AN INCOME SIDE TO AN INPUT/OUTPUT MODEL OF THE UNITED STATES

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INTRODUCTION

The publication of the 1958[1/] and 1963[2/] Input/Output transaction matrices by the Office of Business Economics, U.S. Department of Commerce has awakened interest in the "input/output" technique to trace the effects of demand for goods and services by final users to the production, capacity and employment of our domestic industries. Input/Output analysis provides a method which can quantify both the direct and indirect requirements placed on each industry by final sales in a manner which is designed to guarantee complete internal consistency within the industrial structure.

The "input/output" model was originally developed in the U.S. by Wassily Leontief[3/] in the late 1930's. However, it was not until more recent years that such a model was transformed into an actual operational system used to forecast industrial demand. Several "input/output" models have now been designed to focus on the short-term or the long-term forecasts of industry output, gross national product and

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1/ "The Transaction Table of the 1958 Input-Output Study and Revised Direct and Total Requirements Data," Survey of Current Business, U.S. Department of Commerce, September, 1965, pp. 33-56.

2/ "Input-Output Structure of the U.S. Economy: 1963," Survey of Current Business, U.S. Department of Commerce, November, 1969, pp. 16-48.

3/ W. Leontief, The Structure of American Economy, 1919-1939, Oxford University Press, New York, 1941.

employment. One such model is that which has been developed by the Maryland Interindustry Forecasting Group. The Maryland Model has been designed to produce long-run forecasts of industry output and employment. During the last few years, several changes have been made to the original model to improve its forecasting efficiency and to expand its analytical scope.

This dissertation deals with a project to expand the current version of the Maryland model to include the estimation of personal income payments in the economy. The "revised"model has the ability to generate the income side of the GNP forecast consistent with its own solution to the product side of the same GNP forecast (as reflected in the configuration of the final demands in the "input/output" model). The generation of the income side of the national accounts within the "input/output" model required the estimation of all factor payments for productive resources made to the personal sector of the economy. In addition, transfer payments were estimated to account for the flow of income to the personal sector not associated with productive activities in the economy. Government tax functions were fit to estimate the public sector's share of the flow of factor payments within the economic system.

Chapter I briefly describes the current version of the Maryland Model, identifies the problems treated in this paper, and presents a preliminary exposition of the revised version of the model. Chapters II and III discuss the estimation of the level and the distribution of personal income payments. Chapter IV presents a discussion of the estimation techniques used to forecast the major categories of Federal, state, and local taxes. A comprehensive description of the revised version of the Maryland Model is offered in Chapter V. The results of a historical simulation of the revised model are reported in Chapter VI.

Chapter I

The Current Maryland Model

Open Leontief-type models of a national economy have traditionally treated consumer spending as an exogenous element. Under such systems, estimates of consumption expenditure by commodity group are obtained either directly from a set of micro-economic consumer demand functions, or, indirectly, by applying an industry distribution to an estimate of total consumer spending from a macroeconomic model. Neither method allows the operation of the "input/output" model to affect the estimation of consumption spending in the economy.

The current version of the Maryland Model[1/] follows the conventional approach, and allows no direct effect of production on consumer behavior. It starts with a trial projection of disposable income for a given time period. Estimates of the demand for each major consumer product category are made from a set of consumptions equations using the level of disposable income, the change in income over the last year, the relative price of the good, a trend effect, and the size of the population. A total final demand vector (Fd) is obtained by adding personal consumer spending to estimates of investment spending, government spending, and foreign trade. After adjust-

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1/ The basic structure of the current version of the model follows that discussed in C. Almon's book, The American Economy to 1975.

ing the technical coefficient matrix (A) for known changes in the system's production functions, a solution to the equation system

$$(1.1) \quad X_t = A_t X_t + Fd_t$$

is obtained for the total output (X) of each industry in the economy by a modified version of the Seidel iterative process.[2/]

After the model has generated forecasts of total output, employment (the number of jobs) is obtained for each industry by using trends in labor productivity (the number of jobs per dollar of output) to transform each industry's output into a demand for labor. Aggregating across the employment row of the producing industries provides an estimate of the total number of jobs created in private industry by the model. After adjusting this estimate for government employment, for domestic workers, and for multiple job holders, the model predicts the level of the employed labor force. Estimates are made of the population and labor force participation rate for each year. A comparison is made in the model between the predicted size of the labor force and the estimated employment.

If the level of unemployment differs significantly from its desired magnitude, an adjustment is made to disposable income to generate a new level of output, final demands, and employment. The model continues in this fashion to readjust

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2/C. Almon, Matrix Methods in Economics, Addison-Wesley, Reading, Massachusetts, 1967, p. 29.

the level of disposable income in the economy until the desired level of employment of the labor force is reached.

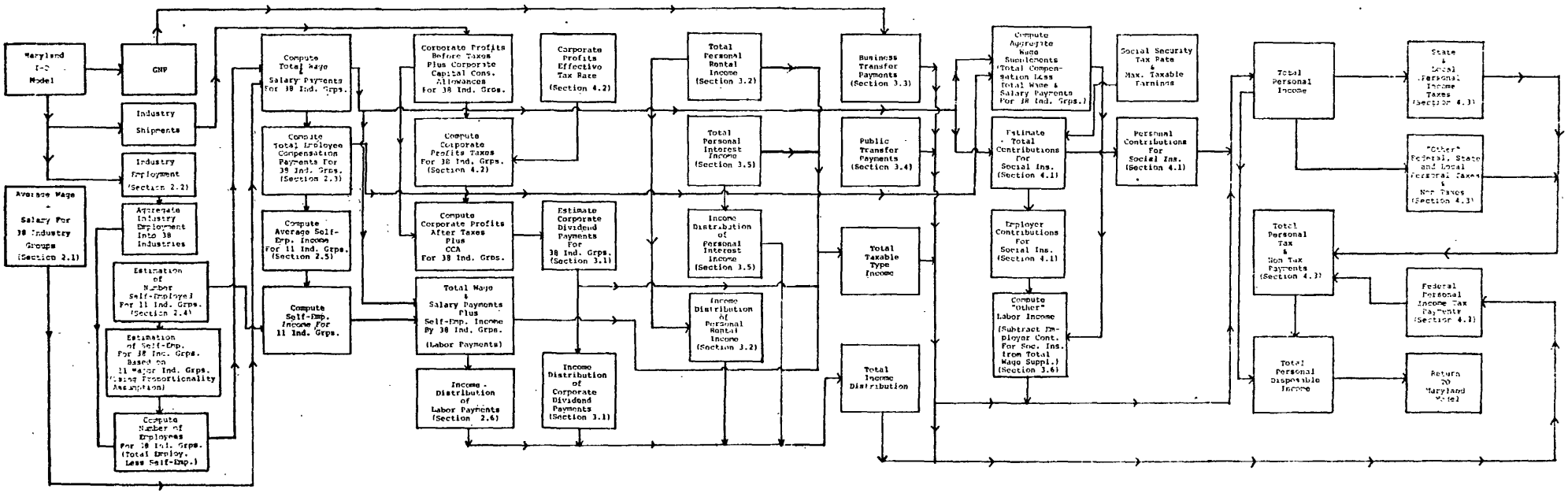
After this brief review of the current version of the Maryland Model, the reader can see that a rather naive link has been built between income, consumer demand, and employment. A simple one-way flow has been established from the exogenous estimate of disposable income to consumer demand, and finally to industry output and employment, with no allowance made for the income effects which would emerge from the operation of the "input/output" model itself.

The defense of the current treatment of income in the Maryland Model is based upon the existence of a benevolent, omniscient government whose role in the economy is to prescribe the correct public policy that will always insure the full employment level of disposable income. If such a condition did exist in the world, we could find little fault with the current procedure, since the government authorities would always take the appropriate action to adjust the income generated in the economy to achieve the desired full employment level of income. Such an assumption may be adequate for longer-run forecasts of economic activity, since the government will have had time to adjust its policy to insure some desired level of unemployment. However, major distortions may appear in the shorter-range forecasts, owing to the short-run differences that will almost certainly exist between the actual public policy and its full-employment counter-part.

A major fault of the current model is its disregard of the productive role in the determination of disposable income. No attempt has been made to estimate the flow of income payments which naturally emerge from the operation of the model. The disregard of the productive aspects of the current model for the estimation of disposable income creates a groundless income base upon which consumer decisions are made, and places the model on a rather shaky foundation. Such a system is even more naive than a simple macroeconomic model. It is difficult to conceive of consumer expenditures completely independent of personal income payments. Over the time span of a year, consumer spending must certainly be related to the income payments generated from production in the economy during that same period.

In my thesis, I have developed a procedure to generate the level and distribution of disposable income within the context of the "input/output" model, and to use that income information as the basis upon which consumer demands will be determined in the economy.

A preliminary exposition of the operation of the revised model is presented in the following flow diagram (Figure 1).


Maryland I-O Model
GNP
Industry Shipments
Industry Employment (Section 2.2)
Average Wage + Salary For 38 Industry Groups (Section 2.1)
Aggregate Industry Employment Into 38 Industries
Estimation of Number Self-Employed For 11 Ind. Grps. (Section 2.4)
Estimation of Self-Emp. For 38 Ind. Grps. Based on 11 Major Ind. Grps. (Using Proportionality Assumption)
Compute Number of Employees For 38 Ind. Grps. (Total Employ. Less Self-Emp.)
Compute Total Wage & Salary Payments For 38 Ind. Grps.
Compute Total Employee Compensation Payments For 38 Ind. Grps. (Section 2.3)
Compute Average Self-Emp. Income For 11 Ind. Grps. (Section 2.5)
Compute Self-Emp. Income For 11 Ind. Grps.
Corporate Profits Before Taxes Plus Corporate Capital Cons. Allowances For 38 Ind. Grps.
Compute Corporate Profits Taxes For 38 Ind. Grps. (Section 4.2)
Compute Corporate Profits After Taxes Plus CCA For 38 Ind. Grps.
Total Wage & Salary Payments Plus Self-Emp. Income By 38 Ind. Grps. (Labor Payments)
Income Distribution of Labor Payments (Section 2.6)
Corporate Profits Effective Tax Rate (Section 4.2)
Estimate Corporate Dividend Payments For 38 Ind. Grps. (Section 3.1)
Income Distribution of Corporate Dividend Payments (Section 3.1)
Total Personal Rental Income (Section 3.2)
Total Personal Interest Income (Section 3.5)
Income Distribution of Personal Interest Income (Section 3.5)
Income Distribution of Personal Rental Income (Section 3.2)
Business Transfer Payments (Section 3.3)
Public Transfer Payments (Section 3.4)
Total Taxable Type Income
Total Income Distribution
Compute Aggregate Wage Supplements (Total Compensation Less Total Wage & Salary Payments For 38 Ind. Grps.)
Estimate Total Contributions For Social Ins. (Section 4.1)
Employer Contributions For Social Ins. (Section 4.1)
Compute "Other" Labor Income (Subtract Employer Cont. For Soc. Ins. from Total Wage Suppl.) (Section 3.6)
Social Security Tax Rate & Max. Taxable Earnings
Personal Contributions For Social Ins. (Section 4.1)
Total Personal Income
State & Local Personal Income Taxes (Section 4.3)
"Other" Federal, State and Local Personal Taxes & Non Taxes (Section 4.3)
Total Personal Tax & Non Tax Payments (Section 4.3)
Federal Personal Income Tax Payments (Section 4.3)
Total Personal Disposable Income
Return To Maryland Model

A rather simple scheme (as illustrated in Figure 1) has been devised to incorporate the operation of an "input/output" model into the generation of personal income payments in the economy. The model represents a simultaneous system in which, for any given year, the personal disposable income used in the estimation of consumer demands is derived from the net payments made to the personal sector by government and industry. These payments, in turn, are a function of the absolute level and distribution of industry production (the output solution to the I/O model) which is driven by the estimate of consumer demands plus other final demands in the economy. The solution process requires an iterative technique to achieve equality, for a given year, between the level of disposable income used in the consumer demand functions and that level which is generated by production in the economy.

Perhaps, a brief written description of the model will clarify its operation. The system starts the solution process with an initial estimate of personal disposable income. This level of income is used to obtain the first round estimates of final demand, industry output, and employment in the I/O model. An estimate of the level and distribution of personal disposable income is then provided through the operation of the I/O model from estimates of the various personal income payments normally made by business and government in the conduct of their economic activity. These payments include: (1) labor payments, (2) personal corporate dividend payments, (3) personal rental income, (4) personal interest income, (5) business trans-

fer payments, (6) public transfer payments, and (7) "other" labor income.

Total labor payments are divided between wage and salary payments made to full-time and part-time employees and income payments made to self-employed persons. Total wage and salary payments are derived by combining estimates of the number of full-time and part-time employees with the corresponding average wage and salary payment for each of 38 major industry groups (see Chapter II, Section 2.1). Income payments for self-employed persons are derived from estimates of the number of self-employed persons (see Chapter II, Section 2.4) and the corresponding average self-employed income payment for each of 11 broad industry groups (see Chapter II, Section 2.5).

Personal corporate dividend payments are estimated for 38 industry groups. These payments depend upon the industry's cash flow position and its past dividend pattern (see Chapter III, Section 3.1). The cash flow term for each industry is constructed by taking the industry's corporate profits before taxes plus corporate capital consumption allowances less corporate profit taxes. Industry corporate profits before taxes plus corporate capital consumption allowances are linked to the level of industry shipments. Corporate profits taxes are estimated by industry corporate tax liability equations using corporate profits before taxes and an effective corporate tax rate (see Chapter IV, Section 4.2).

Aggregate econometric functions are used to estimate the national income accounts series on total personal rental

income and total personal interest income. These functions follow the same disaggregation pattern as that specified in the national income accounts. One function is used to estimate total personal rental income (see Chapter III, Section 3.2); while total personal interest income is estimated from three separate functions (see Chapter III, Section 3.5). These functions cover: (1) national income net interest, (2) net interest paid by government, (3) interest paid by consumer.

Total taxable type income is defined as the sum of labor payments, corporate dividend payments, personal rental income, and personal interest income. An income distribution of total taxable income is derived from the distributional characteristics of each of its components (see Chapter II, Section 2.6; Chapter III, Sections 3.1, 3.2, and 3.5). The level and distribution of total taxable income is then used in the determination of Federal personal income tax payments (see Chapter IV, Section 4.3).

Total taxable income differs from the national income concept of total personal income. The difference consists of business transfer payments, public transfer payments, "other" labor income, and personal contributions for social insurance. Business and public transfer payments are estimated by aggregate econometric functions (see Chapter III, Sections 3.3 and 3.4). The computation of "other" labor income is made through a three-stage procedure. The method involves: (1) the estimation of total contributions for social insurance;

(2) the determination of the employer share of these contributions; and (3) the subtraction of employer contributions for social insurance from total employee wage supplements (see Chapter III, Section 3.6 and Chapter IV, Section 4.1). Lastly, personal contributions for social insurance are subtracted from these income flows to form an estimate of personal income.

State and local personal income taxes and "other" Federal, State, and local personal tax and non-tax payments are estimated by aggregate econometric functions utilizing total personal income. Total personal tax and non-tax payments are then computed by combining an estimate of Federal personal income tax payments with an estimate of the above tax payments.

Total personal disposable income is derived in the model by subtracting total personal tax and non-tax payments from total personal income. This new estimate of disposable income becomes the income base upon which consumption expenditures will be determined in the next iteration. A check is made, at this point, for equality between the initial estimate of consumer income and the new estimate generated by the last iteration of the model. If equality has not been achieved, the new estimate replaces the initial estimate of income and the model is rerun for another iteration. The solution process continues in this manner until the required equality has been achieved. The model has then generated an estimate of economic activity consistent with the income payments implied by such a solution.

Consumer spending has become a truly endogenous variable in the system, with purchases of consumer goods and services being directly related to the operation of the "input/output" forecasting model.

CHAPTER II

Industrial Wages and Salaries and Proprietor Income

The wage and salary payments of labor form the most significant component of personal income. These payments are estimated in the revised model by combining the results of two other research projects supported by the Maryland Forecasting Group (with the exception of certain modifications which were made to align these results with the needs of the revised model).

The level of wages and salaries in the total economy is estimated by aggregating across a set of industry forecasts of these payments. An estimate for each industry is made from forecasts of total employment in the industry and the average wage and salary per employee in the industry.

2.1 Average Wage and Salary per Employee

Data on the average wage and salary per employee was compiled for 38 major industry groups (see Appendix A, Table A.6). These historical series were constructed from National Income Account statistics on wage and salary payments by industry [1/] and the average number of full-time and part-time

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1/ Table 6.2 - Wages and Salaries by Industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

employees by industry.[2] The industry detail in the National Income Accounts made possible the development of consistent time-series on average wage and salary payments for all principal public sectors and for all major private industries. There was no attempt made to forecast the future movement of these series. The actual forecasts of average wage and salary payments by industry will be provided from another research project sponsored by the Maryland Forecasting Group.[3]

2.2 Employment

The current version of the Maryland model provides a historical series and projection of total employment by industry.[4] Two government data sources were used to compile these industry statistics.

Data on employment in Agricultural Services, Forestry and Fisheries, Construction, Transportation, Communications, Trade, Finance and Insurance, Services, and Government were taken from the National Income Accounts, Tables 6.3, 6.4, and

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[2] Table 6.3 - Average Number of Full-Time and Part-Time Employees by Industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

[3] Research is currently being conducted by the Maryland Forecasting Group on the determination of average wage and salary payments by industry.

[4] C. Almon and B. Matta, Labor Force Statistics, Labor Balance and Labor Force Forecasts, Research Memorandum No. 12, Maryland Interindustry Forecasting Project.

6.6. In these industries, self-employment is a significant characteristic of the labor force, consequently, total employment was defined to include both proprietors and full-time and part-time employees. Table 6.3, "Average number of full-time and part-time employees by industry" furnished an estimate of the total number of paid employees by industry. Table 6.4, "Number of full-time equivalent employees by industry" and Table 6.6, "Number of persons engaged in production by industry" were used to derive estimates of proprietor employment by industry (see a further discussion under the heading, Self-Employment). In the estimation of wage and salary payments for these industries, it was necessary for proprietor employment to be subtracted from the projection of total employment. The income received by these proprietors was handled separately in the revised model (see Average Proprietor Income).

Industry employment in Mining, Manufacturing, and Utilities was compiled from Employment and Earnings[5/] reports. Employment statistics in these three industries included only full-time and part-time employees. The projections of industry employment were, therefore, used in the revised model without adjustment to generate the wage and salary payments.

Agriculture provided a rather unique problem. Total employment in agricultural establishments, which was obtained

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5/ Employment and Earnings, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., monthly.

from the Employment and Earnings[6/] reports, included three types of workers: (1) proprietors, (2) full-time and part-time employees, and (3) unpaid family workers. Two adjustments are imposed upon the forecast of total agricultural employment to obtain the correct employment base to compute wage and salary payments in the industry. Proprietor employment is first subtracted from the total employment projection, then a correction is made for unpaid family workers. Proprietor employment was estimated historically from the National Income Accounts, Tables 6.4 and 6.6. A series was derived for unpaid family workers in agriculture by taking the difference between total employment reported in the Employment and Earnings reports and that which was derived from the National Income Accounts, Tables 6.3, 6.4, and 6.6 (which include only paid workers). An exogeneous estimate of the unpaid family worker series is made for the forecast period of the revised model.

2.3 Wage and Salary Supplements

Employee compensation data was compiled from the National Income Accounts[7/] for the 38 industry groups used in the wage and salary sector of the model (see Appendix A, Table A.6). Employee compensation comprises employee wage and salary

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[6/] ibid.

[7/] Table 6.1 - Compensation of Employees by Industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

payments and supplements to wages and salaries. These supplements include employer contributions for social insurance and "other labor" income.

Employee compensation adjustment equations were estimated for the 38 industries. These functions estimate the total cost of labor for the industry from the corresponding wage and salary payments. The equations serve a dual purpose in the model. Total employee compensation represents labor's share of output. Such share estimates are needed in the projection of corporate profits, which are, in turn, used in the determination of corporate dividend payments in the model. Employee compensation payments are also required by the model to estimate "other labor" income (see Chapter III, Other Labor Income).

The general form of the employee compensation adjustment equations is:

$$(2.1)\quad C_t = A_0 e^{at} W_t^b$$

where

C_t = total employee compensation

W_t = employee wages and salaries

or equivalently,

$$(2.2)\quad \mathrm{Ln}(C_t/C_{t-1}) = a + b\ \mathrm{Ln}(W_t/W_{t-1})$$

Equation (2.2) was estimated for the 38 industries using the time period 1949-1969. The results are summarized in Table 2.1 below.

TABLE 2.1 EMPLOYEE COMPENSATION ADJUSTMENT EQUATIONS

Sector	$\hat{A}_o$	a*100	b	$\bar{R}^2$	SE	D-W
Metal Mining	1.129	0.394 (1.90)	0.988 (0.020)	0.99	0.009	2.16
Coal Mining	1.204	0.608 (2.64)	0.988 (0.021)	0.99	0.010	1.81
Crude Mining	1.090	0.173 (1.21)	0.994 (0.022)	0.99	0.005	2.49
Nonmetallic Mining	1.167	0.479 (2.23)	0.977 (0.029)	0.98	0.006	1.73
Construction	1.125	0.322 (2.51)	0.991 (0.014)	1.00	0.004	2.40
Food	1.807	0.656 (3.30)	0.935 (0.041)	0.96	0.004	2.19
Tobacco	1.868	1.184 (3.50)	0.892 (0.060)	0.92	0.009	2.31
Textiles	0.901	0.244 (3.24)	1.018 (0.010)	1.00	0.003	2.17
Apparel	0.946	0.228 (1.84)	1.012 (0.021)	0.99	0.004	1.81
Paper	0.928	0.153 (1.27)	1.017 (0.016)	1.00	0.003	1.85
Printing and Publishing	1.607	0.617 (3.09)	0.943 (0.032)	0.98	0.003	2.51
Chemicals	1.140	0.536 (2.60)	0.990 (0.024)	0.99	0.005	2.33
Petroleum	0.540	0.644 (1.15)	1.115 (0.109)	0.84	0.019	2.86
Rubber	1.091	0.540 (2.45)	0.993 (0.020)	0.99	0.007	1.96
Leather	1.218	0.374 (3.42)	0.976 (0.021)	0.99	0.004	2.25
Lumber	1.034	0.231 (2.10)	1.000 (0.013)	1.00	0.005	2.59

TABLE 2.1 Continued

Sector	A_o	a*100	b	$\bar{R}^2$	SE	D-W
Furniture	0.987	0.250 (2.18)	1.007 (0.013)	1.00	0.004	1.56
Stone, Clay, and Glass	0.898	0.304 (3.36)	1.020 (0.011)	1.00	0.003	2.16
Primary Metals	0.884	0.552 (1.78)	1.020 (0.027)	0.99	0.012	2.27
Fabricated Metals	0.972	0.342 (2.69)	1.008 (0.013)	1.00	0.004	1.54
Machinery (Exc. Elec.)	0.929	0.302 (4.10)	1.014 (0.006)	1.00	0.003	1.70
Electrical Machinery	0.972	0.123 (0.87	1.011 (0.012)	1.00	0.005	1.60
Trans. Equip. & Ordnance	1.117	0.485 (3.76)	0.990 (0.006)	1.00	0.005	2.03
Motor Vehicles	0.727	0.966 (1.74)	1.045 (0.040)	0.97	0.022	1.94
Instruments	1.121	0.408 (1.93)	0.992 (0.019)	0.99	0.006	1.85
Misc. Manufacturing	1.065	0.325 (2.28)	0.997 (0.023)	0.99	0.005	2.34
Transportation	1.084	0.285 (2.95)	0.997 (0.016)	1.00	0.003	2.00
Telephone & Telegraph	1.815	0.701 (2.74)	0.931 (0.038)	0.97	0.005	2.08
Broadcasting	1.323	0.673 (2.01)	0.952 (0.035)	0.97	0.006	2.36
Utilities	1.421	0.600 (1.52)	0.962 (0.062)	0.93	0.005	2.26
Trade	1.078	0.263 (1.65)	0.995 (0.025)	0.99	0.003	2.14
Finance, Ins. & Real Estate	2.076	1.013 (2.71)	0.919 (0.047)	0.95	0.004	1.33

TABLE 2.1 Continued

Sector	$\hat{A}_o$	a*100	b	$\bar{R}^2$	SE	D-W
Services	1.004	0.209 (0.97)	1.001 (0.027)	0.99	0.003	2.25
Agriculture, Forestry & Fisheries	0.976	0.271 (4.27)	1.003 (0.019)	0.99	0.003	2.04
Fed. Govt.	1.745	0.557 (1.35)	0.944 (0.029)	0.98	0.015	2.29
Federal Enterprises	1.135	0.299 (0.58)	0.987 (0.066)	0.92	0.011	1.58
State & Local Government	0.816	0.014 (0.03)	1.028 (0.052)	0.95	0.003	1.97
State & Local Enterprises	1.182	0.661 (3.78)	0.974 (0.019)	0.99	0.004	2.27

The constant term is intended to capture changes in the relative importance of wage supplements over time. The constant may take on a positive, negative, or zero value. The coefficient on % change of wage and salary payments indicates the impact of wage and salary payments on total employee compensation. The expected value of "b" should be approximately 1.0. In industries where the change in wage supplements is proportional to the change in wage and salary payments, the coefficient should be exactly 1.0. In all other industries, the coefficient should be greater than or less than 1.0 depending on whether wage supplements change at a rate faster than or slower than wage and salary payments. In any event, the coefficient should be very close to unity since wage and salary payments comprise the major portion of total employee compensation.

An analysis of the results in Table 2.1 shows that each equation exhibits the characteristics needed for satisfactory performance in the context of their use in the model. The coefficient on % change of wage and salary payments is never significantly different from 1.0. The constant is always positive, and, with the exception of a few industries, is significantly different from zero to indicate the increasing importance which has been associated with wage supplements in the post-war era.

2.4 Self-Employment

Proprietor employment was compiled from the National Income Accounts for 11 broad industry groups. These industries include: (1) Agriculture, (2) Mining, (3) Construction,

(4) Non-Durable Manufacturing, (5) Durable Manufacturing, (6) Trade, (7) Transportation, (8) Finance, (9) Utilities, (10) Communications, and (11) Services.

National Income Accounts, Tables 6.4 and 6.6 were used to estimate the historical series on industry self-employment. By definition, Table 6.6, "Number of persons engaged in production by industry" is derived from Table 6.4, "Number of full-time equivalent employees by industry" by adding estimates of self-employment by industry. The number of self-employed by industry is, therefore, obtained by substracting the figures in Table 6.4 from those in Table 6.6 (see Appendix C, Table C.2).

Trend equations were estimated for 8 industries. For the remaining 3 industries -- Mining, Utilities, and Communications, projections of industry self-employment were made in an exogenous manner from the highly stable historical series in those industries. Unsuccessful attempts were made to relate self-employment to industry shipments. The problem was apparently that the two series exhibited opposite trends. Industry shipments have a relatively strong positive trend, while the number of self-employed by industry shows a declining long-run pattern.

The basic form of the self-employment equation is:

$$(2.3)\quad \text{Ln } EMP_t = a + b\,t$$

where

EMP = the number of self-employed

t = time

Table 2.2 illustrates the results of fitting these functions for the period 1948-1969.

TABLE 2.2 SELF-EMPLOYMENT BY INDUSTRY

Sector	Self-Employed in 1969 (Thousands)	a	b	$\bar{R}^2$	SE	D-W
Agriculture	2087	8.48 (666.12)	-0.040 (-42.81)	0.99	0.02	0.55
Construction	741	6.82 (170.57)	-0.012 (-4.25)	0.47	0.07	0.23
Non-Durable Manufacturing	134	5.23 (209.71)	-0.020 (-10.82)	0.86	0.05	0.99
Durable Manufacturing	206	5.58 (281.38)	-0.012 (-8.19)	0.78	0.04	0.76
Trade	2278	7.78 (521.84)	-0.003 (-2.55)	0.23	0.03	0.39
Transportation	172	5.29 (449.68)	-0.005 (-6.19)	0.66	0.02	1.35
Finance	313	5.48 (145.20)	+0.015 (5.55)	0.61	0.07	0.45
Services	2280	7.26 (835.39)	+0.022 (34.16)	0.98	0.02	0.59

2.5 Average Proprietor Income

Average proprietor income was computed from the National Income Accounts for the same 11 industry groups used in the Self-employment sector of the model. The average income of self-employed workers was estimated by dividing the figures in National Income Accounts, Table 6.8, "Income of unincorporated enterprises by industry division" by the number of self-employed in the industry.

Equations were estimated to relate the average income of proprietors with the average compensation of paid employees. Originally, it was thought that these series would follow similar patterns (with the exception of the profit income of proprietors which would be cyclically sensitive). The % change in industry shipments was used to trace the business cycle in each industry. However, no significant cyclical effects were identified in the equations which were fit. Logarithmic trend functions were finally used to estimate average proprietor income by industry.

The basic form of the average proprietor income function is:

$$(2.4)\quad \text{Ln}(\text{PROP. INC}_{avg}/\text{COMP. LAB}_{avg}) = a + b\ T$$

where:

PROP. INC_{avg} = average proprietor income

COMP. LAB_{avg} = average labor compensation

T = time

Table 2.3 summarizes the functions estimated for the period 1948-1969.

TABLE 2.3 AVERAGE PROPRIETOR INCOME EQUATIONS

Sector	a	b	$\bar{R}^2$	SE	D-W
Agriculture	0.904 (20.21)	0.006 (1.94)	0.13	0.084	1.35
Mining	0.842 (9.96)	-0.043 (-6.97)	0.71	0.158	1.05
Construction	-0.092 (-3.33)	-0.010 (-4.96)	0.55	0.052	0.93
Non-Durable Manufacturing	0.673 (20.45)	-0.045 (18.79)	0.95	0.062	1.00
Durable Manufacturing	0.117 (2.74)	-0.028 (-8.98)	0.81	0.080	0.93
Trade	0.469 (22.78)	-0.020 (-13.42)	0.90	0.039	0.83
Transportation	-0.143 (-4.15)	-0.007 (-2.80)	0.26	0.064	0.65
Finance	0.970 (19.56)	-0.017 (-4.83)	0.54	0.093	0.80
Utilities	-0.477 (-7.97)	+0.013 (3.10)	0.31	0.112	1.60
Communications	-0.160*				
Services	+0.780*				

*Based on mean value of dependent variable 1948-1969.

An estimate of proprietor income for each major industry is made from forecasts of the number of self-employed persons in the industry and the average proprietor's income in the industry. An aggregate measure of proprietor's income is then estimated by aggregating across the set of industry forecasts.

2.6 Income Distributions

A system has been developed which generates a distribution of total taxable personal income by size-class. The total income distribution is actually composed of four individual distributions each covering a major category of taxable personal income (i.e., wage and salary payments plus proprietor income, personal corporate dividend payments, personal rental income, and personal interest income). Information on the total income distribution is used in conjunction with the total amount of taxable personal income and the effective personal tax rates by income size-class to determine total personal tax payments.

Review

The literature dealing with the distribution of income covers a broad spectrum. The major areas of research include: (1) the distribution of income by industry, (2) the distribution of income by type, and (3) the distribution of income by size-class.

The Federal government has assumed the major role in developing historical series on the distribution of income by

industry and by type of factor payment. These efforts are undertaken within the framework of the National Income Accounts. Table 1.10, "National Income by type of income" supplies a time series on the distribution of income by major type of factor payment (compensation of employees, proprietors' income, rental income, corporate profits and IVA, and net interest). Table 1.12, "National Income by industry" provides a historical series on national income originating by industry.[8/] The forecasts of these distributions, however, come mainly from the private sector. There are several private research groups which currently provide projections of these distributions through the operation of aggregate econometric models or "input/output" models.

There have been many papers written on the size distribution of income. These articles have approached the topic from several different directions. One approach has been to describe the actual income distribtuion observed by some standard probability density function. The two most popular functions are the lognormal distribution and the Pareto distribution. The common view regarding these distributions is that the Pareto distribution gives a better explanation of the upper tail and that the lognormal distribution gives a better

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8/ Unpublished historical series on the distribution of Gross National Product by industry and by type of factor payment are available from the Office of Business Economics, U.S. Department of Commerce.

explanation of the lower income range.[9] A more general descriptive technique in widespread use today is the Lorenz curve.[10] It has been used extensively to describe income and wealth inequalities and to make inter-group comparisons of income distributions. Another approach has been to use econometrics to quantify the determinants of income. The introduction of certain demographic variables to explain differences in the level of personal income were studied in the United States[11] and in the United Kingdom[12] with some success.

Very little progress has been achieved in efforts to predict changes in the distribution of income. Markov chains have been applied unsuccessfully to the problem. The basic difficulty associated with this procedure is the assumption of a constant transition matrix in which the past pattern of change is assumed to persist into the future. The system offers no explanation for such historical changes, nor does it develop a rationale for projecting future changes in the transition matrix.

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[9] L. R. Klein, An Introduction to Econometrics, Prentice-Hall, Englewood Cliffs, 1962, p. 156.

[10] M. C. Lorenz, Methods of Measuring the Concentration of Wealth, Publication of the American Statistical Association, Vol. 9, 1905.

[11] F. G. Adams, The Size of Individual Incomes: Socio-Economic Variables and Chance Variation, Review of Economics and Statistics, Vol. XL (1958), pp. 390-398.

[12] T. P. Hall, An Analysis of the Distribution of Wages and Salaries in Great Britain, Econometrica, Vol. 27 (1959), pp. 355-381.

Study

The revised version of the Maryland Model addresses itself to all three types of income distributions. The "input/output" model generates the distribution of income by industry from its estimates of labor and capital compensation by industry. A distribution of income by type of factor payment is computed from the set of equations which estimate the individual components of personal income. The size distribution of wage and salary payments plus proprietors' income will be discussed below. An explanation of the other size distributions will be postponed until Chapter III.

The size distribution of total wage and salary payments plus proprietors' income is derived from a set of industry distributions. There were, however, certain problems encountered in specifying these industry distributions. Income distributions by industry could not be specified directly from the actual data. Only occupational income dsitributions could be specified. A methodology had to be devised which gave an industry dimension to these income distributions by occupation. A description of the occupational income distributions will be presented first, followed by a description of the procedure used to convert occupational distributions into industry distributions.

A size distribution of income covering proprietors' income and wage and salary payments was computed for each occupational group in the economy. The number of occupations used in the model is 149 (see Appendix A, Table A.1). These occupational sets represent the maximum level of disaggregation possible. The income data by size-class for each occupation was compiled from statistics in the 1960 population census.[13/] The data were grouped into 11 size-classes of income: (1) 0-999, (2) 1000-1999, (3) 2000-2999, (4) 3000-3999, (5) 4000-4999, (6) 5000-5999, (7) 6000-6999, (8) 7000-7999, (9) 8000-9999, (10) 10,000-14,999, and (11) 15,000-Over. The entries in Table 29, which represent the number of persons in each size-class, formed the empirical base for estimating a distribution function (F_x) for each occupation. An example may clarify the procedure.

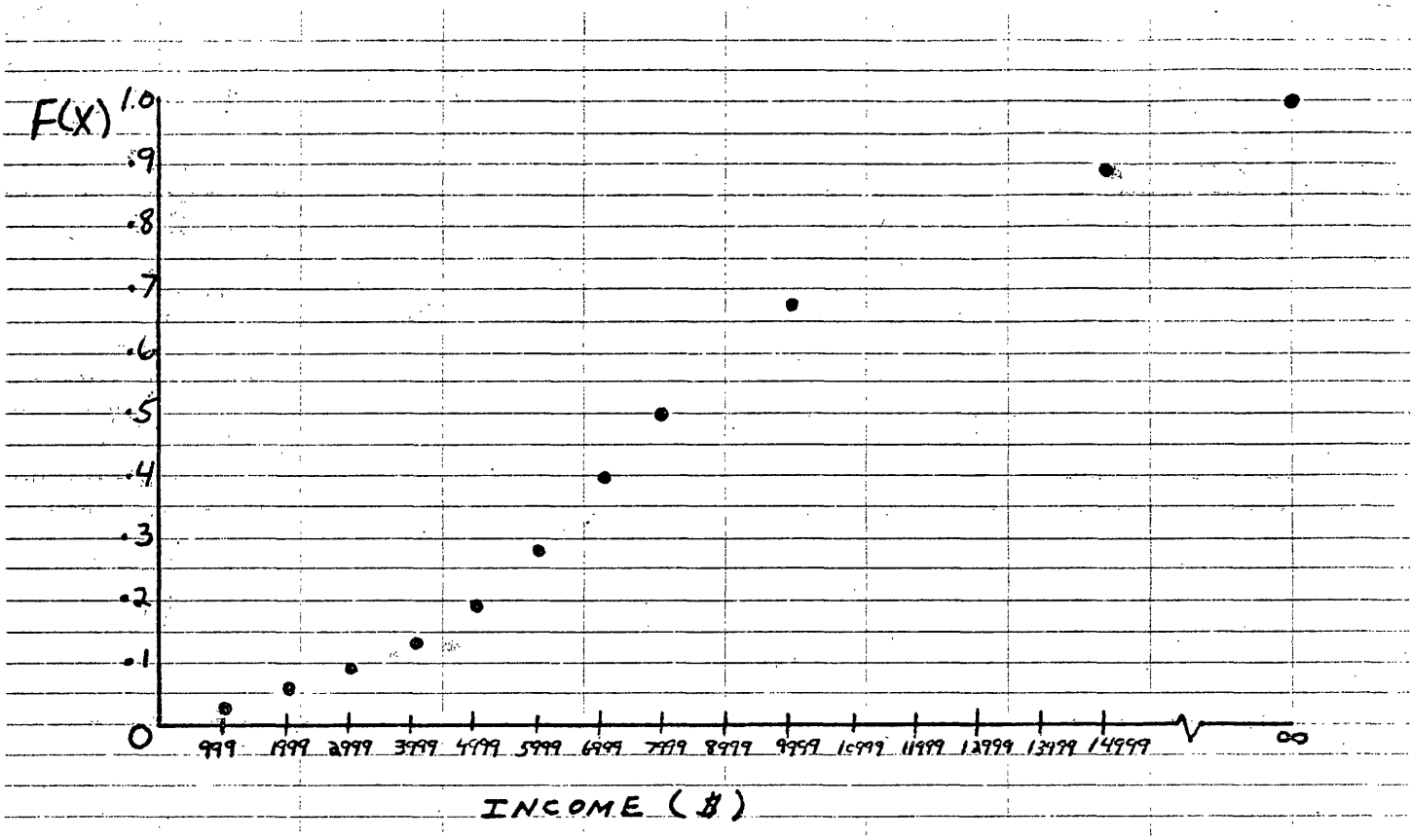
example

OCCUPATION - ECONOMISTS (#1510)

Size Class	Number of Persons*	f(X)	F(X)
0-999	420	.022	.022
1000-1999	587	.032	.054
2000-2999	766	.041	.095
3000-3999	765	.041	.136
4000-4999	1033	.056	.192
5000-5999	1777	.096	.288
6000-6999	2047	.111	.399
7000-7999	1827	.099	.498
8000-9999	3297	.179	.677
10000-14999	3925	.213	.890
15000-Over	2026	.110	1.000

*Males and Females

13/ Table 29, "Earnings in 1959 of the Experienced Civilian Labor Force by Detailed Occupation and Sex, for the United States: 1960," U.S. Census of Population, 1960: Occupational Characteristics, Bureau of the Census, Washington, Report PC(2)-7A, 1960.



A distribution function was estimated for each occupation in order to compute its mean income. In the Census reports, the mean for each occupational income distribution was not published with the actual observations on these distributions. These means were required since the projection of labor income in the model is made on the basis of an average income concept. The distribution function (F_x) was assumed to be a cubic polynomial, that is, the equation can be specified as:

$$(2.5)\quad F(X) = c_0X^3 + c_1X^2 + c_2X + c_3 + u$$

for each occupational group. Problems arose when attempts were made to quantify equation (2.5) for each occupation. The desired results were that a set of coefficients $(C_0,..,C_3)$ could be estimated for the function in such a manner that the polynomial would pass through each of the observed data points. A least-squares polynomial approximation package was originally used to compute the equation coefficients; however, the approach proved quite unsatisfactory when the estimated functions exhibited characteristics of fitting the data poorly and/or having portions which had conceptually meaningless estimates.

An alternate approach was adopted in which the distribution function was subdivided into 11 segments. The domain of each segment was aligned to a given income size-class. A Lagragian polynomial interpolation scheme was employed to estimate a smooth polynomial over each of the first ten segments of the distribution function. In the first segment (size-class -- $0 to $999) a second degree polynomial was fit using the observed values of F(X) at $0,[14] $999, and $1999. In the second through the ninth segment, a third degree polynomial was estimated for each group using observations from four consecutive data points of F(X). The four points chosen for each third degree polynomial were the upper and lower bounds of the size-class being fit, plus the upper bound of the previous size-class and the lower bound of the next size-class. For example,

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[14] $F(X) = 0$ was assumed.
$X = 0$

the polynomial estimated for the size-class -- $5999 to $6999 used the observed values of F(X) at $4999, $5999, $6999, and $7999. In the tenth segment (size-class -- $9999 to $14999), a second degree polynomial was fit using observations on F(X) at $7999, $9999, and $14999.

A Lagragian polynomial interpolation scheme is a relatively simple technique which can be used to estimate polynomials. The general form of such polynomials is:

$$(2.6)\quad Y = \sum_{i=0}^{n} \Phi_i b_i$$

where n = the degree of polynomial

$Y = F(x)$

$$\Phi_i = \prod_{j=0,\, j\neq i}^{n} (x - x_j) \Big/ \prod_{j=0,\, j\neq i}^{n} (x_i - x_j)$$

b_i = the value of the polnomial at x_i

An analysis of the n^{th} degree polynomial specified in (2.6) shows that the equation has an unusual form. The polynomial is presented in terms of deviations of X from a set of control points in the X-domain. Equation (2.6) has been modified to recast the polynomial into its more standard form (see Appendix B, section B.1).

The final segment of F(X) (income class --$15000 and over) presented a special problem. The polynomial interpolation scheme could not be used in this size-class because no upper-bound was specified. Two alternatives were available: (1) an upper limit could arbitrarily be assigned to the size-class or (2) a standard distribution could be used which had an asymptotic property. The Pareto distribution was finally

chosen to describe the upper-tail of the distribution function. The Pareto distribution can be written, in general as:

$$(2.7)\quad P(y) = Ay^{-\alpha}$$

where

$P(y)$ = % of units with income in excess of y

When the Pareto is applied to only a portion of the total income distribution, equation form (2.7) can be modified as follows:

$$(2.8)\quad P(y) = (y_0/y)^{\alpha} \qquad \text{for } y > y_0$$

where

y_0 = lower-limit of income in the Pareto distribution

The only remaining problem is to specify the value of alpha (α) in the Pareto distribution for each occupational group. Since alpha (α) is the coefficient for income (y) in a log-linear function on $P(y)$, an estimate of the parameter was computed for each occupation by using the observed values of $F(X)$ at \$9999 and \$14999 (see Appendix A, Table A.5).

The mean was then computed for each occupational income distribution. The actual computations were relatively simple. The expected value or mean of the distribution can be specified as:

$$(2.9)\quad E(x) = \int_0^{\infty} x\, f(x)$$

If the distribution function is represented by:

$$(2.10) \quad F(x) = c_0x^3 + c_1x^2 + c_2x + c_3.$$

then, the density function becomes:

$$(2.11) \quad f(x) = 3c_0x^2 + 2c_1x + c_2$$

Substituting (2.11) into (2.9), we have:

$$(2.12) \quad E(x) = \int_0^\infty x\ (3c_0x^2 + 2c_1x + c_2)$$

or

$$(2.13) \quad E(x) = \int_0^\infty 3c_0x^3 + 2c_1x^2 + c_2x$$

Evaluating (2.13), we obtain:

$$(2.14) \quad E(x) = 3/4c_0x^4 + 2/3c_1x^3 + 1/2c_2x^2 \Big]_0^\infty$$

An examination of equation (2.14) in conjunction with (2.10) shows that the expected value or mean of a distribution may be computed from the original distribution function by modifying certain of its parameters.

The expected value or mean of the income distribution for each occupation was computed in 11 parts. These sub-groups are the same as those used in estimating the distribution functions. The expected value or mean of income for a given occupation can be specified as:

$$(2.15) \quad E(x) = \int_0^{L_1} x\ (2c_1x + c_2) + \sum_{i=2}^{9} \int_{L_{i-1}}^{L_i} x\ (3c_0x^2 + 2c_1x + c_2) + \int_{L_9}^{L_{10}} x\ (2c_1 + c_2) + (1.0 - F(x_i)_{i=10})\ \bar{x}_{Pareto}$$

where

L_i = upper-limit of the i^{th} size-class

$\bar{x}_{Pareto}$ = expected value of income over the Pareto

The density functions specified in the first three terms of equation (2.15) are derived from the distribution functions estimated by the Lagragian polynomial interpolation technique. The expected value of income over the range fit by the Pareto distribution was computed as follows:

$$(2.16)\quad \bar{x} = \alpha y_0/(\alpha - 1.0) \qquad \text{for } \alpha > 1.0$$

Fortunately, the estimated value of alpha (α) for each occupation exceeded the required 1.0 (see Appendix A, Table A.5). The mean income computed for each Pareto distribution, however, required a modification. Formula (2.16) was originally designed to assess the income mean over the range fit by the Pareto. It was never intended as a formulation to estimate the relative contribution of that portion of the curve to the mean of the entire distribution function. The required modification entailed multiplying the mean computed for the Pareto distribution by the percentage of incomes covered by that function.

The discussion of income distributions have, so far, been centered around its occupational aspects. An industry dimension must now be applied to these distributions. Fortunately, the U.S. Department of Labor conducted work on a project dealing with the occupational mix of industry employment. An industry-occupation matrix was compiled by the Bureau of Labor Statistics for 1960, and a projection was made for 1975.[15/]

[15/] U.S. Department of Labor, Bureau of Labor Statistics, Occupation Employment Patterns for 1960 and 1975, Washington, 1968, Bulletin #1599.

These matrices contain employment estimates for approximately 160 occupation groups and 116 industries. The 116 industry groups were aggregated into 54 sectors[16] used in the "revised" model (see Appendix A, Table A.4). The BLS occupation groups were matched to a Census occupation categories by using a comparability table (see Appendix A, Table A.2). For each matrix, a relative distribution of industry employment by occupation was computed for each of the 54 industries by dividing the BLS estimate of employment for a given occupation within an industry by the total employment in the industry. Relative employment distributions by industry were computed for the intervening years by applying a linear interpolation scheme to the BLS matrices.

The relative distribution of industry employment by occupation was then used to translate the set of income distributions by occupation into an income distribution by industry. The distribution of wage and salary payments and proprietors' income in an industry can be derived from a weighted average of the occupational distributions. The weights, in this case, are equal to the relative size of each occupation in the industry. The expected value or mean of the industry distribution is then equal to a weighted average of the expected values or means of the occupational distributions.

A problem developed in estimating the income distribution for each industry. The system which was proposed above had no guarantee that the weighted average of the

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[16] Federal Defense was excluded.

occupation mean incomes would equal the industry mean income. The discrepancy arose basically from interindustry differences in labor compensation. The average income of a given occupation in a given industry can be either less than, equal to, or greater than the national average. The solution required the design of a system which could adjust each occupational distribution in an industry in such a manner as to achieve consistency with the industry's average income payment, while still maintaining the original national income average for each occupation.

A matrix balancing technique and the 1960 BLS industry-occupation employment matrix provided the necessary tools to develop the system. The 1960 employment matrix used in the "revised" model contains 149 rows and 54 columns. The rows represent occupation groups, and the columns represent industries. Each element in the matrix provides an estimate of the number of employees for a given occupation in a given industry. An estimate of the mean income for each occupation was made by formula (2.15). The mean or average income for each industry was computed from the National Income Accounts. The first step involved redefining the BLS employment matrix into a "total wage bill" matrix. The new matrix was constructed by multiplying the number of employees in each cell by the average income of their occupational group. The column vector of row controls (149) was estimated by multiplying the national average income of each occupation by the corresponding row sum of total employment in that occupation. The row vector of

column controls (54) was estimated by multiplying the total employment in a given industry by the average income of that industry. The vector of row control totals represents the distribution of the total wage bill by occupation. The vector of column control totals represents the distribution of the total wage bill by industry. The sum of the row control totals should equal the sum of the column control totals. In the actual computations, these sums were within 1% of each other. An adjustment was made to the vector of row controls to offset the slight inequality of these sums.

The stage has now been set to activate the matrix balancing routine. A "total wage bill" matrix has been constructed in which there is row consistency; that is, the sum of the wage bill payments across a row equals the row control total for all rows; however, there are discrepancies in the columns, with the sum of the wage bill payments down a column (across occupations) not equaling the column control total for all columns. The matrix balancing algorithm applied to this problem involves an iterative process[17/] in which each column is multiplied through by a constant chosen to give the resulting column the desired column total. The rows are then forced out of balance, and a constant multiplier must be chosen for each row to give the resulting row the desired row total. The columns are then pushed out of balance again. The process is repeated until it converges to a solution in which all rows and columns are in "balance" with their respective control totals.

17/ M. Bacharach, Estimating Nonnegative Matrices from Marginal Data, International Economic Review, Vol. 6, No. 3, September, 1965.

The new "balanced" matrix formed the basis for deriving an average income for each occupation within each industry. These averages or means were computed by dividing the "balanced" wage bill for a given occupation in a given industry by the number of employees (from the original BLS employment matrix) in the cell. Each cell average was then compared to the national average for the corresponding occupation, and a factor was computed which represented the ratio of the average income of that occupation in that industry to the average income of that occupation in the total economy. These factors were then used to transform the original occupational distribution functions of income $[F(X_i)]$ into new occupational distribution functions $[F(Y_{ij})]$ for each industry.

We can define:

$$(2.17) \quad Y_{ij} = F_{ij} \cdot X_i$$

where:

i = i^{th} occupation

j = j^{th} industry

F_{ij} = industry-occupation factor.

The means of the new distribution functions will, by definition, equal the average income computed from the "balanced" wage bill matrix for each cell. The industry income distribution functions were derived, as previously explained, by taking a weighted average of the occupational distribution functions; however, the new distribution functions were now substituted for the original functions.

An analogous system is used to move the industry income distribution functions over time. An average wage and salary payment plus proprietors' income payment is estimated by the model for each industry in a given time period. Factors are computed from these estimates which represent the ratio of the current year's average labor income in the industry to that in the base year. The industry distribution functions for the base year are then transformed by these factors into industry distribution functions for the current year, using the same multiplicative transformation form as specified in (2.17). The mean of each new industry distribution function is now aligned to the estimate of average labor income for each industry. These "adjusted" industry distribution functions are then used to distribute each industry's total wage and salary payments and proprietors' income across the income size-classes.

CHAPTER III

Other Personal Income Payments

Chapter III describes the estimation of corporate dividend payments, personal rental income, business transfer payments, public transfer payments, personal interest income, and "other labor" income. Distributions of income by size-class are presented for corporate dividend payments, personal rental income, and personal interest income.

3.1 Dividends

Review

John Lintner's work has established the pattern for estimating corporate dividend payments in the economy.[1/] In his model, the change in dividends is assumed to be proportional to the gap between desired dividends at the end of a period and the level of dividends at the beginning of the period. The desired level of dividends is proportional to the current level of corporate profits after tax. In equation form, Lintner's system may be specified as:

$$(3.1) \quad \Delta D_t = a + c\ (D_t^* - D_{t-1})$$

$$(3.2) \quad D_t^* = r\ P_t$$

where

D_t = dividend payments in year t

D_t^* = desired dividends in year t

P_t = profits after tax in year t

r = "target" payout ratio

[1/] J. Lintner, "Distribution of Income of Corporations Among Dividends, Retained Earnings and Taxes," Proceedings of the American Economic Association, Vol. 46, No. 2, May 1956, pp. 97-113.

Substituting (3.2) into (3.1), we can rewrite the dividend equation as:

$$(3.3) \quad D_t = a + b\,P_t + d\,D_{t-1}$$

where $b = cr$

$d = 1-c$

Equation (3.3) was fit to annual aggregate data for the period 1918-41 with rather satisfactory results.

P. Darling proposed an amendment to the Lintner model to add depreciation allowances and changes in the level of sales to the determinants of corporate dividend policy.[2/] Depreciation allowances were intoduced into the dividend function to reflect his belief in corporate management's willingness to declare dividends out of their gross profits. The "change in sales" variable was intended to reflect the firm's demand for funds for internal financing of capital expenditures.

Darling estimated equations with his revised model, using annual data from 1921-54 for all manufacturing and quarterly data from 1930-55 for Moody's sample of 125 large industrial corporations. The general equation form was:

$$(3.4) \quad D_t = b_0 + b_1P_t + b_2A_t + b_3\Delta S_t + b_4D_{t-1}$$

where
D_t = dividend payments
P_t = net income after tax (profits)
A_t = annual depreciation and depletion
ΔS_t = change in corporate sales over the preceding two years

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[2/] P. Darling, "The Influence of Expectations and Liquidity on Dividend Policy," Journal of Political Economy, Vol. 65, No. 3, June 1957, pp. 201-224.

Like Lintner's model, these equations produced very satisfactory estimates of current dividend payments. The most interesting feature of these equations was the statistical significance associated with the depreciation and sales-change variables. The "change in sales" variable was significant in all equations, while the depreciation variable proved to have a significant effect in three of the four equations estimated.

In 1966, a study of corporate dividend policy was undertaken by John Brittain for Brookings Institute.[3/] The study focused its attention on aggregate and industry corporate dividend policy. Dividend functions were estimated for the period 1920-1960. These functions used varying combinations of corporate net profits, corporate cash flow, corporate depreciation allowances, change in corporate sales, an interest rate, an individual tax shelter measure, and a lagged dividend term as explanatory variables. The cash flow variable proved the most satisfactory in measuring the income base from which dividends are paid by a corporation. It performed better than the more commonly used corporate net profits measure or a combination of corporate net profits and corporate depreciation allowances (specified separately).

In Brittain's results, the aggregate functions showed the same high quality that normally characterized these equations in other studies; however, the industry functions appeared

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3/ J. Brittain, Corporate Dividend Policy, The Brookings Institution, Washington, 1966.

much weaker than those of the aggregate. In certain industries, the "best" equation which was estimated had a relatively low explanatory power.

In general, Lintner's model appears to be a relatively satisfactory specification. However, there is some difficulty in establishing an exact rationale for such an approach. Several alternative theories are consistent with the final formulation of the model. Some of the more commonly mentioned theories are: 1) dividends depend directly on current earnings but are also influenced by past dividend policy because of reluctance to cut dividends or to raise them to levels which may not be maintained; 2) a "speed-of-adjustment" model in which corporations adjust in a conservative manner to a gap between current desired dividends disbursements (linked to current corporate earnings) and past dividends; or 3) dividends depend on a distributed lag of corporate earnings over several time periods. In my view, the most appealing theory seems to be the "speed-of-adjustment" hypothesis. The derivation of equation (3.3) from equations (3.1) and (3.2) is consistent with such an approach.

The Lintner model has normally been applied to the estimation of aggregate dividend functions. The empirical results indicate that this model has been highly satisfactory in tracing movements of aggregate dividend payments over time. There has been, however, some question concerning the validity of applying such a model to industry dividend functions. The relatively poor results found by Brittain in fitting industry functions provided

some empirical evidence to support such a concern. The major question, therefore, which had to be addressed in this study dealt with the degree of success associated with applying the Lintner model to new industry data (data which was of much higher quality than that used in the original Brittain study).

Study

Corporate dividend functions were estimated for 38 private industries in the revised model (see Appendix A, Table A.7). Data was compiled from the National Income Accounts for the period 1948-1967. Net corporate dividend payments were taken from Table 6.16, "Net corporate dividend payments by industry" (see Appendix C, Table C.5).[4/] Corporate depreciation allowances were obtained from Table 6.18, "Corporate capital consumption allowances by industry" (see Appendix C, Table C.6).[5/] Table 6.15, "Corporate profits after tax by industry," provided data on net corporate profits (see Appendix C, Table 6.7).[6/]

[4/] Table 6.16 - Net corporate dividend payments by industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1969.

[5/] Table 6.18 - Corporate capital consumption allowances by industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1969.

[6/] Table 6.15 - Corporate profits after tax by industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1969.

The general form of the industry dividend equation is:

$$(3.5) \quad D_t = a + b_1(P_t + A_t) + b_2 D_{t-1}$$

where

D_t = net corporate dividend by industry

P_t = corporate profits after tax by industry

A_t = corporate capital consumption allowances by industry

Table 3.1 presents a summary of these results.

TABLE 3.1 NET CORPORATE DIVIDEND EQUATIONS

Sector	a	b_1	b_2	$\bar{R}^2$	SE	D-W	Target Payout Ratio
Agriculture, Forestry, and Fishery	26.59 (2.65)	0.128 (2.76)		0.27	21.95	1.96	0.13
Metal Mining	28.19 (1.35)	0.396 (6.92)	0.249 (1.93)	0.73	16.50	1.77	0.53
Coal Mining	6.56 (0.67)	0.072 (2.20)	0.415 (2.66)	0.39	7.71	2.76	0.12
Crude Mining	-76.62 (-0.48)	0.182 (1.11)	0.827 (7.69)	0.79	77.27	2.34	1.05
Non Metallic Mining	24.80 (7.72)	0.102 (8.77)		0.81	4.89	2.01	0.10
Construction	9.60 (1.03)	0.087 (11.42)		0.88	19.51	1.97	0.09
Food	82.07 (1.93)	0.094 (3.22)	0.502 (2.84)	0.94	32.98	2.09	0.19
Tobacco	10.19 (1.64)	0.198 (2.45)	0.583 (3.43)	0.97	8.52	1.49	0.47
Textiles	-4.17 (-0.25)	0.075 (5.13)	0.678 (8.49)	0.84	13.44	2.04	0.23
Apparel	1.29 (0.29)	0.117 (5.41)	0.277 (1.93)	0.89	8.45	1.53	0.16
Paper	33.51 (2.65)	0.146 (5.81)	0.295 (2.34)	0.96	13.62	1.61	0.21
Printing and Publishing	32.51 (4.45)	0.183 (21.57)		0.96	13.67	1.46	0.18
Chemicals	85.90 (1.09)	0.102 (1.40)	0.643 (2.82)	0.87	129.42	2.12	0.29
Petroleum	-162.62 (-1.72)	0.137 (3.04)	0.507 (2.42)	0.87	108.11	1.75	0.28
Rubber	-8.23 (-0.90)	0.112 (2.88)	0.461 (2.00)	0.83	15.23	2.02	0.21
Leather	21.90 (7.11)	0.110 (4.78)		0.55	4.30	2.04	0.11

TABLE 3.1 Continued

Sector	a	b_1	b_2	$\bar{R}^2$	SE	D-W	Target Payout Ratio
Lumber	27.47 (3.54)	0.139 (9.55)		0.83	9.12	2.01	0.14
Furniture	13.87 (4.63)	0.125 (8.61)		0.80	4.69	1.69	0.13
Stone, Clay, and Glass	47.92 (3.08)	0.091 (2.78)	0.411 (2.37)	0.90	16.98	2.40	0.15
Metals	155.75 (2.42)	0.068 (4.06)	0.509 (3.75)	0.90	53.69	2.18	0.14
Trans. Equipment and Ordnance	40.04	0.126	0.316	0.92	18.36	2.47	0.18
Non-Electrical Machinery	83.24 (1.69)	0.115 (4.40)	0.323 (1.57	0.89	46.18	2.57	0.17
Electrical Machinery	46.10 (2.66)	0.102 (4.64)	0.584 (5.55)	0.97	22.53	1.97	0.25
Motor Vehicles	-39.22 (-0.85)	0.260 (7.47)	0.378 (4.37)	0.96	79.36	2.00	0.42
Instruments	23.15 (4.72)	0.174 (7.55)	0.187 (1.56)	0.99	7.50	2.01	0.21
Misc. Manufacturing	38.10 (5.40)	0.103 (4.62)		0.53	6.23	1.47	0.10
Transportation	52.43 (2.01)	0.097 (5.21)	0.363 (2.69)	0.96	29.54	1.85	0.15
Telephone & Telegraph	61.08 (2.34)	0.090 (1.86)	0.733 (4.27)	0.99	43.45	2.83	0.34
Radio & TV Broadcasting	-4.77 (-1.32)	0.163 (3.26)	0.400 (2.00)	0.92	6.73	2.59	0.27
Utilities	104.54 (3.31)	0.155 (2.50)	0.592 (3.33)	0.99	40.55	2.14	0.38
Trade	66.94 (1.12)	0.073 (6.69)	0.546 (5.19)	0.96	50.51	2.01	0.16
Finance & Insurance	-18.92 (-0.19)	0.120 (1.98)	0.394 (1.46)	0.85	127.65	2.28	0.20

TABLE 3.1 Continued

Sector	a	b_1	b_2	$\bar{R}^2$	SE	D-W	Target Payout Ratio
Real Estate	91.59 (3.96)	0.094 (7.42)		0.75	33.06	1.97	0.09
Amusements	26.99 (2.62)	0.075* (1.12)	0.387 (1.75)	0.29	10.20	2.38	0.12
Misc. Prof. Services	-3.56 (-3.92)	0.148 (34.32)		0.98	2.32	2.05	0.15
Misc. Business Servs.	13.26 (1.79)	0.080 (7.08)		0.73	17.43	1.99	0.08
Hotel, Pers. Services, Misc. Repairs	0.352 (0.35)	.032 (13.63)		0.91	2.61	2.60	0.03
Automobile Repairs	-1.21 (-0.18)	0.104 (8.22)		0.79	13.07	1.99	0.10

*Corporate Profits After Tax

The last column of Table 3.1 contains an estimate of the "target payout" ratio for each industry. It was computed from results of equation (3.5) as follows:

$$(3.6)\quad \text{TARGET RATIO} = b_1/(1-b_2)$$

The ratio represents the fraction of current earnings (cash flow) which the corporation would like to distribute to its owners in the form of dividend payments. In equations which have no lagged dividend term, the "target payout" ratio is identical to the regression coefficient on corporate earnings. In the other equations, the "target payout" ratio differs from the coefficient on corporate earnings. The difference arises from the corporation's refusal to make large adjustments in their current dividend policy to achieve a "new" desired dividend position. The lagged dividend term measures the willingness of the corporation to make these necessary adjustments. If the coefficient is zero, the corporation is assumed to react immediately to totally achieve the "new" dividend position. As the coefficient approaches 1.0, the reaction time of the corporation is assumed to increase so that very little of the desired change to current dividend policy is achieved in the current year.

An analysis of the regression results in Table 3.1 shows that the industry functions have relatively satisfactory characteristics. In general, these equations have: (1) highly significant regression coefficients, (2) a high R^2, and (3) a Durbin-Watson statisitic which does not indicate a high degree of autocorrelation in the residuals. The much stronger

performance of these equations over the industry functions estimated by Brittain appears to be based upon a higher quality regression sample. Brittain had to approximate a number of historical data series; while the current sample reflects the consistent data series developed in the context of the National Income Accounts. These latter series were not available at the time Brittain conducted his research project.

An income distribution of aggregate dividend payments by size-class was estimated from IRS sources.[7/] The distribution was divided into 11 size-classes.[8/] The definition of these income groups is identical with those used in the distribution of proprietor income and wage and salary payments.

A relative distribution function of net corporate dividend payments was computed annually for the period 1960-1969. Table 3.2 presents these historical distributions.

7/ Statistics of Income - Individual Income Tax Returns, Department of the Treasury, Internal Revenue Service, Washington, Annual, 1960-1969.

8/ Size-classes were defined in terms of adjusted gross income.

TABLE 3.2 DISTRIBUTION OF CORPORATE DIVIDENDS BY SIZE CLASS

Size Class	1960	1961	1962	1963	1964	1965
0-999	.01	.01	.01	.01	.01	.01
1000-1999	.02	.02	.02	.02	.02	.02
2000-2999	.03	.02	.02	.02	.02	.02
3000-3999	.03	.03	.03	.03	.02	.02
4000-4999	.03	.03	.03	.03	.03	.02
5000-5999	.03	.03	.03	.03	.02	.02
6000-6999	.03	.03	.03	.03	.02	.02
7000-7999	.03	.03	.03	.03	.03	.03
8000-9999	.05	.05	.05	.05	.04	.05
10000-14999	.11	.11	.11	.11	.10	.10
15000-Over	.63	.64	.64	.64	.69	.69

Size Class	1966	1967	1968	1969
0-999	.01	.01	.01	.01
1000-1999	.01	.01	.01	.01
2000-2999	.02	.02	.02	.02
3000-3999	.02	.02	.02	.02
4000-4999	.02	.02	.02	.02
5000-5999	.02	.02	.02	.02
6000-6999	.02	.02	.02	.02
7000-7999	.02	.02	.02	.02
8000-9999	.06	.04	.04	.04
10000-14999	.09	.09	.09	.09
15000-Over	.71	.73	.73	.73

A review of Table 3.2 indicates a high degree of stability in these relative distributions. An exogenous projection of the income distribution was made for the forecast period using the distribution observed for the years 1967-1969.

3.2 Rental Income

Review

Rental income of persons consists of the monetary earnings of persons from the rental of real property, except the earnings of persons primarily engaged in the real estate business; the imputed net rental returns to owner-occupants of

nonfarm dwellings; and the royalties received by persons from patents, copyrights, and rights to natural resources.[9/]

There has not been a great deal of effort devoted to the estimation of personal rental income payments. The relatively small research effort that has been directed to the estimation of these functions has normally been part of the much larger effort of estimating an entire aggregate econometric model. A discussion of how two of these aggregate models estimated their rental income equations provides a description representative of the usual techniques employed in estimating such equations.

In the Brookings Quarterly Econometric Model, rental income was to be estimated by using the stock of housing and an average rental index.[10/] It was impossible to assess the quality of this approach, however, since the write-up of the model excluded any report of the actual equation results. One major difficulty associated with such a relationship immediately became apparent. The explanatory variables in the rental function are economic measures which are extremely difficult to accurately forecast. Perhaps, a rental function using more "standard" aggregate measures as explanatory variables, while possibly not having the same explanatory power in the historical period, would improve its forecast accuracy.

[9/] Definition of rental income of persons used in the National Income Accounts.

[10/] E. Kuh, Income Distribution and Employment over the Business Cycle, The Brookings Quarterly Econometric Model of the United States, Rand McNally & Company, Chicago, 1965, p.267.

The IBM Quarterly and Annual Econometric Models[11/] have treated the explanation of rental payments in a rather summary manner. The rental income functions in both models were specified as

$$(3.7) \quad (R/NI)_t = a+b_0(NI_t/NI_{t-1}) + b_1 t+b_2(R/NI)_{t-1}$$

where:

R = rental income of persons
NI = national income
t = time

Equation (3.7) relates the rental income share of total national income to the current % change in national income, a time trend, and the rental income share last period. The % change in national income was introduced into the function to capture a counter-cyclical aspect in the rental share. It was thought that during the expansionary phase of the business cycle the other components of national income would rise at a much faster rate than rental payments, causing a decline in the rental share measure; while the reverse was thought true during the contrationary phase of the business cycle. The negative long-run component of the rental share measure was quantified by the time trend; and the relative short-run stability of the series was tracked by the lagged rental share term.

11/ Annual and quarterly econometric models of the U.S. have been estimated by the Economic Research Department of the International Business Machines Corporation.

Study

A historical time series of personal rental income payments was computed from the National Income Accounts, Table 1.10, "National Income by type of income" for the period 1948-1969.[12/] With the above sample, the following rental income function was estimated:

$$(3.8)\quad (R/GNP)_t = \underset{}{0.02016} - \underset{(2.91)}{0.00020t} + \underset{(-3.28)}{0.73153(R/GNP)_{t-1}} \quad \underset{(6.19)}{}$$

$$\bar{R}^2 = .9007 \quad SE = .0011 \quad D\text{-}W = 2.17$$

where

R = rental income of persons in current $

GNP = gross national product in current $

t = time

Function (3.8) is a modified version of equation form (3.7). Gross national product has been substituted for national income in the definition of the rental share measure. The basic reason for such a substitution was that the "input/output" model automatically supplies a projection of Gross National Product from the sum of final demands in the economy; whereas, the model does not generate a forecast of national income. There was no apparent loss of quality in equation (3.8) from such a modification. The percent change in national income was omitted from the final version of the equation after an examination of the annual time series on the rental share measure failed to show any indication of cyclical sensitivity. The

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12/ Table 1.10 - National income by type of income, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

general characteristics of the equation appear to be quite satisfactory. The statistical significance of the trend term reflects the secular decline in the rental share of gross national product, while the lagged dependent variable captures the stability of the rental share series. The high $\bar{R}^2$ indicates the satisfactory quality of the historical fit.

A historical series of relative income distributions for rental income was computed from Internal Revenue sources for the years 1960 to 1969. These distributions appear in Table 3.3 below.

TABLE 3.3 DISTRIBUTION OF RENTAL INCOME BY SIZE-CLASS

Size Class	1960	1961	1962	1963	1964	1965
0-999	.05	.05	.05	.05	.05	.04
1000-1999	.09	.09	.08	.08	.08	.08
2000-2999	.09	.08	.08	.09	.08	.07
3000-3999	.08	.07	.07	.07	.07	.06
4000-4999	.07	.06	.07	.07	.06	.06
5000-5999	.06	.06	.06	.06	.06	.06
6000-6999	.06	.05	.05	.05	.05	.04
7000-7999	.05	.05	.05	.04	.04	.06
8000-9999	.08	.09	.08	.09	.08	.08
10000-14999	.12	.12	.13	.13	.13	.14
15000-over	.25	.28	.28	.27	.30	.31

Size Class	1966	1967	1968	1969
0-999	.03	.02	.03	.03
1000-1999	.06	.07	.05	.05
2000-2999	.08	.07	.06	.05
3000-3999	.06	.06	.05	.05
4000-4999	.06	.05	.05	.05
5000-5999	.06	.05	.05	.05
6000-6999	.05	.05	.04	.04
7000-7999	.05	.04	.04	.05
8000-9999	.07	.08	.08	.08
10000-14999	.15	.15	.14	.15
15000-over	.33	.36	.41	.40

Table 3.3 indicates a slight upward drift in these relative income distributions over the last decade. An exogenous projection of the income distribution was made for the forecast period using these observed changes.

3.3 Business Transfers

Business transfer payments comprise corporate gifts to nonprofit institutions, consumer bad debts, and a few other minor payments.[13/]

A historical series of business transfer payments was compiled from the National Income Accounts, Table 1.9, "Relation of gross national product, national income, and personal income" for the years 1948-1969.[14/] The following business transfer payments equation was estimated:

$$(3.9)\quad BTP_t = \underset{(-13.68)}{-0.51874} + \underset{(66.83)}{.00465}\ GNP_t$$

$$\bar{R}^2 = .9953 \quad SE = .0625 \quad D\text{-}W = 0.95$$

where

BTP = business transfer payments in current $

GNP = gross national product in current $

13/ Definition of business transfer payments used in the National Income Accounts.

14/ Table 1.9 - Relation of gross national product, national income, and personal income, The National Income and Products Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

The major component of business transfer payments is most probably corporate gifts to nonprofit institutions. Gross National Product (current dollars) was used in equation (3.9) as an economic indicator of conditions affecting the amount of these corporate grants.

The high correlation computed for equation (3.9) may be, however, somewhat misleading. Both series displayed a strong positive trend component in their time series. The extremely high significance of the Gross National Product term may partially be explained by their common time trend. However, business transfer payments showed sufficient signs of cyclical sensitivity to warrant inclusion of the GNP term. Equation (3.9) was much preferred over a simple time trend equation.

3.4 Public Transfers

Review

Public transfer payments can be divided into Federal transfer payments and state and local transfer payments. The Federal transfers include: (1) old-age, survivors, and disability insurance benefits; (2) state unemployment insurance benefits; (3) railroad retirement insurance benefits; (4) railroad unemployment insurance benefits; (5) Federal civilian pensions; (6) veterans life insurance benefits; (7) direct relief; (8) military pension, disability, and retirement payments; (9) other veterans benefits; and (10) other miscellaneous Federal benefits. The state and local transfers include: (1) government pensions; (2) cash sickness compen-

sation; (3) special types of public assistance; (4) general assistance; and (5) other miscellaneous state and local benefits.

The two major sources of research in the estimation of government transfer functions are: (1) a report prepared by the Office of Business Economics which estimated Federal transfer payments;[15] and (2) the "Government Revenue and Expenditure section of the Brookings Quarterly Econometric Model of the United States.[16]

A detailed description of the estimation procedures for OASDI and state unemployment benefits will be presented below. The other public transfer programs were estimated in essentially the same manner.

The transfer payment equations in both the OBE and Brookings models were viewed in a definitional sense as the product of the benefit rate per person and the number of persons eligible for the payments. An approximate benefit function can be established for each public program by relating the benefit payments in a logarithmic function to the statutory benefit rate and the number of eligible persons in the population; that is,

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[15] W. Waldorf, "Long-Run Federal Tax Functions: A Statistical Analysis," Office of Business Economics, Department of Commerce, Staff working paper #15, 1968, pp. 99-117.

[16] A. Ando, E. Cary Brown, and E. Adams, "Government Revenues and Expenditures," The Brookings Quarterly Econometric Model of the United States, Rand McNally, Chicago, 1965, pp. 561-571.

$$(3.10)\quad B_{it} = A_{0i} R_{it}^{\alpha_{i1}} P_{it}^{\alpha_{i2}} \qquad i = 1,n$$

or

$$(3.11)\quad \text{Ln } B_{it} = \text{Ln } A_{0i} + \alpha_{i1} \text{Ln } R_{it} + \alpha_{i2} \text{Ln } P_{it}$$

where

B_{it} = benefit payment of the i^{th} program

R_{it} = statutory benefit rate of the i^{th} program

P_{it} = number of eligible persons for i^{th} program

n = number of public programs

Old-age, survivors, and disability insurance benefits are paid to disabled workers, retired workers, and beneficiaries of deceased workers. Although benefits are paid to persons of all ages, the majority of the OASDI benefits go to older people in the population.

The same specification was used in both the OBE[17] and Brookings[18] models for the OASDI benefits equation. The equation was estimated as follows:

$$(3.12)\quad \text{Ln } B_{OASDI} = a_0 + b_1 \text{Ln } b_{OASDI} + b_2 \text{Ln } \left[(N_{62+} - LF_{62+}) N_{OASDI}/N_{62+}\right]$$

where

B_{OASDI} = OASDI benefits

b_{OASDI} = maximum primary insurance amount

N_{62+} = population 65 years and older, women 62-64 beginning in 1956, and men 62-64 beginning in 1961

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[17] W. Waldorf, op. cit., p. 102.

[18] A. Ando, et al., op. cit., p. 561.

LF_{62+} = the number of older workers in the labor force

N_{OASDI}/N_{62+} = percent of older persons who are eligible for OASDI benefits

Equation (3.12) performed well in estimating the level of OASDI benefits.

State unemployment insurance benefits are extremely difficult to estimate since each state has its own set of rules governing the operation of its plan. The only major similarity between the various plans is that the weekly benefits are calculated as a fraction of the worker's past wages. The maximum number of benefit weeks vary from 12 to 39 across the states, but the great majority of states provide for 26 weeks of coverage.

OBE estimated the following equation for state unemployment benefits.[19/]

$$(3.13)\quad \text{Ln } B_{UI} = a_0 + b_1(1 + a_{UI}) + b_2 \text{ Ln } b_{UI} + b_3 \text{ Ln } U + b_4 D_{58}$$

where

B_{UI} = total state unemployment insurance benefits

a_{UI} = adjustment factor for extended benefits

b_{UI} = weighted average of state maximum weekly benefits

[19/] W. Waldorf, op.cit, p. 107.

U = total civilian unemployment

D_{58} = dummy variable for extended benefits for 1958 omitted from a_{UI}

A similar function was estimated by Brookings.[20/]

$$(3.14) \quad \text{Ln } B_{UI} = a_0 + b_1 \text{Ln } b_{UI} + b_2 \text{Ln } U + b_3 \text{Ln } (U_{26}/U)$$

where

U_{26} = number unemployed for 26 wks. or less

Equations (3.13) and (3.14) were fairly satisfactory in predicting the level of state unemployment benefits.

The definitional approach adopted by both OBE and the Brookings group in estimating public transfer payments appears to be a relatively sound technique. The greatest difficulty associated with such an approach normally involves: (1) the correct specification of the appropriate benefit rate structure and personal eligibility under a given benefit plan; and (2) an accurate projection of these plan characteristics. Neither problem exists to any major extent with regard to estimating public transfer payments. The legislation enacting a given benefit plan is normally quite clear in defining (in measurable terms) the appropriate benefit rate structure and plan eligibility. A projection of these plan characteristics normally involves either an estimate of future legislative action or an assumption regarding certain demographic characteristics of the population. While such exogeneous

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[20/] A. Ando, et al., op. cit., p. 566

estimates are not made without error, they do represent, however, a projection of a relatively stable and predictable phenomenon.

A close review of both models brings forth two general comments. First, each model adopted a highly disaggregative orientation. In the OBE model, a separate public transfer equation was estimated for each major Federal benefit plan; while in the Brookings model, a separate function was estimated for each major Federal, state, and local benefit plan. An analysis of the relative size distribution of public benefit programs showed that the major programs are: (1) Federal OASDI benefits; (2) Federal unemployment benefits; and (3) state and local program benefits. It appears that some degree of aggregation could be introduced without substantially affecting the forecast accuracy of public transfer payments. The second comment concerns the choice of explanatory variables in the pubic transfer equations. Certain variables (representing either the statutory benefit rate structure or the plan eligibility) have been chosen for these functions which exist in quantitative terms for the historical regression fit period, but which are extremely difficult to accurately project into the forecast period. Perhaps other variables could be substituted into these equations which represent not only close proxies for the original variables, but also a gain in the forecast accuracy of these explanatory variables.

Study

Historical series were compiled for four major groups of public transfer payments from the National Income Accounts, Table 3.9, "Government transfer payments to persons."[21/] These groups were: (1) old-age, survivors, and disability insurance benefits; (2) state unemployment and railroad unemployment insurance benefits; (3) other Federal benefits; and (4) state and local transfer payments.

The OASDI benefits equation was estimated as:

$$(3.15)\quad \text{Ln}\,(B_{OASDIt}/B_{OASDIt-1}) = \underset{(0.27)}{0.00850} + \underset{(3.38)}{0.64174}\,\text{Ln}\,(b_{OASDIt}/b_{OASDIt-1}) + \underset{(5.70)}{1.31095}\,\text{Ln}\left[N_{62+_t}(N_{OASDIt}/N_{62+t}) \,/\, N_{62+_{t-1}}(N_{OASDIt-1}/N_{62+_{t-1}})\right]$$

$$\bar{R}^2 = .6791 \qquad SE = .0803 \qquad D\text{-}W = 1.98$$

The OASDI benefits equation was originally estimated by using equation form (3.12). However, the high degree of correlation between the explanatory variables (approximately 0.95) made it impossible to accurately estimate the parameters of the function. The multicollinearity problem was solved by fitting the equation in % change form. The insignificance of the constant term in (3.15) is consistent with the absence of a time trend in (3.12). The term which measures the number of

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21/ Table 3.9, "Government transfer payments to persons," The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

people covered by the OASDI program was modified in (3.15). In defining the program coverage measure, the number of older people in the labor force was not subtracted from the total number of older people in the economy. The basic reason for such a change was to avoid the extremely difficult task of forecasting the LF_{62+} term. The $\bar{R}^2$ in (3.15) is much lower than that of equation form (3.12); however, such results would normally be expected since the original equation was fit in logarithmic level form.

The unemployment insurance benefits equation was estimated as:

$$(3.16)\quad \text{Ln } B_{UIt} = \underset{(-7.41)}{-0.97243} + \underset{(5.40)}{1.38988}\ \text{Ln PTC}_t + \underset{(13.00)}{1.46444}\ \text{Ln } U_t$$

$$\bar{R}^2 = .9248 \quad \text{SE} = .1313 \quad \text{D-W} = 1.05$$

where

PTC = personal consumption deflator

Equation (3.16) follows a form similar to equations (3.13) and (3.14). The major difference is the substitution of the personal consumption deflator for a weighted average of state benefits per unemployed person. The substitution was made on the basis that state agencies make adjustments in their benefit scales to maintain a given level of real purchasing power from the transfer payments. The hypothesis can be stated in equation form as:

$$(3.17)\quad \ln b_{uI_t} = \alpha_0 + \alpha_1 \ln \text{PTC}_t$$

If the extended benefits terms are eliminated from (3.13), and equation (3.17) is substituted into (3.13), an equation form identical with (3.16) is derived. Equation (3.16) has approximately the same satisfactory regression fit as did the unemployment benefit equations estimated by both OBE and the Brookings group.

"Other" Federal transfer payments became somewhat of a problem in the model. A significant change in the pattern of these transfer payments came in 1966 with the introduction of medical insurance. These payments have grown substantially since then. It proved to be an impossible task to develop an equation which could provide an accurate forecast of the growth pattern of these payments. "Other" Federal transfers were finally estimated exogenously.

State and local transfer payments were divided into two items: (1) social insurance transfers and (2) direct relief and "other" transfers.

The state and local social insurance transfers equation was estimated as:

$$(3.18)\quad \underset{}{\text{Ln SLSIT}_t} = \underset{(-5.27)}{-3.12985} + \underset{(5.64)}{1.16573}\ \text{Ln N}_{62+t} + \underset{(8.28}{3.79167}\ \text{Ln PTC}_t$$

$$R^2 = .9938 \qquad SE = 0.0581 \qquad D\text{-}W = 1.15$$

where

SLSIT = state and local social insurance transfers

The number of older people was used an an explanatory variable in equation (3.18) to reflect the composition of re-

cipients under these benefit programs. The personal consumption deflator was used as a proxy for the benefit rate. Benefit schedules were assumed to be sensitive to changes in the cost of living. Both variables proved highly significant in equation (3.18). The equation had a very high $\bar{R}^2$.

State and local "direct relief" and "other" transfers suffered the same difficulties that were associated with "other" federal transfers. An exogenous estimate was made for these payments.

3.5 Personal Interest Income

Review

Personal interest income measures total interest accruing to U.S. persons. It is calculated as the sum of the net interest component of national income, total interest paid by consumers, and net interest paid by government including government enterprises.[22/]

The Brookings groups did some preliminary research on on the estimation of interest income.[23/] In their model, interest payments were defined as:

(3.19) INT = RM * B

where

22/ Definition of personal interest income used in the National Income Accounts.

23/ E. Kuh, op. cit., pp. 269-271

INT = interest payments

RM = weighted average of interest rates

B = weighted average of the face value amounts of bonds outstanding

The change in interest was then defined as:

$$(3.20)\quad \Delta INT = RM * \Delta B + B * \Delta RM + \Delta B * \Delta RM$$

The following equations were estimated for government and private interest payments, ignoring the second-order changes:

$$(3.21)\quad \Delta INT_G = a_0 + b_1 (RM_{GBS}) (\Delta BF) + b_2 (BF) (\Delta RM_{GBS})$$

$$(3.22)\quad \Delta INT_B = a_0' + b_1' (RM_{GBL}) (I_{CN} + \Delta K_{CD}) + b_2' (K_{CD}) (\Delta RM_{GBL})$$

where

INT_G = personal interest income paid by the government

INT_B = personal interest income paid by business

RM_{GBL} = average yield on U.S. securities, maturity or callable in ten years or more

RM_{GBS} = average yield on three-month treasury bills

BF = total federal government debt

I_{CN} = GNP expenditure on nonfarm residential construction

K_{CD} = stock of consumer durable goods measured at original costs

The results of the interest equations were not extremely encouraging. However, the use of imperfect data to represent the explanatory variables in the regresssions were probably partially responsible for the poor fits. Brookings intended to replace these equations with an entire financial model in the future. In the absence of such a complete financial model, however, the definitional approach proposed by Brookings should most probably be abandoned in favor of a more general, imperfect specification of the factors having a major impact on these interest payments.

Study

Total personal interest income in the revised model was divided into three groups: (1) national income net interest; (2) net interest paid by government; and (3) interest paid by consumers. Historical series were compiled for these series from the National Income Accounts. National income net interest was taken from Table 1.10, "National income by type of income."[24/] Net interest paid by government was taken from Table 3.1, "Federal government receipts and expenditures,"[25/]

24/ Table 1.10 - National income by type of income, op. cit.

25/ Table 3.1 - Federal government receipts and expenditures, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

and Table 3.3, "State and local government receipts and expenditures."[26/] Interest paid by consumers was taken from Table 2.1, "Personal income and its disposition."[27/]

The national income net interest payment equation was estimated as:

$$(3.23)\quad NETI_t/GNP_t = \underset{(-17.98)}{-0.04719} + \underset{(25.96)}{0.001757}\ STHS_t$$

$$\bar{R}^2 = .9782 \quad SE = 0.0012 \quad D\text{-}W = 1.04$$

where

NETI = net interest

STHS = stock of private housing

The entire amount of national income net interest payments are derived essentially from imputations. A large portion of these imputations cover the imputed interest payments included in the space rental value of owner-occupied nonfarm dwellings. Equation (3.23) used the stock of private housing to track movements of these imputed net interest payments on owner-occupied housing (which is essentially the same as tracking movements of the total imputed net interest payment

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[26/] Table 3.3 - State and local government receipts and expenditures, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

[27/] Table 2.1 - Personal income and its disposition, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

series). An attempt was made to include an interest rate in the specification of equation (3.23). Several alternative interest rate measures were tried, but none proved satisfactory. The high $\bar{R}^2$ indicates the satisfactory quality of the regression fit.

The net government interest payment equation was estimated as:

$$(3.24)\quad GIP_t = \underset{}{2.87758} + \underset{(8.50)}{1.54388}\ BILLS_t - \underset{(14.64)}{0.04114}\ GTDS_t \qquad \underset{(-1.60)}{}$$

$$\bar{R}^2 = .9111 \quad SE\ .7333 \quad D\text{-}W = 1.38$$

where

GIP = net government interest payments
GTDS = government surplus or deficit

Equation (3.24) was extremely satisfactory in explaining the net government interest payment series. Such results can probably be attributed to the ability of the explanatory variables to quantify the key factors which cause government interest payments to change. The Treasury bill rate was used to reflect the cost of government debt financing. The bill rate serves a dual purpose in equation (3.24).

It reflects the costs of financing short-term government debt; in addition, it also acts as a proxy for the costs of longer-term public debt financing. The government surplus term was used to measure the need for public debt funds. The bill rate was highly significant in equation (3.24), while the government surplus term showed a lesser degree of statistical significance.

The consumer interest payment equation was estimated as:

$$(3.25)\quad CIP_t = \underset{(-2.42)}{-0.30905} + \underset{(3.07)}{0.34196}\ BILLS_t + \underset{(22.02)}{0.03767}\ CDBT_t$$

$$R^2 = .9957 \quad SE = .2769 \quad D\text{-}W = 0.87$$

where

CIP = consumer interest payments
CDBT = consumer debt outstanding

The Treasury bill rate was used as a proxy to reflect the cost of consumer credit, while the consumer debt term represented the volume of outstanding consumer credit. The characteristics of equation (3.25) appear quite satisfactory. The regression coefficients are all highly significant. The equation has a very high $\bar{R}^2$, with essentially all residuals showing a relatively small error in the historical period.

A historical series of relative income distributions for interest income was computed from Internal Revenue sources for the years 1960 to 1969. These distributions appear in Table 3.4 below.

TABLE 3.4 DISTRIBUTION OF INTEREST INCOME BY SIZE-CLASS

Size Class	1960	1961	1962	1963	1964	1965
0-999	.03	.03	.03	.03	.03	.02
1000-1999	.07	.07	.07	.07	.07	.07
2000-2999	.07	.07	.08	.07	.07	.07
3000-3999	.07	.07	.07	.07	.07	.06
4000-4999	.07	.06	.06	.07	.06	.06
5000-5999	.07	.06	.06	.06	.06	.06
6000-6999	.06	.06	.06	.06	.06	.06
7000-7999	.05	.05	.05	.05	.06	.05
8000-9999	.08	.09	.09	.10	.10	.10
10000-14999	.13	.14	.14	.15	.15	.16
15000-Over	.30	.30	.29	.27	.27	.29

Size Class	1966	1967	1968	1969
0-999	.02	.02	.02	.02
1000-1999	.06	.05	.05	.05
2000-2999	.07	.07	.06	.06
3000-3999	.06	.06	.06	.06
4000-4999	.06	.06	.06	.05
5000-5999	.05	.05	.05	.05
6000-6999	.05	.05	.05	.04
7000-7999	.05	.05	.05	.05
8000-9999	.10	.09	.09	.09
10000-14999	.16	.17	.17	.17
15000-Over	.32	.33	.34	.36

A high degree of stability in these relative distributions is observed in Table 3.4. The 1969 income distribution will be used to project the distribution into the forecast period.

"Other Labor" Income

Other labor income represents the difference between total wage and salary supplements and employer contributions for social insurance. An estimate of aggregate wage and salary supplements is computed in the model by using the technique discussed in Chapter II. Employer contributions for social insurance are estimated by a technique which will be described in Chapter IV. "Other labor" income is then computed as the difference between these estimates.

Chapter IV

Government Taxes

and

Social Insurance Contributions

Chapter IV describes the estimation of social insurance contributions, corporate tax payments, and personal tax payments.

4.1 Social Insurance Contributions

Review

Social insurance contributions are made on an employee-employer basis for several Federal, state, and local social insurance programs. The Federal programs include: (1) old-age, survivors, and disability insurance; (2) state unemployment insurance; (3) Federal unemployment tax; (4) railroad retirement insurance; (5) railroad unemployment insurance; (6) Federal civilian employee retirement systems; and (7) veterans life insurance. The state and local programs include: (1) state and local employee retirement systems; and (2) cash sickness compensation funds.

A discussion of the literature will be limited to the procedures used to estimate social insurance contributions under OASDI, state unemployment insurance, and Federal civilian employee retirement systems. These plans account for approximately 92% of the total contributions for Federal social insurance.

Old-age, survivors, and disability insurance is financed by taxes on employers, employees, and, since 1951, self-employed persons. OASDI taxes are levied on proprietors' income

and wage and salary payments of workers covered under the plan up to a statutory limit. During the post-WWII period, the coverage of these workers under the OASDI plan underwent significant changes.

The OASDI contribution equation estimated by OBE was:[1/]

$$(4.1)\quad \text{Ln } R_{OASDI} = a_0 + b_1 \text{Ln } r_{OASDI} + b_2 \text{Ln } E + b_3 \text{Ln } M_{OASDI} + b_4 \bar{C}_{OASDI}$$

where

R_{OASDI} = OASDI contributions (revenue)

r_{OASDI} = weighted aver. of self-employed, employee, and employer tax rates

E = total earnings (wages and salaries plus proprietors' income

M_{OASDI} = maximum taxable earnings

$\bar{C}$ = weighted aver. of percentage of all persons in paid employment eligible for coverage in t, t-1, t-2

A distributed lag model was employed to generate weights for years t, t-1, and t-2 for the coverage code variable ($\bar{C}_{OASDI}$) to reflect the delay in establishing equality between the statutory coverage code, and the effective code. However, the OBE report states that all the major revisions to the OASDI law have already been enacted, and that future users of equation form (4.1) could substitute the current level of the statutory coverage code for the weighted average code.

The Brookings group estimated OASDI contributions using a specification almost identical with the OBE equation.

[1/] W. Waldorf, op cit., p. 75

The only difference is the exclusion of the coverage code variable in the Brookings approach.

The Brookings OASDI contribution equation was estimated as:[2/]

$$(4.2) \quad \text{Ln } R_{OASDI} = a_0 + b_1 \text{Ln } r_{OASDI} + b_2 \text{Ln } E + b_3 \text{Ln } M_{OASDI}$$

Equations (4.1) and (4.2) both proved quite satisfactory in explaining OASDI contributions. The regression coefficients were all highly significant, and the $\bar{R}^2$ statistic was approximately 1.0 in each equation.

State unemployment insurance is a combined Federal-state program. The majority of the unemployment contributions are made by the employers. These benefit contributions should, in theory, be given by the product of the average contribution rate and wages and salaries subject to the program. One major difficulty is to estimate the appropriate wage and salary measure. As a result, only an approximate relationship can be specified for state unemployment insurance contributions.

The OBE state unemployment contribution equation was estimated as:[3/]

$$(4.3) \quad \text{Ln } R_{UI} = a_0 + b_1 \text{Ln } r_{UI} + b_2 \text{Ln } W + b_3 \text{Ln } M_{UI} + b_4 \text{Ln } C_{UI}$$

where

R_{UI} = unemployment insurance contributions (revenue)
r_{UI} = average U. S. employer rate
W = total wages and salaries
M_{UI} = average U. S. maximum taxable earnings
C_{UI} = percentage of labor covered by the plan

[2/] A. Ando, et. al., op. cit., p. 549

[3/] W. Waldorf, op. cit., p. 80.

A Koyck distributed lag model was used to estimate the average employer rate, since such a rate is related to the past performance of the employer within the plan. The relationship was specified as:[4/]

$$(4.4) \quad \text{Ln } r_{UI} = \alpha_0 + \alpha_1 \text{Ln } (U/LF)_{-1} + \alpha_2 \text{Ln } r_{UI_{-1}}$$

where
U = total civilian unemployment
LF = total civilian labor force

The Brookings model made an estimate of unemployment contributions by an equation similar to (4.3).[5/] The only difference was that the average U.S. maximum taxable earnings term was deleted from its equation.

An analysis of the equations seems to indicate that state unemployment contributions are significantly related to the average U.S. employer rate and total wage and salary payments. The other terms appear to add little to these specifications. The coefficients of M_{uI} and C_{uI} were not significant in (4.3), while the coefficient of C_{uI} was not significant in the Brookings function.

Federal civilian retirement contributions come from three main sources: (1) contributions made by employees; (2) matching contributions by the employing agencies; and (3) Congressional appropriations.

[4/] Ibid., p. 86.

[5/] A. Ando, et. al,, op. cit., p. 551

The Federal retirement contribution equation estimated by OBE was:[6/]

(4.5) $\text{Ln } R_{FCR} = a_0 + b_1 \text{Ln } r_{fcr} + b_2 \text{Ln } W_{FCE}$

where

R_{FCR} = Federal civilian retirement contributions

r_{fcr} = employee-employer tax rate

W_{FCE} = wage bill of Federal civilian employees

Equation (4.5), like the contribution equations estimated for the other Federal benefit programs, performed well in predicting the level of Federal civilian retirement contributions.

The Brookings model estimated contributions for the state and local social insurance programs. One function was used to predict the combined social insurance contributions for the cash sickness compensation funds and for the state and local employee retirement systems. The Brookings' equation was estimated as:[7/]

(4.6) $TW_{GS} = a_0 + b_1 G_S$

where

TW_{GS} = social insurance contributions for state and local programs

G_S = state and local government purchases of goods and services

The Brookings group had originally preferred to use the wage and salary payments of state and local employees as

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[6/] W. Waldorf, op. cit., p. 95.

[7/] A. Ando, et. al., p. 560

the explanatory variable in equation (4.6), however, such a series was not available on a quarterly basis. The purchases of state and local governments were then substituted for their wage bill because it was assumed these two series had similar historical patterns. Equation (4.6) had an extremely high $\bar{R}^2$; however, there is the danger associated with this specification that the state and local wage bill series could diverge from the series on purchases of goods and services by state and local governments at a future date causing a significant forecast error.

Study

In the revised model, social insurance contributions were divided into two categories. These groups were: (1) employee-employer contributions under Federally sponsored programs; and (2) employee-employer contributions for state and local programs. A historical series on social insurance contributions was compiled from the National Income Accounts, Table 3.8, "Contributions for social insurance" for the period 1948-1969.[8/]

The employee-employer Federal social insurance contributions equation was estimated as:

$$(4.7)\quad CSSF_t = \underset{(3.99)}{34.31272} - \underset{(-6.05)}{1.17392}t + \underset{(7.55)}{0.10355}\ WB_t + \underset{(4.87)}{3.03891}\ SSR_t + \underset{(1.32)}{0.81640}\ SSB_t$$

$$\bar{R}^2 = .9946 \quad SE = 0.9062 \quad D\text{-}W = 1.15$$

[8/] Table 3.8 - Contributions for social insurance, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

where

CSSF = employee-employer contributions for social insurance under Federal programs

WB = private wage bill plus civilian government wage bill

SSR = employer-employee rate for OASDI program (Social Security rate)

SSB = maximum taxable earnings under the OASDI program (Social Security base)

The maximum taxable earnings and the employer-employee rate under the OASDI program were used in equation (4.7) to capture the effect of changes in these statutory items on OASDI contributions. These variables have normally been among the significant explanatory variables in an individual OASDI contributions equation. The relative importance of the OASDI program (approximately 67% of the employer-employee contributions for Federal social insurance funds are made under the OASDI program) justifies the inclusion of these specific OASDI variables in the total Federal contributions equation. The total wage bill was used to represent the income base for contributions to the various Federal social insurance funds. Federal social insurance contribution equations estimated for individual Federal programs normally have some measure of an income base for persons covered under the given plan. The time trend was included in equation (4.7) to represent changes in the employer-employee rates for Federal programs not explicitly taken into account in the equation.

Equation (4.7) does a remarkably good job in fitting the historical sample. There appears to be no significant loss in estimation accuracy from choosing the total Federal contri-

butions equation over a set of equations covering each Federal program separately.

The employee-employer state and local social insurance contributions equation was estimated as:

$$(4.8)\quad CSSS_t = \underset{}{-1.04275} + \underset{(1.63)}{0.01615t} + \underset{(27.49)}{0.11937}\ WBCGS_t \qquad \underset{(-2.21)}{}$$

$$\bar{R}^2 = .9981 \quad SE = 0.0807 \quad D\text{-}W = 0.68$$

where

CSSS = employee-employer contributions for social insurance under state and local programs

WBCGS = state and local government wage bill

Employer-employee social insurance contributions for the state and local retirement systems represent almost the entire amount of contributions made under all state and local programs. The state and local government wage bills represent the income base upon which retirement contributions are calculated. The time trend has been included in (4.8) to measure the effect of the secular increase in contribution rates on total contributions. With the trend term included, the coefficient of the wage bill variable has been partially corrected for these rate change effects. The high correlation between time and the state and local wage bill precluded any perfect disaggregation of these two separate effects.

Equation (4.8) does, however, have very satisfactory characteristics. The regression coefficient on the wage bill term is highly significant. The marginal significance of the time trend is obviously caused by the high degree of multicollinearity between the explanatory variables. The equation has a very high $\bar{R}^2$, with small residual errors in the fit period.

The estimation of income payments in the model requires a division of total social insurance contributions into employer contributions and employee contributions. Employer contributions for social insurance are required to derive "other" labor income (see Chapter III). Personal employee contributions for social insurance are used in the computation of personal income.

An exogenous estimate of the employer-employee split of social insurance contributions is made in the revised model. Table 4.1 shows the historical series of the ratio of employer contributions to total contributions for the period 1947-1970.

TABLE 4.1 EMPLOYER CONTRIBUTIONS/TOTAL CONTRIBUTIONS FOR SOCIAL INSURANCE

Year	Ratio	Year	Ratio	Year	Ratio	Year	Ratio	Year	Ratio
1947	.629	1952	.564	1957	.539	1962	.570	1967	.516
1948	.579	1953	.548	1958	.537	1963	.561	1968	.517
1949	.611	1954	.531	1959	.550	1964	.552	1969	.515
1950	.574	1955	.530	1960	.550	1965	.547	1970	.514
1951	.580	1956	.537	1961	.551	1966	.533		

Table 4.1 shows that the series has achieved a high degree of stability over the last 4 years. Preliminary data on 1971 indicates that the fraction has not changed its value from the previous year. Changes in the ratio normally come about because of legislative alterations in these public programs. Any future legislative changes can be taken into account when the exogenous estimate is made.

4.2 Federal, State, and Local Corporate Profits Tax

Review

The Federal corporate profits tax structure consists of a normal income tax on all corporate earnings, and a surtax on income in excess of $25,000. During the Korean War, an additional corporate tax was imposed on the business community.

In the OBE Federal tax model, the Federal corporate profits tax equation was estimated as:[9/]

$$(4.9)\quad \text{Ln}(R_{CP} + \text{ITC})_t = a_0 + (b_1 + b_2 D_{50-53})\text{Ln}\ r_{CP_t} + b_3 \text{Ln}\ CP_t$$

where

R_{CP} = corporate profits tax accruals (revenue)

ITC = investment tax credit

D_{50-53} = for the Korean War years

r_{CP} = combined corporate tax rate

CP = corporate profits before tax

Equation (4.9) proved very satisfactory in estimating Federal corporate taxes. All regression coefficients were highly significant. The $\bar{R}^2$ was approximately 0.99.

The Brookings model adopted a rather simple system to estimate Federal corporate profits tax. An average of the effective corporate profits tax rates was calculated for the period 1955-1961. The average effective tax rate was then applied to corporate profits to estimate government corporate tax revenues.

9/ W. Waldorf, op. cit., p. 45

An estimate was also made by Brookings of state corporate profits tax accruals. The state corporate profits tax function used corporate profits as a tax base, and a tax rate variable which was constructed from the tax structure of the three states accounting for 57 percent of the revenue. The relationship was specified as:[10/]

$$(4.10) \quad \text{Ln } TC_{GS} = a_0 + b_1 \text{Ln } R_{ZGS} + b_2 \text{Ln } Z_{BU}$$

where

TC_{GS} = corporate tax accruals to state and local governments

R_{ZGS} = annual state corporate profits tax rate

Z_{BU} = corporate profits before tax

The regression coefficients were all highly significant in (4.10). The $\bar{R}^2$ was approximately 0.96.

Study

In the revised model, Federal, state, and local corporate profits taxes were estimated together. The National Income Accounts were used to compile data for corporate tax equations on 38 major private industries for the period 1948-1967 (see Table A.7). Corporate profits tax liability was taken from the National Income Accounts, Table 6.14, "Federal and state corporate profits tax liability by industry."[11/]

[10/] A. Ando, et.al., op. cit., p. 557.

[11/] Table 6.14 - Federal and state corporate profits tax liability by industry, The National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

Corporate profits before tax were taken from Table 6.13, "Corporate profits before tax by industry."[12/] Corporate depreciation allowances were compiled from Table 6.18, "Corporate capital consumption allowances by industry."[13/]

The general form of the industry corporate tax liability equation is:

$$(4.11) \quad \text{Ln } CPT_t = \text{Ln } A_0 + b_1 \text{Ln } (CP + CCA)_t + b_2 t + b_3 \text{Ln } r_{CP}$$

where

CPT = corporate profits tax liability

CP = corporate profits before tax

CCA = capital consumption allowances

t = time

r_{CP} = Federal, state, and local effective corporate tax rate

Table 4.2 presents a summary of these results.

12/ Table 6.13 - Corporate profits before tax by industry, National Income and Product Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

13/ Table 6.18 - Corporate capital consumption allowance by industry, op. cit.

TABLE 4.2 CORPORATE TAX LIABILITY EQUATIONS

Sector	Ln A_0	b_1	b_2	b_3	$\bar{R}^2$	SE	D-W
Agri., Forestry, and Fishery	0.057 (0.12)	0.963 (10.14)	-0.030 (-4.19)	0.682 (2.28)	0.86	0.112	1.80
Metal Mining	2.340 (2.76)	0.625 (6.18)		1.231 (2.89)	0.76	0.211	1.54
Coal Mining	-4.000 (-6.73)	1.508 (13.30)	-0.039 (-5.29)	0.344 (0.96)	0.93	0.130	2.06
Crude Mining*		0.093					
Non Metallic Mining	-1.022 (-0.67)	1.075 (4.00)	-0.051 (-3.09)	0.457 (1.25)	0.49	0.140	2.15
Construction	-1.097 (-1.89)	1.119 (11.84)	-0.027 (-3.81)	0.684 (5.00)	0.97	0.052	1.67
Food	0.227 (0.97)	0.939 (25.53)		0.676 (7.13)	0.98	0.036	0.51
Tobacco	-0.861 (-6.82)	1.222 (46.46)		1.061 (12.24)	0.99	0.035	1.05
Textiles	-0.561 (-2.33)	1.064 (29.46)	-0.006 (-2.67)	0.770 (6.93)	0.98	0.042	1.33
Apparel	-0.475 (-3.51)	0.940 (29.06)		0.160 (1.29)	0.99	0.044	1.83
Paper	-.753 (-0.98)	1.180 (12.33)	-0.020 (-3.49)	1.224 (8.15)	0.97	0.044	1.13
Printing and Publishing	-0.189 (-0.88)	1.009 (25.28)		0.724 (5.14)	0.98	0.055	1.50
Chemicals	0.384 (2.06)	1.011 (39.29)		1.248 (14.84)	0.99	0.038	1.00
Petroleum*		0.115					
Rubber	0.827 (7.67	1.009 (59.10)		1.634 (28.15)	0.99	0.028	1.26
Leather	-2.796 (-6.76)	1.562 (24.76)	-0.020 (-2.95)	0.781 (2.66)	0.98	0.116	2.19
Lumber	-2.340 (-6.08)	1.291 (22.95)	-0.038 (-13.19)	0.517 (4.01)	0.97	0.051	1.41

TABLE 4.2 Continued

Sector	Ln A_0	b_1	b_2	b_3	$\bar{R}^2$	SE	D-W
Furniture	0.733 (3.28)	0.870 (22.83)	0.011 (4.51)	0.891 (11.91)	0.99	0.029	1.79
Stone, Clay, and Glass	-1.090 (-3.15)	1.211 (26.74)	-0.023 (-7.80)	1.101 (14.18)	0.99	0.027	1.62
Metals	-1.505 (-2.40)	1.212 (17.85)	-0.019 (-4.35)	1.073 (8.02)	0.97	0.047	1.43
Trans. Equipment and Ordnance	-0.358 (-0.79)	1.139 (20.05)	-0.011 (-1.75)	1.217 (7.25)	0.99	0.058	1.26
Non-Electrical Machinery	-0.201 (-1.38)	1.073 (53.82)		1.139 (18.79)	0.99	0.029	2.30
Electrical Machinery	0.840 (2.34)	0.974 (22.40)	0.011 (3.03)	1.423 (16.63)	0.99	0.028	2.06
Motor Vehicles	-0.652 (-3.25)	1.162 (43.01)		1.302 (13.84)	0.99	0.044	1.19
Instruments	-0.102 (-1.65)	1.079 (108.63)		1.131 (22.95)	0.99	0.022	2.59
Misc. Manufacturing	0.982 (1.55)	0.805 (7.87)	0.008 (2.29	0.719 (5.66)	0.91	0.050	0.97
Transportation	-1.288 (-1.18)	1.144 (8.93)	-0.038 (-5.41)	0.916 (4.88)	0.90	0.067	2.18
Telephone and Telegraph	-1.148 (-4.01)	1.185 (28.86)		1.175 (4.81)	0.98	0.104	0.39
Radio and T.V. Broadcasting	-1.663 (-2.95)	1.289 (12.97)	-0.027 (-1.96)	0.491 (2.15)	0.99	0.079	1.52
Utilities	-0.531 (-3.43)	1.045 (47.04)		0.913 (9.66)	0.99	0.040	1.30
Trade	1.249 (5.38)	0.829 (26.90)		0.708 (9.39)	0.98	0.031	1.27
Finance and Insurance	-3.091 (-9.26)	1.318 (28.40)		0.575 (3.40)	0.98	0.071	2.29
Real Estate	-2.394 (-0.83)	1.230 (3.02)	-0.034 (-1.45)	0.497 (3.40)	0.91	0.057	1.65

TABLE 4.2 Continued

Sector	Ln A_0	b_1	b_2	b_3	R^2	SE	D-W
Amusements	0.001 (0.00)	0.853 (5.13)	-0.009 (-1.11)	0.255 (1.04)	0.86	0.083	2.11
Misc. Prof. Svcs.	0.359 (0.52)	0.864 (5.38)	0.024 (1.38)	1.096 (4.47)	0.98	0.097	1.74
Misc. Business Services	0.254 (2.47	0.869 (47.98)		0.673 (6.40)	0.99	0.042	1.49
Hotel, Personal Services, Misc. Repairs	-0.726 (-0.70)	1.007 (5.12)	-0.030 (-2.33)	0.615 (2.47)	0.82	0.093	0.74
Automobile Repairs	0.092 (0.28)	0.584 (13.32)		0.201 (0.56)	0.93	0.148	1.23

*Sample average industry effective corporate tax rate on corporate earnings

In theory, a very simple corporate tax liability model can be specified for each industry. The model can state that industry corporate tax liabilities are equal to industry corporate profits before tax times the effective corporate tax rate in the given industry; that is,

(4.12) $CPT_i = CP_i * r_{CPi}$ for i = 1,n

There are, however, two major difficulties associated with using this technique in the "revised" model. The first problem involves industry profits. In the revised "input/output" model, corporate profits by industry are not directly estimated, but, are treated as residual factor payments. Corporate profits are basically derived by subtracting the share of labor (including proprietors' income) from the total value of Gross National Product originating in each industry. As a result, the industry profit cell contains two items: (1) corporate profits before tax; and (2) corporate capital consumption allowances. The tax model specified by equation (4.12) requires that the CCA component be taken out of the industry profit cell. It is an extremely difficult task to design a system which can supply an accurate estimate of CCA by industry. In an attempt to avoid such problems, the tax base variable used in equation (4.11) has been redefined to include the CCA item. A corresponding change must be made in the corporate tax rate parameter to redefine the rate on the basis of corporate profits plus CCA. This brings us to the second problem associated with the simple tax model specified in (4.12). It concerns the effective corporate tax rate. Although it is quite possible to calculate historical

series of effective corporate tax rates by industry, forecasting 38 exogenous industry tax rates becomes a tremendously difficult job. An aggregate effective corporate tax rate was substituted for its industry counterpart in equation (4.11).

The derivation of equation form (4.11) can be viewed as a two-stage procedure. First, equation (4.12) can be re-written in logarithmic form as:

$$(4.13) \quad \text{Ln } CPT_i = B_1 \text{Ln } CP_i + B_2 \text{Ln } r_{CPi}$$

where

$B_1 = 1.0$

$B_2 = 1.0$

Then, a relationship between the aggregate effective corporate tax rate and each industry's effective tax rate can be specified as:

$$(4.14) \quad \text{Ln } r_{CPi} = \alpha_0 + \alpha_1 \text{Ln } r_{CP} + \alpha_2 t$$

Equation (4.14) states that a 1% change in the aggregate effective tax rate will cause an α_1 % change in the given industry's effective tax rate. The trend term was included in (4.14) to capture any differences that may exist between the secular pattern of the aggregate effective tax rate and that of the industry's effective tax rate. If equation (4.14) is substituted into equation (4.13), we obtain

$$(4.15) \quad \text{Ln } CPT_i = B_2\alpha_0 + B_1 \text{Ln } CP_i + B_2\alpha_1 \text{Ln } r_{CP} + B_2\alpha_2 t$$

When the corporate profits before tax plus corporate capital consumption term is substituted for corporate profits in equation (4.15), an equation form is derived which is identical to the equation form specified in (4.11).

An analysis of Table 4.2 shows that the industry corporate tax liabilities equations have relatively excellent

characteristics. In the great majority of industries, the regression coefficients on corporate earnings and on the tax rate measure are highly significant. The coefficients on corporate earnings are generally not significantly different from their expected value of 1.0. The trend term appears in approximately half of the industry equations, indicating, for those industries, a difference between the secular trend of the industry effective tax rate and that of the aggregate effective tax rate. The $\bar{R}^2$ is extremely high for almost all of these functions. The only industries which caused any significant problem were the crude mining and petroleum refining industries. For these industry groups, an average industry effective tax rate was computed from the regression sample. A simple identity has been specified for these industries in which industry corporate tax liabilities are equal to industry corporate earnings times the industry effective tax rate.

4.3 Personal Tax and Non-tax Payments

Review

Federal personal tax and non-tax receipts include (1) personal income taxes, (2) estate and gift taxes, and (3) personal non-taxes.

In the Brookings model, Federal personal tax receipts were divided into three portions: (1) Federal withholding payments, (2) quarterly installments on tax liabilities, and (3) final payments and refunds. Equations were formulated for each of these tax payment groups. After these individual tax functions were aggregated together, an equation was derived for total tax

payments. The resulting equation was hopelessly non-linear but a linear approximation was applied to it. After some independent variables were eliminated from the function for multicollinearity reasons, and first differences were taken to correct for auto-correlation, the following equation was finally estimated:[14/]

$$(4.16)\quad \Delta TP = \alpha_1 \Delta\left[(R_{PY})(WS)\right] + \alpha_2\left[(Y_P - V - Y_{OL})(R_{PY}) - (Y_P - V - Y_{OL})_{-1}(R_{PY})_{-1}\right] + \alpha_3 DMY2 + \alpha_4 DMY3 + \alpha_5 \Delta K_{GAIN}$$

where

TP	= personal tax and non-tax payments
R_{PY}	= initial Federal tax rate
Y_P	= personal income
V	= transfer payments
Y_{OL}	= other labor income
DMY2	= dummy variable for 1st quarter of 1949
DMY3	= dummy variable for 1st quarter of 1951
R_{GAIN}	= realized capital gains
WS	= wages and salaries

The Brookings group also estimated state and local personal tax and non-tax receipts using essentially the same variables as the Federal income tax function. A proxy rate variable was constructed using tax rates of the states which had the five largest income tax revenues in 1962. The personal tax liability function was estimated as:[15/]

$$(4.17)\quad \text{Ln } TP_{YGS} = \alpha_0 + \alpha_1 \text{Ln } (R_{PYGS})_{-1} + \alpha_2 \text{Ln } (Y_P - V - Y_{OL})_{-1}$$

[14/] A. Ando, et. al., op. cit., p. 541

[15/] Ibid., p. 555

where

TP_{YGS} = personal income tax receipts of state and local government

R_{PYGS} = state government tax rate

Other state and local personal tax and non-tax payments were estimated by:[16/]

(4.18) $TP = \alpha_0 + \alpha_1 Y_D$

where

TP_{PPS} = State and local other personal tax and non-tax payments

Y_D = disposable income

The OBE tax model approached the problem of estimating personal tax payments in a slightly different manner. The first step in their procedure was to relate taxable income to adjusted gross income (AGI). For taxable individuals, the relationship between taxable income and AGI is the simple accounting identity:

(4.19) $Y_{TI} = AGI - E - D$

where

Y_{TI} = taxable income

E = personal exemptions

D = personal deductions

An aggregate relationship is not as simple as that specified in (4.19), however, since some people's personal deductions and exemptions exceed their adjusted gross income. An approximate

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16/ Ibid., p. 556

relationship between AGI and taxable income was established with the aid of the following equation.[17/]

(4.20) $\text{Ln}\ (1 - (Y_{TI}/Y_{AGI})) = \alpha_0 + \alpha_1 \text{Ln}(Y_{AGI}/N) + \alpha_2 \text{Ln}(E/N)$

where

N = total population

Equation (4.20) estimates the percentage of adjusted gross income which is non-taxable. When this percentage is applied to the total amount of adjusted gross income, the OBE model predicts the level of taxable income. After the amount of taxable income is computed, the personal tax liabilities are estimated by:[18/]

(4.21) $\text{Ln}\ L = \alpha_0 + \alpha_1 \text{Ln}\ r + \alpha_2 \text{Ln}\ Y_{TI} + \alpha_3 D_{47} + \alpha_4 D_{50} + \alpha_5 D_{51} + \alpha_6 D_{52-53} + \alpha_7 D_{54-63}$

where

L = personal income tax liabilities

r = initial tax rate

$D_{47}, D_{50}, D_{51}, D_{52-53}, D_{54-63}$ = dummy variables to adjust for changes in the tax schedule.

Other personal tax and non-tax payments were estimated by:

(4.22) $\text{Ln}\ R_{EGN} = \alpha_1 + \alpha_2 \text{Ln}\ Y_{PI}$

where

R_{EGN} = estate and gift taxes and personal non-taxes (revenue)

Y_{PI} = personal income

17/ W. Waldorf, op. cit., p. 26

18/ Ibid., p. 31

While there are certain differences between the techniques used by OBE and Brookings to estimate personal income tax liabilities, there is, however, one major similarity. Each model attempted to define an appropriate taxable income base and to establish a personal tax rate measure to serve as a proxy for the entire tax rate structure. The initial rate in the personal tax schedule was chosen by both models as the appropriate measure of the entire personal tax rate structure. The taxable income base and the personal tax rate measure were then combined in a stochastic equation to estimate personal income tax liabilities. A study of such an approach yields some interesting analysis. The tax model specified above makes no allowance for changes in the overall effective tax rate caused by changes in the distribution of personal income. These changes in the overall effective tax rate would occur because of the differences that exist in the effective personal tax rates by income size-class. Shifts in the income distribution of personal income would, therefore, cause changes in the relationship between the overall effective personal tax rate and the single personal tax rate measure used in these tax equations. Such changes would most probably cause an increase in the forecasting error made by these functions. Another aspect of the problem deals with the inability of such a tax model to incorporate into its structure the features of new government legislation which would change the effective personal tax rates by income size-class disproportionately. The possibility of a new Federal tax reform act could present such a situation. The kinds of measures being proposed in the tax reform area deal with the elimination of certain inequalities in our present tax

structure. Such measures would more than likely have the net effect of raising the effective tax rates for the upper income groups, while causing little or no change in the effective tax rates for the lower income groups. If such legislation is enacted at a future date, the basic relationship between the overall effective personal tax rate and the single tax rate measure would be altered in a manner which could result in a significant increase in the forecast errors of such tax equations. It would then appear that a significant gain in forecast accuracy might be realized in the estimation of personal income tax liabilities by a tax model in which these tax liabilities were predicted by using an estimate of the effective personal tax rates by income size-class in conjunction with the size distribution of personal income. Such a model could automatically take into account the impact of changes in the distribution of personal income or changes in the effective tax rates for certain income groups on the determination of personal income taxes. In theory, this technique should also be extended to include "other" personal tax and non-tax payments. However, when the magnitude of these "other" personal tax and non-tax payments are studied, the conclusion can be reached that these payments form a rather insignificant portion of total personal tax payments. Such tax payments can, therefore, be estimated by the more conventional approach (using an approximate tax specification) without any major impact on the forecast accuracy of total personal tax payments in the model.

Study

In the revised model, Federal personal income tax liabilities are estimated using the income distributions generated for the taxable components of personal income. These components consist of: (1) wage and salary payments; (2) proprietors' income; (3) rental income; (4) corporate dividend payments; and (5) personal interest income. The income distributions are used to compute the amount of income flowing into each of the 11 income size-groups used in the model from the 5 major categories of personal income (taxable) payments. The estimates of rental income and personal interest income are modified by the model to exclude the imputations. The income distributions of these payments are then used to distribute only the "real" rent and interest payments paid to the personal sector.

Effective personal income tax rates were computed for each income size-group using IRS data.[19/] These rates were computed by taking the ratio of tax liabilities to total personal income in each size-group . Table 4.3 presents a summary of these calculations for the period 1965-1969.

19/ Statistics of Income - Individual Income Tax Returns, Department of the Treasury, Internal Revenue Service, Washington, Annual, 1965-1969.

TABLE 4.3 PERSONAL FEDERAL INCOME TAX RATES BY ADJUSTED GROSS INCOME SIZE CLASSES

Income Size-Group	1965	1966	1967	1968	1969
0-999	.002	.002	.002	.003	.003
1000-1999	.031	.032	.033	.034	.036
2000-2999	.050	.054	.054	.059	.060
3000-3999	.064	.066	.069	.076	.076
4000-4999	.072	.076	.078	.085	.087
5000-5999	.080	.082	.085	.093	.096
6000-6999	.085	.088	.090	.098	.103
7000-7999	.090	.092	.093	.104	.108
8000-9999	.099	.100	.101	.110	.115
10000-14999	.117	.117	.118	.127	.130
15000-Over	.208	.205	.205	.215	.210

The upward shift in the effective tax rates during 1968-1969 reflects the imposition of the personal income surtax. Exogenous estimates of these tax rates were made for the forecast period.

State and local personal income tax liabilities were handled in a similar manner. An effective tax rate was computed from the National Income Accounts by taking the ratio of state and local income tax payments[20/] to the total of the taxable components of personal income.[21/] Table 4.4 shows an historical series of these effective tax rates for the period 1960-1970.

20/ Table 3.3 - State and local government receipts and expenditures, The National Income and Products Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1971.

21/ Table 2.1 - Personal income and its disposition, op. cit., August 1966, July 1967-1971

TABLE 4.4 STATE AND LOCAL EFFECTIVE PERSONAL INCOME TAX RATES

Year	Rate	Year	Rate	Year	Rate	Year	Rate
1960	.007	1963	.008	1966	.010	1969	.015
1961	.007	1964	.009	1967	.008	1970	.015
1962	.008	1965	.009	1968	.013		

An exogenous estimate of the effective state and local personal income tax rate series was made for the forecast period.

"Other" Federal personal tax and non-tax payments were aggregated into one item. These Federal receipts represent personal payments for: (1) estate and gift taxes; and (2) miscellaneous non-tax fees. The equation for these payments was estimated as:

$$(4.23) \quad OT_F = \underset{(-4.81)}{-0.52542} + \underset{(23.92)}{0.00574}\, Y_{PI}$$

$$\bar{R}^2 = 0.9629 \quad SE = 0.1951 \quad D\text{-}W = 0.50$$

where

Y_{PI} = personal income

OT_F = "other" Federal personal taxes and nontaxes

"Other" state and local personal tax and non-tax payments were also aggregated together. These receipts represent personal payments for: (1) death and gift taxes; (2) motor vehicle licenses; (3) personal property taxes; (4) other miscellaneous taxes; and (5) non-tax fees. The equation for these payments were estimated as:

$$(4.24)\quad OT_{SL} = \underset{}{-2.86295} + \underset{(59.21)}{0.01895}\ Y_{PI}$$
$$\qquad\qquad\qquad\quad (-19.66)$$

$$\bar{R}^2 = 0.9938 \quad SE = 0.2603 \quad D\text{-}W = 0.42$$

where

OT_{SL} = "other" state and local personal tax and nontax payments

Federal, state and local "other" tax and non-tax payments can be viewed as items analogous to consumer expenditures. Personal income was chosen as a proxy for the income base of these various tax programs. It was impossible to define a meaningful tax rate measure. The explanatory variable was highly significant in both equations (4.23) and (4.24). The $\bar{R}^2$ proved very satisfactory in each equation. It must be emphasized, however, that the income elasticity is somewhat overstated in these equations because of the absence of the tax rate measure. In general, these tax equations can be judged as adequate for estimating these miscellaneous tax payments.

Chapter V

Model Forecast

Chapter V presents a description of the wage and price sectors of the model, a specification of the exogenous assumptions underlying the test forecast, an explanation of certain forecast adjustments, a test forecast, and an error analysis of the forecast.

5.1 Wage/Price Sectors

The actual operation of the income determination model within the framework of the Maryland Interindustry Forecasting Model calls for the development of industry wage and price equations. Since these topics form the subject matter of two separate doctoral research projects, my thesis has carefully excluded any extensive work in these areas. It became necessary, however, to devise some alternative to these equations in order to generate an actual forecast of the income model.

An average wage and salary equation was needed for each of the 54 civilian sectors in the model to derive an estimate of industry wage and salary payments. Average wage and salary data by industry was developed from the National Income Accounts. Table 6.3, "Average number of full-time and part-time employees by industry" furnished an estimate of the total number of paid employees by industry.[1/] Table 6.2, "Wages and salaries by

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[1/] Table 6.3 - Average number of full-time and part-time employees by industry, The National Income and Products Accounts of the U.S., Survey of Current Business, U. S. Department of Commerce, August 1966, July 1967-1970.

(2)

industry" provided an estimate of total wage and salary payments by industry.[2/]

Log-linear trend equations were estimated for 39 major industrial sectors. The basic form of the average wage and salary equation is:

$$(5.1)\quad \ln(W\&S/EMP) = a+b\ t$$

where W&S = Wages and Salaries by industry

EMP = number of full-time and part-time Employees by industry

t = Time

Table 5.1 presents the results of fitting these functions for the period 1948-1969.

[2/] Table 6.2 - Wages and salaries by industry. The National Income and Products Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August 1966, July 1967-1970.

(3)

Table 5.1 Average Wage and Salary Payments

Sector	a	b	$\bar{R}^2$	SE	D-W
Metal Mining	8.150 (317.68)	0.042 (19.71)	0.95	0.055	0.55
Coal Mining	8.020 (315.24)	0.042 (19.90)	0.95	0.055	1.58
Crude Mining	8.174 (915.09)	0.039 (52.03)	0.99	0.19	0.54
Nonmetallic Mining	7.996 (513.37)	0.044 (34.15)	0.98	0.034	0.33
Construction	8.032 (632.53)	0.044 (41.03)	0.99	0.027	0.55
Food	7.947 (725.49)	0.041 (45.23)	0.99	0.024	0.24
Tobacco	7.618 (472.51)	0.050 (37.04)	0.99	0.035	0.27
Textiles	7.799 (644.03)	0.033 (33.14)	0.98	0.026	0.89
Apparel	7.736 (1103.61)	0.030 (50.46)	0.99	0.015	1.53
Paper	8.057 (665.85)	0.043 (42.10)	0.99	0.026	0.39
Printing and Publishing	8.155 (971.96)	0.036 (50.84)	0.99	0.018	0.22
Chemicals	8.145 (517.07)	0.045 (34.52)	0.98	0.034	0.15
Petroleum	8.309 (729.94)	0.041 (43.06)	0.99	0.025	0.46
Rubber	8.072 (417.47)	0.039 (24.02)	0.97	0.042	0.37
Leather	7.762 (802.69)	0.033 (41.17)	0.99	0.021	0.98
Lumber	7.709 (599.79)	0.042 (39.13)	0.99	0.028	0.57

(4)

Table 5.1 Continued

Sector	a	b	$\bar{R}^2$	SE	D-W
Furniture	7.938 (627.19)	0.034 (32.35)	0.98	0.027	0.32
Stone, Clay, and Glass	7.990 (512.56)	0.043 (33.42)	0.98	0.034	0.36
Primary Metals	8.141 (373.99)	0.045 (24.94)	0.97	0.047	0.55
Fabricated Metals	8.104 (483.28)	0.040 (28.77)	0.98	0.036	0.28
Machinery (exc. Elec.)	8.154 (486.00)	0.042 (30.11)	0.98	0.036	0.54
Electrical Machinery	8.049 (532.54)	0.043 (34.28)	0.98	0.033	0.31
Trans. Equip. & Ordnance	8.139 (548.12)	0.048 (39.04)	0.99	0.032	0.61
Motor Vehicles	8.172 (406.88)	0.047 (27.98)	0.98	0.043	0.45
Instruments	8.076 (493.69)	0.045 (32.85)	0.98	0.035	0.25
Misc. Manufacturing	7.917 (967.74)	0.036 (53.38)	0.99	0.018	0.61
Transportation	8.082 (852.23)	0.042 (53.04)	0.99	0.020	0.47
Telephone & Telegraph	7.896 (914.45)	0.049 (67.30)	1.00	0.019	0.45
Broadcasting	8.300 (408.78)	0.039 (22.78)	0.96	0.044	0.20
Utilities	8.060 (685.93)	0.048 (48.53)	0.99	0.025	0.22
Trade	7.822 (1692.81)	0.035 (90.99)	1.00	0.010	0.47
Finance, Insurance & Real Estate	7.898 (1360.45)	0.041 (84.65)	1.00	0.013	0.56

(5)

Table 5.1 Continued

Sector	a	b	$\bar{R}^2$	SE	D-W
Services	7.488 (929.61)	0.040 (59.33)	0.99	0.017	0.80
Agriculture, Forestry & Fisheries	7.057 (237.15)	00.029 (11.81)	0.88	0.064	0.35
Federal Government	7.913 (638.36)	0.040 (38.84)	0.99	0.027	1.03
Federal Enterprises	7.952 (689.69)	0.041 (42.29)	0.99	0.025	1.16
State and Local Govt.	7.673 (877.69	0.046 (63.20)	1.00	0.019	0.61
State & Local Enterprises	7.957 (378.46)	0.035 (19.77)	0.95	0.045	0.40
Domestic Households	7.027 (217.81)	0.020 (8.16)	0.76	0.073	0.38

An examination of the results reported in Table 5.1 indicates the existence of a strong positive trend in average wage and salary payments by industry. Caution must be used, however, in evaluating the high quality of these regression fits. Equation form (5.1) uses the trend term to capture the net effect of changes in several key economic variables that impact the determination of industry wage rates. An objective evaluation of these functions leads, in my opinion, to the conclusion that they can be judged useful ~~and adequate only~~ when viewed as an interim tool. More realistic wage and salary functions are needed for the model in order to significantly lower the forecast error associated with the total wage and salary projections.

An estimate of the average wage and salary payment for each of the 54 civilian industry sectors is derived from one of the 39 major industry functions. Each equation may be used several times in the model, depending on the relationship which exists between the 54 civilian sectors and the 38 major industry groups. For example, the average wage and salary equation for the Service industry is used to estimate the wage rate in sectors 46, 47, and 48. Finally, the Federal defense industry is handled by an exogenous projection of average military wage and salary payments (see Section 5.2, Exogenous Data).

The other aspect of the income model which is currently non-operational is the price sector. The Maryland Forecasting Group intends to make use of industry prices in the estimation of corporate profits by industry. Profits are to be treated

(7)

as a residual element. They will be computed as the difference between the current dollar value of industry production and the current dollar industry wage bill, cost of materials, and other miscellaneous factor payments.

In the absence of a price system, an alternate method has been developed to handle the forecast of industry corporate profits. Industry profits have been defined to include corporate capital consumption allowances. Historical series were computed for industry corporate profit margins (corporate profits before taxes plus corporate capital consumption allowances per 1958 dollar value of shipments). Corporate profits before taxes and corporate capital consumption allowances were taken from the National Income Accounts, Tables 6.13 and 6.18, respectively.[3/] Constant dollar ($1958) industry shipments were taken from the Annual Survey of Manufacturers[4/] and from miscellaneous other sources covering the non-manufacturing sectors.

3/ Table 6.13 - Corporate profits before tax by industry, The National Income and Products Accounts of the U.S., Survey of Current Business, U.S. Department of Commerce, August, 1966, July 1967-1969.

4/ U.S. Department of Commerce, Annual Survey of Manufacturers, Washington, annually.

Log-linear trend equations were estimated for 38 industry groups. The basic form of the profit margin equation is:

$$(5.2)\quad \ln\left(\frac{CPBT+CCA}{SHIP^{\$58}}\right) = a+b\,t$$

where

CPBT = Corporate Profits Before Taxes

CCA = Corporate Capital Consumption Allowances

$SHIP^{\$58}$ = constant dollar ($1958) industry Shipments

Table 5.2 contains a summary of these equations fit over the period 1949-1967.

Table 5.2 Corporate Profit Margins

Sector	a	b	$\bar{R}^2$	SE	D-W
Agriculture, Forestry, and Fishery	-5.874 (-44.04)	0.047 (4.01)	0.46	0.279	0.59
Metal Mining	-1.601 (-7.33)	-0.045 (-2.34)	0.20	0.457	1.48
Coal Mining	-2.667 (-33.43)	0.023 (3.25)	0.35	0.167	1.04
Crude Mining	-1.951 (-39.62)	-0.024 (-5.67)	0.63	0.103	1.12
Nonmetallic Mining	-1.850				
Construction	-4.508 (-63.36)	0.052 (8.38)	0.79	0.149	0.56
Food	-3.267 (-111.38)	0.024 (9.48)	0.83	0.061	1.54
Tobacco	-2.984 (-66.76)	0.048 (12.32)	0.89	0.094	0.51
Textiles	-2.620				
Apparel	-4.186 (-49.54)	0.046 (6.23)	0.68	0.177	0.98
Paper	-2.220				
Printing and Publishing	-2.773 (-66.98)	0.034 (9.47)	0.83	0.087	1.61
Chemicals	-1.760				
Petroleum	-1.425 (-38.03)	0.008 (2.41)	0.21	0.079	1.08
Rubber	-2.480				
Leather	-3.477 (-16.43)	0.063 (3.37)	0.37	0.443	2.52
Lumber	-2.600				
Furniture	-2.918 (-42.68)	0.015 (2.43)	0.21	0.143	1.01
Stone, Clay, and Glass	-2.071 (-35.86)	0.007 (1.45)	0.06	0.121	0.73

(1C)

Table 5.2 Continued

Sector	a	b	$\bar{R}^2$	SE	D-W
Metals	-2.490 (49.03)	0.017 (3.85)	0.43	0.106	1.22
Trans. Equip. & Ordnance	-3.192 (-36.64)	0.026 (3.41)	0.37	0.182	1.07
Nonelectrical Machinery	-2.320 (-62.67)	0.016 (4.92)	0.56	0.078	1.57
Electrical Machinery	-2.500				
Motor Vehicles	-2.317 (-56.21)	0.016 (11.94)	0.25	0.148	1.88
Misc. Manufacturing	-2.286 (-42.70)	-0.011 (-2.34)	0.20	0.112	1.53
Transportation	-2.385 (-54.02)	0.008 (1.94)	0.13	0.092	1.15
Telephone & Telegraph	-1.578 (-38.74)	0.035 (9.79)	0.84	0.085	1.05
Radio & TV Broadcasting	-2.112 (-43.67)	0.039 (9.15)	0.82	0.101	1.82
Utilities	-1.314 (-55.42)	0.003 (1.44)	0.06	0.050	0.39
Trade	-2.611 (-46.16)	0.009 (1.72)	0.10	0.118	1.07
Finance & Insurance	-1.743 (-54.68)	0.037 (13.35)	0.91	0.067	0.76
Real Estate	-3.347 (-216.54)	0.005 (3.73)	0.52	0.032	1.20
Amusements	-3.285 (-71.73)	0.047 (11.65)	0.88	0.096	1.59
Misc. Prof. Services	-5.390 (-81.59)	0.060 (10.40)	0.86	0.138	1.03
Misc. Business Services	-4.007 (-90.04)	0.061 (15.64)	0.93	0.093	0.57
Hotel, Pers. Services, Misc. Repairs	-3.588 (-84.07)	0.045 (11.97)	0.89	0.089	0.47
Automobile Repairs	-4.463 (-52.52)	0.100 (13.42)	0.91	0.178	0.28

Table 5.2 Continued

Sector	a	b	$\bar{R}^2$	SE	D-W
Instruments	-2.369 (-56.21)	0.044 (11.94)	0.89	0.088	1.36

Table 5.2 shows mixed results. The profit margin series in some industries exhibit a strong trend component, while, in other industries, there appears little or no significant trend. In industries where the trend term was not statistically significant, the industry profit margin projection was equated with its average value over the sample period.

Equations (5.2) establish the link which is necessary to relate industry production with industry corporate profits. There remained, however, one minor problem. The Maryland model forecasts industry production by product group in constant 1969 dollars, while the profit margin equations use industry production by establishment group in constant 1958 dollars. A ratio of the two shipment series was computed for each industry in 1969. The ratio was then used in the forecast period to transform the product projections made by the "original" model into establishment projections used by the income model.

5.2 Exogenous Data

Assumptions have been made for the following variables in the model: (1) average military wage and salary payments (AMWSP); (2) unpaid family farm workers (UNFYWS); (3) effective corporate income tax rate (TAXRTE); (4) GNP deflator (PGNP); (5) federal government surplus or deficit (GTDS); (6) maximum primary insurance allowance under OASDI (MPI); (7) number of males-females 62 years old or more (N62); (8) OASDI coverage (COVERG); (9) total personal consumption deflator (PTC), (10) social insurance employee-employer tax rate (SSR); (11) social insurance maximum taxable earnings (SSB); (12) corporate capital consumption allowances for the amusement industry

(CCA); (13) consumer debt outstanding (CDBT); (14) "other" federal transfers (OFTR); (15) state and local direct relief and "other" transfers (OSLTR); (16) state and local personal income tax rate (TRATSL); (17) federal personal income tax rate by income class (FXTRTE); (18) distribution of total personal dividend payments by income class (DIVDST); (19) distribution of total personal interest payments by income class (INTDST); (20) distribution of personal rental income by income class (RNTDST); and (21) employee-employer split of social insurance contributions (SS).

Table 5.2a presents a listing of the exogenous forecasts in the model.

(14)

Table 5.2a MODEL ASSUMPTIONS

YEAR	AMNSP (DOLLAR)	UNEMWS (THOU.)	TAXTRTE	PGNP	GTDS (BIL $)	MPI (DOLLAR	N62+ (MIL)	COVERG	TRATSL
1969	5426.	480.	0.309	1.00	8.125	218.0	24.370	0.96	0.015
1970	6136.	500.	0.298	1.09	-12.900	250.7	25.161	0.96	0.015
1971	6876.	500.	0.289	1.10	-21.700	275.8	25.965	0.96	0.017
1972	8416.	500.	0.285	1.14	-19.000	294.3	25.975	0.96	0.017
1973	9254.	500.	0.287	1.18	-24.000	333.4	26.393	0.96	0.018
1974	9800.	500.	0.312	1.22	-19.000	353.4	26.819	0.96	0.019
1975	10350.	500.	0.314	1.26	-12.000	371.1	27.249	0.96	0.020
1976	10900.	500.	0.316	1.29	-10.000	389.6	27.679	0.96	0.021
1977	11495.	500.	0.317	1.33	0.0	409.1	28.106	0.96	0.022
1978	12100.	500.	0.318	1.37	6.000	429.6	28.527	0.96	0.023
1979	12750.	500.	0.318	1.41	8.000	451.1	28.940	0.96	0.023
1980	13420.	500.	0.319	1.46	15.000	473.7	29.357	0.96	0.024

YEAR	PTC	SSR (PERCENT)	SSR (DOLLAR)	CCA (MIL $)	CCBT (BIL $)	CFTR (BIL $)	CSLTR (BIL $)	SS
1969	1.235	9.60C	7800.0	500.00	356.893	21.8	7.8	C.514
1970	1.293	9.60C	7800.0	535.00	377.747	25.8	9.8	0.514
1971	1.342	10.40C	7800.0	572.00	406.746	30.1	11.7	C.514
1972	1.374	10.40C	9000.0	611.00	450.000	33.1	13.1	0.514
1973	1.416	11.70C	10800.0	655.00	500.000	36.4	14.5	0.514
1974	1.457	11.70C	12000.0	701.00	550.000	39.3	15.9	0.514
1975	1.494	12.10C	12600.0	750.00	600.000	42.4	17.5	0.514
1976	1.529	12.10C	13200.0	803.00	650.000	45.8	18.9	C.514
1977	1.565	13.00C	14000.0	859.00	700.000	48.6	19.8	C.514
1978	1.607	13.00C	14400.0	919.00	750.000	51.5	20.8	C.514
1979	1.650	13.00C	16000.0	983.00	800.000	54.6	21.7	C.514
1980	1.694	13.00C	17000.0	1052.00	875.000	57.8	22.5	C.514

INCOME CLASS	PERSONAL TAX RATE (EXTRTE) 1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1	C.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2	0.036	0.021	0.033	0.033	0.033	0.033	0.035	0.035	0.035	0.035	0.035	0.035
3	C.060	C.059	0.054	0.054	0.054	0.054	0.057	0.057	0.057	0.057	0.057	0.057
4	0.076	0.081	0.070	0.070	0.070	C.070	0.073	0.073	0.073	0.073	0.073	0.073
5	0.087	0.088	0.080	0.080	0.080	0.080	0.084	0.084	0.084	0.084	0.084	0.084
6	0.096	0.093	0.085	0.085	0.085	0.085	0.089	0.089	0.089	0.089	0.089	0.089
7	0.103	C.098	0.090	0.090	0.090	0.090	0.095	0.095	0.095	0.095	0.095	0.095
8	0.108	0.102	0.090	0.090	0.090	0.090	0.095	0.095	0.095	0.095	0.095	0.095
9	0.115	0.107	0.100	0.100	0.100	0.100	0.110	0.110	0.110	0.110	0.110	0.110
10	C.130	0.120	0.120	0.120	0.120	0.120	0.130	0.130	0.130	0.130	0.130	0.130
11	C.210	0.188	0.200	0.200	0.200	0.200	0.220	0.220	0.220	0.220	0.220	0.220

INCOME CLASS	DIVDST	INTDST	RNTDST
1	C.010	0.020	0.030
2	0.010	0.050	0.050
3	C.020	0.060	0.050
4	C.020	0.060	0.050
5	0.020	0.050	0.050
6	0.020	0.050	0.050
7	C.020	0.040	0.040
8	C.020	0.050	0.050
9	C.040	C.090	0.080
10	C.090	C.170	0.150
11	0.730	0.360	0.400

The model assumptions can be summarized as follows:

(1) Military pay scales will continue its high growth in 1973. A growth rate of 5-1/2%-6% will be maintained over the remaining years in the forecast period.

(2) Unpaid family workers in agriculture will remain at 500,000 per year.

(3) There will be an increase in Federal corporate income tax rates in 1974.

(4) The GNP deflator will grow at approximately 3% per year.

(5) The Federal government will continue to register budget deficits until 1976.

(6) Social security benefits (maximum primary insurance allowances) will rise 13.3% in 1973. These benefit increases will average 5% per year over the remainder of the forecast.

(7) The number of people 62 years old or more will grow 1.5-1.6% per year.

(8) The percentage of older people who are eligible for OASDI benefits will remain at 96%.

(9) The total personal consumption deflator will grow at a rate slightly less than 3.0% per year.

(10) The combined social security tax rate, after rising from 10.4% to 11.7% in 1973, will advance to 12.1 in 1975 and 13.0% in 1977. The taxable income base, after rising from $9,000 to $10,800 in 1973 and $12,000 in 1974, will continue gradually upward, reaching $17,000 in 1980.

(11) Corporate capital consumption allowances in the amusement industry will rise approximately 7% per year.

(12) Consumer debt outstanding will increase by approximately $50 billion per year until 1979, thereafter by $75 billion per year.

(13) There will be no basic changes in state and local personal income tax rates.

(14) The income distributions of personal dividend payments, personal interest payments, and personal rental income will remain stable.

(15) There will be an increase in Federal personal income tax rates in 1975. The effective tax rates will increase approximately 5% for adjusted gross incomes $8000 or less, and 10% for adjusted gross incomes in excess of $8000.

(16) The employer share of the combined employee-employer contributions for social insurance will remain at 51.4%.

(17) "Other" Federal transfer payments will show a decline in its growth rate from 10% in 1973 to 6% in 1980.

(18) State and local direct relief and "other" transfer payments will register a decline in its growth rate from 10% in 1973 to 4% in 1980.

5.3 Forecast Adjustments

Adjustments had to be made to certain projections in the income model. Two of these adjustments were caused by differences in the definition of income used in the National Income Accounts and by the Internal Revenue Service. There were significant differences in the historical series of personal interest income and personal rental income as reported by each of these government agencies. The major reason for such discrepancies apparently resides in the inclusion of certain imputations in the National Income Accounts. A separate factor was developed for each account to transform its projection from an NIA basis to an IRS basis. The conversion was necessary because personal taxable income is computed in the model on an IRS basis for purposes of estimating personal income tax liabilities.

An adjustment factor also had to be applied to the projections of average wage and salary payments by industry. The trend equations which are used to project industry wage rates were producing relatively low forecasts. The aggregate wage rate showed an annual growth rate of approximately 4% over the forecast period. Such results are not surprising, however, since the aggregate wage rate has grown historically at about that same rate. The wage rate functions, therefore, miss the abnormally high rates of growth that have occurred over the last few years. In addition, they will probably tend to slightly understate the growth in wage rates over the latter half of the 1970's. An aggregate wage rate factor was computed for each year to supply a general uplift to the projections of industry

(18)

wage rates. The growth in the aggregate wage rate was assumed to be 6.4% in 1972, 5.6% in 1973, and 4.5% thereafter. The change in the long-run growth rate from 4.0% to 4.5% seems consistent with the anticipated above-average growth in the cost-of-living index combined with the return to lower levels of unemployment.

5.4 Forecast

A forecast was generated by the "revised" model to test the solution technique. In the original model design, an automatic iterative mechanism was envisioned to attain equality between personal disposable income ($58) per capita assumed in the demand side of the I/O model and personal disposable income ($58) per capital generated by the production side of the same model. In the actual forecast presented in this paper, a manual iterative technique was used instead. The entire model is executed one iteration at a time. Each iteration supplies an estimate of personal disposable income ($58) per capita for each of the forecast years in a manner which is totally consistent with the productive activity needed to satisfy intermediate and final demands for goods and services as computed by the I/O model. These new estimates of personal disposable income per capita are then used to determine final demand in the next iteration of the model. The procedure continues until the difference between "assumed" and "generated" income for each forecast period falls within an acceptable tolerance. The tolerance set for this forecast permits a maximum change of 0.5 percent.

Table 5.3 presents the results of this test forecast for the period 1969-1980. There are four pages for each forecast year. The first two pages of each year contain a summary of the demand solution to the original Maryland Model. Page three shows the forecast for certain income flows calculated on an industry basis by the "income" model. The fourth page contains an aggregate summary of the income projections for the various accounts which are used in the determination of total personal disposable income.

Table 5.3 MODEL FORECAST

1969

CONSUMER PURCHASES BY INDUSTRY			DISPCSABLE PERCAPITA INCOME (58$) 2535.0				POPULATION 202.6				
1	181.4	1875.6	0.0	0.0	1.0	0.0	3934.1	706.9	0.0	24.3	10
11	0.0	C.0	0.0	147.7	0.0	207.8	23.9	0.0	0.0	0.0	20
21	421.0	322.0	20590.C	10C87.0	8485.0	2531.0	6827.0	1095.0	2599.0	9567.0	30
31	3971.0	989.0	4683.0	6739.0	1211.0	1835.0	147.0	2877.0	18006.0	2354.0	40
41	171.0	0.0	310.0	0.0	4753.0	211.0	36.0	44.0	1967.C	0.0	50
51	107.0	1787.0	2221.0	733.0	165.0	0.0	0.0	0.0	43.0	8.C	60
61	339.0	20.0	0.0	0.0	0.0	3364.C	5779.0	28.0	11993.0	0.0	70
71	0.0	1C81.0	1206.0	521.0	0.0	2951.0	1352.0	384.0	0.0	177.0	80
81	5.0	108.0	13.0	0.0	0.0	0.0	16.0	0.0	0.0	4.0	90
91	0.0	0.0	0.0	71.0	34.0	37.0	374.0	696.0	86.0	0.0	100
101	152.0	215.0	527.C	0.C	0.0	47.0	0.0	107.0	30.0	0.0	110
111	0.0	0.0	C.C	0.0	167.0	733.0	4.0	0.0	14.0	22.0	120
121	0.0	1.0	4575.C	605.0	4277.0	443.0	134.0	235.C	364.0	127.0	130
131	79.0	0.0	23430.C	298.0	0.0	0.0	457.0	C.0	507.0	1841.C	140
141	0.0	22.0	487.0	243.0	794.0	496.C	1894.0	2659.0	244.0	713.C	150
151	326.0	2598.0	671.0	35.0	2172.0	20.0	0.0	9122.0	0.0	8905.0	160
161	4629.0	1819.0	31686.9	90045.2	18476.C	13082.0	57130.0	23867.0	4059.0	13927.0	170
171	4573.0	102.0	7864.0	2450.0	31546.0	2818.0	1451.0	0.0	868.0	0.0	180
181	98.C	0.0	0.C	0.0	0.0	C.0					
EQUIPMENT INVESTMENT BY PURCHASING SECTOR.											
1	4694.0	1147.9	781.3	2690.0	117.5	161.7	135.6	194.4	145.9	149.7	10
11	55.5	57.7	293.3	149.8	45.5	353.0	66.3	64.1	142.2	143.4	20
21	61.7	297.6	163.5	8.0	118.5	0.0	947.1	2076.5	165.4	459.9	30
31	911.0	86.1	95.2	599.7	150.8	83.1	44.9	523.0	285.8	98.5	40
41	325.1	12.7	33.6	219.6	500.3	1577.1	618.6	128.4	32.6	168.2	50
51	262.0	312.1	170.3	82.9	190.7	229.6	102.3	201.0	113.6	268.3	60
61	91.2	95.2	149.9	122.6	111.3	47.5	321.3	326.0	77.6	1156.5	70
71	592.0	54.8	68.0	28.7	15.5	45.8	41.3	168.7	169.0	1377.0	80
81	713.1	561.9	2500.C	7829.9	6138.0	8860.7	4096.0	786.0	2581.0	1806.C	90
CONSTRUCTION BY TYPE											
1	24279.3	5546.6	1460.7	6480.2	5575.1	4560.2	947.4	906.0	2252.0	1416.5	10
11	791.9	2120.5	398.1	2172.6	4714.6	1725.3	744.4	9273.2	943.7	1796.0	20
21	1343.9	1335.7	1047.C	513.2	5864.5	804.3	2994.2	2136.8	0.0		
IMPORTS (SECTORS 1-157)											
1	0.0	-11.6	-399.0	-6.8	-21.6	-25.9	-567.5	-654.1	0.0	0.0	10
11	-603.1	-3.3	-353.9	-1.1	-1904.3	-464.9	-228.7	0.0	0.0	0.0	20
21	-79.6	-58.0	-1C87.4	-88.6	-405.3	-43.9	-33.1	-722.7	-100.9	-818.9	30
31	-11.4	-186.3	-124.6	-147.2	-638.6	-87.4	-439.9	-34.8	-1381.0	-99.5	40
41	-799.7	-385.6	-188.6	-4.1	-197.6	-76.5	-523.9	-1055.8	-45.4	-10.4	50
51	-4.1	-5.5	-173.C	-48.5	-600.0	0.0	0.0	0.0	-37.5	-17.1	60
61	-122.4	-37.6	-41.6	-26.6	-74.2	-156.9	-30.0	-1.6	-1491.8	0.0	70
71	-0.2	-164.0	-176.3	-244.0	-100.0	-410.0	-199.2	-243.7	-54.5	-185.4	80
81	-36.5	-133.8	-2150.8	-494.8	-84.1	-104.3	-285.2	-701.3	-30.5	-49.4	90
91	0.0	0.0	-13.8	-13.0	-60.1	-137.3	-37.4	-233.4	-98.8	-83.0	100
101	-94.8	-149.3	-353.5	-123.3	-110.6	-194.6	-37.6	-113.7	-470.3	-75.8	110
111	-88.8	-30.9	-12.5	-266.0	-279.6	-43.4	0.0	0.0	-61.3	-94.5	120
121	0.0	-35.1	-308.9	-179.5	-1183.3	-7.4	-263.5	-283.9	-28.5	-55.4	130
131	-44.6	0.0	-5671.5	-128.3	-40.3	-189.1	-42.7	-5.5	-425.7	0.0	140
141	-57.2	-38.0	-167.0	-40.9	-222.6	-194.2	-568.1	-599.1	-21.7	-108.5	150
151	0.0	0.0	0.0	-1542.C	-977.0	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	4.3	73.5	232.9	2049.6	25.0	301.6	23.4	0.0	24.7	10
11	159.9	0.9	12.0	372.3	29.7	94.9	113.0	0.0	0.0	63.1	20
21	144.2	288.4	353.1	117.4	272.8	552.6	4.3	4.5	20.8	28.5	30
31	42.3	553.3	71.7	612.8	266.4	19.8	66.8	29.7	142.8	82.8	40
41	438.1	35.4	35.8	2.8	27.1	20.0	264.5	397.8	93.5	9.5	50
51	23.0	3.2	217.5	58.8	1309.5	0.0	0.0	0.0	96.2	65.0	60
61	325.0	504.9	126.7	22.6	126.2	378.8	125.7	49.5	395.5	0.0	70
71	9.6	82.7	109.8	102.2	40.4	9.6	14.2	146.3	29.1	22.0	80
81	9.8	137.6	953.0	251.3	1.7	3.5	275.1	184.2	90.6	57.8	90
91	11.0	10.7	3.7	60.7	247.1	62.9	316.0	140.9	31.9	199.8	100
101	96.0	502.0	382.8	1500.2	154.2	187.1	116.3	195.0	915.6	349.1	110
111	88.3	124.5	123.0	806.2	128.8	394.1	19.7	227.3	102.2	157.7	120
121	48.3	84.8	155.5	204.7	145.7	18.4	556.9	597.1	26.3	86.8	130
131	72.6	27.2	3125.1	1790.3	369.1	633.0	153.6	74.5	19.3	23.7	140
141	143.5	303.7	59.9	150.5	324.0	16.3	147.1	89.7	36.2	139.1	150
151	0.0	0.0	0.0	671.0	601.0	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2405.8	0.0							

OUTPUTS ITERATION 5 DISMAX 0.582 INVEST CYCLE 1

1	6256.5	4771.5	26543.0	1041.9	12949.9	1039.1	10586.4	2181.6	0.0	3135.7	10
11	1380.3	1315.5	1015.5	3549.4	14340.3	2399.2	578.0	32831.7	30753.2	5366.9	20
21	5093.4	2036.6	27036.1	13217.2	10166.6	10671.5	7161.6	2709.5	2939.6	10108.6	30
31	4978.2	4825.6	5221.2	9594.8	13558.1	2305.5	2597.9	5669.1	20821.4	4922.5	40
41	8773.8	2055.8	4485.0	515.7	5879.2	3113.4	1114.1	9169.1	7031.1	444.6	50
51	6825.7	6649.1	7228.5	11175.0	16638.2	0.0	0.0	0.0	1428.0	1027.0	60
61	3711.2	4514.5	1163.3	780.9	2621.9	6377.6	7721.2	2993.6	24867.6	0.0	70
71	1286.1	4576.2	3822.2	7165.4	1146.6	3379.2	1370.9	4953.7	996.9	682.3	80
81	6507.5	3643.6	32595.2	6898.9	617.3	386.8	6811.9	1008.6	1032.8	3627.6	90
91	958.2	3262.8	424.2	2095.9	11161.8	3092.1	6702.7	4095.3	1934.7	3013.5	100
101	3845.0	4507.1	4074.9	6035.9	2710.9	1953.8	752.4	5401.5	5442.5	2865.3	110
111	1408.5	1495.0	1888.4	6387.3	1411.9	6352.4	4095.2	1889.7	3225.6	2643.1	120
121	1305.1	1360.7	5643.4	4385.0	4143.1	526.5	13783.5	7724.0	1043.3	1566.2	130
131	687.9	1760.5	54003.3	10374.2	4681.4	6460.1	3153.1	2810.0	874.6	2223.9	140
141	1285.0	2172.6	969.7	2022.3	4179.0	867.3	2080.3	3246.1	839.6	3454.4	150
151	12777.5	3999.2	18137.2	1454.0	4369.0	1375.6	364.4	21648.6	4003.0	23667.1	160
161	15910.8	4088.6	79957.1	123825.6	28597.8	27008.6	57130.0	64997.7	6816.7	16278.6	170
171	36435.7	20080.6	13895.8	4941.4	34490.4	6670.4	6716.1	695.5	868.0	1150.1	180
181	8874.6	12133.7	3540.6	377.0	2988.5	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
63377.	67091.	7178.	35894.	-49420.	546151.	74436.	24114.	41958.	7141.	1777.
S+L GENL	PUB CONSTR			GNP						
40439.	28052.			888189.						

EMPLOYMENT

JOBS = 85882.3 PERSONS EMPLOYED = 81382.3 LABOR FORCE = 84239.0 CIVILIAN UNEMPLOYMENT = 3.5 PERCENT

1	3951.0	347.0	286.0	4291.0	328.5	337.9	252.5	282.6	136.6	275.4	10
11	40.4	85.3	238.0	144.9	80.6	609.2	54.2	78.7	245.1	1243.3	20
21	174.2	305.3	252.5	42.4	492.3	0.0	484.4	231.8	365.7	720.8	30
31	314.2	55.3	118.2	224.4	142.6	122.9	71.5	183.8	118.2	183.4	40
41	279.4	31.6	313.6	187.5	473.7	953.6	396.6	78.0	84.4	429.9	50
51	371.5	488.9	111.8	131.9	294.9	343.6	200.2	284.4	241.8	254.3	60
61	143.5	212.4	217.2	182.2	209.4	154.6	525.1	410.1	126.5	900.8	70
71	805.4	187.0	52.2	90.0	78.7	112.9	76.9	201.5	443.8	645.0	80
81	1649.0	249.0	356.0	1709.0	1050.0	16890.0	458.0	205.6	876.0	500.0	90
91	2204.0	1263.0	803.0	5038.0	3463.0	4160.0	0.0				

DISPC= 2535.00000 POPUL= 202.600006 PRODCT=513591.000
0.74161312E+05

INDUSTRY AVERAGE WAGE

1	2.36	9.34	8.21	8.88	8.41	8.55	8.93	7.48	7.48	7.48
11	7.48	7.48	7.48	7.48	6.50	4.98	5.98	6.34	8.58	8.58
21	8.12	9.97	9.97	10.65	8.01	5.20	8.19	8.19	9.91	9.91
31	9.38	9.38	9.38	8.64	10.59	10.59	10.59	9.20	6.52	8.69
41	8.33	10.03	9.62	5.76	7.08	4.58	4.58	4.58	1.87	6.32
51	6.32	6.53	7.05	7.50	5.43					

INDUSTRY WAGES

1	3419.19	1235.17	962.89	2540.43	820.20	30705.33	15925.34	2529.31	1885.76	2117.74
11	1025.20	2057.87	2020.46	1781.00	526.32	11981.14	3584.23	3118.59	4151.20	1989.83
21	8831.80	9741.62	707.94	1960.10	4646.20	1800.11	1539.86	3882.42	9456.72	3935.34
31	15195.11	1238.12	2382.44	17597.27	9543.56	8528.59	3485.60	4324.49	2897.00	23709.32
41	7293.69	1705.19	6388.02	85352.19	22126.64	47726.93	1475.43	1796.17	4109.30	26288.77
51	31830.89	3266.01	14600.49	6566.28	18790.22					

INDUSTRY LABOR COMPENSATION

1	3624.05	1395.56	1221.21	2743.88	912.50	33797.22	17988.50	3176.53	2413.83	2690.45
11	1365.18	2619.26	2574.70	2288.19	646.76	12451.97	3895.16	3442.70	4585.39	2170.86
21	9664.60	11428.21	851.94	2515.97	5371.71	1994.15	1711.45	4395.34	11321.20	4629.91
31	17213.19	1355.20	2631.22	19657.01	13019.05	9663.52	3985.69	4956.14	3240.57	26506.58
41	8328.32	1829.56	7441.05	92067.87	25437.27	50841.91	1565.02	1905.70	4109.30	28618.00
51	34837.39	3612.09	16949.73	7116.86	21381.22					

INDUSTRY EMPLOYEES

1	1449.18	132.18	117.26	286.00	97.56	3592.29	1783.00	338.00	252.00	283.00
11	137.00	275.00	270.00	238.00	81.00	2404.00	599.00	492.00	484.00	232.00
21	1087.00	977.00	71.00	184.00	580.00	346.00	188.00	474.00	954.00	397.00
31	1620.00	132.00	254.00	2036.00	901.00	805.00	329.00	470.00	444.00	2729.78
41	875.99	170.01	664.00	14820.62	3126.97	10423.98	322.25	392.30	2202.00	4160.00
51	5037.00	500.00	2070.00	876.00	3463.00					

INDUSTRY SELF-EMPLOYMENT

1	2022.82	7.10	6.30	15.36	5.24	698.71	30.61	4.96	3.70	4.15
11	2.01	4.03	3.96	3.49	1.19	35.25	10.28	8.45	7.10	3.40
21	15.94	14.33	1.04	2.70	8.50	5.07	3.23	8.14	16.38	6.81
31	27.81	2.27	4.36	34.95	15.47	13.82	5.65	8.07	7.62	176.22
41	3.35	0.65	12.00	2258.37	335.48	2142.18	66.22	80.62		

INDUSTRY PROPRIETOR INCOME

1	14359.61	67.83	59.35	133.36	44.35	4819.23	188.48	33.98	25.82	28.78
11	14.61	28.02	27.55	24.48	6.92	133.22	40.81	36.07	49.06	23.22
21	103.40	122.26	9.11	31.20	57.47	21.33	17.93	46.05	118.62	48.51
31	180.36	14.20	27.57	205.96	136.41	101.25	41.76	51.93	33.95	1271.73
41	27.14	5.96	112.28	14423.65	4909.75	22792.56	701.60	854.33		

INDUSTRY CPPT + CCA

1	473.46	221.08	401.81	1193.40	457.01	2828.43	5280.80	904.51	1536.25	1091.43
11	2477.03	2811.73	8222.77	8077.03	1593.79	498.15	806.15	558.79	2235.50	8552.74
21	2765.57	6555.79	4271.08	7152.17	2396.31	807.28	6828.08	9971.18	673.84	11624.25
31	14227.28	14208.34	3741.23	1425.10	879.90	2259.47	1139.79	1775.83		

INDUSTRY CORP. PROFITS TAXES

1	92.69	71.41	43.81	1.93	49.57	601.20	1775.87	498.49	457.39	369.67
11	728.51	1558.92	3078.36	2.81	571.49	256.78	128.58	228.61	633.00	2417.07
21	1093.69	2673.06	1906.61	3401.12	1060.17	299.47	992.65	4371.67	260.24	3564.75
31	4200.80	6876.60	598.08	298.27	234.53	480.49	145.42	68.40		

INDUSTRY CPAT + CCA

1	380.78	149.67	358.00	1191.46	407.44	2227.23	3504.93	406.02	1038.86	721.76
11	1748.52	1252.81	5144.41	8074.21	1022.30	241.37	677.57	330.18	1602.50	6135.67
21	1671.88	3882.73	2364.47	3751.05	1336.14	507.82	5835.42	5599.51	413.60	8059.50
31	10017.48	7331.75	3143.15	626.83	645.36	1778.98	994.38	1707.42		

INDUSTRY CORP. DIVIDENDS

1	75.41	120.46	40.45	802.61	66.48	202.92	832.83	223.93	229.74	113.34
11	400.79	262.27	1694.50	1766.18	166.75	48.57	121.58	55.18	312.84	1218.90
21	370.92	820.06	721.57	1537.61	311.53	90.25	913.51	1750.82	93.16	2960.09
31	1829.81	1339.77	386.42	106.44	92.02	155.04	32.17	176.53		

WAGES =	509095.81
OTHER LABOR INCOME =	34319.13
PROPRIETORS INCOME =	66612.87
RENTAL INCOME =	21892.30
DIVIDENDS =	22443.43
PERSONAL INTEREST INCOME =	56876.62
NET INTEREST =	28591.37
GOV'T INTEREST =	12864.15
CONSUMER INTEREST =	15421.11
GOV'T TRANSFERS =	68105.50
BUSINESS TRANSFERS =	3611.34
- PERS. CONTRIB. SOCIAL INS. =	23677.72
PERSONAL INCOME =	759279.12
- PERS FED. INCOME TAX =	82588.06
- OTHER FEDERAL TAXES =	3832.84
- S+L PERS INCOME TAX =	10153.81
- OTHER S+L TAXES =	11525.38
PERSONAL DISP. INCOME =	651179.06

MARYLAND I/O MODEL- IBM TEST RUN
197C

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 2595.0 POPULATION 204.8

1	191.9	1944.7	0.0	0.0	0.0	0.0	4163.9	613.1	0.0	27.1	10
11	0.0	0.0	0.0	131.7	0.0	217.3	25.5	0.0	0.0	0.0	20
21	188.3	146.0	21413.6	10329.1	8586.8	2588.8	6990.8	1051.2	2693.5	9901.8	30
31	3860.4	1084.9	5006.9	6577.0	1314.8	1778.0	154.4	2799.5	17160.0	2386.3	40
41	186.7	0.0	339.5	0.0	4606.0	206.7	36.1	45.9	1972.1	0.0	50
51	118.5	1718.9	2351.2	739.3	176.1	0.0	0.0	0.0	55.7	8.7	60
61	333.5	20.1	0.0	0.0	0.0	3353.7	5729.7	30.9	12083.5	0.0	70
71	0.0	997.3	1264.8	510.9	0.0	3029.4	1600.8	444.6	0.0	175.7	80
81	4.9	106.7	12.9	0.0	0.0	0.0	16.8	0.0	0.0	3.7	90
91	0.0	0.0	0.0	66.0	34.8	38.1	373.4	735.6	92.4	0.0	100
101	162.9	190.3	513.3	0.0	0.0	45.9	0.0	112.7	31.5	0.0	110
111	0.0	0.0	0.0	0.0	168.1	720.8	4.6	0.0	13.3	22.1	120
121	0.0	0.5	4351.0	622.6	3875.8	436.1	156.5	197.5	360.4	133.7	130
131	75.1	0.0	20431.0	294.9	0.0	0.0	438.4	0.0	489.0	1753.0	140
141	0.0	24.5	519.9	221.7	768.2	490.1	1769.3	2794.1	250.9	698.4	150
151	277.0	2370.0	656.0	34.0	2241.0	19.0	0.0	9742.0	0.0	9510.0	160
161	5010.0	1820.0	31742.8	90204.1	19500.0	12549.0	59286.0	25252.0	4203.0	13541.0	170
171	4667.0	100.0	7984.0	2438.0	33419.0	2925.0	1427.0	0.0	891.0	0.0	180
181	104.0	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	5175.9	1124.7	818.5	2646.3	151.2	173.5	137.3	234.7	165.7	157.5	10
11	66.3	68.9	346.4	188.1	52.3	348.4	76.4	63.2	129.9	138.7	20
21	49.2	339.5	192.3	10.1	112.3	0.0	1123.1	219.4	147.1	444.3	30
31	1171.8	122.5	99.8	742.1	149.2	89.2	47.4	524.8	262.0	110.4	40
41	350.6	13.0	38.6	183.8	479.9	1511.2	709.9	122.8	26.9	181.2	50
51	243.9	325.9	184.0	93.3	211.1	255.0	125.1	226.3	130.6	230.5	60
61	97.2	107.3	171.9	125.0	121.0	62.1	357.3	383.0	91.3	922.4	70
71	376.5	56.4	58.0	33.3	16.5	51.5	39.7	186.4	182.6	1422.4	80
81	548.5	451.8	3142.5	8147.9	7588.5	10729.8	4612.3	636.7	2268.0	1635.0	90

CONSTRUCTION BY TYPE

1	21778.6	5152.7	1372.5	5440.5	5308.2	4343.0	858.5	694.4	2416.0	1477.8	10
11	770.5	1928.0	321.9	2805.0	5337.5	1605.7	867.1	8905.9	717.0	1754.9	20
21	1404.9	997.6	1057.4	450.0	5224.9	779.8	2415.9	1995.1	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-21.5	-358.5	-6.7	-29.9	-26.9	-646.5	-736.1	0.0	0.0	10
11	-711.3	-81.0	-332.3	-1.2	-1936.8	-419.8	-242.5	0.0	0.0	0.0	20
21	-54.8	-66.3	-1250.6	-112.0	-459.8	-62.2	-37.2	-825.9	-125.3	-894.8	30
31	-10.6	-212.2	-141.2	-151.6	-735.4	-70.6	-379.9	-114.1	-1554.5	-104.5	40
41	-664.6	-320.7	-189.3	-3.8	-206.6	-80.1	-504.4	-1060.2	-47.4	-11.8	50
51	-4.5	-6.8	-222.2	-63.6	-681.7	0.0	0.0	0.0	-49.4	-19.2	60
61	-122.8	-49.3	-46.4	-24.9	-102.3	-193.1	-31.1	-1.3	-1793.3	0.0	70
71	-0.7	-228.1	-231.9	-296.2	-101.9	-508.6	-214.1	-259.6	-41.7	-198.9	80
81	-51.8	-142.7	-2395.7	-537.8	-86.3	-90.4	-257.8	-830.5	-45.8	-100.3	90
91	0.0	0.0	-19.4	-14.0	-87.1	-170.1	-39.9	-261.6	-119.9	-110.9	100
101	-103.1	-213.8	-353.1	-184.2	-74.7	-160.2	-41.6	-135.0	-553.6	-94.5	110
111	-100.3	-35.5	-14.4	-353.9	-326.9	-68.9	0.0	0.0	-60.4	-108.5	120
121	0.0	-45.3	-325.3	-231.3	-1397.6	-8.4	-308.1	-349.0	-28.6	-66.1	130
131	-52.1	0.0	-6276.2	-59.4	-44.6	-249.3	-50.8	-8.0	-653.7	0.0	140
141	-61.1	-42.2	-182.6	-49.8	-259.6	-211.1	-596.2	-764.3	-21.5	-133.1	150
151	0.0	0.0	0.0	-1706.0	-1059.0	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	2.6	71.6	310.8	2788.1	23.7	326.3	24.1	0.0	26.3	10
11	202.0	54.9	12.8	602.8	47.3	106.7	98.0	0.0	0.0	7.2	20
21	149.6	286.2	345.3	146.6	292.4	519.4	4.5	9.5	25.0	22.4	30
31	47.3	792.7	52.0	598.5	294.8	22.0	70.6	34.6	135.1	98.6	40
41	510.8	25.3	36.9	2.6	22.6	20.5	428.5	425.5	95.1	9.2	50
51	25.7	2.5	226.4	62.5	1497.1	0.0	0.0	0.0	92.0	79.9	60
61	390.4	550.7	165.3	24.6	112.8	457.5	137.9	53.2	419.5	0.0	70
71	11.2	75.3	109.0	116.7	35.8	10.6	14.3	163.1	35.0	25.7	80
81	11.2	146.1	1259.8	334.8	1.8	1.6	325.5	133.5	101.9	68.1	90
91	10.3	11.8	3.6	65.2	277.5	62.9	287.6	144.3	34.0	226.9	100
101	102.7	545.5	329.7	1783.4	183.5	250.1	103.2	233.0	1042.6	365.3	110
111	97.5	126.6	145.4	1216.7	130.0	422.3	22.4	249.0	110.7	164.5	120
121	44.3	106.2	143.6	193.5	126.7	15.7	565.0	793.2	30.7	93.6	130
131	88.5	25.4	2892.0	1937.6	390.3	745.7	91.0	76.3	27.3	19.3	140
141	140.0	361.7	65.8	166.5	369.1	11.3	146.4	107.9	37.5	139.8	150
151	0.0	0.0	0.0	810.0	764.0	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2739.3	0.0							

OUTPUTS ITERATION 7 DISMAX 0.457 INVEST CYCLE 1

1	6138.2	4845.3	24954.8	1166.0	13889.0	1069.0	10890.7	2032.2	0.0	3224.6	10
11	1072.1	1169.8	830.3	3811.1	14186.1	2370.6	488.6	30648.5	31967.4	5045.4	20
21	2978.8	1474.5	28063.8	13612.8	10204.9	10663.9	7341.6	2235.5	3085.8	10289.7	30
31	4850.2	5332.6	5489.7	9459.6	12673.7	2110.7	2401.9	5052.3	19139.2	4781.7	40
41	9044.8	1962.4	4320.0	558.5	5457.8	3259.6	1281.9	8823.7	6892.9	414.3	50
51	6655.1	6569.3	7423.3	11161.0	15816.0	0.0	0.0	0.0	1493.7	1066.8	60
61	3597.6	4244.2	1121.7	710.9	2404.8	6354.8	7561.0	2878.3	24708.7	0.0	70
71	1277.9	4205.7	3637.8	6775.3	1091.9	3166.3	1592.4	4384.9	962.2	674.3	80
81	6034.0	3481.5	29616.2	6381.5	503.3	331.8	6681.9	640.0	987.7	3718.9	90
91	895.2	3271.3	405.4	1826.1	10615.1	2870.0	5861.3	3743.8	1821.3	2905.0	100
101	3669.9	4565.2	4173.1	6012.0	2712.3	1969.6	694.6	5226.2	5583.1	2798.9	110
111	1286.2	1421.6	1891.3	6240.8	1369.7	6170.3	3894.1	1579.9	3439.0	2535.0	120
121	1254.6	1311.3	5323.5	3994.2	2956.0	505.7	13731.5	6600.9	999.5	1292.8	130
131	678.2	1817.2	47150.3	10867.7	3835.9	6049.6	3177.7	2541.7	534.6	2116.4	140
141	1248.7	2109.7	982.9	2215.9	4295.5	752.4	1519.2	3080.9	816.9	3317.2	150
151	12438.8	3886.2	17543.8	1295.3	4433.0	1359.7	360.6	22569.4	3844.7	24352.7	160
161	16507.6	4103.1	79584.3	123577.0	29671.7	26318.3	59286.0	66603.4	6953.6	15903.5	170
171	36358.9	19884.9	13923.0	4845.7	36590.4	6700.8	6728.3	719.1	868.0	1114.8	180
181	8299.0	11956.2	3583.7	364.0	3327.9	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
68487.	63478.	-3569.	40522.	-53381.	551109.	65017.	23925.	43286.	8138.	2025.

S+L GENL PUR	CONSTR			GNP						
43365.	25703.			878104.						

EMPLOYMENT

JOBS = 85233.4 PERSONS EMPLOYED = 81833.4 LABOR FORCE = 85903.0 CIVILIAN UNEMPLOYMENT = 4.9 PERCENT

1	3816.0	371.0	293.0	4261.0	249.0	342.4	239.9	281.5	135.6	278.7	10
11	38.2	84.3	242.2	143.8	79.7	588.2	54.0	72.0	231.9	1205.1	20
21	159.9	285.6	253.1	35.4	448.6	0.0	474.9	221.1	371.0	724.6	30
31	319.9	57.6	108.4	222.6	149.2	125.7	70.5	192.3	108.8	168.2	40
41	285.6	29.9	327.0	181.2	448.0	901.0	370.6	81.7	80.5	419.5	50
51	332.7	448.9	105.6	127.8	283.6	310.4	189.3	272.9	213.0	281.7	60
61	137.9	213.8	213.7	176.5	203.0	133.2	492.3	348.5	115.4	789.2	70
71	682.6	165.6	50.4	99.6	67.1	108.0	83.8	196.0	421.3	626.0	80
81	1643.0	240.0	357.0	17436.0	1128.0	17310.0	472.1	213.5	832.4	484.0	90
91	2115.0	1152.0	861.0	5043.0	3096.0	4331.0	0.0				

DISPC= 2595.00000 POPUL= 204.800003 PRODCT=531456.000

0.74272562E+05

INDUSTRY AVERAGE WAGE

1	2.49	9.98	8.77	9.45	8.99	9.14	9.47	7.98	7.98	7.98
11	7.98	7.98	7.98	7.98	6.99	5.26	6.39	6.71	9.16	9.16
21	9.62	10.68	10.68	11.36	8.52	5.50	8.76	8.76	10.62	10.62
31	10.01	10.01	10.01	9.24	11.36	11.38	11.38	9.85	6.93	9.27
41	8.95	10.67	10.33	6.10	7.55	4.88	4.88	4.88	1.95	6.77
51	6.77	6.92	7.51	7.99	6.14					

INDUSTRY WAGES

1	3413.39	1283.69	1170.40	2769.03	978.85	32626.93	15258.99	2729.87	1915.70	2242.96
11	1085.56	2227.00	2123.23	1931.66	559.21	12160.16	3665.93	3014.08	4350.70	2024.22
21	9444.16	10507.81	747.51	2180.73	4798.25	1959.63	1584.74	3922.45	9564.49	3938.32
31	15150.04	1281.70	2823.73	17503.79	8964.02	7773.01	3596.30	4481.23	2915.75	25073.52
41	8487.53	1868.69	7073.47	92691.94	24204.62	52130.12	1611.55	1961.89	4203.16	29313.06
51	35618.62	3626.74	15300.19	7050.76	18997.05					

INDUSTRY LABOR COMPENSATION

1	3627.70	1455.42	1489.58	2994.41	1089.82	36008.57	17289.17	3433.94	2465.77	2857.63
11	1449.70	2838.60	2714.72	2484.98	690.80	12375.98	3993.15	3334.86	4816.94	2212.40
21	10359.84	12384.18	903.91	3305.44	5576.26	2174.62	1767.70	4455.09	11516.20	4659.13
31	17213.34	1407.80	3135.31	19575.47	12312.02	8858.59	4130.94	5155.30	3272.10	28106.75
41	9657.48	2009.67	8257.25	100206.81	27904.96	55654.70	1713.16	2086.10	4203.16	32012.24
51	39111.39	4026.58	17709.45	7657.90	21724.04					

INDUSTRY EMPLOYEES

1	1371.73	128.68	133.50	293.00	108.82	3570.87	1612.00	342.00	240.00	281.00
11	136.00	279.00	266.00	242.00	80.00	2311.00	574.00	449.00	475.00	221.00
21	1096.00	984.00	70.00	192.00	563.00	356.00	181.00	448.00	901.00	371.00
31	1513.00	128.00	292.00	1895.00	789.00	683.00	316.00	455.00	421.00	2704.71
41	949.85	175.15	685.00	15183.87	3207.93	10689.75	330.46	402.30	2157.00	4328.00
51	5259.00	524.00	2036.00	882.00	3096.00					

INDUSTRY SELF-EMPLOYMENT

1	1944.27	6.59	6.84	15.00	5.57	690.13	29.48	4.98	3.50	4.09
11	1.98	4.06	3.87	3.52	1.17	33.66	10.50	8.21	6.98	3.22
21	15.96	14.33	1.02	2.80	8.20	5.18	3.31	8.19	16.48	6.79
31	27.67	2.34	5.16	34.66	14.43	12.49	5.78	8.32	7.70	175.29
41	3.38	0.62	12.00	2252.13	340.62	2188.89	67.67	82.38		

INDUSTRY PROPRIETOR INCOME

1	14677.94	64.61	66.14	132.93	48.38	5051.43	187.72	34.89	25.05	29.03
11	14.73	28.84	27.58	25.25	7.02	125.73	43.36	36.21	48.94	22.48
21	105.24	125.82	9.18	33.58	56.65	22.09	19.19	48.37	125.04	50.59
31	186.90	15.29	34.04	212.55	133.68	96.19	44.85	55.98	35.53	1344.39
41	29.29	6.09	122.42	14977.02	5238.64	24860.34	765.25	931.84		

INDUSTRY CPAT + CCA

1	473.67	181.91	413.63	1166.39	450.56	2978.48	5403.08	914.65	1426.49	1061.26
11	2396.33	2866.51	8242.27	8148.77	1556.78	471.28	850.44	537.40	2197.06	8121.23
21	2541.42	6329.88	4016.30	5705.26	2459.66	764.29	6735.39	10746.80	693.41	11876.48
31	10880.16	14380.78	3853.31	1488.05	961.03	2378.04	1183.25	1951.69		

INDUSTRY CORP. PROFITS TAXES

1	87.78	60.45	43.48	1.93	45.63	604.85	1770.54	486.26	444.34	357.98
11	656.91	1548.40	2949.26	2.82	526.00	224.37	131.76	216.32	582.05	2142.37
21	940.04	2470.23	1724.32	2494.54	1046.64	281.43	910.09	4578.27	258.19	3526.94
31	3285.10	6842.69	588.76	303.88	249.15	490.22	143.31	71.76		

INDUSTRY CPAT + CCA

1	385.89	121.45	370.16	1164.46	404.93	2373.63	3632.54	428.39	982.15	703.29
11	1739.41	1318.11	5293.00	8145.95	1030.78	246.91	726.69	321.08	1615.01	5978.86
21	1601.37	3859.66	2291.97	3210.32	1413.02	482.86	5825.30	6168.53	435.22	8349.54
31	7595.05	7538.09	3264.55	649.17	711.88	1887.82	1039.94	1879.93		

INDUSTRY CORP. DIVIDENDS

1	76.06	106.39	49.81	799.03	66.22	215.63	842.25	225.41	225.31	115.16
11	406.18	274.25	1714.44	1846.56	183.73	49.18	128.41	54.04	322.53	1182.24
21	359.47	793.16	702.79	1377.15	327.65	87.69	947.92	1902.59	103.56	3148.94
31	1622.34	1416.54	397.80	116.79	101.87	163.72	33.63	194.49		

WAGES = 539880.81
OTHER LABOR INCOME = 37453.82
PROPRIETORS INCOME = 70384.12
RENTAL INCOME = 23068.95
DIVIDENDS = 22680.87
PERSONAL INTEREST INCOME = 62184.26
NET INTEREST = 32714.28
GOV'T INTEREST = 13347.78
CONSUMER INTEREST = 16122.21
GOV'T TRANSFERS = 81740.31
BUSINESS TRANSFERS = 3915.59
- PERS. CONTRIB. SOCIAL INS. = 25049.09
PERSONAL INCOME = 816259.50
- PERS FED. INCOME TAX = 82549.37
- OTHER FEDERAL TAXES = 4159.91
- S+L PERS INCOME TAX = 10772.98
- OTHER S+L TAXES = 12605.16
PERSONAL DISP. INCOME = 706172.19

MARYLAND I/O MODEL- IBM TEST RUN
1971

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 2657.0 POPULATION 208.0

1	183.6	1998.7	0.0	0.0	0.0	0.0	4309.3	604.3	0.0	27.5	10
11	0.0	0.0	0.0	121.2	0.0	229.5	26.5	0.0	0.0	0.0	20
21	199.6	155.8	22587.2	10117.3	8408.6	2680.3	7120.6	1027.2	2745.4	9275.4	30
31	4011.5	1089.9	5141.6	6389.0	1349.9	1839.0	159.2	2930.2	17034.0	2499.4	40
41	190.9	0.0	355.6	0.0	4763.0	214.3	37.6	47.1	2060.4	0.0	50
51	124.7	1766.8	2457.5	768.0	188.2	0.0	0.0	0.0	58.4	9.3	60
61	346.4	21.0	0.0	0.0	0.0	3552.8	6032.8	31.9	12544.3	0.0	70
71	0.0	1037.9	1304.5	549.5	0.0	3082.9	1669.3	467.7	0.0	177.2	80
81	5.2	109.6	13.1	0.0	0.0	0.0	17.5	0.0	0.0	3.6	90
91	0.0	0.0	0.0	63.5	36.3	38.9	383.1	770.5	93.0	0.0	100
101	173.8	185.8	537.8	0.0	0.0	45.6	0.0	117.9	32.5	0.0	110
111	0.0	0.0	0.0	0.0	176.9	739.8	4.9	0.0	13.0	0.0	120
121	0.0	0.6	4676.0	650.1	4122.9	436.7	178.0	200.9	375.4	140.2	130
131	77.0	0.0	24555.0	320.3	0.0	0.0	463.9	0.0	523.3	2104.0	140
141	0.0	25.3	557.6	223.9	810.8	512.0	1832.2	2956.9	261.8	717.3	150
151	278.2	2457.4	721.3	43.5	2411.7	21.6	0.0	9601.7	0.0	9469.8	160
161	5062.1	1974.5	32823.3	93274.6	20698.0	14634.2	60405.6	25498.4	4446.4	15001.4	170
171	4887.9	108.5	8107.9	2214.1	33367.1	2821.5	1547.9	0.0	947.6	0.0	180
181	108.5	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	5061.7	1277.5	859.1	2764.2	183.0	168.4	156.1	235.0	166.9	150.2	10
11	73.8	69.0	333.1	187.5	57.2	375.0	88.5	65.6	127.7	147.2	20
21	50.9	348.5	212.8	10.4	90.4	0.0	871.0	184.5	128.4	428.5	30
31	1248.9	129.5	98.6	731.6	147.3	95.0	47.0	522.2	239.4	107.1	40
41	367.2	13.1	40.6	136.6	407.5	1159.0	630.0	122.8	22.7	187.5	50
51	236.7	334.6	176.8	86.2	169.8	229.5	100.3	198.5	121.5	194.9	60
61	84.1	103.2	161.9	120.9	126.3	65.0	360.9	377.2	82.6	849.9	70
71	223.5	53.7	44.8	37.8	17.3	54.5	39.0	183.3	204.3	1266.1	80
81	485.7	426.0	1754.7	8603.9	8225.7	11261.4	5515.6	600.2	2362.0	2582.0	90

CONSTRUCTION BY TYPE

1	25700.0	5200.0	1298.0	4252.0	5839.0	4777.0	800.0	700.0	2400.0	1480.0	10
11	749.3	2392.0	399.0	2800.0	5405.0	2194.0	850.0	9293.0	801.0	1776.0	20
21	1494.0	778.0	1050.0	455.0	4731.0	800.0	2662.0	1777.0	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-17.3	-541.2	-3.7	-24.6	-29.7	-573.0	-697.4	0.0	0.0	10
11	-613.0	-40.5	-188.6	-2.0	-1992.2	-96.2	-226.1	0.0	0.0	0.0	20
21	-46.8	-52.9	-1244.8	-82.8	-399.0	-51.2	-41.9	-668.0	-113.9	-808.8	30
31	-12.0	-193.0	-159.2	-159.9	-477.0	-79.5	-392.7	-39.2	-1195.4	-106.7	40
41	-763.8	-367.3	-186.5	-4.0	-170.3	-96.3	-585.8	-1116.3	-44.0	-10.7	50
51	-3.3	-6.1	-211.0	-55.8	-588.8	0.0	0.0	0.0	-43.6	-18.3	60
61	-128.5	-46.9	-43.9	-24.7	-95.9	-188.4	-30.1	-1.4	-1656.5	-0.0	70
71	-0.4	-196.9	-219.3	-254.2	-74.1	-409.5	-221.7	-260.0	-54.4	-207.7	80
81	-45.6	-148.2	-2117.4	-557.7	-104.6	0.0	-329.2	-761.3	-32.0	-76.6	90
91	0.0	0.0	-20.5	-15.4	-91.0	-142.5	-31.4	-226.0	-114.0	-103.0	100
101	-132.4	-210.5	-330.2	-145.7	-81.3	-247.7	-52.7	-115.6	-458.7	-73.4	110
111	-73.9	-28.0	-11.0	-146.8	-324.9	-56.7	0.0	0.0	-85.5	-89.8	120
121	0.0	-40.5	-353.0	-212.0	-861.9	-7.1	-352.2	-256.4	-31.8	-73.5	130
131	-51.3	0.0	-6193.3	-99.8	-42.2	-189.0	-45.4	-5.4	-565.8	0.0	140
141	-58.4	-40.7	-150.6	-55.2	-207.7	-174.6	-111.3	-664.2	-20.9	-132.9	150
151	0.0	0.0	0.0	-1663.8	-771.7	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	8.9	85.9	352.1	2951.8	28.2	355.5	37.0	0.0	25.0	10
11	198.4	23.0	17.1	512.7	68.5	117.1	137.8	0.0	0.0	27.8	20
21	132.4	272.7	395.9	133.2	293.7	610.1	5.1	9.0	23.4	29.6	30
31	48.9	763.5	82.9	682.2	231.1	38.2	92.7	35.2	108.0	123.2	40
41	619.6	36.2	42.9	3.0	22.1	25.8	389.5	501.7	106.1	11.3	50
51	25.6	2.5	280.3	71.0	1631.5	0.0	0.0	0.0	113.8	94.6	60
61	372.4	618.4	158.9	25.8	132.1	453.9	148.5	61.3	412.4	0.0	70
71	12.9	80.0	125.6	133.6	44.1	8.9	16.9	190.3	30.7	26.3	80
81	13.8	173.6	1102.9	296.4	2.1	5.5	348.6	189.2	113.3	72.3	90
91	15.8	11.7	4.0	71.6	288.3	82.3	382.7	163.0	39.3	253.0	100
101	112.4	649.7	433.0	1851.4	187.8	228.7	107.9	202.3	1142.6	438.9	110
111	112.4	158.0	151.2	1128.3	169.2	500.6	22.3	296.8	118.7	203.5	120
121	53.1	108.6	157.7	245.2	149.5	18.2	654.3	801.8	34.7	102.1	130
131	103.1	31.9	3629.2	2223.8	430.8	804.7	33.9	93.9	14.7	0.0	140
141	173.3	394.6	53.2	182.1	416.0	17.6	180.4	113.3	41.6	182.3	150
151	0.0	0.0	0.0	881.9	826.7	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	3028.8	0.0							

OUTPUTS ITERATION 7 DISMAX 0.383 INVEST CYCLE 1

1	5937.7	4933.8	21039.1	1148.9	12091.8	991.6	11205.5	2062.3	0.0	3195.1	10
11	1334.3	1148.3	1230.6	3804.7	14831.9	2927.0	628.9	32799.6	33925.6	5035.1	20
21	3019.2	1492.9	29536.3	13393.2	9848.3	10681.1	7489.5	2261.5	3087.2	9576.8	30
31	5026.2	5142.2	5642.4	9018.4	12770.9	2263.5	2527.9	5425.3	19120.9	5067.0	40
41	8955.3	2007.0	4744.3	555.8	5969.4	3414.6	1253.2	9389.6	7233.9	446.7	50
51	7077.0	6897.9	7813.8	11730.0	16891.5	0.0	0.0	0.0	1434.5	1111.2	60
61	3763.7	4695.3	1214.0	728.9	2655.5	6655.1	8044.8	3038.1	25684.3	0.0	70
71	1360.0	4586.4	3904.0	7588.0	1189.5	3470.9	1641.3	4753.7	962.3	711.8	80
81	6344.6	3672.5	31068.0	6394.1	488.1	477.7	6242.6	1049.8	1138.0	3867.7	90
91	997.8	3232.6	429.7	2018.2	11066.8	3236.7	6741.5	4328.5	1971.0	3070.5	100
101	3977.6	5024.3	4120.5	6376.2	2632.3	1733.8	661.8	5244.2	5555.9	2885.3	110
111	1379.8	1513.1	1863.4	7726.4	1555.8	6498.1	4149.3	1690.5	3854.9	2647.2	120
121	1279.5	1364.9	5938.2	4387.2	4235.4	510.6	13862.1	8042.6	1044.2	1484.3	130
131	739.7	1891.6	54831.7	9054.3	3665.9	5572.1	3252.1	2210.6	736.0	2489.2	140
141	1289.2	2195.6	1050.0	2304.2	4668.8	720.6	2799.5	3540.0	877.7	3470.2	150
151	13063.9	4124.1	18556.9	1537.7	5151.5	1421.3	390.1	23187.9	3911.7	25122.6	160
161	17038.1	4361.7	82949.1	128171.2	31397.5	29478.0	60405.6	68612.2	7390.2	17481.8	170
171	38021.4	20863.9	14362.9	4613.1	36836.6	6916.8	7146.6	747.2	868.0	1245.9	180
181	9108.0	12538.5	3867.7	384.0	3967.2	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
69448.	68335.	2521.	44116.	-49879.	570666.	65277.	24619.	44374.	9110.	2267.
S+L GENL PUB CONSTR				GNP						
44713.	25617.			921184.						

EMPLOYMENT

JOBS = 83211.4 PERSONS EMPLOYED = 79861.4 LABOR FORCE = 87087.0 CIVILIAN UNEMPLOYMENT = 8.6 PERCENT

1	3236.9	317.4	275.9	3979.4	268.9	314.9	235.6	226.8	125.6	274.4	10
11	35.2	78.2	238.2	124.3	75.5	533.3	46.7	74.4	225.0	1082.6	20
21	176.7	261.0	234.7	35.1	535.0	0.0	479.1	224.4	387.7	739.8	30
31	317.3	50.4	108.9	222.4	139.7	122.8	70.6	168.0	105.4	167.5	40
41	346.6	29.6	323.4	191.6	450.5	911.5	353.5	79.0	81.1	392.7	50
51	368.8	493.3	116.1	129.5	279.7	317.6	189.0	285.1	233.2	411.2	60
61	136.3	230.4	210.8	170.7	217.6	145.4	432.8	353.9	105.2	808.4	70
71	458.5	181.7	53.7	99.9	74.8	103.5	85.0	202.6	435.5	644.8	80
81	1766.0	222.4	408.5	16839.1	1031.2	16927.5	422.0	191.3	849.0	501.4	90
91	2075.0	1283.0	708.0	5041.0	3225.0	4271.0	0.0				

DISPC= 2657.00000 POPUL= 208.000000 PRODCT=552656.000

0.74477500E+05

1971

INDUSTRY AVERAGE WAGE

1	2.62	10.63	9.35	10.04	9.61	9.75	10.03	8.50	8.50	8.50
11	8.50	8.50	8.50	8.50	7.51	5.55	6.81	7.10	9.77	9.77
21	9.13	11.42	11.42	12.09	9.05	5.82	9.35	9.35	11.35	11.35
31	10.67	10.67	10.67	9.86	12.17	12.21	12.21	10.53	7.34	9.88
41	9.60	11.33	11.07	6.46	8.03	5.19	5.19	5.19	2.03	7.25
51	7.25	7.32	8.00	8.51	6.88					

INDUSTRY WAGES

1	3601.56	1331.73	1230.07	2881.66	1058.79	35338.98	14992.44	2916.23	1972.50	2321.08
11	1139.29	2278.57	2151.04	2006.51	548.17	12807.38	3961.70	3215.92	4512.62	2090.26
21	9810.17	10792.24	765.16	2205.51	5188.21	1959.90	1691.59	4140.20	9501.47	4041.25
31	14687.98	1302.28	2553.88	17477.09	10538.20	6470.15	4040.79	4589.93	3009.79	26268.73
41	9152.58	1951.93	7858.27	100255.44	26402.92	56771.95	1755.05	2136.58	4295.25	32335.97
51	39802.03	3668.96	16014.17	7227.85	18826.48					

INDUSTRY LABOR COMPENSATION

1	3839.65	1515.18	1574.55	3120.85	1182.36	39099.46	17043.02	3676.73	2550.75	2970.02
11	1526.67	2919.12	2766.05	2591.85	686.71	12790.12	4325.25	3568.72	5006.94	2289.32
21	10803.36	12784.45	930.03	3505.51	6058.69	2183.07	1895.09	4721.80	11502.12	4809.82
31	16731.72	1435.05	2885.44	19569.29	14722.59	7423.52	4658.54	5300.91	3388.32	29526.27
41	10432.68	2168.94	9192.01	108626.00	30532.55	60743.58	1869.81	2276.84	4295.25	35415.71
51	43847.32	4099.22	18591.94	7871.27	21660.13					

INDUSTRY EMPLOYEES

1	1375.24	125.22	131.60	287.00	110.17	3623.35	1495.00	343.00	232.00	273.00
11	134.00	268.00	253.00	236.00	73.00	2306.00	582.00	453.00	462.00	214.00
21	1075.00	945.00	67.00	189.00	573.00	337.00	181.00	443.00	837.00	356.00
31	1376.00	122.00	243.00	1773.00	866.00	530.00	331.00	436.00	410.00	2658.63
41	953.77	172.23	710.00	15515.10	3286.35	10945.57	338.37	411.93	2114.00	4461.00
51	5491.00	501.00	2003.00	849.00	2738.00					

INDUSTRY SELF-EMPLOYMENT

1	1868.76	6.51	6.84	14.92	5.73	681.65	28.53	4.99	3.38	3.97
11	1.95	3.90	3.68	3.44	1.06	33.57	11.11	8.65	6.73	3.12
21	15.65	13.76	0.98	2.75	8.34	4.91	3.45	8.46	15.97	6.79
31	26.26	2.33	4.64	33.84	16.53	10.12	6.32	8.32	7.83	174.37
41	3.39	0.61	12.00	2245.90	345.84	2236.61	69.14	84.17		

INDUSTRY PROPRIETOR INCOME

1	14984.33	65.43	67.99	134.76	51.06	5286.38	187.84	35.70	24.76	28.83
11	14.82	28.34	26.85	25.16	6.67	124.17	47.67	39.33	48.61	22.23
21	104.89	124.12	9.03	34.03	58.82	21.19	20.89	52.04	126.77	53.01
31	184.41	15.82	31.80	215.68	162.26	81.82	51.34	58.42	37.34	1419.23
41	31.58	6.38	131.27	15529.79	5582.91	27077.10	833.49	1014.93		

INDUSTRY CPBT + CCA

1	537.55	176.89	435.89	1168.47	476.66	3459.22	5728.35	1003.72	1432.97	1129.85
11	2540.07	3225.74	8475.06	8534.64	1711.25	531.94	913.72	584.42	2391.71	8459.51
21	2373.75	6802.25	4371.23	6749.54	2741.31	814.78	7210.02	11976.08	758.85	12533.63
31	15125.69	16958.60	4071.16	1570.31	1076.44	2695.66	1261.01	2347.54		

INDUSTRY CORP. PROFITS TAXES

1	94.23	57.20	44.78	1.93	45.42	681.60	1832.07	527.30	433.46	377.83
11	664.31	1705.99	2919.58	2.83	550.41	259.42	135.32	228.93	609.47	2137.15
21	829.71	2576.95	1812.45	2914.37	1136.41	292.17	920.90	5021.00	278.08	3627.92
31	4224.09	8355.02	509.70	312.85	272.17	535.48	145.51	79.44		

INDUSTRY CPAT + CCA

1	443.32	119.69	391.12	1166.54	431.24	2777.62	3896.28	476.42	999.51	752.02
11	1875.76	1519.74	5555.48	8531.81	1160.85	272.52	778.40	355.49	1782.24	6322.36
21	1545.04	4225.30	2558.78	3835.17	1604.90	522.61	6289.12	6955.08	480.77	8905.10
31	10901.60	8603.58	3471.47	685.47	804.26	2160.18	1115.51	2268.10		

INDUSTRY CORP. DIVIDENDS

1	83.42	102.18	55.18	796.44	68.92	250.70	871.82	235.78	223.61	121.37
11	427.71	311.23	1751.96	1940.07	206.07	52.01	135.59	58.34	341.64	1186.96
21	348.74	826.58	719.15	1479.01	364.09	91.77	1005.31	2084.99	115.15	3346.70
31	1751.06	1575.07	417.21	123.52	115.55	185.43	36.05	234.90		

WAGES	571965.06
OTHER LABOR INCOME	40169.18
PROPRIETORS INCOME	74323.06
RENTAL INCOME	24080.00
DIVIDENDS	24043.25
PERSONAL INTEREST INCOME	64671.95
NET INTEREST	37707.79
GOV'T INTEREST	10467.66
CONSUMER INTEREST	16496.49
GOV'T TRANSFERS	98387.87
BUSINESS TRANSFERS	4214.52
- PERS. CONTRIB. SOCIAL INS.	27709.28
PERSONAL INCOME	874145.44
- PERS FED. INCOME TAX	89724.87
- OTHER FEDERAL TAXES	4492.17
- S+L PERS INCOME TAX	12904.41
- OTHER S+L TAXES	13702.10
PERSONAL DISP. INCOME	753322.00

MARYLAND I/O MODEL- IBM TEST RUN
1972

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 2765.0 POPULATION 209.9

1	-172.3	2037.8	0.0	0.0	0.2	0.0	4512.4	683.8	0.0	28.3	10
11	0.0	0.0	0.0	116.6	0.0	244.5	27.1	0.0	0.0	0.0	20
21	198.3	162.3	24560.6	10649.9	9995.8	2893.7	7065.3	1003.8	2786.9	9893.7	30
31	4226.6	1143.6	5215.5	6968.4	1373.2	1656.3	163.6	3179.3	19483.9	2702.6	40
41	197.8	0.0	371.0	0.0	5416.6	227.8	39.6	48.7	2181.7	0.0	50
51	129.2	1834.7	2554.2	793.5	199.2	0.0	0.0	0.0	58.2	9.9	60
61	368.4	21.8	0.0	0.0	0.0	3776.9	6390.2	32.7	13011.9	0.0	70
71	0.0	1140.4	1380.7	604.0	0.0	3215.3	1737.4	487.2	0.0	185.3	80
81	5.4	115.3	13.9	0.0	0.0	0.0	18.5	0.0	0.0	3.6	90
91	0.0	0.0	0.0	60.6	37.7	41.2	397.1	811.6	94.9	0.0	100
101	188.3	180.9	572.2	0.0	0.0	46.2	0.0	126.6	34.2	0.0	110
111	0.0	0.0	0.0	0.0	182.4	762.4	5.2	0.0	13.1	25.1	120
121	0.0	1.0	4968.5	690.8	4318.5	444.1	198.3	204.3	394.1	145.1	130
131	86.8	0.0	28153.8	356.7	0.0	0.0	519.4	0.0	571.1	1991.2	140
141	0.0	25.9	588.2	226.1	863.1	544.3	1987.0	3142.7	272.7	766.3	150
151	262.2	2380.1	737.8	41.9	2623.1	23.4	0.0	10229.3	0.0	10007.4	160
161	5188.2	2028.4	35242.4	100148.9	21506.1	14809.9	64815.4	26453.6	4625.4	15100.4	170
171	5031.9	112.0	8519.0	2215.9	35587.8	2955.1	1588.5	0.0	989.2	0.0	180
181	111.7	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	5065.4	1254.3	902.6	2920.2	200.3	178.1	166.4	251.7	174.6	154.4	10
11	81.5	72.8	347.8	197.8	59.4	384.3	102.4	68.5	127.5	150.8	20
21	52.9	388.5	242.8	11.7	96.6	0.0	950.9	203.1	124.2	429.0	30
31	1263.2	132.8	94.3	719.9	145.1	100.3	45.5	493.1	253.1	113.3	40
41	392.3	14.5	45.7	196.8	508.0	991.8	726.2	143.4	25.5	210.6	50
51	309.8	382.6	178.5	88.7	192.8	223.5	109.5	209.5	129.3	212.8	60
61	84.1	102.4	161.8	118.6	131.7	67.3	371.9	388.6	80.6	998.2	70
71	194.4	56.1	43.1	43.0	18.7	59.8	46.2	213.9	220.6	1296.6	80
81	501.1	427.5	2440.7	9160.6	9334.5	11975.8	6157.5	681.7	3407.0	2686.0	90

CONSTRUCTION BY TYPE

1	31335.4	5468.1	1445.5	5001.7	5651.2	4685.5	803.8	921.7	2361.6	1710.1	10
11	733.0	2392.0	382.2	2463.7	5322.9	2137.4	823.3	9593.6	947.1	1842.9	20
21	1446.3	1217.1	1113.3	513.4	5159.3	861.2	3371.7	2362.7	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-18.5	-454.4	0.0	-21.3	-28.2	-649.1	-717.3	0.0	0.0	10
11	-639.5	-31.2	-186.7	-1.7	-1998.3	-104.1	-239.2	0.0	0.0	0.0	20
21	-41.8	-37.2	-1397.0	-48.8	-505.0	-55.5	-38.0	-625.1	-110.3	-905.8	30
31	-11.9	-220.6	-154.1	-153.6	-521.1	-72.3	-351.5	-53.0	-1299.9	-109.8	40
41	-806.7	-399.6	-197.4	-3.8	-117.5	-96.5	-604.7	-1108.6	-39.3	-10.9	50
51	-2.5	-5.4	-210.8	-55.1	-609.5	0.0	0.0	0.0	-56.2	-20.0	60
61	-134.3	-49.8	-47.5	-26.6	-110.2	-185.0	-29.7	-1.3	-1669.7	0.0	70
71	-0.4	-217.6	-182.4	-265.3	-64.0	-341.2	-216.8	-275.7	-59.6	-192.6	80
81	-37.2	-149.8	-1953.7	-537.4	-98.4	0.0	-354.6	-730.9	-30.5	-67.3	90
91	0.0	0.0	-15.2	-12.8	-59.7	-144.2	-26.0	-139.3	-111.7	-94.6	100
101	-136.4	-222.6	-326.8	-158.4	-96.2	-203.2	-38.3	-83.2	-478.2	-79.2	110
111	-81.6	-30.1	-11.4	-94.3	-275.1	-60.3	0.0	0.0	-84.5	-93.9	120
121	0.0	-39.7	-334.7	-180.4	-592.2	-5.2	-321.3	-219.6	-29.0	-60.4	130
131	-41.2	0.0	-5753.0	-114.5	-33.4	-11.9	-31.2	-3.6	-510.2	0.0	140
141	-46.6	-35.3	-134.5	-53.5	-178.6	-168.3	-98.3	-581.7	-17.8	-125.1	150
151	0.0	0.0	0.0	-1616.3	-699.0	0.0	0.0	0.0			

1972

EXPORTS (SECTORS 1-163)

1	0.0	8.4	84.2	347.2	2939.6	28.2	343.9	36.0	0.0	25.0	10
11	185.6	23.0	16.0	496.3	65.6	111.0	132.0	0.0	0.0	25.3	20
21	128.4	310.4	402.1	130.1	299.6	618.3	5.6	9.0	25.3	29.2	30
31	50.1	773.4	83.6	707.3	227.4	37.7	97.0	38.4	142.8	127.4	40
41	607.7	34.4	43.7	3.3	36.1	28.1	388.0	484.8	116.8	11.7	50
51	31.8	2.9	298.9	76.4	1598.9	0.0	0.0	0.0	118.2	92.5	60
61	384.2	608.1	168.6	30.5	133.2	476.3	149.8	61.3	439.2	0.0	70
71	13.9	90.6	153.8	139.3	49.3	8.3	17.8	190.3	30.0	30.2	80
81	18.1	179.4	1245.0	317.7	2.2	5.6	341.7	180.4	112.3	81.5	90
91	14.9	11.2	3.5	110.9	478.9	83.4	394.4	233.6	40.2	274.0	100
101	123.2	634.4	434.2	1843.5	185.7	277.8	108.5	202.8	1129.7	425.6	110
111	109.7	151.9	151.9	1203.2	177.5	478.4	21.9	270.2	137.5	202.3	120
121	49.9	124.8	185.9	268.3	165.4	20.7	736.9	895.5	38.8	118.5	130
131	111.6	30.2	3789.9	2325.2	601.5	1315.1	30.3	89.6	13.7	0.0	140
141	232.9	480.2	62.1	195.5	436.2	17.9	202.3	136.9	45.6	187.1	150
151	0.0	0.0	0.0	856.1	764.5	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2863.8	0.0							

OUTPUTS ITERATION 7 DISMAX 0.727 INVEST CYCLE 1

1	6494.2	5116.1	27411.2	1244.6	15236.0	1170.8	12236.7	2405.0	0.0	3538.0	10
11	1377.6	1264.5	1225.5	4010.1	15632.4	3143.0	643.5	36223.9	34172.7	4762.7	20
21	2864.8	1530.2	31856.0	14076.4	12090.7	11740.0	7437.4	2431.0	3159.8	10358.6	30
31	5301.1	5568.6	5750.3	5979.3	14339.2	2069.7	2780.5	6267.2	22592.7	5627.7	40
41	9872.5	2233.4	5258.0	611.9	6868.0	3568.6	1359.8	9809.0	7649.6	465.7	50
51	7591.7	7354.5	7971.8	12119.7	17835.7	0.0	0.0	0.0	1671.4	1234.1	60
61	3984.7	4933.3	1302.0	815.9	2998.0	6907.5	8434.4	3172.3	26901.0	0.0	70
71	1432.4	4960.0	4200.8	8201.4	1267.4	3674.0	1728.8	5133.1	1094.9	785.0	80
81	7023.8	3949.0	33808.3	6919.6	537.0	487.8	6932.6	1062.5	1141.3	3947.9	90
91	1096.7	3595.9	466.1	2227.1	12169.4	3508.4	7312.2	4923.2	2144.8	3260.3	100
101	4386.0	5303.0	4316.8	6497.9	2791.3	2034.8	746.3	5763.4	5826.1	3029.2	110
111	1469.2	1580.8	1989.8	7898.8	1618.6	6782.1	4532.9	1763.7	4150.4	2798.2	120
121	1386.0	1482.6	6294.7	4737.5	4586.2	524.0	14637.4	8479.5	1127.4	1617.9	130
131	806.0	2007.6	62755.7	10537.9	3975.8	4509.2	3487.1	2337.0	888.5	2374.0	140
141	1405.8	2459.7	1135.3	2385.7	4929.3	834.1	2344.7	3788.3	887.5	3731.6	150
151	14049.2	3893.9	20102.7	1667.4	5327.9	1491.2	407.8	24575.1	4033.7	26188.2	160
161	17685.6	4537.7	88519.1	137796.5	32804.0	30295.0	64815.4	72213.6	7618.7	17688.9	170
171	39691.5	22264.6	15198.7	4684.2	38933.5	7193.2	7406.1	790.2	868.0	1309.1	180
181	9161.5	13300.3	3932.7	411.0	4664.1	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
75493.	74639.	8505.	46051.	-48531.	607894.	58825.	27492.	43114.	8316.	2259.
S+L GENL	PUB CONSTR			GNP						
44570.	28429.			977044.						

EMPLOYMENT

JOBS = 84526.9 PERSONS EMPLOYED = 80526.9 LABOR FORCE = 88378.0 CIVILIAN UNEMPLOYMENT = 9.2 PERCENT

1	3426.6	310.9	281.6	4063.3	252.3	325.1	234.3	229.8	127.7	270.2	10
11	32.9	79.1	239.0	126.3	76.3	545.7	39.2	77.3	227.3	1344.8	20
21	190.5	277.0	242.6	37.2	573.6	0.0	475.8	228.9	396.7	737.5	30
31	291.6	52.9	106.5	217.3	136.6	121.4	71.5	161.7	109.9	175.6	40
41	354.4	29.2	338.8	209.2	476.6	943.2	359.2	81.1	87.8	386.8	50
51	387.7	524.0	116.3	132.1	282.3	357.4	193.1	291.7	244.4	400.3	60
61	133.4	239.4	218.8	165.1	227.7	136.4	435.6	336.2	109.3	840.5	70
71	454.3	192.1	54.8	98.5	80.2	103.4	87.7	203.6	401.1	643.0	80
81	1815.3	220.3	386.8	16975.6	1025.0	17180.5	415.5	189.4	866.0	519.5	90
91	2120.0	1007.2	859.1	5046.4	3136.8	4492.7	0.0				

DISPC= 2765.00000 POPUL= 209.899994 PRODCT=580373.437
0.76803187E+05

1972

INDUSTRY AVERAGE WAGE

1	2.75	11.33	9.96	10.66	10.26	10.41	10.65	9.05	9.05	9.05
11	9.05	9.05	9.05	9.05	8.06	5.85	7.25	7.50	10.41	10.41
21	9.66	12.21	12.21	12.87	9.61	6.14	9.97	9.97	12.13	12.13
31	11.37	11.37	11.37	10.51	13.03	13.09	13.09	11.25	7.78	10.53
41	10.29	12.03	11.86	6.84	8.55	5.51	5.51	5.51	2.12	7.75
51	7.75	7.75	8.50	9.06	8.42					

INDUSTRY WAGES

1	4583.66	1412.19	1259.31	2996.17	1128.35	41558.73	16841.43	3240.98	2136.25	2787.98
11	1285.37	2561.69	2380.65	2181.51	661.16	13714.61	4445.33	3707.08	4966.20	2373.78
21	10877.28	11634.14	805.72	2380.75	5970.91	2100.45	1924.47	4666.58	10701.89	4428.79
31	16524.43	1342.12	3480.43	19368.06	11269.03	6976.45	4541.89	5162.54	3398.73	28962.98
41	9981.61	2093.39	8276.56	108548.31	29622.32	63752.79	1970.85	2399.30	4504.10	34738.47
51	39104.03	4019.68	16443.08	7847.88	25088.09					

INDUSTRY LABOR COMPENSATION

1	4991.98	1611.93	1621.36	3249.73	1264.25	46062.34	19227.81	4084.52	2766.34	3548.50
11	1729.24	3278.43	3061.25	2821.11	821.27	13448.56	4864.42	4128.21	5527.57	2609.41
21	11991.64	13845.72	984.10	3692.47	7003.37	2344.55	2168.12	5351.09	13057.84	5309.89
31	19375.27	1484.04	3899.02	21738.92	15944.99	8037.15	5255.42	5980.91	3837.34	32637.43
41	11389.92	2269.41	9720.50	117873.69	34281.88	68365.19	2104.42	2562.52	4504.10	38178.87
51	43063.09	4510.06	19168.16	8563.11	28563.28					

INDUSTRY EMPLOYEES

1	1663.82	124.62	126.44	281.00	109.95	3993.72	1581.00	358.00	236.00	308.00
11	142.00	283.00	263.00	241.00	82.00	2343.00	613.00	494.00	477.00	228.00
21	1126.00	953.00	66.00	185.00	621.00	342.00	193.00	468.00	882.00	365.00
31	1488.00	118.00	306.00	1842.00	865.00	533.00	347.00	459.00	437.00	2751.55
41	970.03	173.97	698.00	15877.32	3464.31	11561.94	357.43	435.13	2127.00	4480.00
51	5043.00	519.00	1934.00	866.00	2981.00					

INDUSTRY SELF-EMPLOYMENT

1	1796.18	6.60	6.70	14.88	5.82	673.28	28.31	4.94	3.26	4.25
11	1.96	3.91	3.63	3.33	1.13	32.34	10.98	8.85	6.58	3.15
21	15.54	13.15	0.91	2.55	8.57	4.72	3.46	8.38	15.79	6.54
31	26.64	2.11	5.48	32.98	15.49	9.54	6.21	8.22	7.83	173.45
41	3.39	0.61	12.00	2239.68	351.15	2285.38	70.65	86.01		

INDUSTRY PROPRIETOR INCOME

1	15298.10	67.93	68.33	136.96	53.28	5525.62	193.38	35.94	24.34	31.23
11	15.14	28.85	26.94	24.83	7.23	118.35	48.92	41.52	48.64	22.96
21	105.44	121.84	8.66	32.49	61.63	20.63	21.81	53.82	131.33	53.40
31	194.86	14.93	39.21	218.64	160.36	80.83	52.86	60.15	38.59	1497.29
41	33.93	6.76	145.30	16095.44	5933.45	29478.97	907.42	1104.95		

INDUSTRY CPBT + CCA

1	589.63	179.84	457.66	1193.86	508.17	3878.07	6108.91	1110.03	1555.85	1256.06
11	2698.56	3460.96	9094.73	8986.32	1877.10	569.51	1029.84	639.04	2596.58	9131.16
21	2479.63	7444.24	4673.16	7265.52	3124.12	847.90	7635.22	13095.48	827.29	13136.33
31	16088.91	17836.45	4242.69	1672.12	1179.10	2974.86	1359.43	2653.83		

INDUSTRY CORP. PROFITS TAXES

1	98.86	56.82	46.13	1.93	45.95	746.80	1927.88	587.58	465.26	416.44
11	687.54	1813.17	3081.42	2.85	590.65	279.83	150.94	247.08	647.93	2266.23
21	846.93	2794.08	1917.27	3117.74	1288.09	301.08	934.62	5491.16	300.48	3762.43
31	4402.24	8858.40	605.62	325.95	297.04	577.91	151.01	85.10		

INDUSTRY CPAT + CCA

1	489.77	123.02	411.54	1191.93	462.22	3131.27	4181.03	522.46	1090.58	839.61
11	2011.02	1647.80	6013.30	8983.46	1286.45	289.68	878.90	391.95	1948.65	6864.94
21	1632.71	4650.16	2755.89	4147.79	1836.03	546.82	6700.60	7604.32	526.82	9373.89
31	11686.66	8978.05	3637.07	733.17	882.06	2396.94	1208.42	2568.74		

INDUSTRY CORP. DIVICENDS

1	89.38	102.45	59.88	798.93	72.09	281.39	913.49	250.92	229.29	133.36
11	453.86	334.72	1825.95	2049.23	230.40	53.91	149.55	62.90	364.55	1226.25
21	356.42	886.34	748.92	1598.83	411.18	94.26	1065.98	2277.43	127.31	3536.33
31	1878.83	1682.61	432.75	129.69	127.07	204.30	39.02	266.20		

WAGES = 631528.56
OTHER LABOR INCOME = 45929.95
PROPRIETORS INCOME = 78493.31
RENTAL INCOME = 25645.78
DIVIDENDS = 25544.91
PERSONAL INTEREST INCOME = 73138.12
NET INTEREST = 45238.46
GOV'T INTEREST = 9979.53
CONSUMER INTEREST = 18020.18
GOV'T TRANSFERS = 108163.25
BUSINESS TRANSFERS = 4651.48
- PERS. CONTRIB. SOCIAL INS. = 30404.00
PERSONAL INCOME = 962691.19
- PERS FED. INCOME TAX = 101408.69
- OTHER FEDERAL TAXES = 5000.42
- S+L PERS INCOME TAX = 14183.96
- OTHER S+L TAXES = 15380.03
PERSONAL DISP. INCOME = 826718.19

MARYLAND I/O MODEL- IBM TEST RUN
1973

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 2907.3 POPULATION 212.4

1	165.4	2092.4	0.0	0.0	0.0	0.0	4794.7	674.4	0.0	29.9	10
11	0.0	0.0	0.0	110.7	0.0	261.9	28.7	0.0	0.0	0.0	20
21	214.9	178.0	25601.1	10845.1	10544.4	3015.4	7194.1	988.2	2843.7	10586.3	30
31	4377.0	1196.2	5432.1	7155.0	1466.2	1780.9	172.9	3377.0	20939.3	2888.3	40
41	211.7	0.0	393.3	0.0	5768.4	240.5	41.3	51.7	2273.2	0.0	50
51	137.6	1892.1	2731.3	832.8	210.8	0.0	0.0	0.0	65.9	10.6	60
61	381.1	22.9	0.0	0.0	0.0	3970.6	6673.6	34.9	13529.3	0.0	70
71	0.0	1180.3	1487.8	650.3	0.0	3359.4	1865.6	531.4	0.0	196.0	80
81	5.8	122.3	15.0	0.0	0.0	0.0	19.9	0.0	0.0	3.7	90
91	0.0	0.0	0.0	58.6	39.7	44.7	411.5	866.2	103.2	0.0	100
101	205.4	180.9	598.0	0.0	0.0	47.7	0.0	138.0	36.6	0.0	110
111	0.0	0.0	0.0	0.0	193.1	795.5	5.6	0.0	13.3	27.0	120
121	0.0	1.1	5229.4	741.1	4624.8	460.3	219.4	209.6	413.8	152.9	130
131	98.0	0.0	31053.3	388.0	0.0	0.0	558.7	0.0	605.8	2064.0	140
141	0.0	27.7	629.3	232.3	929.2	569.2	2106.5	3354.3	287.8	814.9	150
151	269.9	2316.8	770.0	42.9	2854.5	27.2	0.0	10812.0	0.0	10522.9	160
161	5479.6	2134.2	37182.6	105662.4	22783.9	15503.3	69541.9	27873.5	4932.4	15739.8	170
171	5295.5	116.7	9015.9	2214.1	37473.1	3239.0	1656.4	0.0	1050.4	0.0	180
181	116.1	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	7075.6	1445.9	976.2	3084.8	178.9	198.9	223.8	314.4	177.6	168.1	10
11	95.4	78.0	351.8	185.9	75.0	525.0	87.0	75.9	140.1	197.4	20
21	60.8	387.9	234.6	14.6	143.0	0.0	1437.2	245.7	190.7	507.4	30
31	1475.5	138.4	109.7	893.4	154.4	107.3	47.3	568.2	294.4	107.9	40
41	492.0	15.6	55.9	310.2	693.7	2029.0	755.1	149.2	37.9	235.6	50
51	368.8	441.2	189.7	115.5	207.8	309.9	144.2	252.3	129.5	285.6	60
61	106.4	105.7	163.3	113.3	149.1	82.6	342.4	428.1	91.2	1352.6	70
71	237.9	54.8	45.4	35.0	18.0	62.1	55.8	177.0	240.9	1786.4	80
81	733.3	655.4	2693.8	9225.3	9714.2	13441.5	5947.7	669.2	3757.5	3078.7	90

CONSTRUCTION BY TYPE

1	28837.9	5663.4	1457.2	5127.8	6137.1	5022.7	767.9	1016.0	2514.2	1863.7	10
11	715.6	2392.0	426.3	2573.4	5631.5	2150.1	841.0	9685.0	947.5	1858.6	20
21	1475.8	1282.8	1135.5	513.7	5189.5	880.1	3497.5	2499.3	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-18.5	-491.9	0.0	-20.5	-27.9	-679.3	-708.4	0.0	0.0	10
11	-677.2	-26.2	-196.2	-1.6	-2026.5	-107.7	-245.5	0.0	0.0	0.0	20
21	-40.6	-31.0	-1479.8	-33.1	-500.7	-53.7	-40.7	-595.8	-110.4	-1006.3	30
31	-12.0	-214.3	-159.5	-149.4	-536.5	-75.0	-330.2	-57.8	-1294.1	-114.0	40
41	-798.9	-308.3	-191.8	-3.7	-89.6	-101.1	-625.5	-1119.2	-37.3	-10.6	50
51	-2.1	-5.1	-230.0	-57.2	-630.4	0.0	0.0	0.0	-46.6	-19.5	60
61	-138.6	-54.1	-51.9	-26.4	-122.9	-192.4	-30.2	-1.2	-1703.6	0.0	70
71	-0.4	-234.7	-175.5	-295.5	-57.8	-313.3	-233.1	-292.7	-51.8	-184.9	80
81	-28.6	-150.3	-1931.3	-525.7	-95.0	0.0	-372.2	-748.0	-31.7	-62.3	90
91	0.0	0.0	-12.5	-8.7	-41.9	-151.9	-23.4	-93.8	-111.9	-98.1	100
101	-143.2	-242.5	-415.9	-220.6	-127.9	-172.7	-27.5	-61.7	-621.0	-100.7	110
111	-107.6	-41.3	-13.2	-110.0	-276.2	-67.3	0.0	0.0	-76.8	-115.6	120
121	0.0	-49.6	-349.1	-166.1	-615.9	-4.2	-304.6	-258.4	-28.2	-54.5	130
131	-36.7	0.0	-5611.2	-111.8	-28.3	0.0	-24.3	-9.3	-522.1	0.0	140
141	-40.6	-32.4	-144.6	-57.1	-175.0	-157.1	-16.8	-595.3	-18.8	-123.3	150
151	0.0	0.0	0.0	-1591.9	-788.0	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	6.2	83.6	323.5	2956.7	28.3	339.9	35.8	0.0	25.0	10
11	181.0	23.0	15.6	490.8	64.9	109.2	130.1	0.0	0.0	15.9	20
21	110.3	330.8	406.5	115.8	303.5	626.1	5.8	9.1	26.2	29.3	30
31	51.0	784.2	84.3	722.3	209.8	38.0	100.3	40.3	159.5	131.0	40
41	608.1	33.9	44.3	3.4	43.1	29.5	391.3	481.1	122.9	11.9	50
51	35.0	3.2	311.2	79.6	1600.0	0.0	0.0	0.0	120.8	92.5	60
61	391.0	609.1	173.9	33.1	134.7	491.4	151.6	61.8	453.3	0.0	70
71	14.5	96.1	169.1	144.0	52.0	6.1	18.4	191.8	27.0	32.3	80
81	20.5	184.1	1327.9	327.8	2.3	5.8	342.0	178.3	112.9	86.8	90
91	14.6	8.7	1.9	132.0	579.7	84.8	404.8	271.4	41.0	287.3	100
101	129.5	631.7	436.5	1850.7	185.9	304.0	111.8	204.8	1130.7	422.6	110
111	109.2	150.3	153.0	1257.9	183.5	472.3	21.8	260.0	148.0	203.4	120
121	48.7	134.1	201.0	282.9	175.3	22.1	785.5	955.1	41.2	127.6	130
131	117.6	29.5	3911.5	2404.3	693.1	1588.1	17.2	70.8	9.6	0.0	140
141	265.0	528.8	67.0	204.1	451.6	18.3	215.8	150.2	47.9	191.9	150
151	0.0	0.0	0.0	851.4	742.3	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2800.2	0.0							

OUTPUTS ITERATION 5 DISMAX 0.746 INVEST CYCLE 2

1	6280.8	5146.9	24113.4	1196.9	12608.9	1131.5	12658.7	2426.2	0.0	3468.5	10
11	1440.2	1326.7	1330.9	4201.0	16252.8	3242.2	651.8	35953.7	35713.2	4777.7	20
21	2884.8	1591.4	33107.7	14351.3	12188.2	11717.3	7582.5	2446.4	3230.6	10999.6	30
31	5486.5	5595.8	6001.3	10153.3	15070.0	2282.1	2914.2	6645.7	23829.2	5998.0	40
41	9933.7	2226.4	5255.7	623.8	7210.5	3727.5	1435.1	10184.9	7930.3	469.0	50
51	7969.1	7737.9	8448.6	12670.6	18491.1	0.0	0.0	0.0	1560.9	1239.5	60
61	4131.7	5174.4	1376.5	846.4	3260.3	7219.3	8803.3	3264.3	27756.2	0.0	70
71	1474.6	5214.3	4505.6	8769.0	1356.6	3895.2	1861.9	5448.2	1070.8	823.8	80
81	6998.2	4090.3	36112.1	7277.6	568.4	514.3	7365.6	1216.7	1257.3	4177.1	90
91	1198.8	3670.2	482.4	2189.4	12595.9	3843.1	7787.6	5222.7	2262.2	3573.0	100
101	4693.5	5637.0	5850.1	6903.9	3086.2	2345.9	839.3	6672.2	6780.4	3396.6	110
111	1679.8	1826.3	2264.2	8814.7	1777.1	7173.6	5032.2	1805.1	4149.5	3125.5	120
121	1538.2	1651.8	6599.1	4956.3	4928.8	545.5	15038.9	9117.7	1186.1	1762.9	130
131	872.4	2271.2	69276.5	10735.7	4080.2	5064.1	3846.8	3190.4	1027.5	2474.5	140
141	1504.2	2600.3	1258.6	2570.1	5303.7	868.7	3040.1	4107.9	931.1	3913.0	150
151	14562.4	3868.4	20741.4	1759.7	5545.1	1548.3	426.1	25811.4	4112.9	27439.8	160
161	18609.3	4738.0	92786.4	144614.1	34641.6	31670.4	69541.9	75493.3	8065.4	18456.0	170
171	41174.9	23395.0	15973.1	4738.9	40944.7	7642.1	7756.1	838.9	868.0	1369.8	180
181	9688.7	13955.0	4119.1	433.2	5431.2	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
85558.	74138.	3888.	47308.	-49613.	642149.	57917.	28519.	43482.	8689.	2385.
S+L GENL	PUB CONSTR			GNP						
45849.	28965.			1019233.						

EMPLOYMENT

JOBS = 87645.6 PERSONS EMPLOYED = 83645.6 LABOR FORCE = 89813.4 CIVILIAN UNEMPLOYMENT = 7.1 PERCENT

1	2978.2	317.9	282.1	4170.7	250.2	337.2	233.7	245.6	129.2	265.7	10
11	34.2	78.7	242.0	125.7	78.5	569.3	37.4	80.1	238.9	1353.2	20
21	196.8	268.3	247.8	38.3	619.2	0.0	492.3	241.4	426.7	762.0	30
31	305.3	51.2	113.6	230.4	139.2	126.2	75.1	162.2	111.3	183.5	40
41	406.5	31.8	355.2	227.7	468.8	961.8	376.1	84.8	84.7	413.9	50
51	427.0	556.3	123.5	159.9	298.1	398.3	215.5	316.3	270.9	430.4	60
61	135.3	234.8	238.9	174.0	244.3	145.7	426.6	360.3	112.4	925.5	70
71	475.1	209.0	69.4	109.0	90.4	113.4	91.8	213.2	451.2	615.5	80
81	1871.2	270.1	415.6	18079.5	1050.4	18405.1	411.2	192.9	883.3	538.2	90
91	2095.4	957.7	874.1	5048.1	3073.7	4597.1	0.0				

DISPC= 2907.30005 POPUL= 212.368896 PRODCT=617420.062
0.76419000E+05

INDUSTRY AVERAGE WAGE

1	2.84	11.83	10.40	11.09	10.74	10.88	11.16	9.44	9.44	9.44
11	9.44	9.44	9.44	9.44	8.48	6.00	7.57	7.77	10.87	10.87
21	10.02	12.79	12.79	13.42	10.00	6.35	10.42	10.42	12.71	12.71
31	11.87	11.87	11.87	10.99	13.67	13.75	13.75	11.77	8.07	10.99
41	10.81	12.52	12.45	7.09	8.92	5.74	5.74	5.74	2.16	8.13
51	8.13	8.03	8.86	9.45	9.25					

INDUSTRY WAGES

1	2134.75	1263.99	1139.90	3129.98	1090.07	38135.16	20279.60	3183.56	2206.36	2319.06
11	1220.04	2508.45	2253.13	2285.13	665.62	14862.46	4196.17	4812.13	5352.94	2624.79
21	11910.51	12349.18	960.12	2176.57	7016.65	2459.70	2373.80	4886.28	12221.86	4779.54
31	20874.70	1898.94	5111.12	21286.72	12647.41	6532.75	5326.76	5990.37	3642.43	32960.20
41	9757.40	1800.24	7519.40	112303.00	30463.48	65235.07	2016.67	2455.08	4531.03	37361.90
51	41026.91	4319.22	16227.62	8348.79	28443.60					

INDUSTRY LABOR COMPENSATION

1	2286.28	1450.29	1477.04	3399.85	1228.19	42436.80	23265.94	4043.71	2869.92	3006.79
11	1649.13	3235.83	2926.77	2965.63	836.04	14611.18	4602.42	5382.13	5974.70	2894.66
21	13132.57	14767.10	1176.96	3362.76	8264.90	2745.58	2693.73	5625.24	15034.57	5770.87
31	24038.82	2116.13	5773.47	23947.77	18164.13	7567.66	6183.48	6959.96	4125.07	37232.58
41	11229.12	1979.08	8916.64	122251.25	35533.34	70103.06	2157.91	2627.66	4531.03	41097.83
51	45247.82	4869.11	19036.68	9129.75	32336.79					

INDUSTRY EMPLOYEES

1	751.82	106.83	109.52	282.13	101.51	3505.65	1816.81	337.16	233.66	245.60
11	129.21	265.66	238.62	242.01	78.47	2475.59	554.36	619.16	492.31	241.40
21	1188.78	965.84	75.09	162.21	701.39	387.07	227.73	468.77	961.80	376.13
31	1757.96	159.92	430.43	1937.06	925.50	475.10	387.40	508.79	451.17	2999.90
41	902.55	143.82	604.13	15846.04	3416.50	11358.14	351.12	427.46	2095.41	4597.12
51	5048.07	538.18	1831.86	883.33	3073.66					

INDUSTRY SELF-EMPLOYMENT

1	1726.43	6.05	6.21	15.99	5.75	665.01	29.31	4.45	3.09	3.24
11	1.71	3.51	3.15	3.20	1.04	32.69	8.94	9.99	6.50	3.19
21	15.70	12.75	0.99	2.14	9.26	5.11	3.67	7.56	15.51	6.07
31	28.36	2.58	6.94	31.25	14.93	7.66	6.25	8.21	7.28	172.54
41	3.45	0.55	12.00	2233.49	356.53	2335.21	72.19	87.88		

INDUSTRY PROPRIETOR INCOME

1	15259.63	62.66	63.82	146.89	53.06	5671.56	205.02	32.55	23.10	24.20
11	13.27	26.05	23.56	23.87	6.73	117.61	40.56	47.43	48.09	23.30
21	105.71	118.86	9.47	27.07	66.53	22.10	23.74	49.57	132.49	50.85
31	211.83	18.65	50.88	211.03	160.06	66.69	54.49	61.33	36.35	1547.57
41	36.58	6.45	156.08	16348.27	6222.46	31441.66	967.84	1178.52		

INDUSTRY CPBT + CCA

1	565.62	183.57	504.97	1168.79	584.23	4047.44	6680.28	1262.49	1876.70	1407.14
11	2809.43	3533.50	9554.38	8909.38	1895.12	738.64	928.52	732.08	2666.09	10658.99
21	2751.68	8925.83	5253.24	10278.57	3553.16	913.18	7862.85	13876.92	781.89	13153.93
31	16140.15	19717.86	4398.21	805.07	916.48	3264.93	1592.18	2702.36		

INDUSTRY CORP. PROFITS TAXES

1	92.76	58.05	51.58	1.93	50.89	766.18	2106.66	692.77	567.64	463.88
11	712.79	1860.91	3267.30	2.85	603.22	413.98	127.59	282.93	658.83	2702.37
21	551.17	3422.00	2194.20	4708.33	1491.70	323.80	936.50	5930.08	272.88	3791.83
31	4435.77	10150.34	614.01	173.48	246.62	629.54	172.57	86.12		

INDUSTRY CPAT + CCA

1	472.86	125.52	453.39	1166.86	533.34	3281.26	4573.61	569.73	1309.06	943.26
11	2096.64	1672.59	6287.08	8906.54	1291.90	324.66	800.93	449.15	2007.25	7956.62
21	1800.51	5503.83	3059.04	5570.25	2061.46	589.38	6926.35	7946.84	509.01	9362.10
31	11704.37	9567.02	3784.20	-23.41	669.86	2635.39	1419.62	2616.24		

INDUSTRY CORP. DIVIDENDS

1	87.21	103.51	63.40	796.42	79.36	294.41	971.39	269.10	249.56	148.83
11	474.09	339.26	1900.11	2094.07	242.23	57.78	138.72	70.06	379.26	1320.47
21	380.04	1004.01	797.40	2014.12	459.27	98.63	1109.85	2449.52	129.26	3646.84
31	1949.92	1795.90	446.55	75.42	95.65	223.30	45.78	271.14		

WAGES	664875.81
OTHER LABOR INCOME	49172.95
PROPRIETORS INCOME	81296.94
RENTAL INCOME	26957.17
DIVIDENDS	27071.76
PERSONAL INTEREST INCOME	85811.37
NET INTEREST	52671.28
GOV'T INTEREST	12665.05
CONSUMER INTEREST	20475.10
GOV'T TRANSFERS	115515.12
BUSINESS TRANSFERS	5069.05
- PERS. CONTRIB. SOCIAL INS.	34248.57
PERSONAL INCOME	1021520.44
- PERS FED. INCOME TAX	109424.62
- OTHER FEDERAL TAXES	5338.10
- S+L PERS INCOME TAX	15948.21
- OTHER S+L TAXES	16494.84
PERSONAL DISP. INCOME	874314.75

MARYLAND I/O MODEL- IBM TEST RUN
1974

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 2995.0 POPULATION 214.9

1	156.4	2143.7	0.0	0.0	0.0	0.0	4990.8	656.9	0.0	30.7	10
11	0.0	0.0	0.0	100.7	0.0	276.2	30.0	0.0	0.0	0.0	20
21	227.4	188.8	26555.0	10963.7	11024.0	3141.3	7292.2	972.4	2902.6	11043.3	30
31	4515.6	1246.0	5595.8	7290.9	1522.9	1870.3	178.8	3521.9	21962.0	3023.0	40
41	219.6	0.0	411.5	0.0	6012.0	249.2	42.8	53.4	2357.9	0.0	50
51	144.7	1938.0	2862.5	863.5	221.8	0.0	0.0	0.0	70.8	11.3	60
61	392.8	23.9	0.0	0.0	0.0	4162.3	6959.1	36.4	13578.3	0.0	70
71	0.0	1215.5	1553.1	691.1	0.0	3437.5	1955.5	562.7	0.0	200.0	80
81	6.1	126.8	15.5	0.0	0.0	0.0	20.8	0.0	0.0	3.7	90
91	0.0	0.0	0.0	56.1	41.5	46.4	421.6	908.1	106.9	0.0	100
101	218.9	178.1	620.5	0.0	0.0	48.8	0.0	145.5	38.1	0.0	110
111	0.0	0.0	0.0	0.0	202.5	830.5	5.9	0.0	13.6	28.3	120
121	0.0	1.1	5430.0	777.4	4901.8	473.6	238.9	212.9	430.4	159.7	130
131	103.9	0.0	32766.0	415.0	0.0	0.0	587.2	0.0	638.5	2137.1	140
141	0.0	28.9	668.5	236.9	979.4	589.7	2181.0	3532.8	299.6	843.5	150
151	247.4	2243.2	793.7	43.3	3039.4	28.7	0.0	11350.0	0.0	10966.4	160
161	5688.8	2205.4	38697.6	109967.8	23869.1	15982.4	72567.2	28989.2	5172.0	16118.2	170
171	5467.0	120.2	9292.9	2143.6	39011.3	3376.2	1707.9	0.0	1097.0	0.0	180
181	119.9	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	7732.0	1585.7	1069.7	3341.2	173.2	216.4	244.1	344.7	199.5	179.7	10
11	104.5	80.1	384.5	199.8	84.0	599.1	84.7	87.0	159.9	227.0	20
21	66.9	423.5	253.9	15.5	169.6	0.0	1478.1	270.9	226.4	549.8	30
31	1655.7	182.0	116.8	967.4	162.4	106.4	52.5	656.2	344.9	135.9	40
41	571.6	17.9	61.5	312.9	777.0	2387.3	8512	155.2	39.4	256.4	50
51	419.6	488.1	203.2	135.5	244.0	365.8	162.7	275.9	144.6	328.1	60
61	123.7	119.1	194.5	113.4	161.3	84.1	357.8	460.9	104.4	1434.0	70
71	317.3	64.4	52.5	33.5	19.7	70.8	57.9	189.4	262.6	1950.8	80
81	855.5	759.3	2832.3	10210.0	10029.1	14122.1	6293.3	716.7	3964.7	3349.5	90

CONSTRUCTION BY TYPE

1	29968.3	5814.6	1475.7	5333.2	6494.5	5258.1	736.9	1082.3	2634.4	1969.9	10
11	701.9	2392.0	449.6	2687.6	5761.3	2259.9	872.6	9770.2	947.8	1874.3	20
21	1503.2	1345.2	1157.8	513.9	5210.7	899.1	3623.2	2627.9	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-19.2	-433.3	0.0	-18.8	-27.3	-731.0	-713.9	0.0	0.0	10
11	-698.8	-21.5	-201.3	-1.4	-2079.5	-114.6	-289.0	0.0	0.0	0.0	20
21	-39.5	-25.7	-1563.4	-21.0	-530.4	-57.7	-42.7	-578.9	-111.4	-1067.6	30
31	-12.1	-237.7	-162.9	-146.2	-562.2	-75.7	-317.5	-66.4	-1308.6	-118.8	40
41	-826.7	-405.3	-197.4	-3.6	-66.9	-112.8	-654.3	-1133.4	-36.2	-11.0	50
51	-1.8	-4.9	-244.4	-59.3	-681.1	0.0	0.0	0.0	-61.7	-22.0	60
61	-144.4	-58.4	-55.7	-27.2	-136.3	-201.9	-30.9	-1.2	-1786.0	0.0	70
71	-0.4	-251.9	-166.8	-325.4	-53.6	-285.9	-240.4	-309.0	-53.6	-182.6	80
81	-24.6	-154.5	-1885.4	-515.9	-92.2	0.0	-391.7	-741.3	-31.3	-58.2	90
91	0.0	0.0	-10.9	-8.2	-29.9	-156.6	-21.1	-58.1	-112.9	-99.0	100
101	-151.2	-256.4	-401.2	-274.7	-150.5	-148.6	-20.1	-45.8	-680.9	-111.3	110
111	-114.3	-42.5	-14.1	-113.8	-271.7	-75.8	0.0	0.0	-81.3	-126.2	120
121	0.0	-55.0	-363.9	-158.6	-641.4	-3.4	-298.3	-293.8	-28.0	-49.3	130
131	-32.9	0.0	-5454.0	-115.1	-24.7	0.0	-18.4	-10.1	-517.2	0.0	140
141	-35.9	-30.5	-147.2	-58.4	-171.9	-154.5	-17.1	-593.0	-18.9	-122.4	150
151	0.0	0.0	0.0	-1573.5	-866.2	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	5.9	84.7	319.0	3077.1	29.0	346.1	37.1	0.0	25.0	10
11	186.2	23.0	16.1	499.7	68.0	113.7	133.7	0.0	0.0	14.5	20
21	106.9	350.9	414.9	113.2	310.5	648.5	5.9	9.6	27.1	30.5	30
31	53.1	819.2	86.6	743.3	206.4	40.6	107.5	43.2	166.8	140.7	40
41	638.0	35.6	45.7	3.5	47.9	32.1	412.6	501.7	130.1	12.6	50
51	30.0	3.3	333.4	83.6	1682.7	0.0	0.0	0.0	123.9	97.0	60
61	399.6	639.0	178.9	35.9	139.8	519.1	157.9	64.4	465.4	0.0	70
71	15.4	100.6	184.7	155.1	54.1	5.7	19.5	200.2	26.4	34.6	80
81	23.1	195.6	1435.3	331.6	2.3	5.8	359.9	188.3	118.5	93.4	90
91	14.9	8.3	1.7	151.3	667.7	89.6	433.1	306.4	43.2	308.3	100
101	137.6	653.3	446.3	1908.3	192.2	328.2	112.5	205.2	1166.9	438.0	110
111	113.0	156.1	157.3	1373.3	195.7	492.2	21.9	268.2	159.8	211.9	120
121	49.7	146.1	215.2	306.6	190.6	23.9	850.1	1052.7	44.9	137.4	130
131	129.0	30.1	4182.7	2588.0	779.1	1841.5	15.4	67.5	9.0	0.0	140
141	295.5	586.8	71.5	218.4	486.3	19.5	235.9	165.4	50.9	205.9	150
151	0.0	0.0	0.0	886.8	770.6	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2851.2	0.0							

OUTPUTS ITERATION 5 DISMAX 0.836 INVEST CYCLE 2

1	6543.8	5236.1	28557.1	1233.7	15415.6	1181.9	13349.6	2550.3	0.0	3714.0	10
11	1485.7	1386.1	1390.6	4394.0	17006.4	3433.4	710.0	37058.4	37258.4	4783.7	20
21	2899.0	1642.2	34325.1	14561.0	12870.5	12487.8	7694.4	2533.5	3303.5	11427.9	30
31	5666.1	5922.0	6184.1	10372.7	15802.4	2381.9	3049.7	7077.4	25016.5	6347.5	40
41	10493.6	2339.5	5498.1	657.8	7543.5	3995.5	1532.3	10571.4	8250.7	484.6	50
51	8355.7	8096.9	8823.1	13175.2	19585.5	0.0	0.0	0.0	1803.7	1373.2	60
61	4312.0	5429.9	1440.5	884.0	3526.2	7558.6	9178.9	3373.6	28901.9	0.0	70
71	1539.5	5453.5	4722.2	9292.9	1382.8	4008.5	1943.8	5742.3	1122.9	868.2	80
81	7242.6	4272.2	37656.1	7766.1	598.5	532.2	7820.2	1263.1	1279.8	4392.5	90
91	1293.3	3826.5	513.4	2316.5	13213.9	4073.9	8109.7	5602.8	2374.5	3786.4	100
101	4594.9	5902.2	5735.0	7307.3	3304.2	2584.7	893.8	7176.9	7250.5	3604.7	110
111	1748.7	1870.2	2412.4	9463.5	1889.6	7648.5	5375.6	1878.0	4386.3	3310.5	120
121	1651.8	1765.6	6864.9	5209.6	5222.0	562.6	15519.2	9713.7	1245.3	1856.9	130
131	928.7	2435.1	73679.5	11333.2	4245.4	5466.1	4028.8	3414.5	1121.1	2574.4	140
141	1604.6	2780.4	1335.9	2676.0	5628.7	918.3	2783.4	4328.8	559.0	4081.6	150
151	15321.1	3830.0	21927.0	1940.1	5774.0	1616.7	445.9	26996.9	4176.0	28637.4	160
161	19419.9	4938.8	97058.9	15C805.1	36276.2	32828.5	72567.2	79003.9	8441.6	18944.6	170
171	42968.8	24457.3	16591.3	4703.2	42639.1	7947.3	8076.4	877.5	868.0	1430.1	180
181	9893.6	14590.8	4290.9	455.5	6218.7	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
92434.	76893.	6004.	50C42.	-50449.	667444.	57331.	29514.	43846.	9C58.	2498.
S+L GENL PUR CONSTR				GNP						
47C95.	29473.			1061180.						

EMPLOYMENT

JOBS = 89400.6 PERSONS EMPLOYED = 85400.6 LABOR FORCE = 91270.9 CIVILIAN UNEMPLOYMENT = 6.7 PERCENT

1	2924.2	316.8	282.4	4258.1	247.6	339.2	225.9	238.2	129.1	262.2	10
11	34.3	78.4	245.5	123.9	77.3	578.6	36.8	81.5	240.2	1394.9	20
21	201.7	272.9	248.7	38.4	650.9	0.0	497.5	247.9	442.6	776.8	30
31	299.4	52.0	115.9	232.3	139.6	127.0	75.7	158.8	112.2	187.4	40
41	431.7	32.4	361.5	227.2	469.5	975.6	387.0	85.8	87.9	419.8	50
51	449.6	582.5	125.5	170.6	311.8	420.9	233.6	330.4	288.2	458.3	60
61	136.2	240.7	246.1	173.7	256.6	143.5	419.5	365.8	113.3	953.3	70
71	535.9	215.8	74.8	114.4	96.6	117.5	94.3	217.5	460.4	603.6	80
81	1924.3	299.3	405.9	18492.0	1050.2	19089.7	405.4	193.5	901.0	557.6	90
91	2072.1	922.7	887.7	5049.2	3028.9	4699.4	0.0				

DISPC= 2995.00000 POPUL= 214.939407 PRCDCT=643743.500
0.78241125E+05

INDUSTRY AVERAGE WAGE

1	2.94	12.43	10.92	11.61	11.30	11.44	11.70	9.91	9.91	9.91
11	9.91	9.91	9.91	9.91	8.98	6.23	7.95	8.10	11.43	11.43
21	10.46	13.47	13.47	14.08	10.47	6.62	10.96	10.96	13.39	13.39
31	12.47	12.47	12.47	11.56	14.42	14.53	14.53	12.40	8.43	11.54
41	11.43	13.10	13.15	7.39	9.36	6.02	6.02	6.02	2.22	8.57
51	8.57	8.37	9.29	9.92	9.80					

INDUSTRY WAGES

1	2252.13	1311.09	1188.04	3280.06	1159.31	41204.57	21917.94	3361.05	2239.09	2360.67
11	1279.61	2598.30	2344.32	2432.58	693.82	15791.77	4450.91	5271.32	5683.65	2832.76
21	12748.90	13019.63	1020.07	2235.22	7658.31	2606.14	2490.56	5147.41	13063.39	5181.13
31	23033.24	2127.74	5715.79	22641.03	13748.54	7788.42	5887.13	6521.19	3882.26	35324.87
41	10354.77	1836.31	7873.07	120225.81	33223.62	71125.62	2198.78	2676.77	4603.51	40276.24
51	43274.87	4665.38	16812.08	8936.00	29683.55					

INDUSTRY LABOR COMPENSATION

1	2416.79	1509.72	1549.40	3568.03	1310.63	45968.34	25246.87	4282.16	2928.87	3077.32
11	1735.66	3366.10	3057.39	3164.91	877.89	15464.86	4893.07	5914.28	6359.96	3132.82
21	14089.04	15644.46	1256.44	3486.32	9063.83	2915.95	2837.55	5950.07	16180.11	6300.47
31	26040.67	2381.97	6485.95	25520.75	20013.08	9049.84	6860.20	7602.46	4410.19	40008.86
41	11950.98	2030.43	9375.92	131175.37	38872.11	76601.25	2357.94	2871.23	4603.51	44403.12
51	47805.12	5283.54	19793.28	9792.68	33854.06					

INDUSTRY EMPLOYEES

1	764.85	105.50	108.75	282.42	102.55	3601.30	1873.22	339.15	225.94	238.21
11	129.12	262.18	236.56	245.46	77.27	2533.69	559.91	650.88	497.48	247.94
21	1219.39	966.30	75.71	158.79	731.29	303.94	227.17	469.51	975.64	386.55
31	1846.67	170.59	458.26	1959.32	953.28	535.90	405.08	525.89	460.43	3061.43
41	906.09	140.16	598.93	16264.71	3551.38	11816.58	365.30	444.71	2072.12	4699.36
51	5049.24	557.58	1810.37	900.99	3028.94					

INDUSTRY SELF-EMPLOYMENT

1	1659.38	5.99	6.17	16.02	5.82	656.84	28.90	4.33	2.89	3.04
11	1.65	3.35	3.02	3.13	0.99	32.35	8.64	10.04	6.39	3.17
21	15.57	12.34	0.97	2.03	9.34	5.03	3.51	7.24	15.09	5.97
31	28.49	2.63	7.07	30.23	14.71	8.27	6.25	8.11	7.10	171.63
41	3.46	0.54	12.00	2227.31	362.00	2386.13	73.76	89.80		

INDUSTRY PROPRIETOR INCOME

1	15349.84	62.57	64.22	147.88	54.32	5848.48	206.98	31.87	21.80	22.90
11	12.92	25.05	22.75	23.55	6.53	115.09	40.11	48.49	47.33	23.32
21	104.85	116.43	9.35	25.95	67.46	21.70	23.26	48.78	132.65	51.65
31	219.41	19.53	53.17	209.23	164.07	74.19	56.24	62.33	36.16	1609.66
41	38.94	6.61	167.80	16704.05	6534.28	33743.32	1038.69	1264.79		

INDUSTRY CPAT + CCA

1	667.90	182.59	540.31	1193.41	621.66	4422.27	7104.46	1353.62	1974.29	1547.01
11	2930.50	3814.07	10089.07	9352.23	1995.55	810.80	977.39	783.64	2804.75	11385.79
21	2932.92	9598.60	5513.45	11115.81	3934.19	915.30	8315.20	15030.95	825.30	13767.20
31	16995.90	21329.43	4619.68	837.29	1013.47	3623.97	1719.43	3102.15		

INDUSTRY CORP. PROFITS TAXES

1	111.84	64.12	56.54	1.93	53.71	871.88	2361.68	824.25	635.07	513.92
11	813.38	2135.35	3831.48	2.86	728.40	501.01	137.03	326.96	750.56	3141.47
21	1119.89	4068.72	2618.91	5749.25	1829.96	347.25	1037.58	7191.05	296.69	4291.87
31	4511.91	11912.13	657.18	181.60	301.96	729.14	190.48	94.93		

INDUSTRY CPAT + CCA

1	556.06	118.47	483.77	1191.48	567.96	3550.39	4742.78	529.37	1339.22	1033.09
11	2117.12	1678.72	6257.59	9349.36	1267.14	309.78	840.36	456.68	2054.19	8244.31
21	1813.02	5529.88	2894.54	5366.56	2104.23	568.05	7277.61	7839.90	528.61	9475.32
31	12083.99	9517.29	3962.51	-45.31	711.51	2894.84	1528.94	3007.22		

INDUSTRY CORP. DIVIDENDS

1	97.88	100.98	67.45	798.83	82.90	317.77	1016.38	271.70	265.55	163.65
11	483.05	340.39	1944.83	2177.34	244.92	56.13	144.20	71.00	389.55	1387.96
21	389.09	1045.08	808.87	2118.16	475.73	96.44	1159.78	2566.04	133.24	3729.81
31	2016.53	1834.55	463.27	52.77	101.81	243.98	49.28	311.84		

WAGES	713259.06
OTHER LABOR INCOME	55077.29
PROPRIETORS INCOME	84779.44
RENTAL INCOME	28138.61
DIVIDENDS	28018.67
PERSONAL INTEREST INCOME	97022.87
NET INTEREST	60884.90
GOV'T INTEREST	13540.07
CONSUMER INTEREST	22597.98
GOV'T TRANSFERS	123942.12
BUSINESS TRANSFERS	5491.46
- PERS. CONTRIB. SOCIAL INS.	36833.57
PERSONAL INCOME	1098895.00
- PERS FED. INCOME TAX	119723.75
- OTHER FEDERAL TAXES	5782.23
- S+L PERS INCOME TAX	18073.15
- OTHER S+L TAXES	17961.09
PERSONAL DISP. INCOME	937354.87

MARYLAND I/O MODEL- IBM TEST RUN
1975

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 3012.0 POPULATION 217.6

1	142.8	2174.2	0.0	0.0	0.0	0.0	5190.9	601.1	0.0	30.0	10
11	0.0	0.0	0.0	83.9	0.0	287.0	31.1	0.0	0.0	0.0	20
21	231.1	193.2	27028.2	10923.5	11299.3	3270.5	7247.2	954.7	2952.7	11156.3	30
31	4598.5	1292.0	5682.8	7351.7	1530.8	1912.6	177.6	3591.1	22397.1	3087.8	40
41	227.9	0.0	418.6	0.0	6152.2	252.1	42.5	53.5	2401.9	0.0	50
51	150.3	1946.9	2901.7	858.3	232.0	0.0	0.0	0.0	76.6	11.8	60
61	397.7	24.9	0.0	0.0	0.0	4301.2	7187.0	38.8	14051.8	0.0	70
71	0.0	1223.4	1621.2	717.9	0.0	3443.1	1995.2	577.4	0.0	194.8	80
81	6.3	132.7	15.9	0.0	0.0	0.0	21.8	0.0	0.0	3.4	90
91	0.0	0.0	0.0	51.3	41.9	48.0	417.6	932.9	111.8	0.0	100
101	233.8	161.1	621.9	0.0	0.0	49.3	0.0	152.8	38.5	0.0	110
111	0.0	0.0	0.0	0.0	205.9	857.3	6.2	0.0	13.6	29.3	120
121	0.0	1.2	5643.1	815.7	5154.5	481.4	256.7	213.3	445.8	165.3	130
131	117.8	0.0	35205.5	435.3	0.0	0.0	600.3	0.0	653.3	2168.0	140
141	0.0	30.5	695.6	231.9	1000.9	586.3	2190.4	3647.0	300.8	863.0	150
151	184.6	2126.6	776.8	40.7	2995.6	27.0	0.0	11630.7	0.0	11038.9	160
161	5796.3	2230.7	39611.9	112565.9	23991.9	15458.6	73274.9	28632.2	5088.0	15575.0	170
171	5431.9	118.4	9332.8	1766.2	40065.3	3284.4	1679.8	0.0	1114.0	0.0	180
181	120.2	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	8799.3	1651.7	1152.1	3507.7	170.3	223.9	245.5	360.0	206.9	182.3	10
11	107.0	80.5	397.8	218.8	88.5	632.9	85.1	98.8	169.5	236.3	20
21	76.3	434.0	284.8	16.8	175.6	0.0	1528.5	289.5	227.8	566.2	30
31	1755.4	168.1	113.5	952.7	170.2	117.3	60.2	683.0	397.3	160.2	40
41	572.7	20.5	57.7	333.8	789.6	2563.6	906.9	152.2	44.2	266.9	50
51	445.1	506.0	215.4	162.9	277.7	395.0	177.4	303.3	160.5	327.7	60
61	131.4	126.9	206.2	119.2	168.3	77.8	378.7	481.0	107.2	1530.7	70
71	375.8	72.7	61.3	31.5	20.0	82.1	60.2	229.8	295.3	1855.2	80
81	953.1	758.8	2748.0	11446.4	9881.2	12594.0	6235.8	753.4	4259.9	3339.6	90

CONSTRUCTION BY TYPE

1	29333.9	5896.4	1500.0	5422.8	6640.5	5350.4	710.0	1118.3	2678.3	2016.4	10
11	689.4	2392.0	460.0	2805.0	5779.9	2257.1	907.6	9850.0	948.0	1890.0	20
21	1529.0	1404.0	1180.0	514.0	5224.0	918.0	3749.0	2749.0	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-18.7	-465.2	0.0	-18.5	-27.0	-756.3	-704.6	0.0	0.0	10
11	-707.3	-20.4	-204.7	-1.3	-2069.3	-117.3	-285.3	0.0	0.0	0.0	20
21	-38.6	-21.8	-1599.4	-17.1	-535.9	-56.4	-41.0	-560.3	-112.1	-1065.7	30
31	-12.1	-233.4	-163.6	-143.7	-548.3	-75.4	-294.2	-68.3	-1272.2	-119.9	40
41	-822.8	-400.2	-195.6	-3.5	-50.6	-119.3	-662.3	-1122.8	-34.5	-10.7	50
51	-1.6	-4.7	-248.4	-59.1	-692.8	0.0	0.0	0.0	-52.3	-21.4	60
61	-145.6	-59.9	-57.7	-26.2	-143.4	-206.4	-31.3	-1.1	-1758.1	0.0	70
71	-0.4	-258.2	-160.4	-342.6	-51.0	-261.1	-241.0	-317.8	-50.5	-174.2	80
81	-20.1	-153.4	-1843.2	-509.5	-90.4	0.0	-401.1	-744.5	-31.5	-55.3	90
91	0.0	0.0	-9.2	-5.7	-19.3	-160.7	-19.6	-32.2	-112.5	-97.5	100
101	-153.9	-265.6	-450.2	-303.3	-165.1	-131.2	-15.6	-34.9	-705.4	-114.6	110
111	-124.3	-47.1	-14.5	-97.0	-256.8	-81.1	0.0	0.0	-75.9	-132.0	120
121	0.0	-57.2	-377.9	-150.5	-669.8	-2.8	-278.6	-305.1	-27.3	-46.0	130
131	-29.5	0.0	-5419.2	-108.9	-21.6	0.0	-14.0	-8.5	-493.9	0.0	140
141	-32.4	-28.7	-140.9	-54.2	-161.8	-142.6	0.0	-560.9	-17.6	-116.3	150
151	0.0	0.0	0.0	-1558.9	-830.6	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	5.5	85.6	314.5	3165.7	29.5	350.8	38.1	0.0	25.0	10
11	190.2	23.0	16.5	506.5	70.3	117.2	136.4	0.0	0.0	13.2	20
21	-103.7	365.2	421.1	110.6	315.6	664.8	6.0	9.9	27.7	31.4	30
31	54.5	844.8	88.2	758.5	203.1	42.5	112.8	45.2	171.7	147.7	40
41	660.0	36.8	46.6	3.5	51.3	33.9	428.2	517.0	135.3	13.0	50
51	40.1	3.3	349.4	86.5	1743.9	0.0	0.0	0.0	126.1	100.3	60
61	405.8	661.1	182.5	37.9	143.5	539.1	162.4	66.3	474.0	0.0	70
71	16.1	103.7	195.8	163.3	55.6	5.4	20.3	206.4	25.9	36.3	80
81	24.9	203.9	1512.4	334.2	2.3	5.9	373.2	195.7	122.6	98.1	90
91	15.1	7.9	1.5	165.0	730.1	93.2	453.8	331.3	44.8	323.4	100
101	143.4	669.3	453.5	1950.6	196.9	345.4	113.2	205.6	1193.6	449.4	110
111	115.9	160.4	160.4	1457.1	204.6	507.1	22.0	274.6	168.3	218.2	120
121	50.4	154.6	225.3	323.8	201.6	25.1	896.5	1123.2	47.5	144.5	130
131	137.3	30.5	4379.9	2721.6	840.2	2021.3	13.7	64.4	8.4	0.0	140
141	317.1	628.3	74.7	228.8	511.5	20.3	250.4	176.3	53.0	216.1	150
151	0.0	0.0	0.0	913.1	792.1	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2890.6	0.0							

OUTPUTS ITERATION 6 DISMAX 0.414 INVEST CYCLE 2

1	6295.6	5196.5	25830.3	1195.1	13187.1	1176.9	13697.3	2529.1	0.0	3626.9	10
11	1507.3	1396.5	1430.4	4481.1	17153.3	3512.0	709.8	37159.4	37866.2	4790.3	20
21	2902.3	1674.2	34910.6	14546.6	13073.0	12441.9	7660.2	2525.5	3356.0	11519.0	30
31	5767.0	5950.3	6271.9	10454.4	16016.2	2419.2	3080.3	7273.3	25410.6	6526.0	40
41	10559.0	2343.4	5532.6	659.5	7647.3	4154.0	1583.8	10634.3	8336.1	481.8	50
51	8527.1	8261.4	8963.1	13291.8	19876.7	0.0	0.0	0.0	1685.0	1368.6	60
61	4367.7	5551.7	1477.5	891.1	3676.3	7755.5	9422.9	3391.1	29009.0	0.0	70
71	1566.0	5566.5	4871.3	5624.7	1385.7	4006.0	1980.1	5915.8	1122.1	879.0	80
81	7271.7	4336.9	38613.6	7959.7	606.4	537.1	8070.1	1391.6	1322.6	4517.8	90
91	1363.1	3853.9	519.9	2289.7	13428.0	4260.7	8399.1	5802.2	2434.3	3877.7	100
101	5149.6	6081.4	6586.3	7536.1	3446.6	2763.3	921.0	7493.1	7475.9	3688.0	110
111	1836.4	1977.7	2499.5	9558.4	1915.3	7950.5	5718.1	1077.7	4365.8	3420.0	120
121	1704.3	1830.3	7070.5	5345.4	5439.2	571.9	15593.4	10041.6	1275.4	1952.4	130
131	942.7	2617.2	78822.6	11267.3	4304.5	5745.4	4039.5	3307.6	1156.8	2607.7	140
141	1644.4	2855.1	1355.7	2594.0	5700.8	921.5	3058.0	4383.3	957.0	4098.4	150
151	15485.5	3741.8	22212.3	2003.2	5855.1	1626.4	449.9	27439.9	4131.6	29020.1	160
161	19778.6	4993.2	98865.6	153610.7	36528.2	32261.3	73274.9	79037.3	8435.7	18434.3	170
171	43389.9	24883.5	16748.9	4243.2	43791.9	7953.0	8149.3	884.1	868.0	1472.8	180
181	10153.2	14795.2	4352.0	464.0	6853.8	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
94852.	76958.	1141.	52020.	-50437.	677446.	57033.	30485.	44209.	9425.	2600.
S+L GENL PUR CONSTR				GNP						
48317.	29955.			1074004.						

EMPLOYMENT

JOBS = 89860.3 PERSONS EMPLOYED = 85860.3 LABOR FORCE = 92792.0 CIVILIAN UNEMPLOYMENT = 7.7 PERCENT

1	2698.1	308.6	275.0	4230.4	244.3	336.5	216.2	235.7	128.5	257.6	10
11	34.1	77.8	244.2	122.6	74.8	574.4	34.7	80.6	236.0	1380.8	20
21	200.6	264.3	245.7	38.4	670.1	0.0	493.3	249.8	449.0	783.2	30
31	302.3	50.2	117.7	229.5	138.6	127.6	74.9	153.5	110.4	188.4	40
41	450.9	32.0	357.8	222.8	458.0	980.4	389.9	86.4	85.2	423.4	50
51	468.3	595.9	125.5	181.3	318.4	438.9	236.9	337.7	302.9	493.9	60
61	133.7	233.7	248.8	171.9	263.8	139.4	401.8	362.4	112.1	978.8	70
71	566.6	213.4	71.3	116.0	101.4	120.8	91.8	212.0	452.2	589.9	80
81	1948.6	306.9	397.0	18642.3	1037.5	19504.7	388.0	191.8	919.0	577.7	90
91	2050.0	900.0	900.0	5050.0	3000.0	4800.0	0.0				

DISPC= 3012.00000 POPUL= 217.600006 PROCCT=655411.187

0.78748000E+05

INDUSTRY AVERAGE WAGE

1	3.04	13.00	11.43	12.10	11.85	11.98	12.22	10.36	10.36	10.36
11	10.36	10.36	10.36	10.36	9.46	6.45	8.31	8.40	11.95	11.95
21	10.86	14.14	14.14	14.70	10.91	6.86	11.48	11.48	14.05	14.05
31	13.04	13.04	13.04	12.10	15.15	15.29	15.29	13.00	8.77	12.06
41	12.03	13.65	13.82	7.68	9.77	6.28	6.28	6.28	2.27	9.00
51	9.00	8.69	9.69	10.36	10.35					

INDUSTRY WAGES

1	1833.73	1333.47	1211.94	3328.67	1184.08	42913.85	23253.53	3484.75	2238.78	2440.83
11	1331.15	2667.98	2428.24	2529.01	707.56	16159.90	4558.38	5630.46	5855.79	2986.21
21	13385.12	13656.02	1059.80	2257.24	8182.34	2672.61	2558.03	5258.00	13770.96	5476.82
31	24706.33	2364.33	6442.34	23398.83	14833.71	8665.82	6128.49	6839.45	3964.51	37060.60
41	10803.11	1846.50	8015.25	126046.75	35482.43	75826.12	2344.09	2853.67	4658.73	43193.07
51	45442.71	5017.23	17446.71	9522.70	31050.00					

INDUSTRY LABOR COMPENSATION

1	1972.07	1541.24	1589.82	3626.86	1344.42	48012.18	26989.41	4458.53	2947.77	3195.84
11	1912.80	3473.16	3180.42	3303.68	904.01	15825.94	5022.80	6336.00	6611.53	3310.52
21	14842.27	16489.67	1310.68	3547.42	9731.83	2999.74	2924.85	6098.99	17168.86	6704.30
31	28609.76	2658.68	7344.55	26417.37	21877.79	10107.29	7173.23	8003.01	4518.03	42088.17
41	12519.27	2054.94	9596.19	137855.94	41713.83	81840.87	2519.23	3067.63	4658.73	47718.94
51	50275.71	5708.80	20617.46	10458.39	35520.84					

INDUSTRY EMPLOYEES

1	603.19	102.60	106.07	274.98	99.93	3581.67	1903.49	336.51	216.19	235.70
11	128.54	257.64	234.48	244.22	74.78	2506.98	548.41	670.10	493.26	249.83
21	1232.23	966.04	74.90	153.52	749.66	389.77	272.81	457.99	980.36	389.90
31	1894.05	181.26	493.88	1934.12	978.84	566.62	400.71	525.98	452.17	3071.76
41	898.21	135.24	579.88	16421.13	3630.91	12073.34	373.23	454.37	2050.00	4800.00
51	5050.00	577.67	1800.00	919.01	3000.00					

INDUSTRY SELF-EMPLOYMENT

1	1594.94	5.98	6.18	16.02	5.82	648.77	28.70	4.23	2.72	2.96
11	1.62	3.24	2.95	3.07	0.94	31.52	8.27	10.10	6.20	3.14
21	15.49	12.14	0.94	1.93	9.42	4.90	3.36	6.90	14.78	5.88
31	28.56	2.73	7.45	29.16	14.76	8.54	6.04	7.93	6.82	170.72
41	3.48	0.52	12.00	2221.15	367.55	2438.16	75.37	91.76		

INDUSTRY PROPRIETOR INCOME

1	15361.83	62.84	64.82	147.88	54.82	6006.53	209.52	31.23	20.65	22.39
11	12.70	24.33	22.28	23.14	6.33	110.86	39.14	49.37	46.32	23.19
21	103.97	115.51	9.18	24.85	68.17	21.01	22.79	47.52	133.78	52.24
31	223.54	20.72	57.23	205.84	170.47	78.75	55.89	62.36	35.20	1667.02
41	41.29	6.78	179.79	16994.73	6843.39	36054.06	1109.82	1351.41		

INDUSTRY CPAT + CCA

1	654.53	177.55	563.69	1174.61	633.42	4703.95	7344.98	1431.80	2007.58	1645.59
11	2567.49	4002.78	10261.27	9468.05	2056.42	867.47	982.83	813.22	2866.13	11886.56
21	3021.73	10184.41	5634.11	12090.51	4146.86	930.90	8463.48	15821.49	848.86	14015.77
31	17460.46	22039.25	4665.78	791.59	1101.07	3900.52	1764.31	3460.99		

INDUSTRY CORP. PROFITS TAXES

1	104.91	63.50	58.09	1.93	52.23	913.35	2447.23	888.80	645.77	545.21
11	815.52	2252.37	3928.81	2.87	758.71	548.48	133.31	343.36	758.30	3269.76
21	1154.87	4367.42	2729.01	6392.08	1950.97	356.47	1025.28	7698.97	300.40	4398.47
31	5045.73	12378.36	645.06	171.84	334.60	780.60	190.46	101.33		

INDUSTRY CPAT + CCA

1	547.62	114.05	505.60	1172.68	581.19	3790.60	4897.75	543.00	1361.81	1100.38
11	2151.97	1750.40	6332.46	9465.18	1297.72	318.99	849.52	469.86	2107.83	8616.80
21	1866.86	5816.99	2905.10	5698.43	2195.89	574.43	7438.20	8122.52	548.46	9617.30
31	12414.73	9660.89	4020.72	-130.25	766.47	3119.91	1573.85	3359.66		

INDUSTRY CORP. DIVIDENDS

1	96.80	98.59	70.69	797.40	84.26	338.62	1053.56	275.92	278.09	175.65
11	490.80	353.53	1981.21	2235.40	249.58	57.15	145.47	72.65	398.63	1447.61
21	398.73	1091.44	816.66	2243.82	494.78	97.09	1193.45	2677.03	138.08	3800.92
31	2077.13	1867.06	468.73	37.65	109.95	261.92	50.71	348.53		

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WAGES  =    750346.44
OTHER LABOR INCOME  =     60378.52
PROPRIETORS INCOME  =     88097.37
RENTAL INCOME  =     28420.87
DIVIDENDS  =     28875.21
PERSONAL INTEREST INCOME  =    104274.06
   NET INTEREST  =     67672.06
   GOV'T INTEREST  =     12325.76
   CONSUMER INTEREST  =     24276.30
GOV'T TRANSFERS  =    135666.31
BUSINESS TRANSFERS  =      5748.87
- PERS. CONTRIB. SOCIAL INS.  =     39192.77
PERSONAL INCOME  =   1162613.00
- PERS FED. INCOME TAX  =    139962.00
- OTHER FEDERAL TAXES  =      6147.97
- S+L PERS INCOME TAX  =     20000.27
- OTHER S+L TAXES  =     19168.53
PERSONAL DISP. INCOME  =    977334.31
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MARYLAND I/O MODEL- IBM TEST RUN
1976

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 3078.0 POPULATION 220.3

1	129.9	2205.6	0.0	0.0	0.0	0.0	5520.0	544.5	0.0	30.1	10
11	0.0	0.0	C.C	70.2	0.0	301.3	32.8	0.0	0.0	0.C	20
21	237.9	202.3	27513.6	10930.7	11623.1	3404.1	7199.9	940.9	3005.8	11502.6	30
31	4695.8	1342.7	5815.7	7481.0	1572.4	2000.0	179.2	3724.7	23265.8	3207.0	40
41	245.0	0.0	428.8	0.0	6421.4	259.8	42.3	54.8	2447.4	0.0	50
51	157.1	1963.3	2977.0	854.8	242.8	0.0	0.0	0.0	86.5	12.2	60
61	403.0	26.1	C.0	0.0	0.0	4446.4	7425.7	42.5	14130.2	0.0	70
71	0.0	1232.0	1749.9	750.2	0.0	3519.7	2074.1	603.6	0.0	196.C	80
81	6.5	142.7	17.1	0.0	0.0	0.0	23.4	0.0	0.0	3.3	90
91	0.0	0.0	0.0	46.6	42.4	52.0	415.8	970.9	123.8	0.0	100
101	254.4	144.1	623.9	0.0	0.0	50.5	0.0	165.6	39.8	0.0	110
111	0.0	0.0	0.0	0.0	209.4	886.5	6.5	0.0	13.7	31.1	120
121	0.0	1.2	5971.3	875.5	5449.5	496.9	275.9	215.3	466.1	172.1	130
131	141.7	0.0	39600.2	462.3	0.0	0.0	626.3	0.0	669.3	2205.5	140
141	0.0	33.2	723.5	227.1	1037.6	583.1	2253.6	3795.6	303.5	908.6	150
151	147.5	2007.3	759.3	38.1	2950.7	27.5	0.0	11919.8	0.0	11113.9	160
161	5967.6	2288.7	41021.7	116572.3	24115.1	14917.4	75707.7	28263.2	5000.8	15099.4	170
171	5433.0	116.6	9609.9	1378.9	41529.4	3322.4	1650.8	0.0	1143.8	0.0	180
181	120.5	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	8338.2	1783.4	1181.3	3509.6	167.8	211.7	213.9	354.2	231.8	176.2	10
11	105.6	78.7	394.3	213.0	88.6	604.0	90.2	104.6	185.9	218.2	20
21	83.7	432.4	305.9	17.6	169.0	0.0	1576.5	297.8	219.7	562.7	30
31	1859.1	194.5	106.5	911.8	177.0	128.7	60.5	676.8	378.8	170.9	40
41	559.7	20.7	54.8	309.5	783.5	2586.5	977.6	158.0	45.6	260.2	50
51	446.8	518.6	220.2	166.2	296.7	397.2	163.5	310.3	168.4	343.2	60
61	144.0	118.1	211.8	124.1	166.8	79.6	386.8	492.5	111.4	1660.1	70
71	410.8	77.5	69.7	30.6	19.0	89.9	55.1	237.4	306.0	1801.0	80
81	1017.9	780.9	2767.0	12283.5	9613.6	11847.8	6238.7	742.9	4791.6	3553.1	90

CONSTRUCTION BY TYPE

1	29288.8	6009.4	1529.2	5489.4	6901.5	5518.4	686.6	1157.5	2777.4	2084.8	10
11	677.0	2392.0	471.0	2924.5	5818.4	2293.5	943.4	9925.3	948.1	1905.7	20
21	1553.3	1459.3	1202.2	514.1	5230.8	936.9	3874.8	2863.1	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-18.8	-424.0	0.0	-17.6	-26.8	-809.6	-704.7	0.0	0.0	10
11	-717.3	-17.2	-209.5	-1.2	-2105.3	-122.7	-324.4	0.0	0.0	0.C	20
21	-38.2	-20.1	-1646.2	-12.8	-555.8	-59.9	-39.6	-554.3	-114.3	-1128.7	30
31	-12.2	-253.0	-168.3	-142.6	-603.3	-77.1	-298.7	-82.1	-1341.7	-129.6	40
41	-840.2	-408.2	-198.9	-3.5	-41.7	-125.3	-690.1	-1135.9	-34.5	-10.9	50
51	-1.5	-4.7	-259.8	-60.6	-731.5	0.0	0.0	0.0	-65.5	-23.8	60
61	-149.9	-63.8	-62.1	-28.3	-159.1	-216.9	-32.2	-1.1	-1802.5	0.C	70
71	-0.4	-273.9	-169.7	-378.0	-49.1	-254.2	-253.9	-336.4	-51.0	-174.7	80
81	-18.4	-158.0	-1841.6	-504.7	-89.2	0.0	-417.7	-745.9	-31.6	-53.5	90
91	0.0	0.0	-8.9	-5.4	-14.8	-165.8	-19.0	-19.8	-115.6	-99.3	100
101	-163.2	-265.3	-399.5	-314.9	-175.8	-122.6	-14.4	-28.1	-697.5	-116.9	110
111	-128.1	-44.6	-14.9	-108.1	-254.5	-86.3	0.0	0.0	-75.1	-138.2	120
121	0.0	-60.5	-429.2	-154.1	-770.8	-2.4	-269.7	-336.9	-28.2	-44.6	130
131	-28.4	0.0	-5580.5	-109.1	-20.1	0.0	-11.6	-7.9	-475.1	0.0	140
141	-30.4	-28.0	-145.3	-53.7	-161.2	-139.5	0.0	-575.3	-17.7	-118.4	150
151	0.0	0.0	0.0	-1551.7	-816.4	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	5.2	85.7	310.1	3193.0	29.6	351.4	38.3	0.0	25.0	10
11	190.5	23.0	16.5	507.3	70.8	117.8	136.9	0.0	0.0	12.0	20
21	100.6	372.8	423.5	108.0	317.7	670.7	6.1	10.0	28.1	31.6	30
31	55.1	853.8	88.8	765.3	199.9	43.1	114.8	46.1	176.0	150.3	40
41	666.2	37.1	47.0	3.5	53.4	34.7	433.1	520.6	137.8	13.2	50
51	41.3	3.4	356.0	87.8	1760.8	0.0	0.0	0.0	127.1	101.2	60
61	408.8	667.3	184.4	38.9	144.8	547.3	164.0	66.9	478.9	0.0	70
71	16.4	105.6	201.6	166.3	56.5	5.0	20.6	208.3	25.3	37.1	80
81	25.8	207.1	1548.5	336.7	2.4	5.9	376.9	197.3	123.8	100.3	90
91	15.1	7.5	1.3	172.5	765.2	94.4	461.3	344.9	45.4	330.0	100
101	146.1	673.2	455.9	1963.5	198.2	354.8	113.8	206.0	1201.2	452.0	110
111	116.6	161.3	161.5	1489.9	208.1	510.0	22.0	274.5	172.5	220.1	120
121	50.4	158.7	230.8	331.1	206.4	25.7	918.0	1153.2	48.7	148.0	130
131	140.7	30.5	4455.8	2772.4	873.4	2119.6	12.3	61.4	7.8	0.0	140
141	328.8	648.4	76.5	233.2	521.2	20.6	256.7	181.7	53.9	219.8	150
151	0.0	0.0	0.0	919.4	794.0	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2890.1	0.0							

OUTPUTS ITERATION 5 DISMAX 0.523 INVEST CYCLE 2

1	6456.2	5217.0	29028.2	1222.5	15171.3	1208.8	14378.9	2562.2	0.0	3798.5	10
11	1525.9	1440.0	1482.4	4600.1	17578.4	3654.0	758.4	37606.8	38954.8	4797.0	20
21	2910.2	1703.3	35559.7	14608.4	13491.8	13028.8	7626.6	2571.1	3417.6	11871.5	30
31	5891.4	6175.2	6428.3	10644.9	16734.9	2529.5	3179.8	7784.1	26507.1	6890.0	40
41	10868.1	2394.2	5656.9	687.8	7971.4	4286.2	1642.7	10863.2	8536.5	489.3	50
51	8847.7	8504.3	9225.9	13585.8	20705.8	0.0	0.0	0.0	1886.1	1480.8	60
61	4488.4	5740.3	1536.0	927.9	3946.6	8019.9	9719.5	3485.7	29566.5	0.0	70
71	1612.4	5747.0	5115.5	10071.7	1404.5	4119.4	2059.6	6190.4	1141.7	901.6	80
81	7376.5	4454.6	39482.2	8240.6	627.9	551.5	8392.0	1386.7	1343.5	4676.0	90
91	1448.5	3963.2	539.9	2335.8	13723.5	4443.2	8852.3	6174.8	2531.4	4004.3	100
101	5391.4	6105.2	5835.2	7627.9	3547.4	2832.0	918.6	7732.3	7464.2	3738.6	110
111	1871.3	1932.7	2555.5	9991.9	1958.3	8223.4	6022.3	1870.9	4405.6	3517.9	120
121	1747.2	1886.7	7402.5	5548.3	5645.5	590.9	15676.4	10396.1	1321.1	2054.3	130
131	991.6	2612.0	86632.4	11427.1	4358.0	6075.4	4145.2	3202.7	1169.3	2651.2	140
141	1686.6	2938.7	1401.6	2603.5	5843.2	935.4	3025.8	4525.0	968.1	4213.1	150
151	16024.3	3650.5	23091.7	2086.0	5897.8	1663.2	457.3	28005.2	4133.1	29598.8	160
161	20389.9	5135.2	101850.7	158436.1	36924.0	31882.2	75707.7	80097.6	8447.3	18012.2	170
171	44394.5	25581.0	17293.7	3793.5	45390.9	8112.1	8282.7	902.5	868.0	1523.0	180
181	10352.1	15154.3	4439.9	477.5	7562.7	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
95597.	77963.	4294.	52797.	-51647.	696244.	56990.	31444.	44574.	9794.	2693.
S+L GENL	PUB CONSTR			GNP						
49523.	30414.			1100678.						

EMPLOYMENT

JOBS = 89931.4 PERSONS EMPLOYED = 85931.4 LABOR FORCE = 94379.4 CIVILIAN UNEMPLOYMENT = 9.2 PERCENT

1	2682.7	301.9	275.6	4154.2	241.0	332.1	204.1	228.2	127.2	251.8	10
11	33.5	77.0	241.8	119.1	71.9	575.4	32.8	80.6	234.6	1426.2	20
21	205.0	261.9	242.8	38.0	691.2	0.0	488.3	252.5	453.2	781.7	30
31	294.6	50.1	117.6	227.7	137.0	127.6	76.2	146.7	109.8	192.8	40
41	467.3	31.9	364.6	217.0	453.9	985.3	392.9	86.2	85.4	420.2	50
51	491.4	617.5	122.8	171.2	319.3	452.2	227.1	341.4	315.6	507.6	60
61	130.4	228.9	250.5	171.1	272.0	135.9	385.0	357.0	112.0	1025.6	70
71	571.4	215.9	68.7	116.3	106.2	121.4	88.7	206.8	445.0	581.0	80
81	1986.2	312.3	379.2	18677.0	1007.5	19465.5	373.9	185.7	937.4	598.5	90
91	2028.8	887.6	911.3	5050.4	2984.2	4899.6	0.0				

DISPC= 3078.00000 POPUL= 220.349503 PRODCT=678235.750
0.78849562E+05

INDUSTRY AVERAGE WAGE

1	3.15	13.63	11.98	12.65	12.45	12.58	12.79	10.85	10.85	10.85
11	10.85	10.85	10.85	10.85	10.00	6.68	8.71	8.74	12.54	12.54
21	11.31	14.87	14.87	15.40	11.41	7.13	12.05	12.05	14.77	14.77
31	13.68	13.68	13.68	12.70	15.97	16.14	16.14	13.67	9.14	12.65
41	12.69	14.26	14.57	7.99	10.23	6.57	6.57	6.57	2.33	9.47
51	9.47	9.04	10.14	10.85	10.90					

INDUSTRY WAGES

1	2044.50	1359.74	1236.14	3485.90	1232.24	44197.21	24825.79	3603.43	2214.86	2475.51
11	1379.75	2731.38	2491.56	2623.16	718.42	17051.80	4728.36	6041.00	6122.06	3166.24
21	13972.35	14194.84	1132.92	2258.95	8781.01	2825.75	2616.16	5470.66	14557.63	5805.06
31	26107.61	2341.02	6942.46	24284.64	16373.35	9220.25	6469.21	7150.28	4067.94	39067.10
41	11097.71	1840.91	8153.01	131556.75	37020.87	78782.31	2435.48	2964.93	4728.55	46411.12
51	47839.48	5409.61	18245.54	10174.23	32527.92					

INDUSTRY LABOR COMPENSATION

1	2205.31	1577.44	1631.07	3803.69	1404.54	49594.39	28820.46	4630.64	2937.50	3259.59
11	1896.97	3574.25	3279.35	3441.05	927.29	16663.37	5222.12	6818.40	6880.15	3518.96
21	15551.05	17225.97	1409.05	3573.35	10495.07	3179.31	3001.77	6370.04	18270.25	7153.70
31	30431.68	2640.07	7946.79	27462.88	24492.73	10799.38	7604.64	8397.91	4650.65	44486.11
41	12926.95	2062.85	9813.56	144229.75	43814.05	85213.56	2623.05	3194.05	4728.55	51384.64
51	53011.11	6183.88	21622.43	11197.98	37322.24					

INDUSTRY EMPLOYEES

1	649.66	99.77	103.18	275.58	98.97	3513.45	1941.73	332.14	204.15	228.17
11	127.18	251.80	229.65	241.78	71.86	2554.49	542.64	691.20	488.31	252.55
21	1234.86	954.62	76.19	146.71	769.90	396.56	217.05	453.87	985.32	392.91
31	1908.85	171.16	507.60	1912.38	1025.57	571.41	400.92	523.04	445.03	3088.81
41	874.45	129.06	559.51	16462.00	3617.23	11990.98	370.69	451.27	2028.84	4899.61
51	5050.40	598.48	1798.88	937.39	2984.21					

INDUSTRY SELF-EMPLOYMENT

1	1533.00	5.87	6.07	16.22	5.83	640.80	28.73	4.09	2.51	2.81
11	1.56	3.10	2.83	2.97	0.88	31.43	8.03	10.23	6.01	3.11
21	15.19	11.75	0.94	1.81	9.47	4.88	3.21	6.71	14.58	5.81
31	28.24	2.53	7.51	28.29	15.17	8.45	5.93	7.74	6.58	169.83
41	3.49	0.51	12.00	2215.00	373.19	2491.32	77.02	93.76		

INDUSTRY PROPRIETOR INCOME

1	15427.33	62.27	64.39	150.16	55.45	6185.47	214.33	30.35	19.25	21.37
11	12.37	23.43	21.50	22.56	6.08	109.22	38.84	50.71	45.10	23.07
21	101.93	112.91	9.24	23.42	68.79	20.84	22.32	47.37	135.87	53.20
31	226.31	19.63	59.10	204.23	182.15	80.31	56.55	62.45	34.59	1730.89
41	43.91	7.01	193.14	17335.64	7199.34	38621.84	1188.86	1447.66		

INDUSTRY CPBT + CCA

1	745.44	174.25	591.95	1174.61	662.01	5057.80	7695.21	1530.06	2103.78	1797.65
11	3049.43	4251.46	10684.57	9731.92	2145.78	950.01	1009.20	857.05	2966.99	12489.20
21	3141.90	10469.88	5782.18	13468.68	4431.05	938.05	8775.80	16722.27	882.78	14405.84
31	18154.80	22882.62	4796.95	741.59	1209.19	4249.42	1816.96	3949.40		

INDUSTRY CORP. PROFITS TAXES

1	119.10	63.26	60.28	1.93	52.19	968.38	2567.64	970.41	677.99	593.04
11	831.92	2404.64	4125.25	2.88	800.24	622.71	133.24	365.44	778.17	3429.69
21	1203.38	4531.56	2855.48	7306.46	2110.72	363.20	1034.83	8282.64	308.50	4552.79
31	5234.99	13054.01	647.16	161.34	374.21	844.54	191.13	109.59		

INDUSTRY CPAT + CCA

1	627.33	111.00	531.68	1172.68	609.82	4089.42	5127.57	559.65	1425.79	1204.61
11	2217.51	1846.83	6559.31	9729.05	1345.54	327.30	875.96	491.61	2188.82	9059.52
21	1938.52	5938.32	2926.70	6162.22	2320.33	574.85	7740.96	8439.63	574.27	9853.05
31	12919.81	9828.61	4149.78	-222.75	834.99	3404.88	1625.83	3839.81		

INDUSTRY CORP. DIVIDENDS

1	107.01	96.79	73.90	796.21	87.18	364.56	1093.87	281.67	291.40	191.20
11	502.67	371.22	2027.70	2300.91	257.06	58.07	149.14	75.37	409.68	1508.05
21	410.83	1120.42	823.42	2411.96	520.02	97.14	1234.98	2787.09	144.23	3879.48
31	2147.20	1900.07	480.84	24.87	120.10	284.63	52.38	398.51		

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WAGES =    786555.50
OTHER LABOR INCOME  =     66690.12
PROPRIETORS INCOME  =     91872.56
RENTAL INCOME  =     28921.43
DIVIDENDS  =     29981.76
PERSONAL INTEREST INCOME  =    113935.19
   NET INTEREST  =     75532.00
   GOV'T INTEREST  =     12243.48
   CONSUMER INTEREST  =     26159.80
GOV'T TRANSFERS  =    149207.37
BUSINESS TRANSFERS  =      6078.55
- PERS. CONTRIB. SOCIAL INS.  =     40941.73
PERSONAL INCOME  =   1232199.00
- PERS FED. INCOME TAX  =    150000.19
- OTHER FEDERAL TAXES  =      6547.40
- S+L PERS INCOME TAX  =     22074.48
- OTHER S+L TAXES  =     20487.20
PERSONAL DISP. INCOME  =   1033089.81
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MARYLAND I/O MODEL- IBM TEST RUN
1977

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 3132.0 POPULATION 223.2

1	118.0	2250.1	0.0	0.0	0.0	0.0	5732.7	508.5	0.0	30.2	10
11	0.0	0.0	0.0	56.3	0.0	314.6	34.1	0.0	0.0	0.0	20
21	246.6	210.4	28290.7	10968.3	12028.7	3542.8	7230.2	927.2	3068.7	11820.9	30
31	4823.8	1393.5	5944.8	7603.5	1605.9	2078.2	182.0	3850.0	24047.8	3317.3	40
41	253.6	0.0	442.5	0.0	6633.0	266.7	43.0	55.9	2518.6	0.0	50
51	163.7	1995.2	3068.3	869.4	253.5	0.0	0.0	0.0	92.0	12.9	60
61	412.5	27.3	0.0	0.0	0.0	4631.5	7713.8	44.6	14428.8	0.0	70
71	0.0	1257.4	1821.2	787.1	0.0	3568.1	2144.1	627.4	0.0	195.8	80
81	6.8	148.3	17.6	0.0	0.0	0.0	24.4	0.0	0.0	3.1	90
91	0.0	0.0	0.0	43.0	43.7	53.8	419.7	1006.8	128.4	0.0	100
101	269.6	135.0	638.7	0.0	0.0	51.7	0.0	173.6	40.9	0.0	110
111	0.0	0.0	0.0	0.0	216.2	923.7	6.8	0.0	13.9	32.4	120
121	0.0	1.2	6208.7	915.6	5729.5	512.8	295.2	217.3	483.4	178.8	130
131	152.3	0.0	41832.1	489.0	0.0	0.0	650.7	0.0	697.0	2277.2	140
141	0.0	34.7	759.2	227.9	1077.1	594.0	2308.2	3955.1	310.7	935.1	150
151	102.6	1907.9	764.0	37.1	3033.5	27.4	0.0	12367.9	0.0	11403.1	160
161	6133.3	2339.7	42367.0	120395.1	24783.8	14916.2	77799.7	28708.3	5091.7	15032.7	170
171	5517.0	117.7	9789.6	1149.4	42948.3	3352.7	1665.4	0.0	1178.6	0.0	180
181	122.7	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	9475.3	1684.6	1176.2	3527.5	165.6	208.3	206.8	359.9	220.9	168.4	10
11	98.7	80.6	412.4	233.8	80.4	621.2	91.6	93.7	190.3	209.9	20
21	88.0	460.4	272.1	19.1	174.6	0.0	1579.0	298.5	223.0	568.5	30
31	1857.4	182.4	104.9	925.3	180.9	126.3	54.7	701.5	337.9	166.2	40
41	575.4	19.3	54.1	305.0	800.0	2569.2	10314	167.6	40.4	254.9	50
51	429.4	519.5	225.8	192.1	283.4	412.8	157.1	328.2	176.1	310.8	60
61	145.1	110.6	216.4	116.7	167.1	81.9	403.6	488.6	109.5	1638.9	70
71	442.7	81.4	80.0	30.7	19.6	75.6	53.6	231.8	283.1	1815.6	80
81	873.3	679.8	2855.1	12165.3	10004.4	12068.0	6465.4	727.8	5061.7	3900.4	90

CONSTRUCTION BY TYPE

1	29550.4	6121.2	1562.2	5497.8	7171.0	5692.7	666.1	1192.4	2884.2	2152.2	10
11	664.7	2392.0	479.3	3045.0	5921.5	2320.3	979.1	9997.1	948.1	1921.5	20
21	1576.5	1510.9	1224.4	514.1	5232.5	955.9	4000.6	2970.6	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-19.0	-438.5	0.0	-17.7	-26.6	-846.5	-707.9	0.0	0.0	10
11	-728.1	-15.7	-213.6	-1.1	-2146.6	-127.2	-331.4	0.0	0.0	0.0	20
21	-38.1	-19.8	-1724.1	-8.9	-579.8	-60.8	-40.6	-551.5	-117.9	-1185.5	30
31	-12.5	-260.4	-173.5	-142.4	-639.1	-78.6	-300.3	-92.8	-1404.5	-136.4	40
41	-855.8	-416.3	-203.4	-3.4	-38.2	-126.5	-719.5	-1152.0	-35.2	-11.1	50
51	-1.5	-4.8	-272.3	-62.7	-760.8	0.0	0.0	0.0	-61.5	-24.3	60
61	-153.7	-67.4	-65.4	-29.3	-170.7	-229.5	-33.6	-1.1	-1857.7	0.0	70
71	-0.5	-288.9	-175.9	-413.5	-48.0	-251.4	-265.2	-351.9	-52.1	-178.2	80
81	-18.5	-162.9	-1877.9	-501.9	-88.6	0.0	-433.4	-756.1	-32.1	-52.7	90
91	0.0	0.0	-8.9	-5.3	-14.2	-172.1	-18.7	-14.5	-118.0	-101.1	100
101	-172.4	-289.7	-480.7	-315.9	-176.4	-118.8	-15.0	-24.4	-706.2	-119.7	110
111	-138.7	-51.0	-15.0	-130.7	-258.3	-89.1	0.0	0.0	-80.0	-143.6	120
121	0.0	-63.5	-465.9	-160.1	-899.3	-2.2	-286.8	-386.0	-29.3	-44.6	130
131	-28.3	0.0	-5646.8	-111.2	-19.5	0.0	-10.4	-7.8	-502.3	0.0	140
141	-29.7	-27.8	-152.2	-55.7	-167.5	-142.9	0.0	-610.0	-18.4	-120.1	150
151	0.0	0.0	0.0	-1549.2	-887.4	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	4.9	86.6	305.8	3263.9	30.1	356.8	39.3	0.0	25.0	10
11	195.6	23.0	17.0	515.2	73.1	121.4	139.9	0.0	0.0	10.9	20
21	97.6	377.9	427.3	105.5	320.7	682.1	6.1	10.2	28.2	32.3	30
31	56.0	872.1	90.0	773.1	196.7	44.6	118.2	47.2	174.2	155.1	40
41	685.2	38.3	47.6	3.5	53.8	35.7	445.5	535.2	140.2	13.5	50
51	41.9	3.4	365.6	89.2	1813.6	0.0	0.0	0.0	128.2	104.1	60
61	411.7	686.2	185.6	39.7	147.6	559.3	167.4	68.3	481.2	0.0	70
71	16.8	106.4	205.8	171.8	56.8	4.7	21.1	213.1	24.8	37.8	80
81	26.5	212.6	1585.8	335.3	2.4	5.9	388.3	204.5	127.2	102.6	90
91	15.4	7.1	1.2	176.9	783.3	97.0	475.5	353.0	46.5	338.4	100
101	148.8	688.1	461.4	1997.7	202.2	360.3	114.5	206.4	1224.0	463.1	110
111	119.3	165.7	163.8	1543.1	213.7	525.2	22.1	283.6	176.1	225.2	120
121	51.5	162.8	234.1	340.7	212.5	26.3	940.9	1193.1	50.1	150.9	130
131	145.8	31.0	4583.5	2860.1	893.6	2177.9	10.9	58.6	7.3	0.0	140
141	336.1	667.0	77.5	239.1	537.6	21.2	264.5	186.4	55.0	227.0	150
151	0.0	0.0	0.0	944.0	820.7	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	2947.1	0.0							

OUTPUTS ITERATION 5 DISMAX 0.566 INVEST CYCLE 2

1	6351.1	5246.9	27823.9	1203.0	13880.2	1223.4	14852.3	2602.5	0.0	3794.3	10
11	1549.3	1460.1	1526.7	4734.2	17970.6	3775.9	770.2	38183.8	39964.3	4804.0	20
21	2919.8	1726.9	36528.8	14704.0	13950.3	13202.3	7669.1	2588.5	3488.3	12161.2	30
31	6051.9	6277.4	6570.9	10810.8	17156.0	2613.6	3222.8	8044.5	27284.3	7126.1	40
41	11130.5	2437.7	5783.0	699.2	8202.1	4317.8	1703.2	11081.4	8734.2	494.9	50
51	9120.4	8774.6	9499.0	13915.8	21226.0	0.0	0.0	0.0	1832.3	1507.8	60
61	4590.6	5912.2	1576.7	945.2	4141.2	8298.3	10075.7	3512.8	30099.6	0.0	70
71	1654.7	5903.1	5247.9	10472.2	1431.6	4169.7	2120.9	6410.1	1157.1	921.6	80
81	7492.8	4555.1	40378.4	8463.6	640.8	557.9	8675.4	1429.9	1384.7	4840.2	90
91	1522.9	4060.6	552.2	2358.7	13992.7	4640.9	9015.4	6330.1	2594.1	4090.4	100
101	5598.6	6458.9	7136.8	7671.9	3558.7	2866.3	903.1	7949.8	7552.6	3798.0	110
111	1954.9	2070.5	2584.1	10549.6	2002.2	8378.5	6402.6	1929.0	4539.9	3597.9	120
121	1785.8	1929.8	7618.4	5707.5	5819.2	608.8	16090.5	10818.5	1357.0	2144.5	130
131	1014.1	2732.2	89981.1	11672.8	4401.2	6455.9	4109.9	3288.9	1228.5	2728.8	140
141	1722.5	2994.7	1443.1	2679.4	6047.4	956.6	3198.0	4682.8	984.1	4263.9	150
151	16355.8	3582.6	23611.3	2164.6	6011.4	1697.0	467.1	28895.9	4140.3	30376.2	160
161	20967.5	5250.2	104542.4	163154.7	37908.8	32154.9	77799.7	81705.4	8640.1	18016.8	170
171	45353.6	26314.7	17653.4	3537.9	46930.0	8269.3	8474.0	926.3	868.0	1573.0	180
181	10622.0	15532.9	4550.9	488.6	8331.5	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
97873.	79292.	2413.	54019.	-53320.	715851.	57165.	32401.	44944.	10168.	2780.
S+L GENL PUR	CONSTR			GNP						
50725.	30852.			1125161.						

EMPLOYMENT

JOBS = 90291.1 PERSONS EMPLOYED = 86281.1 LABOR FORCE = 96009.4 CIVILIAN UNEMPLOYMENT =10.5 PERCENT

1	2531.4	294.9	277.1	4115.6	237.7	329.9	195.8	223.5	126.7	247.4	10
11	33.1	76.4	241.2	117.2	68.9	574.9	31.2	79.6	232.4	1438.1	20
21	205.4	258.2	240.9	37.9	707.9	0.0	485.6	255.4	460.8	785.6	30
31	296.6	48.9	118.6	276.8	135.9	127.1	79.1	141.2	108.7	192.7	40
41	485.6	32.4	365.9	214.7	448.7	991.2	395.2	86.8	84.6	418.0	50
51	507.1	630.5	122.8	183.7	316.0	460.8	219.4	347.0	330.7	555.2	60
61	125.3	229.9	250.8	169.7	279.5	131.7	376.7	353.5	110.9	1034.9	70
71	567.2	211.1	67.0	118.3	108.3	122.2	88.3	203.9	439.2	566.2	80
81	2038.3	295.0	360.6	18893.7	985.0	19609.6	362.4	182.0	956.1	620.1	90
91	2008.5	883.5	921.7	5050.5	2979.0	4998.8	0.0				

DISPC= 3132.00000 POPUL= 223.195541 PRODCT=699048.375
0.79215187E+05

1977

INDUSTRY AVERAGE WAGE

1	3.25	14.28	12.55	13.21	13.07	13.20	13.37	11.36	11.36	11.36
11	11.36	11.36	11.36	11.36	10.55	6.91	9.13	9.08	13.14	13.14
21	11.78	15.63	15.63	16.11	11.91	7.40	12.64	12.64	15.53	15.53
31	14.33	14.33	14.33	13.32	16.80	17.01	17.01	14.36	9.52	13.25
41	13.38	14.89	15.35	8.31	10.71	6.87	6.87	6.87	2.39	9.96
51	9.96	9.40	10.60	11.36	11.49					

INDUSTRY WAGES

1	1815.86	1382.09	1268.16	3659.20	1268.29	45955.34	26272.75	3746.00	2224.10	2537.65
11	1438.38	2809.61	2574.39	2739.06	727.19	17706.68	4901.58	6430.27	6379.92	3356.02
21	14677.15	14906.20	1236.16	2775.23	9370.39	2946.39	2714.26	5673.27	15390.25	6136.14
31	27539.14	2631.71	7955.14	25338.82	17390.09	9648.56	6741.99	7505.14	4181.28	40948.81
41	11479.79	1830.57	8355.61	138697.25	38992.88	82706.00	2556.77	3112.59	4796.47	49800.07
51	50315.38	5827.51	19142.62	10860.70	34243.05					

INDUSTRY LABOR COMPENSATION

1	1963.34	1609.38	1683.02	3998.53	1451.61	51715.40	30618.16	4833.35	2968.37	3358.00
11	1974.75	3693.42	3403.45	3606.62	948.54	17277.66	5425.92	7279.16	7185.92	3739.26
21	16390.36	18177.79	1544.40	3625.35	11254.89	3324.19	3126.10	6630.86	19443.61	7611.93
31	32220.92	2981.65	9150.55	28704.29	26338.25	11350.73	7960.47	8847.27	4795.41	46754.93
41	13434.47	2065.67	10109.57	152418.06	46421.36	85650.00	2759.61	3360.34	4796.47	55253.52
51	55841.37	6692.72	22751.14	11979.35	39396.32					

INDUSTRY EMPLOYEES

1	557.90	96.80	101.03	277.07	97.02	3482.65	1964.69	329.86	195.85	223.46
11	126.66	247.41	226.69	241.19	68.90	2561.69	537.07	707.94	485.59	255.44
21	1246.38	953.85	79.10	141.24	786.93	398.26	214.67	448.70	991.25	395.21
31	1922.05	183.68	555.22	1902.70	1034.87	567.25	396.37	522.65	439.16	3091.10
41	858.02	122.94	544.40	16684.80	3641.05	12043.89	372.32	453.26	2008.45	4998.81
51	5050.54	620.05	1805.18	956.14	2978.95					

INDUSTRY SELF-EMPLOYMENT

1	1473.46	5.75	6.01	16.47	5.77	632.93	28.52	3.98	2.36	2.69
11	1.53	2.98	2.73	2.91	0.83	30.88	7.80	10.28	5.85	3.08
21	15.02	11.50	0.95	1.70	9.49	4.80	3.12	6.51	14.39	5.74
31	27.90	2.67	8.06	27.62	15.02	8.23	5.75	7.59	6.37	168.93
41	3.50	0.50	12.00	2208.88	378.91	2545.64	78.70	95.80		

INDUSTRY PROPRIETOR INCOME

1	15469.50	61.46	64.28	152.71	55.44	6363.55	217.29	29.68	18.23	20.62
11	12.12	22.68	20.90	22.14	5.82	106.08	38.51	51.66	44.12	22.96
21	100.63	111.61	9.49	22.26	69.10	20.41	22.18	47.06	137.99	54.02
31	228.65	21.16	64.94	203.71	186.91	80.55	56.49	62.79	34.03	1795.63
41	46.68	7.18	207.25	17666.89	7561.27	41336.18	1272.41	1549.40		

INDUSTRY CPAT + CCA

1	760.79	169.92	623.23	1171.78	682.08	5439.58	8050.04	1630.82	2164.35	1937.74
11	3125.19	4522.96	10978.23	9990.47	2216.40	1029.85	1032.02	888.24	3059.14	13032.30
21	3272.45	11111.09	5957.87	14223.99	4761.68	958.17	9012.44	17868.35	919.30	14834.26
31	18831.64	24186.61	4935.72	724.75	1325.02	4626.20	1914.39	4455.54		

INDUSTRY CORP. PROFITS TAXES

1	117.14	62.51	62.72	1.93	51.29	1024.76	2684.38	1052.58	696.29	636.70
11	842.66	2565.49	4256.65	2.88	831.10	694.09	132.24	382.23	791.93	3555.34
21	1251.51	4947.42	2985.87	7816.80	2289.31	373.28	1030.02	8992.84	316.89	4707.93
31	5408.36	14068.76	648.88	156.92	416.26	911.18	195.88	117.66		

INDUSTRY CPAT + CCA

1	643.65	107.41	560.51	1169.85	630.79	4414.81	5365.65	578.24	1468.06	1301.04
11	2282.53	1957.48	6721.57	9987.58	1385.30	335.76	899.78	506.02	2267.21	9476.96
21	2020.94	6263.68	2972.01	6407.20	2472.36	584.89	7982.43	8875.51	602.42	10126.32
31	13423.28	10117.84	4286.84	-291.17	908.76	3715.02	1718.51	4337.88		

INDUSTRY CORP. DIVIDENDS

1	109.11	94.92	77.29	794.72	89.33	392.81	1136.53	288.69	303.59	206.81
11	515.68	391.51	2074.10	2369.47	264.95	59.00	152.45	77.17	421.32	1567.18
21	425.07	1167.27	832.02	2539.25	551.24	98.17	1273.43	2907.20	151.28	3968.28
31	2222.32	1947.89	493.70	14.80	131.03	309.35	55.34	450.36		

WAGES	= 827114.69
OTHER LABOR INCOME	= 71906.00
PROPRIETORS INCOME	= 95776.44
RENTAL INCOME	= 29350.05
DIVIDENDS	= 30924.56
PERSONAL INTEREST INCOME	= 123707.75
NET INTEREST	= 83926.69
GOV'T INTEREST	= 11754.88
CONSUMER INTEREST	= 28026.20
GOV'T TRANSFERS	= 161878.06
BUSINESS TRANSFERS	= 6418.88
- PERS. CONTRIB. SOCIAL INS.	= 44320.80
PERSONAL INCOME	= 1302753.00
- PERS FED. INCOME TAX	= 160940.94
- OTHER FEDERAL TAXES	= 6952.37
- S+L PERS INCOME TAX	= 24351.20
- OTHER S+L TAXES	= 21824.19
PERSONAL DISP. INCOME	= 1088684.00

MARYLAND I/O MODEL- IBM TEST RUN
1978

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 3188.0 POPULATION 226.1

1	106.1	2298.1	0.0	0.0	0.0	0.0	5941.1	475.8	0.0	30.4	10
11	0.0	0.0	0.0	42.4	0.0	328.4	35.3	0.0	0.0	0.0	20
21	256.0	218.9	29137.8	11015.7	12461.3	3686.3	7274.7	914.1	3135.7	12162.5	30
31	4962.6	1445.6	6079.4	7735.9	1641.3	2161.2	185.3	3983.3	24866.3	3433.5	40
41	261.8	0.0	457.5	0.0	6850.9	274.2	44.0	57.0	2596.2	0.0	50
51	170.5	2031.5	3167.1	887.6	264.5	0.0	0.0	0.0	97.2	13.5	60
61	423.1	28.5	0.0	0.0	0.0	4828.9	8019.2	46.5	14774.6	0.0	70
71	0.0	1286.7	1889.4	826.1	0.0	3619.3	2217.4	652.1	0.0	195.9	80
81	7.0	153.6	18.0	0.0	0.0	0.0	25.5	0.0	0.0	2.9	90
91	0.0	0.0	0.0	39.6	45.2	55.4	425.0	1044.1	132.4	0.0	100
101	284.6	127.2	656.3	0.0	0.0	53.0	0.0	181.5	42.1	0.0	110
111	0.0	0.0	0.0	0.0	223.8	963.8	7.1	0.0	14.1	33.7	120
121	0.0	1.3	6447.7	954.9	6016.0	530.5	314.9	219.4	501.0	185.8	130
131	161.6	0.0	43908.8	516.9	0.0	0.0	676.7	0.0	727.7	2359.3	140
141	0.0	36.1	797.1	229.8	1119.3	607.8	2368.0	4123.2	319.0	961.2	150
151	57.5	1809.9	772.7	36.3	3140.8	27.5	0.0	12855.2	0.0	11737.4	160
161	6306.8	2393.3	43780.0	124410.7	25562.8	15007.8	80035.5	29305.8	5215.6	15041.9	170
171	5620.7	119.3	9977.8	942.3	44430.9	3393.6	1688.0	0.0	1216.1	0.0	180
181	125.5	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	8177.9	1710.0	1169.6	3674.0	162.9	203.8	211.8	304.3	229.1	156.5	10
11	94.9	77.5	390.1	222.8	74.8	603.9	95.7	90.0	179.8	218.0	20
21	83.5	465.1	259.9	17.4	167.2	0.0	1452.1	298.0	231.4	578.5	30
31	1786.9	201.7	103.9	923.4	173.7	124.6	53.6	682.9	344.5	159.1	40
41	604.0	17.8	56.2	317.5	739.0	2402.1	992.9	166.0	35.1	246.8	50
51	413.1	517.9	209.1	209.0	269.5	366.2	148.0	300.9	171.4	320.5	60
61	137.9	110.0	209.7	116.2	170.7	84.2	407.9	512.3	110.3	1548.8	70
71	448.8	77.1	81.4	32.5	19.9	68.6	50.2	223.1	290.7	1840.9	80
81	954.7	706.9	2945.1	12222.4	10591.8	12769.9	6766.7	736.6	5313.0	4143.2	90

CONSTRUCTION BY TYPE

1	30260.2	6234.8	1598.2	5548.9	7457.8	5879.2	647.8	1225.5	3000.5	2222.1	10
11	652.3	2392.0	487.5	3165.1	6042.7	2357.9	1014.8	10066.2	948.1	1937.3	20
21	1598.8	1558.7	1246.6	514.1	5230.4	974.9	4126.4	3072.1	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-19.5	-407.6	0.0	-17.4	-26.5	-892.0	-714.3	0.0	0.0	10
11	-723.9	-14.4	-217.0	-0.9	-2207.2	-132.8	-365.3	0.0	0.0	0.0	20
21	-38.3	-20.5	-1810.6	-5.5	-606.1	-64.7	-42.1	-554.1	-122.1	-1252.4	30
31	-12.9	-281.4	-179.7	-142.8	-695.4	-80.6	-312.0	-106.9	-1494.2	-146.3	40
41	-877.5	-428.8	-210.2	-3.4	-38.4	-131.6	-754.7	-1174.3	-36.6	-11.5	50
51	-1.5	-5.0	-286.1	-65.3	-809.9	0.0	0.0	0.0	-71.8	-26.5	60
61	-158.2	-71.7	-68.4	-31.2	-184.9	-244.8	-35.1	-1.1	-1947.7	0.0	70
71	-0.5	-298.7	-186.1	-454.9	-48.2	-255.3	-279.2	-370.3	-54.7	-184.4	80
81	-20.1	-168.7	-1879.3	-500.5	-88.3	0.0	-446.7	-762.3	-32.5	-52.5	90
91	0.0	0.0	-9.7	-6.1	-16.5	-175.3	-18.8	-16.2	-121.1	-103.7	100
101	-181.7	-286.7	-378.7	-333.6	-175.2	-122.2	-17.1	-23.6	-689.6	-117.9	110
111	-135.3	-44.8	-15.0	-148.8	-267.9	-92.5	0.0	0.0	-86.8	-145.5	120
121	0.0	-64.6	-514.4	-170.0	-1056.7	-2.1	-310.6	-438.2	-31.0	-44.9	130
131	-29.0	0.0	-5777.9	-112.9	-19.6	0.0	-10.6	-7.8	-506.3	0.0	140
141	-29.8	-28.1	-160.9	-58.8	-177.7	-148.4	0.0	-659.4	-19.4	-124.8	150
151	0.0	0.0	0.0	-1550.4	-980.9	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	4.6	87.8	301.5	3347.0	30.5	364.1	40.4	0.0	25.0	10
11	202.6	23.0	17.7	525.6	75.9	126.1	143.9	0.0	0.0	10.0	20
21	94.7	380.9	431.2	103.1	323.7	694.7	6.0	10.5	28.3	33.2	30
31	57.0	892.6	91.3	780.2	193.5	46.5	121.9	48.2	169.5	160.3	40
41	708.3	39.9	48.3	3.5	53.2	36.8	460.0	553.4	142.1	13.8	50
51	42.2	3.3	•375.2	90.4	1877.2	0.0	0.0	0.0	129.0	107.7	60
61	414.2	708.9	186.3	40.3	150.7	571.5	171.2	70.1	481.9	0.0	70
71	17.2	106.5	208.4	177.6	56.8	4.4	21.5	218.7	24.3	38.4	80
81	27.0	218.7	1618.1	332.1	2.4	6.0	402.1	213.5	131.2	104.4	90
91	15.8	6.8	1.0	178.9	789.5	100.0	491.0	356.9	47.7	346.5	100
101	151.2	706.5	467.5	2038.0	207.0	362.9	115.2	206.8	1251.6	476.9	110
111	122.6	171.2	166.5	1599.1	219.5	544.4	22.3	296.3	178.9	231.2	120
121	53.1	166.2	235.8	350.2	218.3	26.8	961.2	1232.2	51.4	152.9	130
131	151.0	31.8	4719.3	2954.1	904.0	2206.4	9.8	55.9	6.8	0.0	140
141	340.1	682.0	78.1	244.9	555.1	21.9	271.8	190.0	55.8	234.9	150
151	0.0	0.0	0.0	974.5	856.4	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	3025.9	0.0							

OUTPUTS ITERATION 5 DISMAX 0.313 INVEST CYCLE 2

1	6458.5	5305.1	30298.5	1210.6	15282.9	1246.9	15427.4	2658.2	0.0	3938.4	10
11	1549.7	1478.7	1561.9	4856.7	18471.1	3923.6	815.5	38973.3	41138.3	4811.3	20
21	2930.0	1747.8	37569.7	14813.8	14431.8	13773.6	7725.3	2622.6	3562.3	12477.5	30
31	6225.1	6502.4	6723.5	10992.9	17695.0	2715.7	3284.0	8429.7	28157.3	7422.0	40
41	11461.5	2495.8	5549.8	718.6	8472.1	4408.5	1769.0	11332.5	8969.4	503.9	50
51	9421.5	9056.5	9789.0	14276.9	21993.4	0.0	0.0	0.0	1982.9	1606.5	60
61	4703.7	6106.0	1611.5	970.9	4371.3	8610.4	10447.8	3563.3	30843.6	0.0	70
71	1705.4	5997.6	5382.0	10901.2	1416.8	4239.6	2187.7	6655.0	1180.5	941.9	80
81	7645.4	4653.3	40477.2	8651.7	654.1	562.4	8905.3	1467.8	1408.0	5003.3	90
91	1587.2	4175.6	569.8	2404.3	14285.3	4734.1	9207.0	6577.8	2656.4	4172.7	100
101	5786.8	6438.9	5541.4	7818.4	3553.4	2789.5	873.8	8029.3	7480.7	3783.3	110
111	1933.1	1950.4	2580.9	10956.1	2054.8	8555.5	6550.1	2004.3	4693.0	3629.9	120
121	1800.4	1945.5	7863.3	5872.6	5981.8	628.9	16538.4	11222.6	1396.3	2186.9	130
131	1051.6	2622.4	93799.9	11870.4	4427.6	6875.8	4265.0	3290.1	1236.5	2825.5	140
141	1751.4	3047.6	1481.9	2784.0	6277.1	976.4	3221.9	4856.0	1000.7	4385.7	150
151	16773.4	3517.1	24353.7	2268.1	6134.7	1741.2	478.6	29905.4	4149.9	31234.8	160
161	21573.2	5389.8	107428.3	168114.7	39039.7	32617.8	80035.5	83913.9	8867.8	18099.3	170
171	46549.0	27066.0	18074.7	3311.2	48555.1	8445.5	8688.1	953.4	868.0	1625.0	180
181	10846.4	15921.1	4668.9	499.9	9112.6	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
98349.	81187.	3054.	55290.	-55078.	736860.	57526.	33365.	45321.	10550.	2862.
S+L GENL	PUB CONSTR			GNP						
51929.	31274.			1152487.						

EMPLOYMENT

JOBS = 90880.9 PERSONS EMPLOYED = 86880.9 LABOR FORCE = 97641.0 CIVILIAN UNEMPLOYMENT =11.4 PERCENT

1	2542.4	287.7	278.5	4144.8	234.3	328.8	189.1	219.2	126.1	245.3	10
11	32.8	75.9	240.9	114.6	66.9	573.1	29.7	78.8	229.8	1460.1	20
21	207.8	256.0	240.0	37.6	725.7	0.0	483.6	258.2	469.4	789.9	30
31	295.8	48.5	119.2	225.5	135.0	127.3	80.2	136.3	106.4	192.5	40
41	503.1	32.3	368.8	213.5	446.3	986.5	395.3	87.4	84.6	415.5	50
51	518.7	643.7	120.9	162.3	314.3	464.6	211.5	348.2	337.0	573.7	60
61	120.8	231.9	249.1	167.4	287.4	127.1	369.0	349.4	108.9	1033.8	70
71	546.1	216.0	66.3	119.0	110.2	122.3	89.4	201.9	434.3	551.5	80
81	2063.3	302.1	345.6	19076.5	970.1	19876.2	352.0	178.7	975.3	642.4	90
91	1988.6	885.6	931.5	5050.5	2981.6	5098.2	0.0				

DISPC= 3188.00000 POPUL= 226.148209 PRODCT=720960.437
0.79819187E+05

INDUSTRY AVERAGE WAGE

1	3.37	14.98	13.17	13.81	13.75	13.87	14.01	11.91	11.91	11.91
11	11.91	11.91	11.91	11.91	11.16	7.17	9.58	9.46	13.79	13.79
21	12.28	16.45	16.45	16.88	12.45	7.69	13.29	13.29	16.34	16.34
31	15.04	15.04	15.04	13.99	17.72	17.96	17.96	15.11	9.93	13.90
41	14.13	15.57	16.19	8.66	11.22	7.19	7.19	7.19	2.45	10.50
51	10.50	9.79	11.11	11.91	12.10					

INDUSTRY WAGES

1	2111.45	1394.67	1297.32	3846.08	1321.24	48801.11	27798.25	3914.77	2251.19	2609.55
11	1501.28	2920.27	2659.45	2868.61	746.43	18485.13	5108.87	6861.87	6670.30	3561.28
21	15459.11	15649.28	1319.97	2301.06	9987.70	3085.99	2836.08	5929.28	16123.08	6460.60
31	28823.73	2440.83	8625.20	26443.70	18316.80	9808.48	7207.00	7915.33	4314.05	43008.32
41	11986.70	1832.95	8593.70	146154.00	41418.74	87617.69	2708.61	3297.44	4874.54	53508.05
51	53007.00	6288.34	20179.29	11613.14	36077.15					

INDUSTRY LABOR COMPENSATION

1	2290.10	1630.26	1731.74	4208.76	1518.06	55065.35	32521.20	5069.85	3021.93	3469.59
11	2069.93	3854.49	3531.59	3790.68	982.45	17980.83	5668.43	7790.75	7530.14	3978.01
21	17318.92	19177.45	1656.92	3694.99	12055.76	3490.91	3279.22	6957.30	20501.11	8067.04
31	33847.03	2770.89	9962.34	30007.46	28077.33	11593.02	8545.08	9364.93	4963.35	49239.01
41	14084.04	2082.20	10448.10	160992.94	49567.45	95179.50	2929.82	3567.60	4874.54	55495.46
51	58922.78	7255.39	24046.20	12836.69	41616.71					

INDUSTRY EMPLOYEES

1	626.19	93.08	98.49	278.46	96.10	3519.69	1984.09	328.78	189.06	219.16
11	126.08	245.26	223.35	240.92	66.88	2579.35	533.55	725.70	483.64	258.22
21	1259.28	951.23	80.23	136.29	802.05	401.08	213.48	446.31	986.50	395.30
31	1917.07	162.34	573.66	1890.21	1033.84	546.11	401.27	523.88	434.26	3094.42
41	848.37	117.73	530.68	16873.75	3689.91	12186.77	376.74	458.64	1988.66	5098.21
51	5050.47	642.39	1817.03	975.26	2981.58					

INDUSTRY SELF-EMPLOYMENT

1	1416.24	5.59	5.91	16.72	5.77	625.15	28.50	3.88	2.23	2.58
11	1.49	2.89	2.63	2.84	0.79	30.41	7.66	10.42	5.70	3.04
21	14.85	11.21	0.95	1.61	9.46	4.73	3.07	6.41	14.17	5.68
31	27.53	2.33	8.24	27.15	14.85	7.84	5.76	7.52	6.24	168.04
41	3.51	0.49	12.00	2202.77	384.73	2601.15	80.41	97.89		

INDUSTRY PROPRIETOR INCOME

1	15549.84	60.26	64.01	155.57	56.11	6556.61	222.13	29.11	17.35	19.92
11	11.88	22.13	20.28	21.76	5.64	103.23	38.72	53.21	43.23	22.84
21	99.43	110.10	9.51	21.21	69.22	20.04	22.40	47.52	140.03	55.10
31	231.18	18.93	68.04	204.96	191.77	79.18	58.36	63.96	33.90	1865.95
41	49.69	7.35	222.73	18035.01	7949.40	44316.89	1364.16	1661.13		

INDUSTRY CPBT + CCA

1	847.52	164.44	654.04	1175.29	711.03	5875.40	8465.38	1740.37	2239.90	2094.17
11	3211.73	4816.94	11383.57	10322.00	2283.81	1113.63	1061.64	927.24	3162.62	13494.20
21	3416.35	11159.07	6127.96	15038.10	5125.67	970.43	9312.50	19150.91	957.93	15300.36
31	19549.61	25677.18	5098.93	710.80	1453.24	5051.00	2025.41	5041.65		

INDUSTRY CORP. PROFITS TAXES

1	126.40	61.48	64.94	1.93	51.04	1089.65	2820.24	1143.43	719.61	685.25
11	856.32	2740.02	4432.97	2.89	861.02	770.65	132.26	402.30	808.53	3651.15
21	1305.00	4887.38	3116.74	8373.32	2487.54	381.01	1032.44	9798.93	325.75	4876.63
31	5591.21	15250.14	653.82	153.08	463.39	985.55	201.59	126.55		

INDUSTRY CPAT + CCA

1	721.11	102.96	589.10	1173.36	659.99	4785.75	5645.14	596.93	1520.30	1408.92
11	2355.41	2076.92	6950.60	10319.11	1422.79	342.98	929.37	524.94	2354.09	9843.05
21	2111.36	6271.69	3011.22	6664.78	2638.13	589.42	8280.05	9351.98	632.17	10423.73
31	13958.40	10427.04	4445.11	-361.28	989.85	4065.45	1823.82	4915.10		

INDUSTRY CORP. DIVIDENDS

1	119.04	92.69	80.74	794.12	92.32	425.00	1104.26	296.49	315.78	223.78
11	530.18	413.42	2127.25	2449.56	272.78	59.80	156.56	79.54	433.96	1622.14
21	440.98	1183.35	841.07	2654.38	585.96	98.63	1316.19	3038.35	158.96	4066.86
31	2302.53	2003.97	508.54	5.66	143.04	337.28	58.71	510.45		

WAGES	= 871940.62
OTHER LABOR INCOME	= 78934.87
PROPRIETORS INCOME	= 100090.87
RENTAL INCOME	= 29855.88
DIVIDENDS	= 32024.24
PERSONAL INTEREST INCOME	= 134791.31
NET INTEREST	= 93467.94
GOV'T INTEREST	= 11430.85
CONSUMER INTEREST	= 29892.59
GOV'T TRANSFERS	= 175033.56
BUSINESS TRANSFERS	= 6807.09
- PERS. CONTRIB. SOCIAL INS.	= 46610.35
PERSONAL INCOME	= 1382865.00
- PERS FED. INCOME TAX	= 173056.94
- OTHER FEDERAL TAXES	= 7412.22
- S+L PERS INCOME TAX	= 26880.14
- OTHER S+L TAXES	= 23342.31
PERSONAL DISP. INCOME	= 1152173.00

MARYLAND I/O MODEL- 18M TEST RUN
1979

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 3251.0 POPULATION 229.2

1	94.7	2352.4	0.0	0.0	0.0	0.0	6138.0	451.0	0.0	30.9	10
11	0.0	0.0	0.0	29.0	0.0	342.8	36.6	0.0	0.0	0.0	20
21	267.1	228.3	30117.6	11089.1	12944.9	3835.1	7351.1	901.8	3208.2	12556.7	30
31	5119.0	1499.6	6226.5	7884.6	1682.5	2252.6	189.9	4131.0	25769.1	3561.4	40
41	268.8	0.0	474.8	0.0	7081.0	282.6	45.3	58.3	2685.7	0.0	50
51	177.8	2076.6	3282.9	913.7	275.8	0.0	0.0	0.0	101.7	14.3	60
61	435.6	29.8	0.0	0.0	0.0	5046.0	8350.5	48.1	15215.0	0.0	70
71	0.0	1323.5	1950.7	868.9	0.0	3678.0	2297.9	679.2	0.0	197.0	80
81	7.3	158.2	18.4	0.0	0.0	0.0	26.5	0.0	0.0	2.8	90
91	0.0	0.0	0.0	36.6	47.1	56.8	433.2	1084.5	135.1	0.0	100
101	299.1	122.4	679.4	0.0	0.0	54.4	0.0	188.8	43.5	0.0	110
111	0.0	0.0	0.0	0.0	232.8	1007.9	7.5	0.0	14.4	35.0	120
121	0.0	1.4	6681.7	992.3	6311.0	550.5	335.4	221.9	518.8	193.2	130
131	168.2	0.0	45634.9	546.6	0.0	0.0	705.6	0.0	763.6	2457.5	140
141	0.0	37.3	838.9	234.0	1167.1	627.4	2438.2	4306.7	329.7	986.6	150
151	15.2	1718.4	790.3	36.0	3300.8	27.9	0.0	13415.6	0.0	12163.5	160
161	6497.5	2453.4	45313.3	128767.9	26572.4	15314.5	82601.7	30237.4	5412.2	15233.8	170
171	5768.5	122.1	10189.5	794.2	46020.1	3464.7	1728.4	0.0	1259.5	0.0	180
181	129.0	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	9254.4	1772.9	1221.6	3801.0	160.3	215.5	223.2	334.4	232.6	159.1	10
11	98.5	81.3	401.0	230.7	78.4	636.3	91.8	91.0	190.7	229.9	20
21	87.9	503.3	278.1	18.9	176.8	0.0	1520.9	310.3	248.5	606.4	30
31	1887.8	198.9	108.6	973.0	181.2	128.5	52.7	710.7	347.4	157.6	40
41	655.0	17.6	59.8	338.7	787.9	2446.2	1001.7	116.5	36.7	255.2	50
51	417.3	541.6	227.9	229.8	262.6	346.4	147.4	218.1	180.1	326.9	60
61	141.2	118.4	205.9	116.9	177.9	87.0	421.5	933.7	111.1	1576.4	70
71	454.2	74.2	53.8	35.5	21.0	70.0	52.9	219.2	284.5	1947.5	80
81	995.5	713.9	3075.2	12620.5	11390.4	14016.3	7236.6	774.9	5521.8	4664.8	90

CONSTRUCTION BY TYPE

1	31453.6	6356.9	1636.1	5682.2	7781.9	6090.8	631.0	1259.7	3133.9	2299.8	10
11	639.9	2392.0	497.7	3283.9	6213.7	2398.4	1050.5	10193.6	948.1	1953.1	20
21	1620.5	1602.8	1268.8	514.0	5225.8	993.9	4252.2	3168.1	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-20.1	-411.1	0.0	-17.6	-26.5	-933.9	-724.4	0.0	0.0	10
11	-754.1	-9.7	-224.7	-0.8	-2276.6	-139.0	-381.5	0.0	0.0	0.0	20
21	-38.5	-21.6	-1912.3	-1.3	-636.6	-66.8	-44.6	-557.7	-127.0	-1332.9	30
31	-13.4	-295.2	-186.7	-143.4	-759.3	-83.2	-329.1	-122.1	-1599.5	-156.8	40
41	-906.4	-448.1	-219.4	-3.4	-39.8	-142.7	-796.8	-1205.2	-38.4	-12.0	50
51	-1.6	-5.2	-303.1	-68.7	-861.4	0.0	0.0	0.0	-71.4	-27.6	60
61	-164.3	-77.2	-73.8	-33.4	-200.2	-260.9	-36.9	-1.1	-2049.3	0.0	70
71	-0.6	-324.7	-200.9	-505.9	-47.2	-261.7	-295.2	-392.1	-58.7	-194.0	80
81	-22.5	-179.2	-2009.5	-497.8	-88.0	0.0	-475.1	-780.6	-33.5	-52.4	90
91	0.0	0.0	-10.6	-7.2	-21.3	-186.2	-19.2	-20.5	-126.1	-110.5	100
101	-197.4	-327.6	-488.9	-271.3	-188.7	-118.2	-15.7	-20.8	-747.0	-129.5	110
111	-155.9	-56.3	-15.9	-196.7	-288.1	-99.9	0.0	0.0	-98.5	-159.5	120
121	0.0	-72.3	-567.6	-184.3	-1233.8	-2.0	-343.9	-507.6	-33.6	-46.8	130
131	-30.2	0.0	-5931.6	-118.4	-20.0	0.0	-11.1	-9.3	-555.6	0.0	140
141	-30.3	-29.0	-180.5	-63.6	-192.3	-157.6	0.0	-722.3	-21.0	-132.0	150
151	0.0	0.0	0.0	-1552.9	-1113.4	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	4.3	89.1	297.3	3430.6	31.0	371.7	41.6	0.0	25.0	10
11	209.8	23.0	18.3	536.4	78.8	131.0	148.1	0.0	0.0	9.1	20
21	91.8	383.1	435.0	100.7	326.6	707.1	6.0	10.8	28.3	34.1	30
31	58.0	912.9	92.7	786.7	190.4	48.3	125.4	49.2	164.0	165.5	40
41	731.7	41.5	48.9	3.4	52.3	37.8	474.6	572.1	143.7	14.1	50
51	42.4	3.3	384.5	91.5	1941.9	0.0	0.0	0.0	129.7	111.3	60
61	416.4	731.8	186.7	40.8	153.7	583.3	174.9	71.8	482.0	0.0	70
71	17.5	106.4	210.4	183.3	56.7	4.2	22.0	224.3	23.8	38.8	80
81	27.4	224.6	1647.3	328.3	2.4	6.0	416.1	222.8	135.2	106.1	90
91	16.3	6.4	0.9	180.1	791.5	102.9	506.3	359.3	48.9	354.3	100
101	153.3	725.4	473.7	2078.6	211.8	364.5	115.9	207.3	1279.5	491.1	110
111	125.9	176.8	169.1	1653.6	225.2	564.2	22.5	309.6	181.2	237.2	120
121	54.7	169.4	236.9	359.1	223.7	27.2	979.6	1269.2	52.6	154.6	130
131	156.1	32.7	4851.9	3046.0	910.5	2223.3	8.7	53.3	6.3	0.0	140
141	342.6	695.1	78.5	250.5	572.1	22.6	278.6	193.0	56.6	242.8	150
151	0.0	0.0	0.0	1005.6	893.7	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	3108.8	0.0							

OUTPUTS ITERATION 4 DISMAX 0.125 INVEST CYCLE 2

1	6427.5	5367.6	30020.7	1209.6	14608.8	1271.0	15956.2	2739.4	0.0	3988.9	10
11	1604.7	1548.2	1641.9	5058.5	19026.1	4088.7	839.2	40022.8	42427.1	4819.0	20
21	2942.3	1769.6	38778.8	14961.6	14979.7	14086.3	7814.3	2692.2	3644.1	12949.1	30
31	6421.9	6654.9	6891.2	11200.0	18278.4	2837.3	3359.3	8824.5	29121.4	7720.9	40
41	11888.0	2581.9	6168.5	742.1	8770.6	4600.3	1842.7	11650.5	9243.9	515.6	50
51	9791.7	9416.1	10141.9	14743.7	22780.0	0.0	0.0	0.0	1977.4	1654.8	60
61	4857.7	6345.0	1671.4	998.0	4613.9	8929.0	10865.5	3661.3	31657.6	0.0	70
71	1763.6	6242.6	5554.3	11415.1	1470.3	4320.6	2261.1	6941.0	1213.0	970.2	80
81	7846.8	4818.4	42228.7	9076.4	683.6	583.9	9370.9	1555.4	1469.6	5721.1	90
91	1604.4	4304.6	589.3	2463.6	14726.7	5040.6	9493.4	6859.9	2749.7	4356.2	100
101	6093.1	7007.8	7276.6	8083.0	3676.5	2884.9	894.2	8476.6	7855.6	3978.2	110
111	2088.7	2189.6	2695.4	11896.3	2149.8	8918.1	7085.1	2108.3	4945.8	3811.5	120
121	1903.3	2026.5	8121.2	6084.0	6149.4	651.5	17122.6	11729.8	1450.9	2326.5	130
131	1100.3	2869.8	97772.1	12273.1	4468.4	7421.0	4378.6	3468.8	1308.8	2949.4	140
141	1807.4	3157.1	1563.8	2934.3	6577.4	1004.6	3378.6	5062.6	1025.7	4526.5	150
151	17325.4	3460.1	25168.0	2380.4	6288.0	1790.4	494.1	31160.0	4196.4	32342.1	160
161	22317.3	5545.9	111262.7	174085.3	40525.2	33430.9	82601.7	86613.1	9195.0	18392.6	170
171	47995.0	28070.5	18550.1	3174.6	50281.3	8673.3	8973.4	986.6	868.0	1683.6	180
181	11165.9	16494.6	4824.6	518.8	10045.8	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
104487.	83802.	4237.	56521.	-58022.	760714.	58038.	34347.	45709.	10943.	2943.
S+L GENL PUR	CONSTR			GNP						
53147.	31681.			1188542.						

EMPLOYMENT

JOBS = 91754.4 PERSONS EMPLOYED = 87754.4 LABOR FORCE = 99227.6 CIVILIAN UNEMPLOYMENT =11.9 PERCENT

1	2426.1	283.9	275.2	4186.9	230.9	328.6	182.9	215.2	126.0	241.7	10
11	32.8	75.5	241.2	112.8	66.2	573.1	28.3	78.4	227.5	1485.5	20
21	210.0	255.6	240.9	37.5	749.7	0.0	483.8	262.3	480.7	794.2	30
31	293.0	47.5	120.2	225.5	134.3	128.3	81.7	132.1	106.7	193.6	40
41	522.3	32.3	372.5	213.2	447.0	1001.0	402.2	88.2	85.0	415.0	50
51	539.5	662.4	122.6	175.0	318.6	489.2	210.9	364.8	355.8	598.9	60
61	119.1	238.0	255.2	165.4	297.6	122.6	364.1	346.7	109.5	1036.0	70
71	531.1	218.7	70.9	121.4	112.5	123.2	91.7	202.1	431.0	537.4	80
81	2099.4	306.1	331.5	19288.6	959.5	20241.5	344.3	176.2	994.8	665.5	90
91	1969.2	891.7	940.8	5050.3	2989.5	5198.4	0.0				

DISPC= 3251.00000 POPUL= 229.215363 PRODCT=745179.125
0.80688000E+05

INDUSTRY AVERAGE WAGE

1	3.48	15.68	13.79	14.41	14.42	14.53	14.64	12.45	12.45	12.45
11	12.45	12.45	12.45	12.45	11.77	7.41	10.02	9.82	14.44	14.44
21	12.76	17.27	17.27	17.65	12.99	7.98	13.92	13.92	17.16	17.16
31	15.74	15.74	15.74	14.66	18.63	18.92	18.92	15.86	10.34	14.54
41	14.88	16.24	17.04	9.00	11.73	7.51	7.51	7.51	2.51	11.03
51	11.03	10.17	11.60	12.45	12.75					

INDUSTRY WAGES

1	1968.26	1444.47	1339.87	3965.61	1365.24	51868.47	29578.29	4092.02	2278.02	2680.28
11	1563.41	3010.17	2753.20	3003.26	779.22	19290.96	5351.45	7360.68	6986.02	3787.65
21	16273.63	16389.46	1411.79	2330.88	10685.26	3231.19	2968.99	6224.01	17177.44	6901.40
31	31175.00	2754.46	9424.81	27838.37	19302.61	10045.75	7775.48	8394.54	4455.64	45193.41
41	12532.75	1841.57	8869.90	153857.25	44110.16	93110.00	2878.40	3504.14	4941.55	57330.29
51	55696.58	6768.04	21259.16	12385.57	38115.80					

INDUSTRY LABOR COMPENSATION

1	2140.18	1694.42	1798.76	4346.27	1574.97	58683.04	34738.92	5318.99	3075.70	3580.86
11	2169.50	3991.44	3671.88	3982.88	1032.99	18755.09	5951.28	8382.17	7904.81	4241.76
21	18290.44	20183.38	1780.53	3772.64	12961.28	3664.88	3446.49	7332.46	21990.30	8676.51
31	36758.27	3141.58	10932.11	31647.59	29946.99	11928.27	9256.75	9967.76	5142.48	51880.19
41	14793.44	2105.64	10835.86	169880.62	53053.39	101365.12	3120.22	3799.45	4941.55	63877.72
51	62007.13	7845.54	25400.37	13720.25	44078.34					

INDUSTRY EMPLOYEES

1	564.91	92.11	97.17	275.25	94.67	3569.46	2020.94	328.61	182.94	215.24
11	125.95	241.74	221.10	241.18	66.19	2602.88	534.08	749.72	483.79	262.30
21	1274.89	948.77	81.73	132.07	822.62	404.84	213.24	447.02	1001.03	402.19
31	1981.03	175.03	598.90	1899.15	1036.01	531.08	411.06	529.41	430.98	3107.30
41	842.14	113.41	520.49	17091.95	3758.89	12401.84	383.39	466.74	1969.23	5198.40
51	5050.27	665.54	1832.59	994.76	2989.48					

INDUSTRY SELF-EMPLOYMENT

1	1361.24	5.60	5.91	16.74	5.76	617.48	28.26	3.78	2.10	2.48
11	1.45	2.78	2.54	2.77	0.76	29.93	7.47	10.48	5.56	3.02
21	14.66	10.91	0.94	1.52	9.46	4.66	2.98	6.25	14.00	5.62
31	27.70	2.45	8.37	26.56	14.49	7.43	5.75	7.40	6.03	167.16
41	3.53	0.47	12.00	2196.67	390.63	2657.87	82.17	100.03		

INDUSTRY PROPRIETOR INCOME

1	15590.46	60.75	64.49	155.83	56.47	6737.98	224.68	28.48	16.47	19.17
11	11.62	21.37	19.66	21.32	5.53	100.41	38.49	54.21	42.32	22.71
21	97.93	108.06	9.53	20.20	69.39	19.62	22.29	47.42	142.22	56.12
31	237.74	20.32	70.70	204.68	193.69	77.15	59.87	64.47	33.26	1933.99
41	52.73	7.51	238.72	18363.26	8334.05	47389.80	1458.75	1776.31		

INDUSTRY CPBT + CCA

1	885.62	164.25	696.88	1181.33	739.35	6371.31	8901.27	1860.91	2322.12	2268.15
11	3317.95	5163.03	11795.32	10682.95	2379.26	1216.98	1100.49	976.67	3293.75	14315.04
21	3606.15	12217.15	6377.07	15956.21	5595.37	997.52	9661.14	20664.64	1007.00	15875.51
31	20419.70	27508.29	5289.48	714.13	1596.42	5547.69	2166.95	5718.43		

INDUSTRY CORP. PROFITS TAXES

1	127.98	61.44	68.73	1.93	50.58	1161.29	2956.38	1240.95	743.27	738.63
11	872.22	2938.72	4595.11	2.91	897.34	867.70	133.38	425.55	830.00	3848.22
21	1372.71	5386.29	3275.92	8970.23	2734.37	392.67	1036.63	10723.32	338.17	5068.35
31	5796.49	16599.52	661.13	152.32	514.79	1069.25	209.40	136.20		

INDUSTRY CPAT + CCA

1	757.64	102.81	628.15	1179.39	688.77	5210.02	5944.89	619.96	1578.85	1529.52
11	2445.73	2224.31	7200.21	10680.04	1481.92	349.27	967.11	551.12	2463.76	10466.82
21	2233.44	6830.86	3101.15	6585.98	2861.01	604.84	8624.51	9941.32	668.83	10807.16
31	14622.21	10808.77	4628.35	-421.19	1081.63	4478.45	1957.55	5582.22		

INDUSTRY CORP. DIVIDENDS

1	123.72	92.07	84.96	794.73	95.26	461.83	1236.46	305.58	328.44	242.63
11	547.67	440.45	2186.84	2539.51	282.98	60.49	161.80	82.81	449.07	1692.52
21	461.43	1252.97	855.57	2781.45	631.29	100.22	1365.06	3187.79	168.02	4184.53
31	2394.93	2072.02	525.73	-2.37	156.63	370.19	62.99	579.90		

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WAGES  =   921625.56
OTHER LABOR INCOME  =    86784.75
PROPRIETORS INCOME  =   104392.06
RENTAL INCOME  =    30560.57
DIVIDENDS  =    33358.12
PERSONAL INTEREST INCOME  =   148013.81
   NET INTEREST  =   104889.19
   GOV'T INTEREST  =    11348.57
   CONSUMER INTEREST  =    31776.09
GOV'T TRANSFERS  =   187876.19
BUSINESS TRANSFERS  =     7279.46
- PERS. CONTRIB. SOCIAL INS.  =    49299.39
PERSONAL INCOME  =  1470588.00
- PERS FED. INCOME TAX  =   186315.56
- OTHER FEDERAL TAXES  =     7915.75
- S+L PERS INCOME TAX  =    28472.80
- OTHER S+L TAXES  =    25004.67
PERSONAL DISP. INCOME  =  1222879.00
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MARYLAND I/O MODEL- IBM TEST RUN
1980

CONSUMER PURCHASES BY INDUSTRY DISPOSABLE PERCAPITA INCOME (58$) 3317.0 POPULATION 232.4

1	83.4	2411.7	0.0	0.0	0.0	0.0	6323.4	431.9	0.0	31.5	10
11	0.0	0.0	0.0	15.8	0.0	357.7	37.9	0.0	0.0	0.0	20
21	279.3	238.2	31203.0	11180.4	13468.1	3989.2	7451.4	889.9	3285.4	12983.6	30
31	5289.6	1555.2	6382.4	8044.1	1726.9	2349.3	195.3	4288.1	26723.7	3697.1	40
41	274.8	0.0	494.0	0.0	7317.2	291.6	46.9	55.8	2784.7	0.0	50
51	185.2	2128.2	3410.7	945.8	287.4	0.0	0.0	0.0	105.6	15.1	60
61	449.6	31.1	0.0	0.0	0.0	5279.3	8703.6	49.4	15728.4	0.0	70
71	0.0	1366.2	2005.2	914.7	0.0	3739.9	2382.9	707.9	0.0	198.6	80
81	7.6	162.2	18.7	0.0	0.0	0.0	27.5	0.0	0.0	2.6	90
91	0.0	0.0	0.0	33.9	49.3	58.0	443.6	1127.0	136.8	0.0	100
101	313.2	119.9	706.7	0.0	0.0	56.0	0.0	195.8	45.0	0.0	110
111	0.0	0.0	0.0	0.0	243.1	1055.4	7.8	0.0	14.8	36.3	120
121	0.0	1.4	6910.3	1027.7	6613.2	572.1	356.4	224.7	536.8	200.8	130
131	172.5	0.0	47049.9	577.8	0.0	0.0	736.5	0.0	803.6	2568.5	140
141	0.0	38.4	883.9	239.9	1218.7	651.6	2514.5	4501.7	342.1	1010.7	150
151	0.0	1630.6	814.6	36.3	3500.7	28.4	0.0	14034.3	0.0	12660.6	160
161	6699.0	2517.3	46932.0	133367.6	27758.6	15779.9	85365.4	31420.3	5663.4	15556.6	170
171	5948.3	125.9	10411.0	687.5	47687.8	3553.1	1782.0	0.0	1306.9	0.0	180
191	133.2	0.0	0.0	0.0	0.0	0.0					

EQUIPMENT INVESTMENT BY PURCHASING SECTOR.

1	8593.9	1821.1	1286.7	4030.8	157.5	227.7	234.7	351.3	249.0	164.8	10
11	103.1	85.3	415.3	230.4	82.5	660.3	94.3	96.4	199.7	238.5	20
21	92.0	529.9	297.5	19.9	185.4	0.0	1589.0	324.1	264.1	646.4	30
31	1982.1	218.6	111.6	1008.5	187.1	134.8	55.5	769.3	374.8	162.4	40
41	709.2	18.8	61.3	351.9	828.8	2497.1	1045.4	184.1	36.5	269.4	50
51	435.0	566.3	232.4	263.7	271.5	369.1	159.1	309.1	181.4	355.0	60
61	145.7	124.0	217.3	118.1	188.0	90.3	435.2	561.7	116.2	1618.8	70
71	458.5	76.2	54.8	37.7	22.0	73.0	58.4	243.8	302.8	2032.0	80
81	1080.5	715.3	3231.1	13323.6	12151.1	15163.6	7671.3	799.4	5692.9	4990.1	90

CONSTRUCTION BY TYPE

1	32903.3	6484.2	1675.0	5840.9	8132.0	6320.1	615.0	1294.7	3279.0	2383.2	10
11	627.5	2392.0	508.9	3400.0	6410.9	2449.3	1086.2	10200.0	948.0	1969.0	20
21	1642.0	1643.0	1291.0	514.0	5220.0	1013.0	4378.0	3259.0	0.0		

IMPORTS (SECTORS 1-157)

1	0.0	-20.9	-384.4	0.0	-17.4	-26.4	-981.7	-735.7	0.0	0.0	10
11	-757.8	-7.7	-229.1	-0.6	-2356.1	-145.6	-416.2	0.0	0.0	0.0	20
21	-39.7	-22.6	-2023.2	0.0	-668.7	-70.9	-47.7	-561.8	-132.1	-1417.8	30
31	-13.8	-317.7	-194.0	-144.0	-824.3	-85.7	-345.0	-137.6	-1705.2	-167.7	40
41	-936.5	-467.2	-229.2	-3.4	-40.5	-156.0	-841.2	-1236.2	-40.3	-12.6	50
51	-1.7	-5.5	-320.7	-72.2	-919.4	0.0	0.0	0.0	-80.5	-29.8	60
61	-170.2	-82.5	-77.4	-35.7	-215.7	-278.7	-38.8	-1.0	-2170.7	0.0	70
71	-0.7	-338.5	-212.8	-556.5	-47.3	-267.5	-311.7	-413.8	-62.9	-203.3	80
81	-24.9	-187.8	-2046.0	-495.8	-87.8	0.0	-494.4	-792.6	-34.2	-52.2	90
91	0.0	0.0	-11.7	-8.4	-25.6	-191.5	-19.4	-23.0	-130.2	-116.3	100
101	-209.5	-330.6	-406.4	-412.1	-204.4	-113.0	-14.1	-18.3	-794.1	-137.3	110
111	-157.6	-53.0	-16.7	-225.3	-307.1	-107.9	0.0	0.0	-108.7	-170.9	120
121	0.0	-79.1	-618.9	-196.7	-1409.0	-1.9	-374.9	-573.8	-35.8	-47.2	130
131	-31.2	0.0	-6047.4	-123.2	-20.4	-27.4	-11.3	-10.3	-577.8	0.0	140
141	-30.6	-29.7	-196.5	-67.9	-206.9	-167.4	0.0	-783.6	-22.7	-139.0	150
151	0.0	0.0	0.0	-1555.1	-1264.3	0.0	0.0	0.0			

EXPORTS (SECTORS 1-163)

1	0.0	4.1	91.2	293.1	3574.6	31.8	384.4	43.6	0.0	25.0	10
11	222.0	23.0	19.4	554.6	83.8	139.2	155.1	0.0	0.0	8.3	20
21	89.1	387.8	441.6	98.4	331.8	728.8	5.9	11.3	28.4	35.6	30
31	59.7	948.2	94.9	798.6	187.4	51.5	131.6	50.9	155.3	174.5	40
41	771.7	44.3	50.0	3.3	51.0	39.6	499.6	603.9	146.9	14.6	50
51	42.8	3.2	400.9	93.4	2052.5	0.0	0.0	0.0	131.1	117.4	60
61	420.5	771.2	187.7	41.7	159.0	604.1	181.5	74.8	482.9	0.0	70
71	18.1	106.4	214.6	193.3	56.6	3.9	22.8	234.0	23.3	39.6	80
81	28.3	234.9	1701.3	322.4	2.4	6.1	440.0	238.5	142.0	109.2	90
91	17.0	6.1	-0.8	183.0	799.6	107.9	533.1	365.1	51.0	368.1	100
101	157.3	757.5	484.4	2148.3	220.1	368.3	116.6	207.7	1327.3	515.1	110
111	131.7	186.4	173.7	1749.4	235.1	597.8	22.8	332.0	185.7	247.6	120
121	57.4	175.2	239.5	375.1	233.5	28.0	1013.5	1335.5	54.8	158.0	130
131	165.1	34.1	5084.5	3207.1	926.1	2265.3	7.8	50.9	5.9	0.0	140
141	348.5	719.9	79.3	260.4	602.1	23.8	291.0	199.0	58.0	256.5	150
151	0.0	0.0	0.0	1058.7	956.4	0.0	0.0	0.0	0.0	0.0	160
161	0.0	0.0	3247.5	0.0							

OUTPUTS ITERATION 5 DISMAX 0.289 INVEST CYCLE 2

1	6530.3	5455.6	32161.0	1215.2	15730.8	1298.4	16565.2	2835.0	0.0	4138.6	10
11	1622.8	1576.7	1688.7	5235.5	15675.7	4268.5	888.2	41211.8	43850.5	4827.1	20
21	2956.2	1795.6	40109.3	15134.6	15564.4	14687.8	7927.2	2697.3	3730.9	13247.2	30
31	6436.5	6909.9	7070.2	11426.6	18891.2	2965.0	3439.3	9239.2	30124.5	8046.3	40
41	12352.4	2670.2	6407.1	764.0	9074.5	4833.1	1931.7	12011.1	9547.8	529.0	50
51	10161.0	5784.0	10514.9	15233.0	23716.4	0.0	0.0	0.0	2109.8	1754.8	60
61	5007.0	6599.1	1713.6	1027.2	4866.5	9296.3	11309.1	3739.6	32649.6	0.0	70
71	1827.2	6374.7	5704.7	11936.9	1465.9	4410.9	2339.1	7232.4	1248.8	999.4	80
81	8070.7	4962.3	42795.2	9369.4	703.3	591.6	9704.4	1623.8	1517.9	5426.2	90
91	1776.4	4446.6	612.9	2532.4	15192.5	5194.7	9694.2	7121.9	2829.6	4529.1	100
101	6334.0	7080.9	5991.8	8396.4	3823.2	2998.2	916.6	8813.2	8189.4	4125.0	110
111	2107.5	2132.6	2803.5	12532.1	2247.7	9325.9	7299.7	2217.9	5174.3	3966.2	120
121	1990.0	2102.0	8378.0	6287.0	6328.8	676.3	17701.9	12253.3	1501.0	2369.5	130
131	1149.6	2888.5	101139.7	12719.7	4524.5	8096.6	4499.7	3588.6	1343.0	3090.6	140
141	1867.2	3263.3	1633.2	3077.8	6903.4	1037.3	3463.2	6274.6	1052.2	4674.3	150
151	17896.2	3409.0	26065.3	2532.4	6488.1	1848.7	511.5	32481.9	4239.7	33523.4	160
161	23070.8	5719.4	115195.6	180237.1	42208.8	34493.3	85365.4	89894.7	9577.1	18820.1	170
171	49603.8	25067.2	19058.5	3087.8	52104.6	8926.1	9282.4	1023.9	868.0	1743.8	180
181	11460.7	17056.0	4987.3	536.5	10984.8	0.0					

NATIONAL ACCOUNTS

EQUIPMENT	CONSTRUCTN	INVENTORY	EXPORTS	IMPORTS	CONSUMPTN	DEFENSE	NONDEF FED	EDUCATION	S+L HWS	S+L SAFETY
109214.	86802.	4008.	58706.	-60516.	786559.	58665.	35357.	46109.	11350.	3025.
S+L GENL	PUB CONSTR			GNP						
54386.	32077.			1225742.						

EMPLOYMENT

JOBS = 92874.5 PERSONS EMPLOYED = 88874.5 LABOR FORCE =100727.0 CIVILIAN UNEMPLOYMENT =12.1 PERCENT

1	2409.5	279.4	272.0	4269.7	227.7	329.3	177.3	211.9	125.9	238.6	10
11	32.9	75.2	242.0	110.8	65.7	573.6	27.1	78.0	225.3	1510.9	20
21	212.6	255.7	242.7	37.5	777.7	0.0	485.3	266.7	493.3	800.5	30
31	290.1	47.1	121.9	225.4	133.8	129.7	82.3	128.4	105.0	193.7	40
41	542.7	32.2	376.9	212.7	447.4	1002.5	406.6	89.2	85.8	416.9	50
51	554.8	677.9	123.0	164.8	325.2	502.6	217.0	369.2	366.0	618.4	60
61	118.3	243.0	258.7	163.4	308.2	118.1	358.8	344.3	107.8	1030.9	70
71	522.0	221.6	72.4	123.7	115.8	125.3	94.1	202.1	429.6	525.2	80
81	2135.5	309.6	319.6	19539.5	953.7	20724.1	337.1	174.0	1014.7	689.5	90
91	1950.0	900.0	950.0	5050.0	3000.0	5300.0	0.0				

DISPC= 3317.00000 POPUL= 232.399994 PRODCT=770870.750
0.81796937E+05

	INDUSTRY AVERAGE WAGE									
1	3.61	16.44	14.46	15.05	15.15	15.25	15.32	13.04	13.04	13.04
11	13.04	13.04	13.04	13.04	12.44	7.68	10.50	10.21	15.14	15.14
21	13.30	18.17	18.17	18.48	13.57	8.29	14.62	14.62	18.05	18.05
31	16.50	16.50	16.50	15.38	19.63	19.96	19.96	16.67	10.78	15.25
41	15.70	16.96	17.96	9.37	12.29	7.85	7.85	7.85	2.57	11.61
51	11.61	10.58	12.14	13.04	13.42					
	INDUSTRY WAGES									
1	2167.86	1469.66	1384.02	4094.57	1428.89	55829.49	31434.61	4295.49	2313.03	2764.79
11	1642.27	3112.34	2955.31	3156.29	816.80	20172.18	5628.90	7941.23	7349.75	4038.47
21	17200.86	17224.88	1495.04	2372.48	11420.50	3392.75	3108.00	6539.34	18092.78	7317.41
31	33350.15	2719.31	10201.98	29265.66	20233.35	10417.44	8336.02	8956.55	4629.49	47623.33
41	13190.75	1860.07	9181.54	162576.69	47334.46	99759.50	3083.97	3754.39	5017.94	61522.72
51	58620.72	7296.65	22455.49	13231.68	40260.00					
	INDUSTRY LABOR COMPENSATION									
1	2364.25	1730.41	1868.64	4494.52	1654.59	63326.36	37063.10	5602.56	3140.42	3710.60
11	2279.80	4165.10	3824.09	4199.80	1090.12	19568.87	6274.26	9070.80	8336.23	4534.48
21	19390.63	21315.89	1894.60	3872.65	13921.49	3858.09	3623.10	7735.02	23314.38	9287.02
31	39478.38	3110.33	11882.26	33330.19	31763.64	12425.14	9965.23	10673.01	5359.94	54816.63
41	15613.47	2140.14	11269.38	179930.94	57181.96	108840.56	3350.33	4079.66	5017.94	68694.31
51	65365.41	8497.64	26897.18	14689.07	46675.01					
	INDUSTRY EMPLOYEES									
1	601.12	89.38	95.73	271.99	94.29	3659.78	2052.33	329.29	177.32	211.95
11	125.90	238.59	219.89	241.96	65.67	2627.42	535.92	777.69	485.30	266.66
21	1293.77	948.03	82.28	128.38	841.48	409.09	212.69	447.39	1002.54	406.57
31	2021.38	164.82	618.35	1902.26	1030.92	522.04	417.74	537.33	429.57	3123.74
41	840.08	109.65	511.11	17348.92	3851.83	12702.93	392.70	478.07	1950.00	5300.00
51	5050.00	689.52	1850.00	1014.65	3000.00					
	INDUSTRY SELF-EMPLOYMENT									
1	1308.37	5.51	5.90	16.77	5.81	609.89	28.10	3.69	1.99	2.37
11	1.41	2.67	2.45	2.71	0.74	29.44	7.34	10.65	5.44	2.99
21	14.50	10.62	0.92	1.44	9.43	4.58	2.91	6.13	11.73	5.57
31	27.68	2.26	8.47	26.05	14.12	7.15	5.72	7.36	5.88	166.28
41	3.54	0.46	12.00	2190.60	396.62	2715.82	83.96	102.21		
	INDUSTRY PROPRIETOR INCOME									
1	15644.86	60.28	65.10	156.57	57.64	6935.29	228.33	27.94	15.66	18.51
11	11.37	20.67	19.07	20.95	5.44	97.60	38.65	55.88	41.58	22.62
21	96.71	106.32	9.45	19.32	69.43	19.24	22.32	47.65	143.63	57.21
31	243.21	19.16	73.20	205.33	195.68	76.55	61.39	65.75	33.02	2007.89
41	56.04	7.68	256.26	18728.69	8746.67	50761.76	1562.55	1902.70		
	INDUSTRY CPAT + CCA									
1	977.49	160.13	737.85	1192.11	773.69	6925.83	9400.92	1992.53	2408.27	2457.07
11	3430.98	5535.36	12275.98	11108.14	2461.69	1321.92	1142.34	1030.78	3428.29	14951.90
21	3813.56	12645.65	6612.26	16766.30	6101.01	1019.82	10049.64	22308.21	1057.67	16480.67
31	21321.44	29614.17	5506.03	727.86	1755.29	6098.93	2332.73	6493.05		
	INDUSTRY CORP. PROFITS TAXES									
1	136.87	60.70	72.12	1.93	50.54	1243.67	3118.56	1353.53	769.88	796.72
11	892.84	3159.80	4803.24	-2.92	933.49	970.20	134.97	452.19	854.36	3993.77
21	1452.52	5609.29	3446.44	9540.48	3012.59	403.85	1047.02	11784.66	351.20	5285.55
31	6021.52	18437.90	672.41	153.55	574.31	1163.45	219.29	146.79		
	INDUSTRY CPAT + CCA									
1	840.61	99.43	665.72	1190.18	723.15	5682.16	6282.36	639.00	1638.39	1660.34
11	2538.13	2375.56	7472.74	11105.21	1528.20	351.72	1007.38	578.59	2573.92	10958.12
21	2361.04	7036.36	3165.82	7225.81	3088.42	615.97	9002.61	10523.56	706.47	11195.12
31	15299.91	11176.27	4833.62	-477.69	1180.98	4935.48	2113.44	6346.27		
	INDUSTRY CORP. DIVIDENDS									
1	134.36	90.58	89.40	797.19	98.78	502.81	1294.45	314.65	341.49	263.19
11	566.35	468.19	2252.89	2643.25	292.86	60.76	167.39	86.25	465.25	1761.72
21	484.00	1299.16	870.68	2891.88	679.39	101.36	1419.40	3350.02	177.79	4314.22
31	2495.00	2143.08	544.98	-9.70	171.34	406.62	67.98	659.44		

WAGES = 976958.94
OTHER LABOR INCOME = 95347.19
PROPRIETORS INCOME = 109138.62
RENTAL INCOME = 31215.27
DIVIDENDS = 14758.37
PERSONAL INTEREST INCOME = 163349.69
NET INTEREST = 117687.81
GOV'T INTEREST = 11060.59
CONSUMER INTEREST = 34601.35
GOV'T TRANSFERS = 200431.56
BUSINESS TRANSFERS = 7780.02
- PERS. CONTRIB. SOCIAL INS. = 52223.10
PERSONAL INCOME = 1566753.00
- PERS FED. INCOME TAX = 201027.44
- OTHER FEDERAL TAXES = 8467.73
- S+L PERS INCOME TAX = 31570.05
- OTHER S+L TAXES = 26826.99
PERSONAL DISP. INCOME = 1298860.00

A review of the forecast shows one very peculiar aspect of the model. The solution indicates that very high rates of unemployment will exist over the forecast period. The major source of the difficulty appears to be, however, the labor productivity functions used in the original Maryland Model. These equations produce very high gains in labor productivity. These high productivity gains translate into abnormally low levels of employment. The wage and salary payments estimated by the "income" model have felt the impact of these low employment projections. The January 1973 version of the Maryland Model contains, however, new labor productivity equations which produce substantially lower productivity gains over the forecast period. The use of the "income" model with the latest version of the Maryland Model should eliminate the problem of the high unemployment.

5.5 Forecast Error

The main purpose of the income determination model is to generate an estimate of personal disposable income. The major concern of forecast error, therefore, centers around this particular account. It is interesting, however to also evaluate the forecast accuracy of each major component of personal disposable income.

The short-term projection period (1969-1971) provides a perfect setting for testing the forecast accuracy of the model. National Income Account statistics exist for the entire period covering all accounts pertaining to personal income flows. The model solution can then be compared account by account with

these national statistics to determine the magnitude of the forecast errors.

Table 5.4 indicates the size of the forecast error made in each major account by the model for the years 1969-1971. Each entry represents a percentage error, that is a forecast error relative to its true value.

Table 5.4 Forecast Error

	Percent Error		
Type of Income	69	70	71
Wages and Salaries	+0.1%	+0.4%	+0.2%
Other Labor Income	-20.8%	-17.4%	-10.1%
Proprietors' Income	+1.5%	-5.4%	-6.1%
Rental Income	+3.1%	+0.9%	+1.6%
Dividends	+7.8%	+8.5%	+5.5%
Personal Interest	+4.0%	+5.5%	+7.0%
Net Interest	+6.2%	+6.0%	+2.1%
Government Interest	+0.8%	+5.7%	+22.2%
Consumer Interest	+4.4%	+4.7%	+6.3%
Transfers	-9.0%	-7.7%	-9.6%
Business Transfers	+14.3%	+9.3%	+8.7%
Government Transfers	-10.6%	-8.6%	-10.6%
Personal Social Insurance Contributions	+9.9%	+10.7%	+11.2%
Personal Income	-1.1%	-1.3%	-1.5%
Personal Taxes	+7.2%	+5.7%	-3.2%
Disposable Income	-2.6%	-2.4%	-1.2%

An analysis of Table 5.4 shows that the estimate of personal disposable income has been running between 1.2% and 2.6% too high. The errors in 1969 and 1970 were caused by an overestimate of personal income (1.1% and 1.3%, respectively) combined with an underestimate of personal tax and nontax payments. In 1971, an overestimate of personal tax payments partially offset the 1.5% error in the forecast of personal income.

A look at the forecast errors in the major income accounts used to derive total personal income do not seem to indicate any major source of concern. The vast majority of the forecast errors appear to fall within reasonable limits. There appears to be no significant buildup of forecast error over the simulation period. The one possible exception could involve the estimate for personal social insurance contributions. The forecast error for this account has been steadily rising from 9.9% in 1969 to 11.2% in 1971. Another potentially troublesome account is "other" labor income. This account has registered relatively high forecast errors over the simulation period (although the percentage error has steadily decreased). Both accounts will have to be watched very carefully as more actual data becomes available.

In general, the estimation technique designed to project personal disposable income over the forecast period appears to be working rather satisfactorily.

Chapter VI

Summary

The income determination model provides a consistent methodology for estimating income flows within the framework of an input/output model. It establishes a direct link between industry production and employment and personal income payments. A major portion of total personal income payments are derived from industry-oriented functions. Total wage and salary payments are estimated from individual industry wage rate and employment projections. Proprietor income is calculated from industry estimates of self-employed persons and average unincorporated income. The estimate of total dividend payments is made through a set of relationships which utilize industry production, corporate income, and corporate tax liability. The income distribution of wage and salary payments (which is used in the determination of Federal income tax liabilities) is derived from industry income distributions of these payments. In summary, a substantial effort has been made to give an industry orientation to the estimation of total personal income in the economy.

The development of the income model creates a device to monitor the reasonableness of the disposable income forecast. In the past, disposable income was exogenously chosen to attain a certain desired level of economic activity. Now, it will be possible to check if the level of disposable income necessary to achieve a desired level of economic activity is consistent with the income payments generated by such activity (given certain assumptions about the growth in factor payment rates and the

future course of public policy). The model provides a convenient instrument to quantify the marginal impact of changes in fiscal policy. It will be possible to identify changes in fiscal policy that will be necessary to achieve certain economic goals.

The income model is very similar to the results of any other research project. There will always be something that can be added to the model or improved in the model. These areas of new work or improvements will only become evident as the model is used more and more. What appears here, however, is the basic structure of a model designed to make the projection of income endogenous to an input/output system in a manner which is totally consistent with its operation.

APPENDIX A

Table A.1 OCCUPATIONAL CLASSIFICATIONS

Code	Description
1100	Engineers, Technical
1210	Dentists
1220	Dietitians and Nutritionists
1230	Nurses, Professional
1240	Optometrists
1250	Osteopaths
1260	Pharmacists
1265	Physicians and Surgeons
1270	Psychologists
1280	Technicians, Medical and Dental
1290	Veterinarians
1299	Other Medical and Health Workers
1310	Teachers, Elementary
1320	Teachers, Secondary
1330	Teachers, College
1399	Teachers, Other
1410	Chemists
1420	Agricultural Scientists
1430	Biological Scientists
1440	Geologists and Geophysicists
1450	Mathematicians
1460	Physicists
1499	Other Natural Scientists
1510	Economists
1520	Statisticians and Actuaries
1599	Other Social Scientists
1610	Draftsmen
1620	Surveyors
1630	Air Traffic Controllers
1640	Radio Operators
1699	Technicians, other
1910	Accountants and Auditors
1915	Airplane Pilots and Navigators
1920	Architects
1930	Clergymen
1935	Designers, excluding Design Draftsmen
1940	Editors and Reporters
1945	Lawyers and Judges
1950	Librarians
1960	Personnel and Labor Relations Workers
1970	Photographers
1980	Social and Welfare Workers
1990	Teachers, Workers in Arts, Entertainment
1999	Professional, Technical, Kindred n.e.c.
2100	Conductors, Railroad

Code	Description
2200	Officers, Pilots, Engineers Ship
2300	Creditmen
2400	Purchasing Agents
2500	Postmasters and Assistants
2900	Managers, Officials, Proprietors n.e.c.
3100	Stenographers, Typists, Secretaries
3200	Office Machine Operators
3910	Accounting Clerks
3920	Bookkeepers, Hand
3930	Bank Tellers
3940	Cashiers
3950	Mail Carriers
3970	Postal Clerks
3980	Shipping and Receiving Clerks
3990	Telephone Operators
3999	Clerical and Kindred n.e.c.
4000	Sales Workers
5110	Carpenters
5120	Brick Masons, Stone, Tile Setters
5130	Cement and Concrete Finishers
5140	Electricians
5145	Excavating, Grading, Road Machine Operators
5150	Painters and Paperhangers
5160	Plasterers
5170	Plumbers and Pipefitters
5180	Roofers and Slaters
5190	Structural Metalworkers
5200	Foremen, n.e.c.
5310	Machinists and Related Occupations
5320	Blacksmiths, Forgemen, Hammermen
5325	Boilermakers
5330	Heat Treaters, Annealers, Temperers
5340	Millwrights
5350	Molders, Metal (excluding Coremakers)
5360	Patternmakers, Metal and Wood
5370	Rollers and Roll Hands
5380	Sheet Metal Workers
5390	Toolmakers, Diemakers, Setters
5420	Airplane Mechanics and Repairmen
5430	Motor Vehicle Mechanics
5440	Office Machine Mechanics
5450	Radio and TV Mechanics
5460	Railroad and Car Shop Mechanics
5499	Other Mechanics and Repairmen
5610	Compositors and Typesetters
5620	Electrotypers and Stereotypers
5630	Engravers (excluding Photo Engravers)
5640	Photo Engravers and Lithographers

Code	Description
5650	Pressmen and Plate Printers
5710	Line and Servicement, Tel. and Power
5720	Locomotive Engineers
5730	Locomotive Firemen
5910	Bakers
5915	Cabinet Makers
5920	Cranemen, Derrickmen, Hoistmen
5925	Glaziers
5930	Jewelers and Watchmakers
5935	Loom Fixers
5950	Opticians, Lens Grinders, Polishers
5970	Inspectors, Log and Lumber
5980	Inspectors, Other
5990	Upholsterers
5999	Craftsmen and Kindred Workers n.e.c.
6210	Drivers, Bus, Truck, Tractor
6220	Deliverymen, Routemen, Cab Drivers
6310	Assemblers, Metalworking Class A
6320	Assemblers, Metalworking Class B
6330	Inspectors, Metalworking Class B
6340	Machine Tool Operators Class B
6350	Electroplaters
6360	Electroplater Helpers
6370	Furnacemen, Smeltermen, Pourers
6380	Heaters, Metal
6390	Welders and Flame Cutters
6710	Brakemen, Switchmen Railroad
6720	Power Station Operators
6730	Sailors and Deckhands
6810	Knitters, Loopers, and Toppers
6820	Spinners, Textile
6830	Weavers, Textile
6840	Sewers and Stitchers Mfg.
6910	Asbestos, Insulation Workers
6920	Auto Attendants, Gasoline and Parking
6930	Blasters and Powdermen
6940	Laundry and Dry Cleaning Operators
6950	Mine Operatives, Laborers n.e.c.
6960	Meat Cutters, (excluding Meat Packing)
6999	Operatives and Kindred n.e.c.
7100	Private Household Workers
7210	Firemen
7220	Policemen, Detectives, etc.
7230	Guards, Watchmen, Doorkeepers
7310	Bartenders
7320	Cooks, (excluding Private Households)
7330	Counter and Fountain Workers

Code	Description
7340	Waiters and Waitresses
7910	Airline Stewards, Stewardesses
7920	Attendants, Hospital and Other Institutions
7930	Charwomen and Cleaners
7940	Janitors and Sextons
7950	Nurses, Practical
7999	Other Service Workers n.e.c.
8000	Laborers, (except Farm and Mine)
9000	Farmers and Farm Workers

Table A.2

COMPARABILITY OF OCCUPATIONAL TITLES IN BLS TABLES OF OCCUPATIONAL COMPOSITION OF INDUSTRY EMPLOYMENT WITH CENSUS OCCUPATIONAL CATEGORIES

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
PROFESSIONAL, TECHNICAL, AND KINDRED	Same
Engineers, aeronautical	"
Engineers, chemical	"
Engineers, civil	"
Engineers, electrical	"
Engineers, industrial	"
Engineers, mechanical	"
Engineers, metallurgical, etc.	"
Engineers, mining	"
Other engineers, technical	Sales engineers, plus engineers, n.e.c.
Chemists	Same
Agricultural scientists	Agricultural scientists plus part of foresters and conservationists
Biological scientists	Same
Geologists and geophysicists	"
Mathematicians	"
Physicists	"
Other natural scientists	"
Draftsmen	"
Surveyors	"
Air traffic controllers	"
Radio operator	"
Technicians, other	Technicians, electrical and electronic, technicians, other engineering, and physical science and technicians, other
Dentists	Same
Dietitians and nutritionists	"
Nurses, professional	"
Optometrists	"
Osteopaths	"
Pharmacists	"
Physicians & surgeons	"
Psychologists	"

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
Technicians, medical & dental	Same
Veterinarians	"
Other medical, health workers	Chiropractors, therapists, nurses student professional
Teachers, college	Part of college presidents, professors, and instructors,n.e.c.
Teachers, elementary	Same
Teachers, secondary	"
Teachers, other	"
Economists	"
Statisticians & actuaries	"
Other social scientists	Miscellaneous social scientists
Accountants & auditors	Same
Airplane pilots & navigators	"
Architects	"
Workers in the arts and entertainment	Includes actors, actresses, artists and art teachers; athletes; authors; dancers and dance teachers; entertainers, n.e.c.; musicians and music teachers and sports instructors and officials
Clergymen	Same
Designers, except design draftsmen	"
Editors and reporters	"
Lawyers and judges	"
Librarians	"
Personnel & labor relations workers	"
Photographers	"
Social & welfare workers	"
Professional & technical workers, n.e.c.	Includes part of college teachers, farm and home management advisors; part of foresters and conservationists; funeral directors and embalmers; public relations and publicity writers; recreation and group workers; religious workers; and professional, technical, and kindred, n.e.c.

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
MANAGERS, OFFICIALS, PROPRIETORS	Same
Conductors, railroad	"
Credit men	"
Officers, pilots, engineers, ship	Officers, pilots, pursers and engineers, ship
Postmasters & assistant postmasters	Same
Purchasing agents	Purchasing agents and buyers, n.e.c.
Managers, officials, and proprietors, n.e.c.	Includes buyers and department heads, store; buyers and shippers, farm products; floor men and floor managers, store; inspectors, public administration managers and superintendents, building's officials and administrators, n.e.c. public administration; officials, lodge, society, union, etc.; managers, officials, and proprietors, n.e.c.
CLERICAL AND KINDRED WORKERS	Same
Stenos, typists, & secretaries	Three separate titles
Office machine operators	Same
Accounting clerks	Part of bookkeepers
Bookkeepers, hand	Part of bookkeepers
Bank tellers	Same
Cashiers	"
Mail carriers	"
Postal clerks	"
Shipping & receiving clerks	"
Telephone operators	"
Clerical & kindred workers, n.e.c.	Includes agents, n.e.c., attendants, physicians and dental office; baggagemen transportation; collectors, bill and account; dispatchers and starters, vehicles express messengers and railway mail clerks; file clerks; insurance adjusters, examiners and investigators; messengers and office boys payroll and timekeeping clerks; receptionists; stock clerks and storekeepers; telegraph messengers telegraph operators; ticket, station, and express agents; and clerical and kindred, n.e.c.

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
SALES WORKERS	Same
CRAFTSMEN, FOREMEN,	
Carpenters	"
Brickmasons & tile setters	"
Cement & concrete finishers	"
Electricians	"
Excavating, grading machinery operators	"
Painters & paperhangers	Painters, construction & maintenance, & paperhangers (two titles)
Plasterers	Same
Plumbers & pipefitters	"
Roofers & slaters	"
Structural metalworkers	"
Foremen, n.e.c.	"
Machinists & related occupations	Machinists, job setters, metal (two titles)
Blacksmiths, forge, hammermen	Blacksmiths & forgemen & hammermen (two titles)
Boilermakers	Same
Heat treaters, annealers	"
Millwrights	"
Molders, metal (exc. cormks.)	"
Patternmakers, metal & wood	"
Rollers & roll hands	"
Sheet metal workers	Tinsmiths, coppersmiths, & sheet metal workers
Toolmakers & diemakers	Toolmakers & diemakers & setters
Compositors & typesetters	Same
Electrotypers & stereotypers	Same
Engravers, except photoengravers	"
Photoengravers & lithographers	"
Pressmen & plate printers	"
Linemen & servicemen	"
Locomotive engineers	"
Locomotive firemen	"
Airplane mechanics & repairmen	"
Motor vehicle mechanics	"
Office machine mechanics	"
Radio & TV mechanics	"
Railroad & car shop mechanics	"

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
Other mechanics and repairmen	Air-conditioning, heating and refrigeration mechanics & mechanics & repairmen, n.e.c. (two titles)
Bakers	Same
Cabinetmakers	"
Cranemen, derrickmen, hoistmen	"
Glaziers	"
Jewelers & watchmakers	"
Loom fixers	"
Opticians, lens grinders	"
Inspectors, log and lumber	"
Inspectors, other	"
Upholsterers	"
Craftsmen & kindred workers, n.e.c.	Bookbinders; furriers, decorators and window dressers; millers; motion picture projectionists; piano and organ tuners and repairmen; shoemakers and repairers, except factory; stationary engineers, stone cutters and stone carvers; and craftsmen and kindred workers, n.e.c.
OPERATIVES AND KINDRED WORKERS	Same
Drivers, bus, truck, tractor	Bus drivers and truck and tractor drivers
Deliverymen and routemen	Deliverymen and routemen, and taxi drivers and chauffeurs (two titles)
Brakemen & switchmen, railroad	Brakemen and switchmen (two titles)
Power station operators	Same
Sailors and deck hands	"
Furnacemen, smelterers, pourers	"
Heaters, metal	"
Welders & flame cutters	"
Assemblers, metalworking, class A	Part of assemblers
Assemblers, metalworking, class B	" " "

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
Inspectors, metalworking, class B	Part of checkers, examiners, and inspectors, mfg.
Machine tool operators, class B	Part of operatives, n.e.c.
Electroplaters	Part of operatives, n.e.c.
Electroplaters helpers	Part of operatives, n.e.c.
Knitters, loopers & toppers	Same
Spinners, textile	"
Weavers, textile	"
Sewers & stitchers, mfg.	"
Asbestos, insulation workers	"
Attendants, auto service, parking	"
Blasters & powdermen	"
Laundry, dry cleaning operatives	"
Meat cutters, except meat packing	"
Mine operatives, laborers, n.e.c.	"
Other operatives & kindred workers, n.e.c.	Includes apprentices; part of assemblers; boatmen, canalmen, & lock keepers; chainmen, rodmen, & axmen, surveying; part of checkers, examiners, and inspectors, manufacturing; conductors, bus and street railway; dressmakers & seamstresses, except factory; dyers; filers, grinders and polishers, metal; fruit, nut and veg. graders & packers, except factory; graders & sorters; manufacturing; milliners; motormen, mine, factory logging camp, etc.; motormen, street, subway, and elevated railway; oilers and greasers, except auto; packers and wrappers, n.e.c.; painters, except construction and maintenance; photographic process workers; sawyers; stationary firemen; part of operatives & kindred workers, (n.e.c.)

7

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
SERVICE WORKERS	Same
Private household workers	"
Firemen	Firemen, fire protection
Guards, watchmen and doorkeepers	Guards, watchmen and doorkeepers; and watchmen (crossing) and bridge tenders
Policemen and other law enforcement officials	Marshals and constables; policemen and detectives; sheriffs and bailiffs
Bartenders	Same
Cooks, except private household	"
Counter & fountain workers	"
Waiters & waitresses	"
Airline stewards & stewardesses	Part of housekeepers and stewards, except private household
Attendants, hospital & other inst.	Same
Charwomen & cleaners	"
Janitors & sextons	"
Practical nurses	"
Other service workers, n.e.c.	Attendants, professional and personal services, n.e.c.; attendants, recreation and amusement; barbers; boarding and lodging housekeepers; bootblacks; chambermaids and maids, except private household; elevator operators; hairdressers and cosmetologists; part of housekeepers and stewards, except private household; kitchen workers, n.e.c., except household; midwives; porters; ushers, recreation and amusement; and service workers, except private household, n.e.c.
LABORERS, EXCEPT FARM	Same
FARMERS AND FARM WORKERS	Farmers and farm managers, and farm laborers and foremen

Table A.3
COMPARISON OF THE ORIGINAL MARYLAND MODEL I/O SECTORS
TO
THE REVISED MODEL SECTORS

Original	Revised	Original	Revised
1	1	45	18
2	1	46	18
3	1	47	19
4	1	48	19
5	1	49	19
6	1	50	19
7	1	51	20
8	1	52	21
10	1	53	21
11	2	54	21
12	2	55	22
13	2	59	22
14	3	60	22
15	4	61	22
16	5	62	22
17	5	63	22
18	6	64	22
19	6	65	22
20	7	66	22
21	7	67	22
22	7	68	23
23	8	69	24
24	9	71	24
25	10	72	25
26	11	73	25
27	12	74	25
28	13	75	26
29	13	76	26
30	14	77	26
31	14	78	27
32	13	79	28
33	13	80	28
34	15	81	28
35	16	82	28
36	16	83	29
37	16	84	30
38	16	85	30
39	16	86	30
40	16	87	30
41	17	88	30
42	17	89	30
43	17	90	30
44	17	91	30

Table A.3 continued
COMPARISON OF THE ORIGINAL MARYLAND MODEL I/O SECTORS
TO
THE REVISED MODEL SECTORS

Original	Revised
92	7
93	7
94	7
95	7
96	7
97	7
98	7
99	7
100	7
101	7
102	31
103	32
104	31
105	31
106	31
107	31
108	31
109	31
110	31
111	31
112	31
113	31
114	33
115	33
116	31
117	31
118	34
119	34
120	34
121	34
122	34
123	34
124	34
125	34
126	34
127	34
128	34
129	34
130	34
131	34
132	35
133	35
134	36
135	36
136	36
137	37
138	37
139	37
140	37
141	38
142	38
143	38
144	38
145	38
146	38
147	39
148	39
149	39
150	39
151	40
152	40
153	40
154	40
155	40
156	40
157	40
158	41
159	42
160	43
161	43
162	43
163	44
164	44
165	45
166	45
167	45
168	45
169	46
170	46
171	46
172	46
173	47
174	48
175	46
176	46

Table A.4
I/O SECTORS OF THE REVISED MARYLAND MODEL

Sector	Description
1	Agriculture, Forestry, Fisheries
2	Metal Mining
3	Coal Mining
4	Crude Petroleum and Natural Gas
5	Nonmetallic Mining and Quarrying
6	Construction
7	Fabricated Metal Products, n.e.c.
8	Meat Products
9	Dairy Products
10	Canning Preserves and Freezing
11	Grain Mill Products
12	Bakery Products
13	Other Food Products
14	Beverages
15	Tobacco
16	Textiles, Apparel and Accessories
17	Lumber and Wood Products
18	Furniture and Fixtures
19	Pulp Paper and Board Mills
20	Paperboard Containers and Boxes
21	Printing and Publishing
22	Drugs, Medicine, Synthetic Fibers and Other Chemicals
23	Paints and Allied Products
24	Petroleum Refining and Coal Products
25	Rubber and miscellaneous Plastic Products
26	Leather Products
27	Glass and Glass Products
28	Stone and Clay Products
29	Primary Iron and Steel Manufacturing
30	Primary Nonferrous Metals
31	Miscellaneous Machinery
32	Farm Machinery and Equipment
33	Office Machinery
34	Electrical Machinery
35	Motor Vehicle and Equipment
36	Aircraft and Engines
37	Other Transportation Equipment
38	Professional Scientific Instruments
39	Miscellaneous Manufacturing
40	Transportation
41	Telephone and Telegraph
42	Radio and TV Broadcasting
43	Utilities

Sector	Descritpion
44	Wholesale and Retail Trade
45	Finance, Insurance and Real Estate
46	Hotels and Lodging Places, misc. Personal Services, misc. Business Services, misc. Repair Services (excluding Auto Repair Services), Hospitals, Legal Services, Educational Services, Nonprofit Member Organizations and Other Professional and Related Services
47	Auto Repair Services
48	Amusements
49	Domestic Household
50	State and Local Nonschool
51	State and Local School
52	State and Local Enterprises
53	Federal Civilian
54	Federal Enterprises
55	Federal Military

Table A.5
ALPHA PARAMETERS OF THE PARETO DISTRIBUTIONS
FOR
THE OCCUPATIONAL CLASSES

Code	Alpha	Code	Alpha
1100	4.13	1960	3.26
1210	1.34	1970	2.61
1220	- -	1980	3.97
1230	3.42	1990	2.47
1240	2.43	1999	2.79
1250	1.34*	2100	7.47
1260	2.34	2200	3.27
1265	1.34*	2300	4.14
1270	3.85	2400	3.45
1280	3.42	2500	4.20
1290	2.22	2900	1.91
1299	2.61	3100	3.97
1310	4.80	3200	- -
1320	4.80	3910	2.71
1330	3.20	3920	2.71
1399	3.42	3930	1.71
1410	4.35	3940	- -
1420	5.07	3950	4.80
1430	4.56	3970	- -
1440	2.92	3980	- -
1450	4.82	3999	3.97
1460	4.19	4000	2.46
1499	6.36	5110	3.42
1510	2.65	5120	3.71
1520	2.90	5130	2.87
1599	3.66	5140	5.35
1610	5.62	5145	4.42
1620	3.71	5150	3.42
1630	8.55	5160	2.42
1640	8.55	5170	4.05
1699	4.42	5180	4.28
1910	3.06	5190	5.80
1915	1.67	5200	5.16
1920	1.93	5310	4.62
1930	4.25	5320	3.71
1935	3.08	5325	5.68
1940	2.88	5330	6.51
1945	1.36	5340	4.97
1950	5.68	5350	3.42

*Alpha Parameters of 1250 and 1265 were made equal to that of 1210.

Code	Alpha
5360	5.34
5370	5.68
5380	3.97
5390	5.47
5420	6.13
5430	3.42
5440	4.42
5450	3.76
5460	--
5499	4.80
5610	3.71
5620	8.22
5630	4.01
5640	5.94
5650	7.79
5710	5.13
5720	6.33
5730	4.97
5910	3.42
5915	3.84
5920	4.80
5925	3.09
5930	4.24
5935	1.71
5950	1.84
5970	6.51
5980	3.97
5990	3.09
5999	4.04
6210	2.84
6220	3.80
6310	--
6320	--
6330	4.80
6340	4.42
6350	4.42
6360	4.42
6370	4.55
6380	4.80
6390	4.20
6710	6.13
6720	3.57
6730	5.68
6810	--
6820	--
6830	--
6840	--

Code	Alpha
6910	4.31
6920	3.09
6930	2.71
6940	3.42
6950	3.20
6960	3.84
6999	7.13
7100	--
7210	6.68
7220	5.55
7230	3.97
7310	2.81
7320	3.97
7330	--
7340	--
7910	2.42
7920	--
7930	1.71
7940	2.71
7950	--
7999	3.42
8000	2.71
9000	2.39

Table A.6

Industrial Sectors for Employee Compensation Adjustment Equations

Sector	Description
1	Metal Mining
2	Coal Mining
3	Crude Oil Mining
4	Non Metallic Mining
5	Construction
6	Food
7	Tobacco
8	Textiles
9	Apparel
10	Paper
11	Printing & Publishing
12	Chemicals
13	Petroleum Refining
14	Rubber
15	Leather & Leather Products
16	Lumber & Wood Products (except furniture)
17	Furniture
18	Stone, Clay & Glass Products
19	Primary Metals
20	Fabricated Metals
21	Machinery (except electrical)
22	Electrical Machinery
23	Transportation Equipment & Ordnance (except Motor Vehicles)
24	Motor Vehicles
25	Instruments
26	Miscellaneous Manufacturing
27	Transportation
28	Telephone & Telegraph
29	Broadcasting
30	Utilities
31	Trade
32	Finance
33	Services
34	Agriculture, Forestry & Fisheries
35	Federal Government (General)
36	Federal Enterprises
37	State & Local Government (General)
38	State & Local Enterprises

Table A.7
INDUSTRIAL SECTORS FOR CORPORATE DIVIDEND EQUATIONS & CORPORATE TAX EQUATIONS

Sector	Description
1	Agriculture, Forestry, and Fishery Products
2	Metal Mining
3	Coal Mining
4	Petroleum & Gas Mining
5	Non Metallic Mining
6	Construction
7	Food & Kindred Products
8	Tobacco
9	Textiles
10	Apparel & Other Fabricated Textiles
11	Paper & Allied Products
12	Printing, Publishing, & Allied Products
13	Chemicals
14	Petroleum Refining
15	Rubber & Misc. Plastic Products
16	Leather & Leather Products
17	Lumber & Wood Products (Except Furniture)
18	Furniture & Fixtures
19	Stone, Clay, & Glass Products
20	Primary & Fabricated Metals
21	Transportation Equipment and Ordnance (Except Motor Vehicles)
22	Machinery (Except Electrical)
23	Electrical Machinery
24	Motor Vehicles & Motor Vehicle Equipment
25	Instruments
26	Misc. Manufacturing
27	Transportation
28	Telephone & Telegraph
29	Radio & TV Broadcasting
30	Electric, Gas & Sanitary Services
31	Wholesale & Retail Trade
32	Finance & Insurance
33	Real Estate
34	Amusements
35	Misc. Professional Services
36	Misc. Business Services
37	Hotel, Personal Services, Misc. Repairs
38	Automobile Repairs

APPENDIX B

B.1 Lagrangian Polynomial Interpolation

The Lagrangian polynomial interpolation procedure permits the estimation of smooth n^{th} degree polynomials over the range of n+1 points. Such a method calculates the coefficients of the polynomial with a minimum amount of computations. The general form of such polynomials can be written as:

$$(1) \quad F(X) = \sum_{i=0}^{n} \Phi_i b_i$$

where

Φ_i = Lagrangian weights

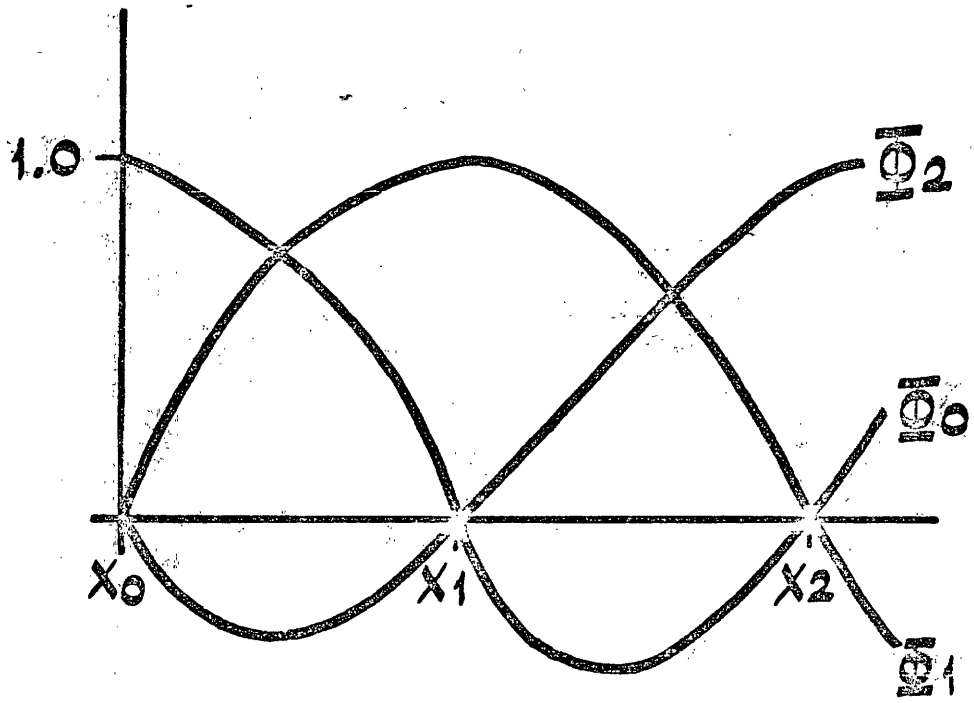
b_i = the value of the polynomial at X_i

Each of the Lagrangian weights (Φ_i) can be defined as:

$$(2) \quad \Phi_i = \prod_{\substack{j=0 \\ j\neq i}}^{n} (X-X_j) \Big/ \prod_{\substack{j=0 \\ j\neq i}}^{n} (X_i-X_j)$$

The Lagrangian weights are each an n- degree polynomial with the characteristic that when the function is evaluated at X_i, $\Phi_i = 1.0$ and $\Phi_{j\,(j\neq i)} = 0.0$.

Example: (n = 3)



Since the function specified in (1) is a sum of n+1 polynomials of the n^{th} degree, the function is itself an n^{th} degree polynomial. However, some computational adjustments must be made before the calculation of the polynomial coefficients can be completed since the polynomials in (2) are defined in an unusual manner (in the form of deviations from certain values in the domain of X). The explicit solution of the coefficients in (1) can be represented as follows:

$$\text{coefficient of } X^n = \sum_{i=0}^{n} b_i/A_i$$

$$\text{coefficient of } X^{n-1} = \sum_{i=0}^{n} (b_i/A_i) \sum_{\substack{j=0 \\ j\neq i}}^{n} (-X_j)$$

$$\text{coefficient of } X^{n-2} = \sum_{i=0}^{n} (b_i/A_i) \sum_{\substack{j=0 \\ j\neq i}}^{n} \sum_{k=j+1}^{n} (-X_j)(-X_k)$$

. .

. .

. .

. .

. .

$$\text{coefficient of } X^0 = \sum_{i=0}^{n} (b_i/A_i) \prod_{\substack{j=0 \\ j\neq i}}^{n} (-X_j)$$

where $A_i = \prod_{\substack{j=0 \\ j\neq i}}^{n} (X_i - X_j)$

APPENDIX C

Table C.1

FEDERAL, STATE, AND LOCAL CORPORATE TAX LIABILITIES
(Millions of Dollars)

	Agriculture	Metal Mining	Coal Mining	Crude Mining	Non-Metallic Mining	Construction
1948	73	78	133	119	45	221
1949	62	38	52	100	42	212
1950	88	98	78	137	62	249
1951	85	123	61	145	69	289
1952	57	79	36	155	54	302
1953	56	95	31	45	57	270
1954	51	95	19	105	63	282
1955	43	167	32	102	75	235
1956	46	172	54	108	75	320
1957	38	98	54	114	49	379
1958	57	52	33	69	65	352
1959	44	51	26	89	45	321
1960	53	79	23	88	38	292
1961	66	81	29	102	45	335
1962	73	57	19	86	53	368
1963	84	72	34	115	68	367
1964	87	59	48	114	64	426
1965	99	75	39	97	53	515
1966	104	89	55	60	50	614
1967	87	31	35	59	52	714

	Food	Tobacco	Textiles	Apparel	Paper	Printing	Chemicals
1948	674	96	596	129	309	230	621
1949	643	103	281	90	222	208	621
1950	840	137	539	129	461	257	1276
1951	885	173	525	98	822	330	1743
1952	886	168	303	99	549	333	1296
1953	941	204	306	99	532	349	1338
1954	894	174	226	98	479	325	1160
1955	1007	207	310	115	580	405	1493
1956	985	219	308	115	677	436	1483
1957	973	235	255	102	532	431	1482
1958	1060	276	222	112	469	384	1273
1959	1209	304	360	143	574	470	1771
1960	1183	313	342	145	511	470	1619
1961	1222	345	304	173	496	467	1663
1962	1170	335	340	191	474	485	1662
1963	1295	353	355	200	441	534	1842
1964	1315	326	423	231	459	632	1970
1965	1377	320	501	265	513	717	2140
1966	1599	335	487	305	611	811	2270
1967	1474	356	429	349	489	768	2043

Table C.1 (Continued)

	Petroleum	Rubber	Leather	Lumber	Furniture	Stone, Clay Glass
1948	658	100	61	207	73	214
1949	326	67	44	113	57	201
1950	574	216	69	279	111	406
1951	957	345	71	241	122	506
1952	625	236	67	167	112	387
1953	742	236	65	139	95	457
1954	518	167	65	148	92	428
1955	599	246	78	205	125	609
1956	647	244	75	151	131	556
1957	338	222	71	98	116	482
1958	166	221	65	124	90	433
1959	329	283	80	171	120	583
1960	308	230	72	99	106	490
1961	278	259	73	98	111	472
1962	226	242	75	107	126	441
1963	353	250	82	132	134	478
1964	317	261	85	147	139	495
1965	479	275	96	174	186	487
1966	710	332	109	163	202	443
1967	711	328	117	166	182	374

	Metals	Transportation Equipment	Machinery (Excl.Electric)	Electric Machinery	Motor Vehicles
1948	1085	115	659	333	649
1949	814	95	528	278	823
1950	1763	190	881	691	1666
1951	2717	270	1517	872	1564
1952	1603	410	1390	911	1482
1953	1971	553	1235	917	1729
1954	1370	466	929	658	1196
1955	2112	459	1035	666	2240
1956	2093	472	1285	686	1306
1957	1987	522	1178	806	1416
1958	1428	400	857	679	567
1959	1731	341	1171	913	1522
1960	1450	295	1023	742	1604
1961	1415	328	1041	783	1356
1962	1243	422	1178	823	2122
1963	1469	470	1273	863	2569
1964	1742	548	1588	919	2349
1965	2181	655	1847	1267	2953
1966	2554	667	2274	1524	2476
1967	2181	629	2009	1475	1946

Table C.1 (Continued)

	Instruments	Miscl. Manufacturing	Transportation	Telephone& Telegraph	TV & Radio
1948	84	148	685	168	18
1949	71	114	475	182	15
1950	143	197	894	296	23
1951	245	215	1028	487	44
1952	233	172	1005	543	46
1953	250	164	910	623	55
1954	229	155	601	646	61
1955	247	187	815	811	85
1956	276	196	818	884	89
1957	253	181	698	973	95
1958	250	167	562	1129	99
1959	340	202	710	1340	117
1960	327	166	606	1469	129
1961	328	190	666	1561	117
1962	371	206	561	1613	160
1963	394	203	678	1747	191
1964	428	194	708	1790	147
1965	534	215	849	1798	158
1966	686	232	939	2031	173
1967	692	227	651	2080	133

	Utilities	Trade	Finance & Insurance	Real Estate	Amusements	Miscl. Prof. Services
1948	441	2224	745	270	100	17
1949	501	1567	959	269	87	15
1950	644	2666	1151	322	72	18
19	909	2768	1443	351	89	29
1952	1048	2219	1720	355	89	34
1953	1114	2080	1917	374	82	34
1954	1191	1977	2102	422	107	32
1955	1286	2407	1895	400	91	31
1956	1368	2553	2050	395	94	44
1957	1331	2457	2428	385	84	50
1958	1370	2252	2905	453	83	45
1959	1574	2740	3043	487	99	54
1960	1765	2423	3636	458	103	58
1961	1896	2370	3459	464	134	55
1962	1925	2586	3455	478	116	49
1963	1990	2663	3592	484	115	86
1964	2102	2953	4276	431	133	76
1965	2056	3312	3937	489	135	106
1966	2171	3516	4421	485	166	101
1967	2101	3812	5093	527	148	160

Table C.1 (Continued)

	Miscl. Business Services	Hotel, Personal, & Miscl. Repairs	Automobile Repairs
1948	53	77	10
1949	54	71	8
1950	66	71	10
1951	96	88	13
1952	93	87	15
1953	100	86	15
1954	100	85	12
1955	117	84	15
1956	137	102	18
1957	164	109	16
1958	163	90	23
1959	188	99	35
1960	192	94	31
1961	199	90	33
1962	219	91	31
1963	223	86	39
1964	225	97	41
1965	268	120	38
1966	324	145	47
1967	330	175	44

Table C.2

SELF-EMPLOYMENT
(Thousands)

	Agriculture	Mining	Construction	Non-Durable Manufacturing	Durable Manufacturing
1948	4554	35	984	192	248
1949	4440	34	964	179	236
1950	4335	35	1011	174	237
1951	4023	37	970	175	255
1952	3946	37	930	178	266
1953	3814	38	900	170	267
1954	3811	41	800	162	248
1955	3678	40	749	156	241
1956	3482	36	749	152	234
1957	3263	39	749	148	228
1958	3068	36	719	142	221
1959	2933	36	732	143	220
1960	2792	36	733	143	222
1961	2711	36	740	143	222
1962	2615	36	751	141	221
1963	2508	35	757	141	219
1964	2440	35	765	138	218
1965	2381	35	778	135	219
1966	2286	34	761	121	218
1967	2195	35	744	113	210
1968	2151	34	720	123	202
1969	2087	34	741	134	206

	Trade	Trans-portation	Finance & Insurance	Utilities	Communications	Services
1948	2252	185	220	9	3	1530
1949	2301	186	210	9	4	1531
1950	2311	190	209	9	4	1541
1951	2323	197	232	10	4	1579
1952	2335	199	255	10	4	1608
1953	2321	201	280	11	4	1627
1954	2299	190	311	13	4	1632
1955	2358	186	295	12	4	1638
1956	2384	185	286	12	4	1688
1957	2411	187	287	12	4	1755
1958	2440	185	286	12	4	1785
1959	2416	181	283	12	4	1815
1960	2425	182	290	12	4	1894
1961	2384	182	298	12	4	1959
1962	2313	181	306	12	4	2004
1963	2219	182	311	12	4	2054
1964	2255	182	316	12	4	2096
1965	2255	184	320	13	4	2092
1966	2207	180	330	14	4	2160
1967	2214	178	319	12	4	2167
1968	2247	184	313	11	4	2218
1969	2278	172	313	11	4	2280

Table C.3

AVERAGE COMPENSATION PER EMPLOYEE
(Full and Part-time)

(Dollars)

	Agriculture	Mining	Construction	Non-Durable Manufacturing	Durable Manufacturing
1948	1328	3601	3266	3039	3299
1949	1301	3428	3356	3106	3390
1950	1274	3766	3501	3303	3696
1951	1382	4234	3890	3553	4112
1952	1420	4411	4171	3741	4381
1953	1412	4753	4416	3920	4642
1954	1351	4784	4531	4066	4731
1955	1390	5141	4631	4256	5058
1956	1469	5507	4903	4492	5355
1957	1538	5705	5179	4717	5606
1958	1576	5714	5339	4900	5838
1959	1629	6100	5594	4899	6208
1960	1699	6294	5866	5324	6403
1961	1721	6487	6089	5508	6598
1962	1781	6725	6344	5720	6948
1963	1836	6978	6581	5899	7212
1964	1990	7271	6905	6173	7564
1965	2128	7529	7205	6370	7828
1966	2364	7956	7736	6667	8146
1967	2551	8436	8140	6958	8401
1968	2790	8956	8608	7441	9022
1969	3033	9648	9374	7905	9544

	Trade	Trans-portation	Finance & Insurance	Utilities	Communications	Services
1948	2652	3520	2917	3429	3095	1936
1949	2715	3619	3014	3610	3261	1982
1950	2853	3762	3199	3851	3448	2014
1951	2968	4083	3365	4182	3662	2132
1952	3065	4305	3518	4488	3913	2269
1953	3209	4499	3696	4754	4140	2374
1954	3322	4621	3890	4998	4350	2465
1955	3462	4845	4037	5191	4569	2529
1956	3617	5154	4225	5523	4722	2627
1957	3777	5466	4423	5810	4920	2765
1958	3891	5714	4645	6089	5190	2842
1959	4078	6054	4933	6480	5618	2973
1960	4220	6256	5135	6747	5890	3136
1961	4326	6435	5396	7094	6185	3213
1962	4486	6689	5564	7384	6509	3345
1963	4637	6903	5767	7686	6756	3493
1964	4802	7204	5997	8100	7177	3661
1965	4961	7522	6206	8372	7410	3838
1966	5181	7878	6556	8774	7724	4080
1967	5396	8211	6950	9161	7958	4417
1968	5716	8783	7467	9713	8468	4745
1969	6024	9414	7881	10422	9173	5167

Table C.4

AVERAGE PROPRIETOR INCOME PER SELF-EMPLOYED PERSON

(Dollars)

	Agriculture	Mining	Construction	Non-Durable Manufacturing	Durable Manufacturing
1948	3917	11457	2697	5156	3367
1949	2929	8471	2752	4866	3008
1950	3197	8429	3054	5655	4485
1951	4032	8270	3220	5697	4592
1952	3903	7486	3518	5567	4102
1953	3531	7842	3564	5894	4124
1954	3379	7098	3661	5815	3887
1955	3227	8475	4228	5981	4573
1956	3401	11222	4393	6039	5030
1957	3590	10590	4640	6095	4829
1958	4518	10278	4567	6204	4462
1959	4039	7694	4851	5629	5009
1960	4439	7667	4580	5748	4590
1961	4900	7889	4808	5671	4536
1962	5172	7583	4790	5553	4950
1963	5415	7657	4885	5241	4913
1964	5210	7143	5125	5355	5257
1965	6485	6829	5568	5496	5648
1966	7304	6147	5936	6298	6179
1967	7048	10143	6093	6265	5581
1968	7291	9882	6558	5789	5757
1969	8182	10324	6474	4985	5947

	Trade	Trans-portation	Finance & Insurance	Utilities	Communications		Services
1948	4424	3249	5327	2000	2667		4023
1949	3952	3231	6443	1889	2000	4064	4064
1950	4360	3447	8761	2556	2750		4337
1951	4663	3518	8017	2700	3500		4461
1952	4542	3668	7918	3300	4500		4647
1953	4570	3751	7714	3455	4500		4933
1954	4617	4021	7701	3308	5250		5022
1955	4226	4054	9881	3583	4500		5871
1956	4851	4146	10430	3167	4500		6063
1957	4890	4209	11094	4250	4250		6234
1958	4750	4303	11580	5500	4250		6443
1959	5082	4464	12032	4667	4000		6912
1960	4743	4363	10907	4583	4000		6773
1961	4867	4659	10879	4833	4250		7032
1962	5195	5155	10101	4667	4000		7340
1963	5369	5423	10473	5583	4750		7519
1964	5486	5538	10823	7083	6250		7976
1965	5565	6489	12391	6154	5750		8524
1966	5966	6689	12285	6357	5250		9083
1967	6055	6281	13392	8250	6500		9818
1968	6193	6712	14307	9182	9750		10115
1969	6201	6767	13767	9182	8750		10446

Table C.5

NET CORPORATE DIVIDENDS BY INDUSTRY

(Millions of Dollars)

	Agriculture, Forestry, Fisheries	Metal Mining	Coal Mining	Oil & Gas Mining	Non-Metallic Mining	Construction	Food
1948	49	117	69	141	34	56	418
1949	47	91	58	156	32	61	402
1950	53	129	57	224	42	66	426
1951	63	141	47	271	42	60	442
1952	42	107	45	319	48	66	425
1953	34	111	31	363	42	58	485
1954	34	133	23	474	6	56	438
1955	32	185	31	426	54	65	451
1956	29	212	42	445	55	63	433
1957	33	149	34	373	49	76	468
1958	36	113	54	475	31	64	475
1959	13	127	34	427	48	81	491
1960	43	147	31	507	48	96	545
1961	40	141	37	563	52	114	554
1962	52	142	34	634	59	110	609
1963	130	108	40	784	56	159	607
1964	56	120	44	616	67	162	656
1965	82	129	53	552	64	209	775
1966	75	183	38	681	70	164	820
1967	66	87	46	697	68	237	776

	Tobacco	Textile	Apparel	Paper	Printing & Publishing	Chemicals	Petroleum
1948	86	256	57	150	133	382	398
1949	89	192	44	123	124	432	501
1950	92	221	48	159	122	547	431
1951	91	215	37	191	111	514	492
1952	93	165	34	176	110	543	509
1953	96	153	33	200	115	511	609
1954	101	122	30	209	114	620	460
1955	103	138	31	228	129	748	539
1956	118	140	32	277	135	770	720
1957	124	139	24	265	149	804	833
1958	140	113	26	251	150	787	688
1959	148	121	32	255	152	873	719
1960	157	129	35	258	167	902	827
1961	170	119	49	265	166	932	572
1962	183	136	55	285	185	1374	760
1963	190	137	48	265	190	1388	798
1964	200	155	77	318	308	1531	933
1965	221	173	88	346	297	1263	1154
1966	226	190	117	360	299	1402	1357
1967	201	197	88	365	298	1414	1474

Table C.5 (Continued)

	Rubber	Leather	Lumber	Furniture	Stone, Clay, & Glass	Metals	Transportation Equipment & Ordnance
1948	23	40	89	32	108	497	92
1949	34	37	74	30	120	487	90
1950	30	37	100	40	148	653	101
1951	12	34	97	31	143	632	102
1952	36	30	85	30	146	607	113
1953	27	28	72	30	169	625	128
1954	48	28	77	30	185	606	157
1955	53	32	92	35	199	787	180
1956	70	33	90	36	253	791	188
1957	76	32	79	40	240	844	191
1958	67	36	80	29	234	777	179
1959	101	29	98	32	249	809	191
1960	81	38	97	35	283	822	157
1961	61	29	93	30	240	931	157
1962	79	34	107	40	260	876	201
1963	67	47	100	38	258	826	188
1964	83	41	121	39	257	918	204
1965	112	48	146	55	281	985	288
1966	129	43	115	51	269	1097	270
1967	161	45	154	70	264	1157	333

	Machinery Excl. Electric	Electric Machinery	Motor Vehicles	Instruments	Misc. Manufacturing	Trans-portation
1948	317	157	256	51	74	309
1949	307	159	442	55	67	269
1950	362	240	730	66	73	363
1951	357	235	477	62	70	391
1952	367	257	475	73	60	376
1953	364	288	481	77	55	416
1954	345	302	536	83	57	410
1955	360	340	728	105	68	491
1956	398	385	694	113	76	509
1957	431	377	700	119	73	507
1958	375	366	624	115	67	481
1959	383	398	660	132	72	470
1960	433	408	669	149	73	534
1961	443	385	669	135	86	512
1962	491	403	873	153	81	511
1963	519	423	1263	168	54	580
1964	433	491	1444	176	66	672
1965	673	561	1637	213	73	780
1966	733	656	1604	267	85	806
1967	824	664	1395	260	75	808

Table C.5 (Continued)

	Telephone & Telegraph	Radio & T.V.	Utility	Trade	Finance & Insurance	Real Estate	Amusements
1948	210	11	542	931	351	205	69
1949	233	7	615	834	360	212	75
1950	275	18	752	968	473	221	54
1951	317	10	837	905	395	205	72
1952	356	11	922	851	438	194	64
1953	412	9	910	761	522	202	47
1954	459	10	1033	728	539	181	52
1955	505	15	1188	772	535	190	42
1956	609	20	1234	817	536	215	50
1957	681	27	1291	819	713	202	40
1958	708	23	1422	772	756	210	39
1959	835	38	1530	849	929	270	34
1960	844	35	1624	913	1023	271	38
1961	951	42	1778	952	1023	267	34
1962	1008	62	1832	1042	881	247	43
1963	1203	59	1936	961	1271	328	42
1964	1236	58	2061	1220	1146	326	58
1965	1271	75	2264	1392	1368	406	35
1966	1444	68	2415	1515	1171	301	47
1967	1496	77	2538	1602	1134	376	46

	Misc. Professional Services	Misc. Business Services	Automobile Repairs	Hotel, Personal Services, Misc. Repairs
1948	7	28	3	34
1949	7	33	3	31
1950	7	33	4	36
1951	8	33	3	32
1952	10	33	3	39
1953	9	34	7	29
1954	9	31	3	30
1955	10	34	4	34
1956	12	38	6	41
1957	14	50	6	36
1958	14	49	9	27
1959	16	56	8	39
1960	16	105	11	45
1961	21	25	18	45
1962	18	46	11	37
1963	37	68	20	81
1964	31	67	22	58
1965	43	91	24	76
1966	51	124	30	85
1967	79	138	24	141

Table C.6

CAPITAL CONSUMPTION ALLOWANCES BY INDUSTRY

(Millions of Dollars)

	Agriculture, Forestry, Fisheries	Metal Mining	Coal Mining	Oil & Gas Mining	Non-Metallic Mining	Construction	Food
1948	39	19	82	195	33	140	371
1949	46	17	85	249	39	173	430
1950	52	18	98	313	43	204	463
1951	63	21	102	358	49	243	516
1952	72	16	101	411	57	268	546
1953	75	20	99	429	62	285	559
1954	79	31	102	410	71	327	617
1955	99	73	107	482	91	400	698
1956	97	76	112	514	98	440	721
1957	106	85	129	548	108	519	783
1958	130	78	128	527	122	562	948
1959	142	133	132	564	131	642	1011
1960	162	123	131	584	133	669	1052
1961	192	82	140	633	146	706	1117
1962	212	109	157	634	169	780	1294
1963	235	88	145	635	184	863	1327
1964	255	36	182	634	200	910	1425
1965	270	38	174	618	199	1025	1501
1966	307	37	218	644	216	1186	1708
1967	365	52	175	618	227	1264	1649

	Tobacco	Textile	Apparel	Paper	Printing & Publishing	Chemicals	Petroleum
1948	11	156	41	122	80	277	655
1949	13	174	48	140	95	327	731
1950	14	193	48	154	107	369	767
1951	15	210	54	179	122	432	861
1952	14	223	56	204	131	539	932
1953	17	242	59	234	143	660	1078
1954	19	258	64	275	154	784	1341
1955	21	290	72	338	182	916	1549
1956	24	306	73	370	201	973	1686
1957	27	327	74	419	223	1045	1856
1958	31	320	83	464	250	1127	1944
1959	36	319	86	478	269	1228	1973
1960	40	328	86	500	299	1230	1998
1961	42	361	96	545	315	1342	2054
1962	52	392	118	656	383	1624	2218
1963	59	406	116	666	420	1725	2481
1964	60	435	132	726	468	1765	2657
1965	61	453	142	740	490	1905	2888
1966	66	487	167	778	530	1962	3002
1967	70	534	184	835	576	3002	3219

Table C.6 (Continued)

	Rubber	Leather	Lumber	Furniture	Stone, Clay, & Glass	Metals	Transportation Equipment & Ordnance
1948	67	22	82	28	100	512	56
1949	63	25	91	32	115	588	64
1950	67	23	99	33	129	604	62
1951	86	26	121	40	152	729	88
1952	96	28	131	43	180	934	120
1953	110	27	136	45	222	1278	148
1954	126	27	142	53	244	1472	167
1955	151	30	168	59	284	1634	184
1956	166	35	181	60	303	1680	202
1957	189	38	185	67	362	1781	238
1958	218	40	194	72	462	1734	278
1959	220	40	206	78	466	1739	310
1960	232	45	224	83	507	1884	344
1961	256	42	220	84	535	1933	358
1962	304	43	248	93	620	2393	397
1963	319	56	240	86	640	2447	429
1964	329	53	284	92	683	2582	456
1965	347	56	343	108	705	2723	490
1966	376	62	343	114	727	2926	535
1967	410	67	362	119	756	3191	752

	Machinery Excl. Electric	Electric Machinery	Motor Vehicles	Instruments	Misc. Manufacturing	Trans-portation
1948	240	122	185	33	63	826
1949	273	132	202	38	68	897
1950	302	150	228	43	65	963
1951	354	179	249	63	74	1223
1952	417	217	294	75	80	1385
1953	472	263	382	83	88	1609
1954	547	301	456	94	97	1706
1955	628	352	526	112	115	1959
1956	689	392	613	138	124	2019
1957	755	435	730	151	135	2098
1958	774	476	741	168	148	2179
1959	869	478	730	180	149	2259
1960	902	513	742	196	140	2309
1961	964	571	748	240	141	2388
1962	1116	650	895	270	150	2840
1963	1090	715	931	295	149	2903
1964	1252	762	973	287	157	3072
1965	1363	826	1048	326	150	3332
1966	1431	950	1248	375	146	3768
1967	1693	1121	1384	441	158	4177

Table C.6 (Continued)

	Telephone & Telegraph	Radio & T.V.	Utility	Trade	Finance & Insurance	Real Estate	Amusements
1948	312	11	527	750	138	388	83
1949	326	19	564	900	196	445	117
1950	390	23	663	1029	185	499	106
1951	424	25	777	1156	216	582	115
1952	445	26	851	1225	243	621	118
1953	485	32	988	1296	282	692	126
1954	534	45	1245	1406	324	788	152
1955	586	61	1514	1681	389	889	178
1956	627	61	1720	1842	441	973	203
1957	691	77	1882	2026	510	1116	206
1958	765	74	2036	2018	565	1218	205
1959	867	76	2258	2156	619	1320	249
1960	941	85	2388	2316	701	1486	305
1961	1036	88	2492	2377	776	1584	323
1962	1249	103	2772	2630	861	1747	370
1963	1553	109	2813	2747	924	1820	389
1964	1731	121	2890	2949	1051	1951	408
1965	1956	116	3111	3186	1132	2045	418
1966	2167	132	3319	3479	1223	2142	439
1967	2367	173	3603	3819	1400	2219	430

	Misc. Professional Services	Misc. Business Services	Automobile Repairs	Hotel, Personal Services, Misc. Repairs
1948	15	47	25	133
1949	17	58	32	151
1950	18	72	40	164
1951	21	90	55	181
1952	21	104	66	187
1953	24	119	93	203
1954	25	134	114	219
1955	31	163	139	252
1956	36	218	203	284
1957	45	267	244	328
1958	56	298	258	333
1959	55	334	332	378
1960	61	369	392	408
1961	76	423	359	455
1962	75	505	436	502
1963	111	582	522	530
1964	113	570	636	573
1965	135	692	686	608
1966	151	746	755	653
1967	235	812	737	714

Table C.7

CORPORATE PROFITS AFTER TAXES BY INDUSTRY

	Agriculture, Forestry, Fisheries	Metal Mining	Coal Mining	Oil & Gas Mining	Non-Metallic Mining	Construction	Food
1948	88	200	307	531	92	365	926
1949	59	97	115	501	86	332	916
1950	87	195	167	649	104	325	1032
1951	68	181	139	618	115	284	768
1952	12	103	92	541	110	305	701
1953	-14	137	54	479	103	253	789
1954	25	131	27	554	123	277	796
1955	4	196	86	607	157	266	961
1956	6	210	160	580	153	420	921
1957	6	125	140	579	120	450	879
1958	11	102	106	500	70	395	1022
1959	-10	-29	57	488	92	343	1125
1960	12	65	60	485	145	224	1116
1961	15	117	92	545	88	292	1127
1962	65	58	76	486	112	445	1168
1963	-24	93	99	545	173	486	1537
1964	12	169	146	240	235	741	1495
1965	102	150	130	337	172	962	1604
1966	138	274	114	240	194	1096	1783
1967	14	-40	121	291	207	1187	1627

	Tobacco	Textile	Apparel	Paper	Printing & Publishing	Chemicals	Petroleum
1948	142	905	174	487	351	928	2246
1949	155	374	97	336	319	904	1490
1950	150	674	188	546	322	1313	1776
1951	123	441	88	533	294	1039	1803
1952	118	210	108	416	297	851	1672
1953	138	210	90	428	290	860	2188
1954	154	99	97	454	303	1044	2176
1955	184	284	140	574	410	1419	2493
1956	192	295	147	682	414	1381	2666
1957	208	238	114	535	457	1364	2435
1958	245	199	126	447	306	1172	1877
1959	266	391	168	578	466	1606	2236
1960	280	317	175	529	515	1501	2377
1961	301	283	195	519	427	1471	2176
1962	302	361	237	535	508	1519	2251
1963	318	365	244	503	412	1655	2192
1964	318	479	326	594	858	1921	2418
1965	324	630	375	700	869	2479	2788
1966	337	606	490	859	1024	2679	2831
1967	353	487	424	726	892	2202	3366

Table C.7 (Continued)

	Rubber	Leather	Lumber	Furniture	Stone, Clay, & Glass	Metals	Transportation Equipment & Ordnance
1948	140	79	371	101	335	1774	156
1949	91	54	207	77	320	1275	133
1950	226	99	425	133	451	1998	229
1951	177	47	340	95	377	1838	188
1952	146	66	253	91	313	1370	226
1953	146	55	216	72	379	1625	287
1954	134	65	241	68	452	1304	420
1955	217	84	367	129	655	2185	410
1956	218	75	292	131	636	2161	442
1957	183	79	178	106	573	2095	506
1958	198	66	250	67	562	1389	370
1959	243	88	356	91	683	1728	187
1960	196	71	217	65	530	1463	114
1961	207	57	207	74	487	1254	211
1962	255	82	272	109	496	1438	472
1963	243	94	353	139	584	1754	469
1964	297	113	396	166	658	2385	604
1965	331	130	490	236	677	3172	708
1966	415	158	398	223	605	3675	779
1967	402	158	379	224	460	3088	719

	Machinery Excl. Electric	Electric Machinery	Motor Vehicles	Instruments	Misc. Manufacturing	Trans-portation
1948	995	531	986	125	214	980
1949	742	412	1205	104	144	657
1950	1005	722	1606	158	237	1107
1951	999	530	948	155	186	951
1952	924	575	931	156	142	846
1953	830	555	947	160	127	745
1954	794	590	898	205	134	387
1955	938	602	1982	231	188	704
1956	1162	621	1110	248	192	673
1957	1028	710	1231	227	168	479
1958	632	629	367	220	155	316
1959	1018	852	1391	314	199	452
1960	791	557	1383	276	158	295
1961	811	548	1170	268	253	314
1962	1119	656	1907	326	233	481
1963	1151	718	2344	387	160	721
1964	1657	757	2433	412	158	903
1965	2100	1391	3237	590	191	1369
1966	2372	1653	2767	754	262	1393
1967	2212	1536	2036	695	289	732

Table C.7 (Continued)

	Telephone & Telegraph	Radio & T.V.	Utility	Trade	Finance & Insurance	Real Estate	Amusements
1948	218	25	712	3630	1885	463	102
1949	242	16	808	2410	2212	478	85
1950	377	29	884	3743	2082	515	63
1951	382	38	899	2744	2283	452	49
1952	423	42	999	2267	2454	400	45
1953	509	34	1048	1962	2792	455	40
1954	576	35	1175	1857	2763	490	63
1955	737	73	1280	2802	3212	499	64
1956	780	79	1332	2794	3365	425	32
1957	840	68	1339	2554	3266	438	18
1958	1000	73	1336	2414	3190	462	-17
1959	1205	103	1583	3160	4283	508	31
1960	1238	128	1859	2531	4337	385	12
1961	1395	101	1864	2882	4493	358	-45
1962	1618	142	1960	3382	4975	332	-66
1963	1757	135	2249	3506	4497	284	-51
1964	1925	131	2465	4848	4010	440	17
1965	2118	177	2646	5518	5013	586	42
1966	2346	193	2826	5751	5644	658	77
1967	2350	114	2691	6047	5228	588	41

	Misc. Professional Services	Misc. Business Services	Automobile Repairs	Hotel, Personal Services, Misc. Repairs
1948	44	85	12	129
1949	43	83	8	114
1950	46	101	14	102
1951	53	100	15	93
1952	50	90	15	97
1953	49	99	15	74
1954	48	105	10	57
1955	62	123	15	72
1956	80	159	12	98
1957	79	188	-2	88
1958	81	183	10	61
1959	92	221	29	60
1960	86	221	18	68
1961	84	206	26	51
1962	98	187	31	35
1963	150	204	24	60
1964	156	278	36	138
1965	167	420	56	204
1966	205	489	50	333
1967	314	483	51	338