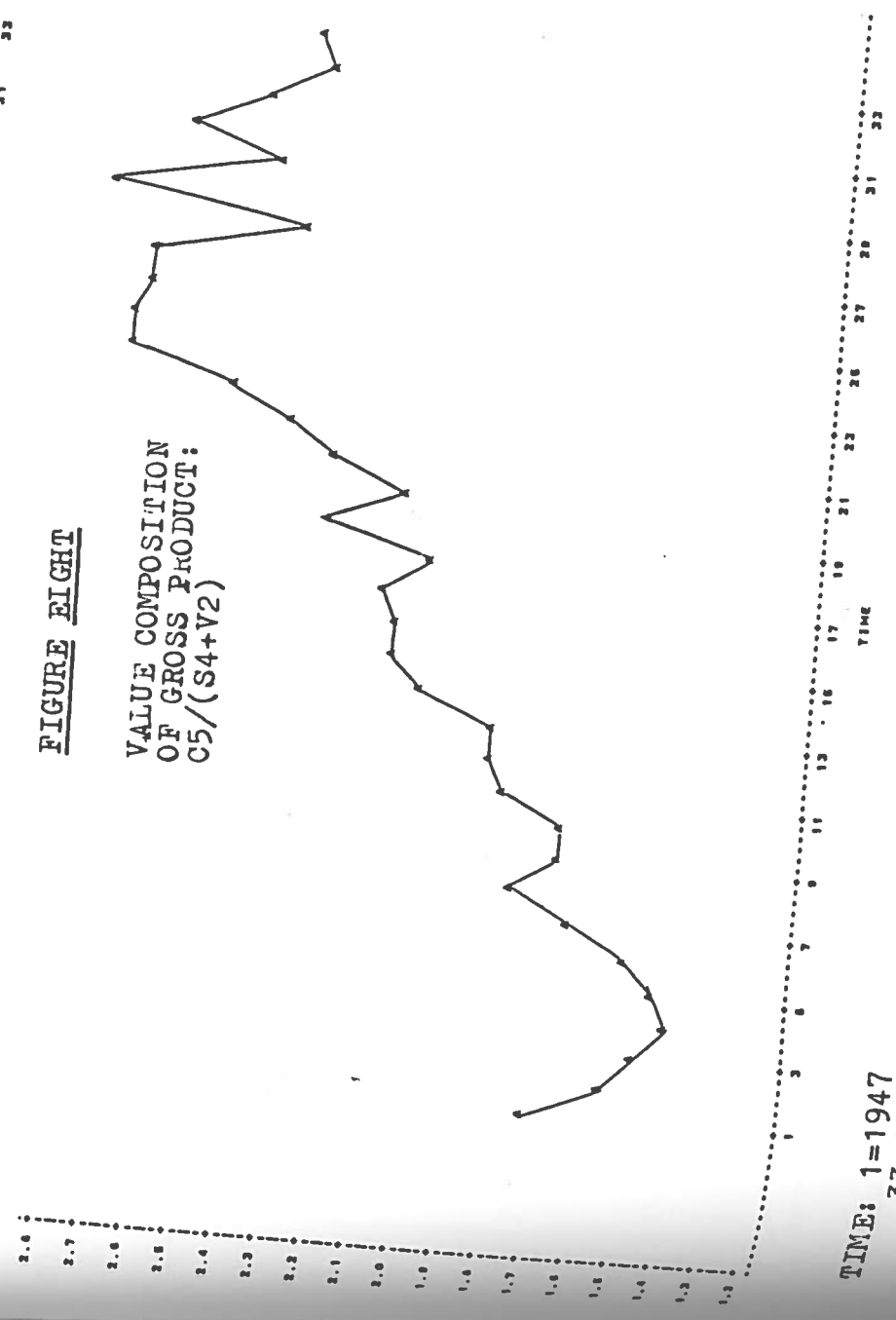


FIGURE EIGHT

VALUE COMPOSITION OF GROSS PRODUCT: C5/(S4+V2)



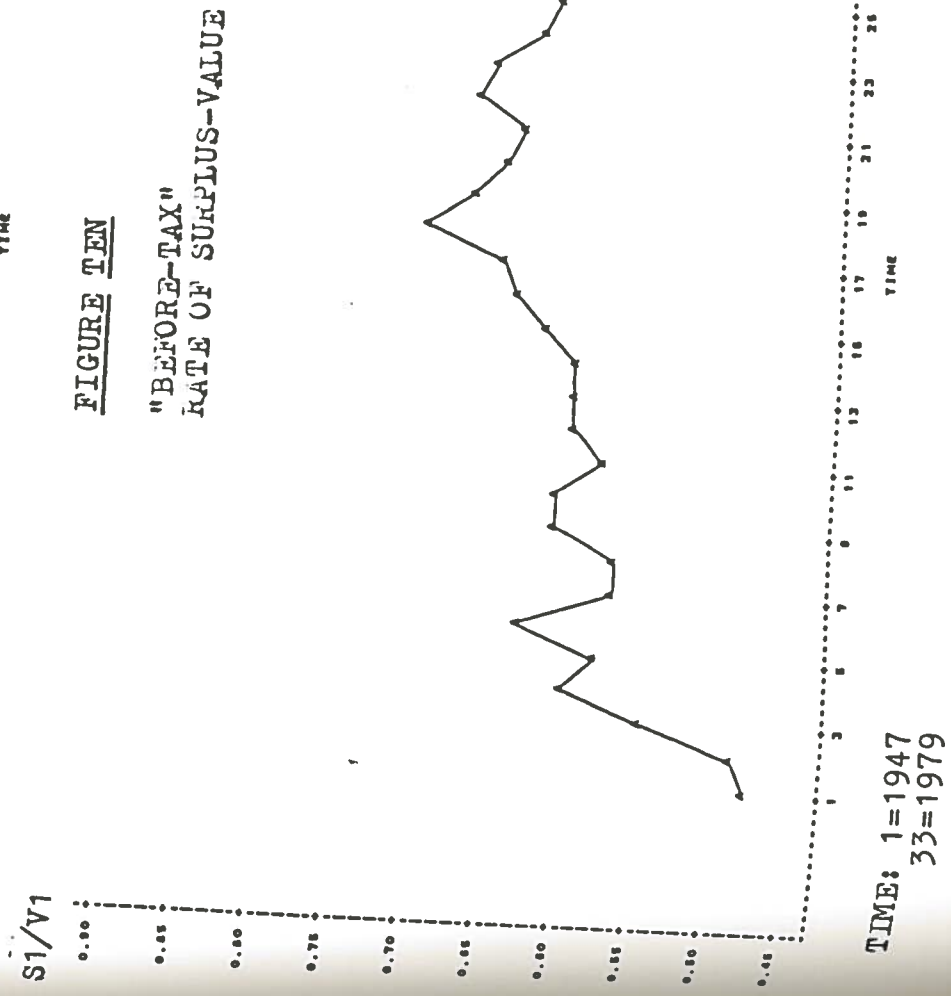
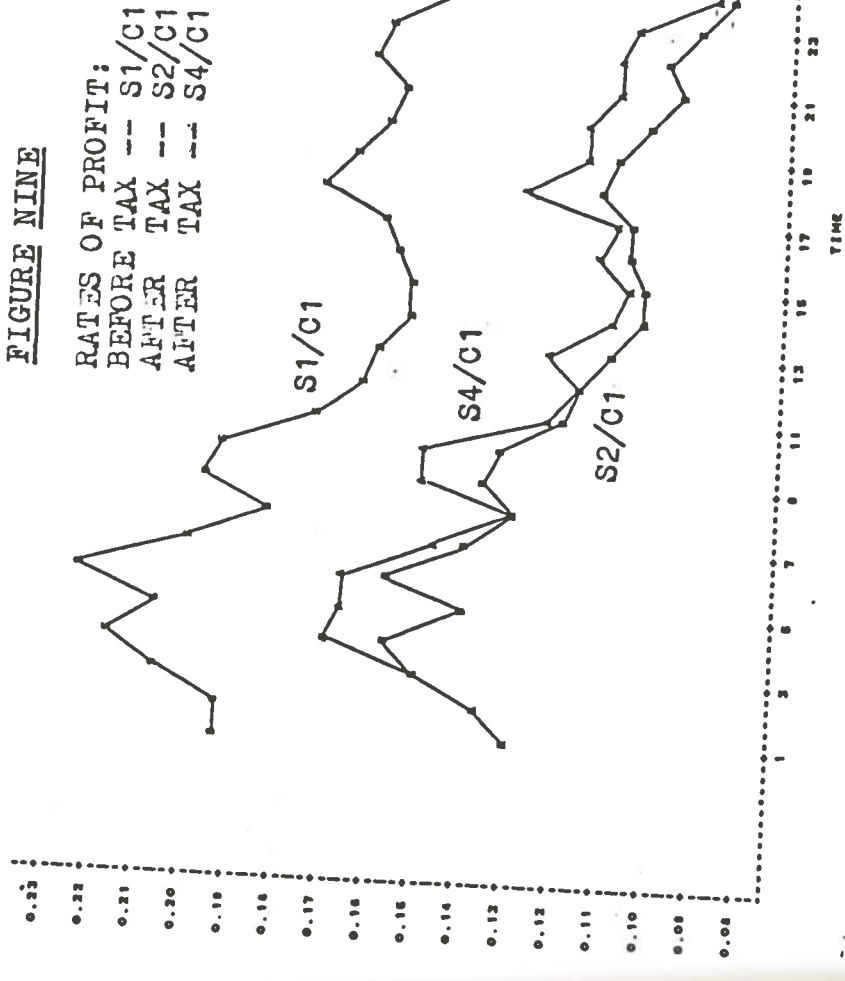
TIME: 1=1947
 33=1979

Category B: The Before-Tax Ratios

The before-tax ratios, $S1/C1$ and $S1/V1$, were computed for the purpose of comparison with the after-tax ratios presented in Category A. This comparison is useful for two interrelated reasons. First, it provides a way of assessing the impact of taxation on the rate of profit and the rate of surplus-value; and second, it may serve as a partial corrective to any possible skew in the after-tax ratios resulting from the use of the "effective tax rate" schedule described earlier.

The before-tax rate of profit ratio $S1/C1$ declines considerably over time, although not as sharply as the after-tax ratio $S2/C1$. The trend line for $S1/C1$ falls from 0.199 (19.9%) in 1947 to 0.143 (14.3%) in 1980 (r -square of 0.59, $p < .0001$). This would seem to indicate that while taxation has contributed somewhat to the fall in the rate of profit, it falls far short of explaining the overall trend. (See Figure Nine.)

With respect to the rate of surplus-value, the before-tax and after-tax ratios are even more similar in terms of overall trend. The trend line for $S1/V1$ rises from 0.514 in 1947 to 0.792 in 1980, and this line explains even more of the variation of this ratio than the trend line for $S2/V2$ (r -square of 0.72, $p < .0001$). (See Figure Ten.)



Category C: Other Measures of the Rate of Profit

Four other measures of the rate of profit were computed in order to take into account other problems. Two involved the addition of the flow variable V2 into the denominator; one involved the addition of both V2 and C7 (which amounts to the total after tax wage bill for both productive and unproductive labor in the private sector); and another involved adding the value of the state sector's fixed capital onto the total capital stock.

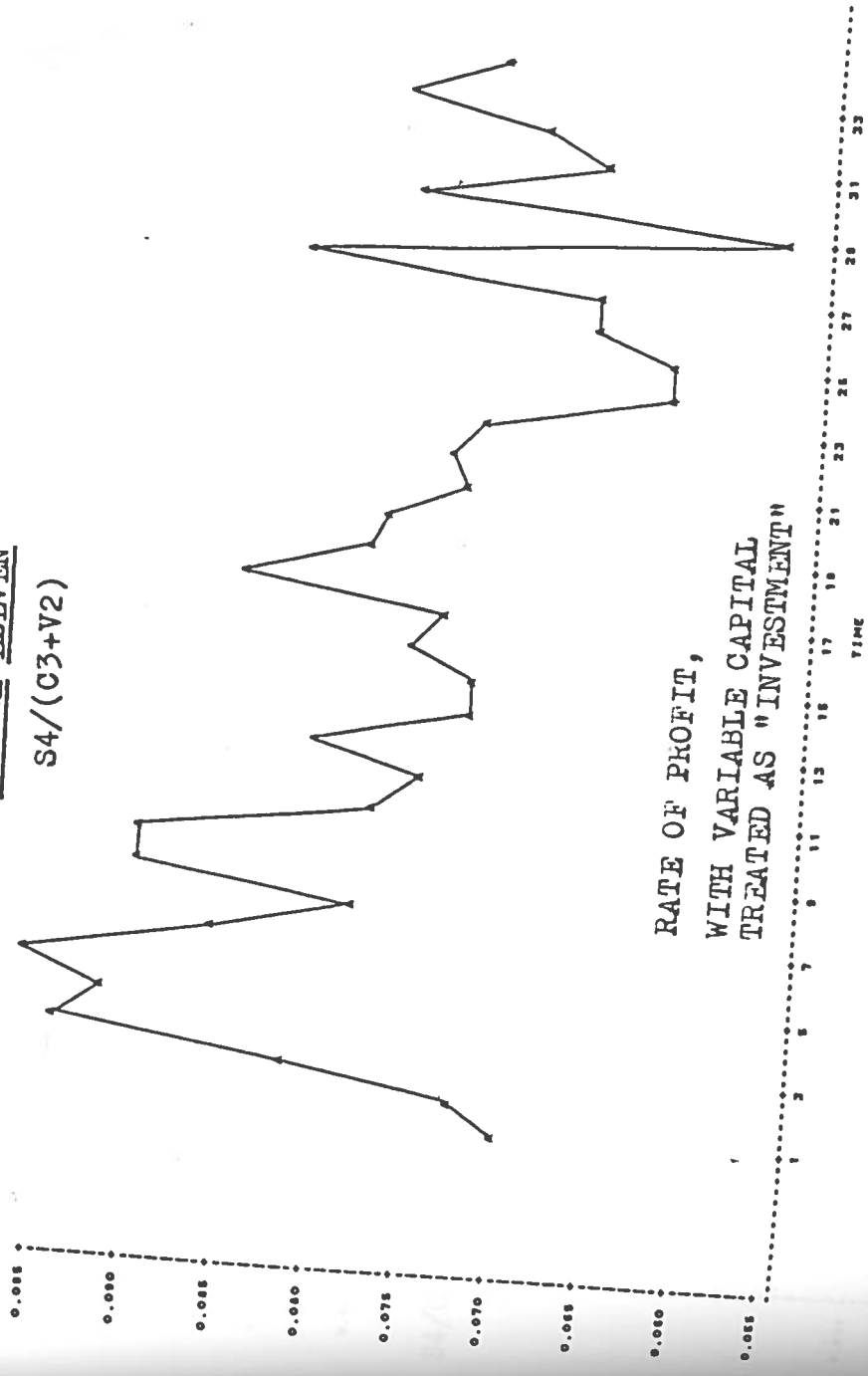
The trend line for $S_4/(C1+V2)$ falls from 0.1213 in 1947 to 0.0831 in 1980 (r-square of 0.53, $p < .0001$). While the trend line for $S_4/(C3+V2)$ falls from 0.085 in 1947 to 0.068 in 1980 (r-square of 0.32, $p < .0005$). When compared with the ratios computed solely on a stock basis, these ratios indicate that the addition of the labor costs of productive labor has a restraining influence on the tendency of the rate of profit to fall. Indirectly, these results support the notion that the displacement of living labor by fixed capital has the dual effect of cutting labor costs and promoting the tendency of the rate of profit to fall.

The trend line for $S_4/(C3+V2+C7)$ falls from 0.0796 in 1947 to 0.0621 in 1980 (r-square of 0.3548, $p < .0002$), indicating that the addition of the unproductive labor wage bill produces a slightly stronger tendency for the rate of profit to fall.

Finally, the trend line for $S_4/C4$ falls from 0.076 in 1947 to 0.059 in 1980 (r-square of 0.3674, $p < .0001$). This result may be profitably compared with the result obtained for $S_4/C3$, which falls more dramatically (from 0.100 in 1947 to 0.074 in 1980; r-square of 0.46,

$p < .0001$). This indicates that the growth of the state's fixed capital assets has not kept pace with that of the productive sector, and that this "investment sui generis" in state activity is a very minor factor in the falling tendency of the rate of profit. (See Figures Eleven, Twelve and Thirteen.)

FIGURE ELEVEN
S4/(C3+V2)

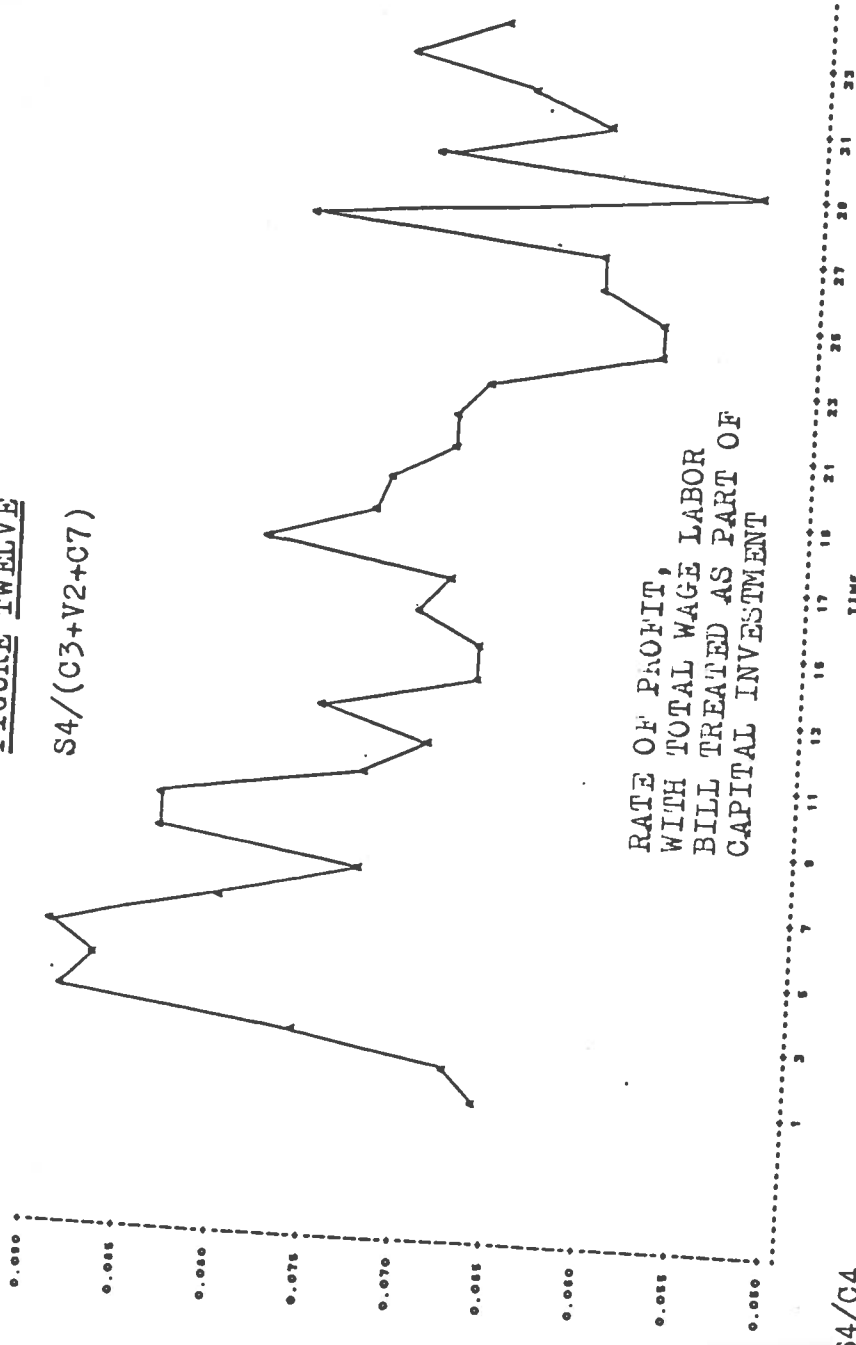


RATE OF PROFIT,
WITH VARIABLE CAPITAL
TREATED AS "INVESTMENT"

TIME: 1=1947
33=1979

FIGURE TWELVE

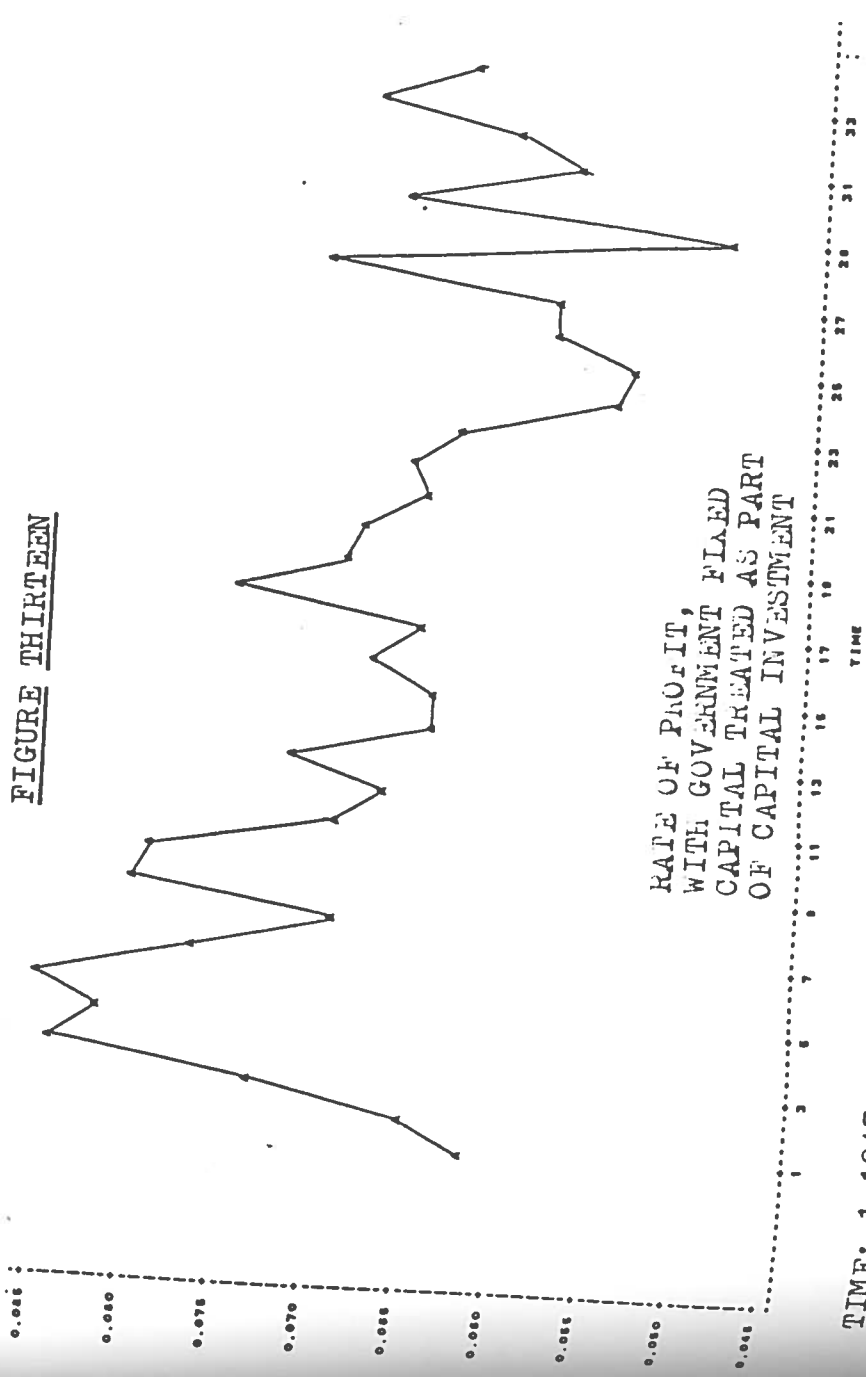
S4/(C3+V2+C7)



RATE OF PROFIT,
WITH TOTAL WAGE LABOR
BILL TREATED AS PART OF
CAPITAL INVESTMENT

FIGURE THIRTEEN

S4/C4



RATE OF PROFIT,
WITH GOVERNMENT FIXED
CAPITAL TREATED AS PART
OF CAPITAL INVESTMENT

TIME: 1=1947
33=1979

Category D: The S5 Ratios

Since the S5 ratios involve a radically expanded estimate of the magnitude of surplus-value, it should not be surprising that the trends for these ratios are substantially different from those analyzed for the Category A ratios. Instead of falling, the rate of profit exhibits a tendency to rise; the organic composition of capital shows no statistically significant tendency in direction; and the rate of surplus-value rises very sharply.

The trend line for $S5/C3$ rises from 0.3190 in 1947 to 0.3678 in 1980 (r-square of .55, $p < .0001$). While the trend line for $S5/(C3+V2)$ rises from .2706 in 1947 to .3379 in 1980 (r-square of .76, $p < .0001$). The trend line for $S5/V2$ rises from 1.632 in 1947 to 3.894 in 1980 (r-square of .97, $p < .0001$). Finally, the trend line for $C3/(S5+V2)$ rises very slightly from 2.022 in 1947 to 2.203 in 1980 (r-square of .38, $p < .0001$).

On the basis of these findings it may be concluded that the conventional method of specifying the value categories leads to conclusions that are in general counterposed to Marx's "predictions." The secular tendencies of both the rate of profit and the organic composition of capital fail to conform to theoretical expectations. It should nevertheless be noted that a significant rise in the organic composition of capital occurs in the 1970's, and that this is accompanied by a levelling off and slight fall in the rate of profit for the same period. However the significance of this is not at all clear since a rise in the OCC in the late 1950's and early 1960's is accompanied by an increase in the rate of profit. (See Figures Fourteen, Fifteen, Sixteen and Seventeen.)

FIGURE FOURTEEN
"S5" RATE OF PROFIT

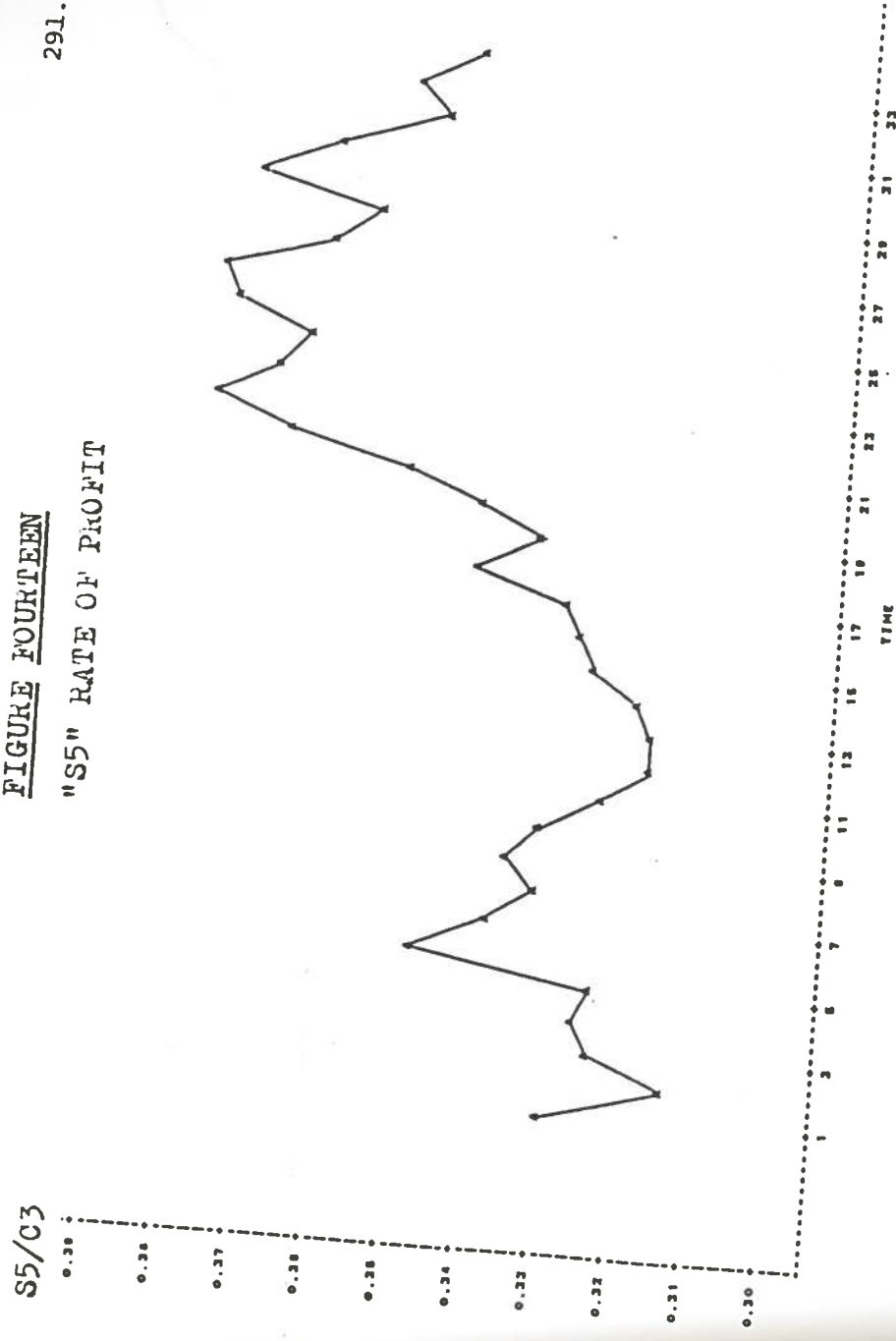
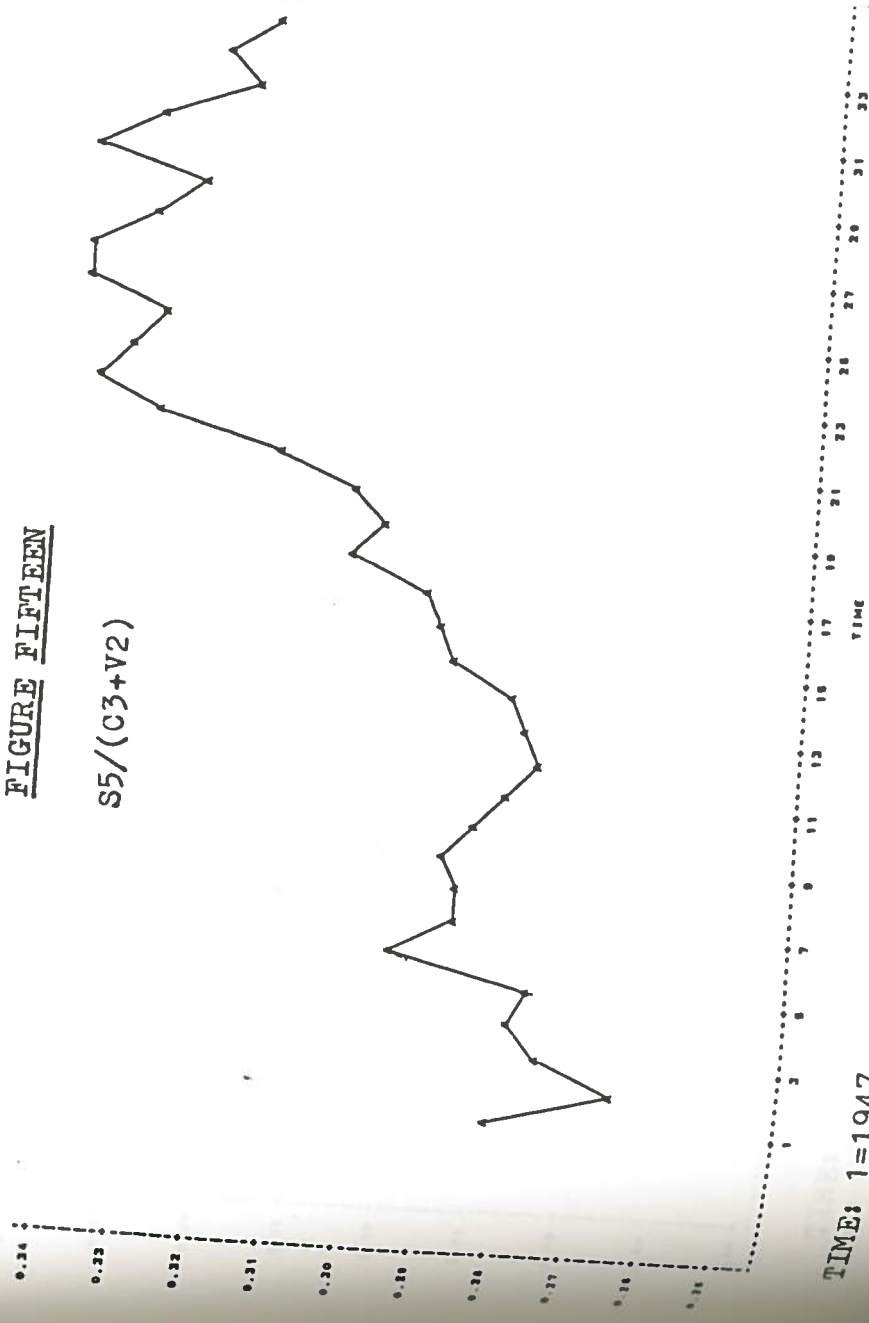


FIGURE FIFTEEN

$S5/(C3+V2)$



TIME: 1=1947
33=1979

FIGURE SIXTEEN
"S5" RATE OF EXPLOITATION

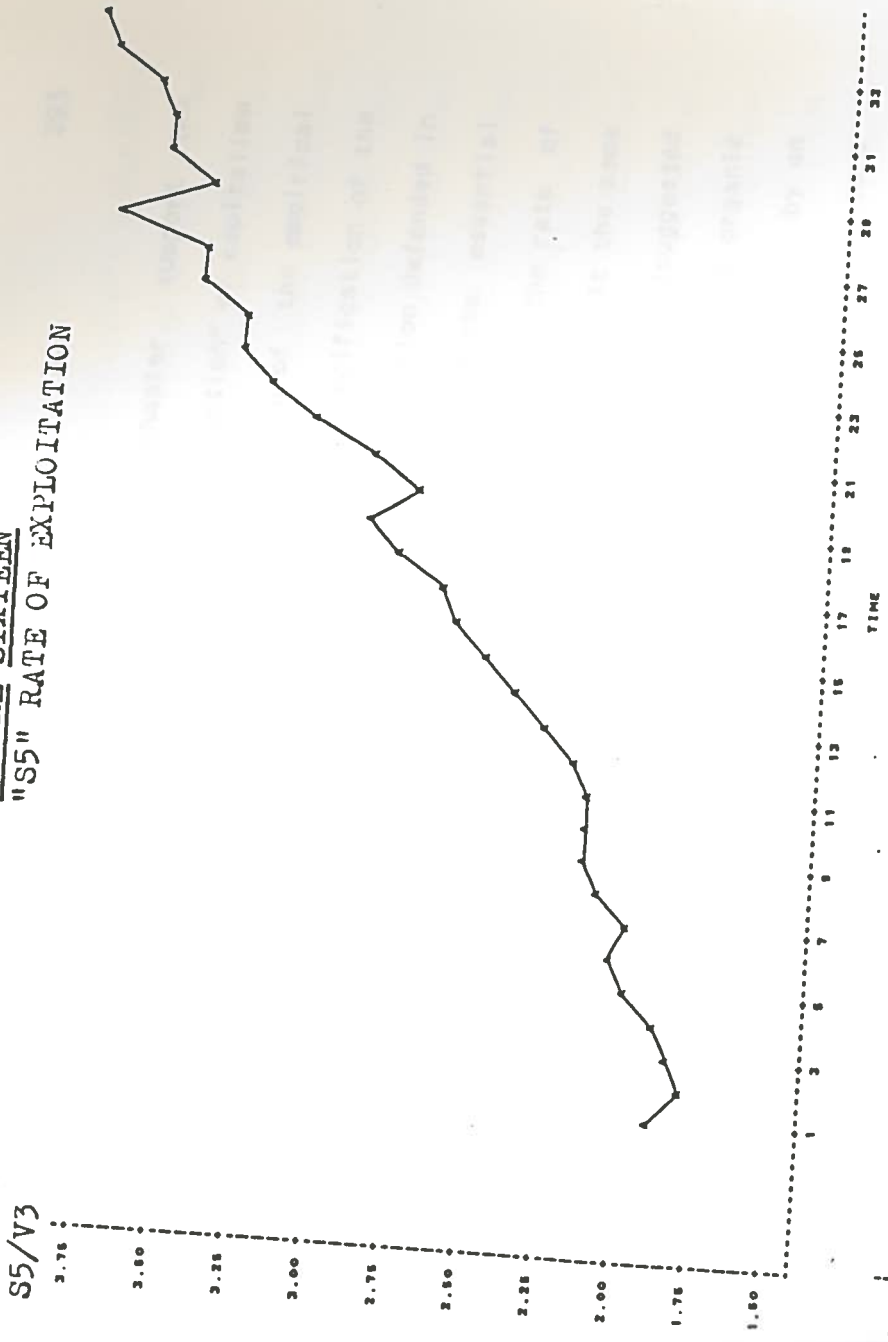
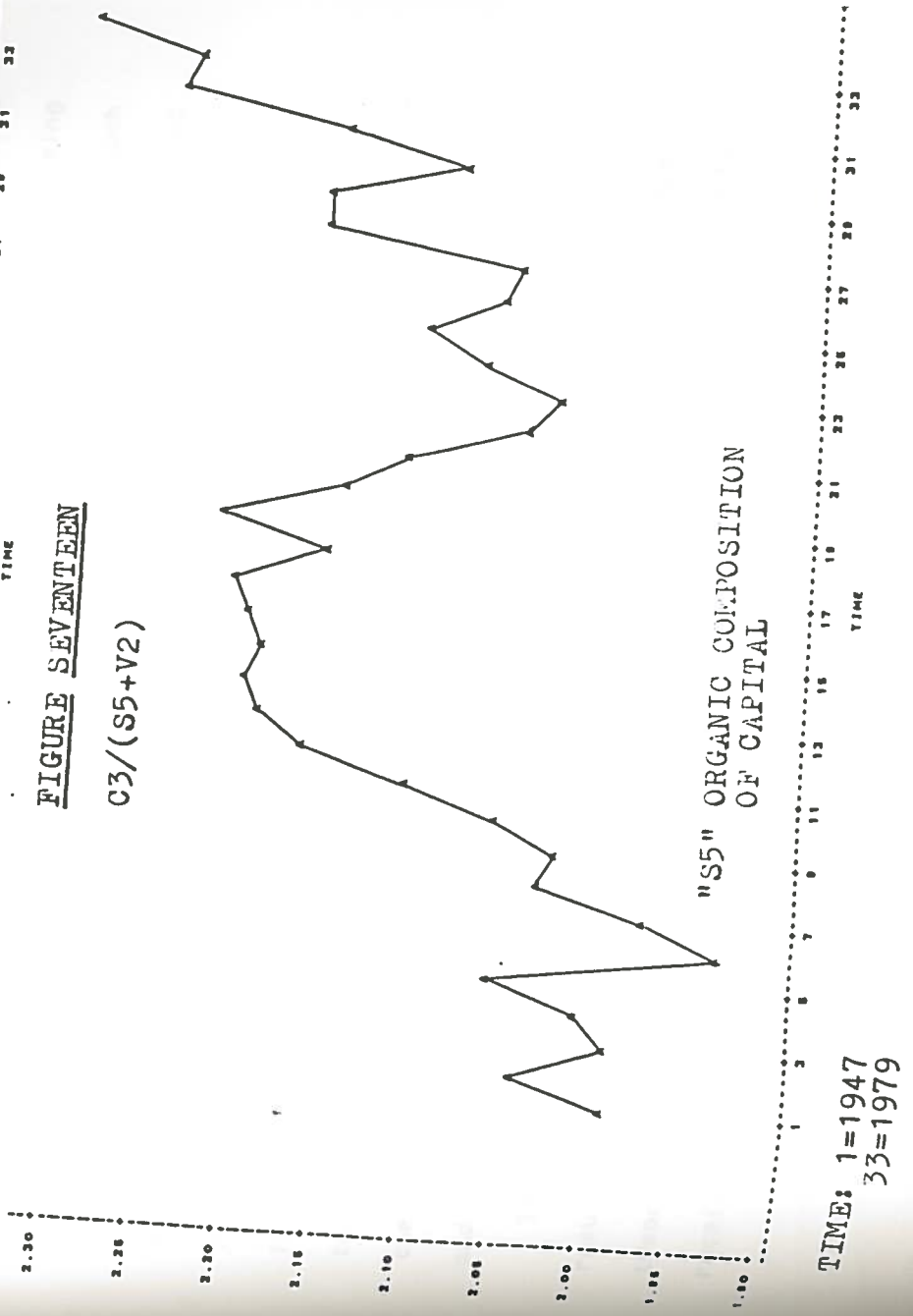


FIGURE SEVENTEEN
C3/(S5+V2)



TIME: 1=1947
33=1979

5.5 CONCLUSIONS

The empirical results reported in this chapter support two conclusions: that Marx's analysis of the "laws of motion" of capitalism remains highly relevant, and that the confrontation of the empirical facts with this analysis necessitates a particular specification of the value categories of the Marxian system. The specification defended in this work leads to empirical conclusions which uphold the essential hypotheses suggested by Marx's "law of the tendency of the rate of profit to fall" and his theory of capitalist accumulation. At the same time, the conventional specification of the value categories (suggested in the S5 ratios) leads to very different conclusions: a stable organic composition of capital and a rising rate of profit accompanied by an impetuously ascendant rate of surplus-value. These results point to a very different scenario of capitalist development and crisis: the rising "economic surplus" and problem of "surplus absorption" described by such underconsumption theorists as Baran and Sweezy. It should also be noted that the results of this study provide little support for the "wage-push/profit-squeeze" theory of capitalist crisis, at least in its "pure form." The secular upward trend of the rate of surplus-value and the tendency for the real wage to lag behind net productivity suggest that the phenomenon of profits being "squeezed" by wage increases is atypical and only conjuncturally significant.

There are nevertheless some grounds for qualifying the apparent results for both the S5 ratios and the "wage-push/profit-squeeze" theory. In fairness to theorists like Gillman and Shaikh, it should be recalled that they distinguish between "gross" and "net" surplus-value,

and between a "gross" rate of profit and a "net" rate of profit. While the S_5 rate of profit ratios correspond roughly to the gross rate of profit as they conceptualize it, the rate of profit ratios used to evaluate the hypotheses under consideration here correspond roughly to their concept of a "net" rate of profit. If the "net" rate of profit is taken to be the "significant" rate of profit governing the rhythms of capitalist accumulation and investment, then it is still possible to maintain that their specification of the value categories is not necessarily inconsistent with the basic theses of Marx's theory of the falling rate of profit. At the same time, however, this would invite another question: what is the significance of the "gross" rate of profit, aside from providing grist for the mills of underconsumption theory? It could be argued that the "gross" rate of profit provides a sort of index for the maximum rate of profit, that limiting ceiling on the upward movement of the actual rate of profit; however, there are serious grounds for questioning any such imputation. While it is unquestionably true that the pool of currently-produced surplus-value will be augmented if the value embodied in unproductive expenditures (circulation costs and the state) is "released" (through a reduction in these expenditures), it is also true that the pool of surplus-value will be increased through a reduction in the costs of production. All "previously-existing" value represents "potential" surplus-value to the extent that a rechanneling of value from the "cost flows" to the "surplus-value flow" becomes possible. But there is no compelling reason for suggesting that the costs of circulation or the state are any more "convertible" into surplus-value than are the costs of machinery, raw

materials, or labor-power. These considerations point to the indeterminacy of the "maximum rate of profit." Clearly, it is a concept which is not subject to empirical calculation. All that can be said about it is that it stands above the actual rate of profit at any given time. It is the rate of profit possible given an optimal utilization of available technology and resources, an optimal balance of class forces, and an optimal international relationship of forces from the standpoint of a given national capital.⁴⁰

A comparison of "gross" and "net" rates of profit does provide one possible strategy for assessing the impact of the growth of the unproductive sector on the rate of profit. But nothing can be learned from such a comparison which is not more precisely indicated by an examination of the components of the constant capital flow as these have been specified in this study. Moreover the analysis of this flow permits us to appreciate the element of truth in the "wage-push/profit-squeeze" theory. The following table provides a rough estimate of the growth of the constant capital flow and its components between 1947 and 1980 in Canada:

⁴⁰ A better approximation of the "maximum rate of profit," as this was actually understood by Marx, could be calculated on the assumption of workers "living on air." To calculate this, it would be necessary to add the value of all labor-power (V_2 and C_7 , i.e. productive and unproductive labor wage bills) into the numerator of the rate of profit, i.e. $S_4+V_2+C_7/C_3$. One could also add a number of other costs into the numerator; but this would only yield a rough measure of the maximum rate of profit theoretically conceivable, not the maximum rate of profit possible under given historical conditions.

Component	1947	1980	Factor Increase
Total Flow (C5)	6982	192113	27.87
Cap. Consump.	1227	33448	27.26
Allowances			
Tax Flow	1909	50453	26.43
(on S1+V1)			
Total Tax Flow	3484	90491	25.97
U.L. Wages (C7)	1235	44541	36.07

This table clearly indicates that the systemic "overhead cost" which has grown most dramatically over the past three decades has been the wage bill of the unproductive labor force in the private sector. The growth of the tax flow component, on the other hand, is about average (indeed, it has grown somewhat more slowly than the total constant capital flow). The inescapable conclusion is that the costs of circulation represent an increasingly significant barrier to profit maximization; at the same time, their growth is probably associated with capital's attempt to increase the "annual rate of surplus-value," that is, to permit the speedup in the turnover of capital required for the production of a larger volume of surplus-value. Thus, in this sense too, "the barrier to capitalist production is capital itself."

A comparison of the growth of the constant capital flow as it has been specified with the growth of the circulating constant capital consumed in manufacturing is also instructive. The circulating constant capital stock (CC) grew from 5756 (million) in 1947 to 104,229 (million) in 1980, a factor increase of only 18.11. In an indirect fashion, this reveals that an increasing proportion of the constant capital flow is involved in the "maintenance" of the unproductive sector and a decreasing proportion is associated with productive activity (and not only in the specifically capitalist sense of the word "productive").