INCOME DISTRIBUTION AND INVESTMENT IN ARGENTINA

Laura Randall
Hunter College, CUNY

The most politically sensitive question in studies of economic growth is: What is the optimal relationship for the distribution of income and wealth to economic growth? The rich often diversify their assets, and thus it is not easy to know the total wealth of an individual, or the distribution of wealth for a nation. For this reason, the analysis presented here for Argentina from 1914 to 1969 makes only brief reference to the influence of the distribution of wealth and focuses instead on the relationship between income distribution and economic growth. Income distribution in other nations also is discussed in order to evaluate the possibility of utilizing their experience to judge the Argentine case. The relationship between increases in workers' and entrepreneurs' income and those in investment is also examined, for an economy will grow only if investment takes place. Moreover, because funds spent on private consumption cannot be invested and much past economic analysis has studied the relationship between changes in income and in consumption, this relationship must be considered in the Argentine case. We will look at several categories of income, taking into account the effects of inflation and of ownership of selected categories of wealth.

One approach calls for comparison of the Argentine experience with that of other nations. The best known study of the relationship between income distribution and economic development is that of Simon Kuznets, who received a Nobel Prize for his work. He demonstrated that poor nations had relatively egalitarian income distribution before contact with richer, more modern countries. Enclaves of high-income activities were created after investment by foreigners using new techniques. This increased the inequality of income distribution until the level of per capita income in poor countries reached $400 (1950 dollars). Thereafter, continued investment in all sectors of the economy was found to decrease the inequality of income distribution.[1]

Kuznets's findings raised the question of whether income inequality was needed for growth. There was and is little agreement on this point because, to some extent, the relationship between personal income distribution and growth that is viewed as "best" is a matter of social convention, differing among countries and over centuries. This is the implicit assumption of classical economists, whose models assume that at least initially, income distribution is a result of the free play of market forces, with the most efficient entrepreneurs and workers receiving the highest incomes. The best income distribution, in their

136

view, is that which results from the free play of the market, since this encourages efficiency. Note that since the goods produced or services sold most profitably may differ at various times and places, comparison of "efficient" income distributions is therefore quite difficult. Similarly, personal income distribution reflects social agreement on the division of national income. In the absence of underlying political agreement, redistribution of income to a desired egalitarian pattern may not create a society in which an egalitarian distribution is as much a symptom as a cause. For example, Britain in the 1960s had a more egalitarian income distribution than did Chile. The subsequent redistribution of Chilean personal income did not produce a social agreement but instead led to breakdowns in production and virtual civil war.

Both economic and political factors make cross country comparisons difficult. Therefore, a more useful statement of the problem is: For a given nation at a specific time, what will be the economic effect of a given change in personal income distribution? This question can be subjected to statistical analysis using data from a country which has experienced strong shifts in personal income distribution. Argentina is such a country: the share of workers' real wages income in total real gross domestic product fell dramatically from 37 percent in 1914 to 20 percent in 1918; it rose to 28 percent in 1919, and reached 42 percent in 1928. By 1930, the share was only 38 percent of a falling national income (see table 1). From 1931 to 1939, the wage share was roughly stable at 42 percent; it fell until 1942, and stood at 37 percent in 1947. It rose to 47 percent in 1954, fell to 35 percent in 1959, and rose to 42 percent in 1967.[2]

T A B L E 1 *Real Wages as a Share of Real Gross Domestic Product, 1914–1934*

Year	Percent	Year	Percent	Year	Percent
1914	36.5	1921	33.6	1928	41.7
1915	31.2	1922	35.8	1929	39.6
1916	27.7	1923	36.1	1930	37.7
1917	24.0	1924	35.2	1931	40.8
1918	20.1	1925	37.0	1932	42.8
1919	27.7	1926	36.5	1933	39.5
1920	27.6	1927	39.4	1934	40.8

Source: Departamento Nacional de Trabajo, *Estadísticas de huelgas* (Buenos Aires, 1940), pp. 20–21; *Revista Económica Argentina* (1942), p. 218; Murmis, M. and J. Portantiero, *Estudios sobre Orígenes del Peronismo* (Buenos Aires: Siglo Veinte Uno, 1972), p. 85; Ministerio de Asuntos Económicos, *Producto e ingreso de la República Argentina* (Buenos Aires, 1955).

In the Argentine case, as in those of other nations, there are technical as well as political reasons for inequality of income distribution. On the question of supply, higher-than-average income is usually needed to elicit the highly skilled laborers and entrepreneurs required for modernization. However, if work can

be redesigned so that new techniques requiring fewer skills performed by a large labor force can produce as much output as a small skilled labor force using large amounts of capital—as the Chinese claim to have done in agriculture—then neither highly skilled labor nor highly unequal personal income distribution is necessary for economic growth. Similarly, if people respond to nonmonetary incentives, then a "new man" can be brought into existence, based on unique educational and motivational schemes so that monetary work incentives and income inequality can be substantially reduced.

Argentines have not attempted to redesign work; nonmonetary incentives are not heavily emphasized. Argentine personal income distribution has resulted from the bargaining strength of various labor and employer groups, and their ability to obtain special laws from the administration in power. The result has been a personal income distribution that attracts more than enough workers into professional and liberal arts education, but too few into technical professions and middle-skill occupations.[3]

The effect of unequal income distribution on domestic demand for goods and services is complex. Sismondi and Luxemburg argued that Britain did not need to pay high wages to workers for them to buy back British goods and ensure full employment, because Britain exported goods and did not rely on its workers' demands. Similarly, Edel argues that the Latin American Common Market ensures a market for its own manufactures without requiring the redistribution of income in any one country.[4] Thus, in the case of a single nation, international trade, which was very important in Argentina until World War I but much less so after World War II, weakens the effect of income distribution on demand. As Keynes noted, the ability of workers to buy back the goods produced is far more important when trade breaks down.

At first glance, it would seem that workers' income would increase in importance as a determinant of demand as a consequence of the decline in international trade. In fact, as we shall see later, there was only a slight nonsignificant increase in the relationship between real wages and personal consumption from 1935–54 and 1950–69. In the former case, a 100 percent increase in real wages was associated with a 41 percent increase in real private consumption; in the latter case, a 100 percent increase in real wages was associated with a 48 percent increase in real private consumption (see table 2).

The lack of statistical significance[5] of the increase may be explained by the rising share of government in gross domestic product, which broke the direct link between wages and consumption spending because the government taxed the workers. Moreover, Morley and Smith[6] have shown recently that in Brazil, the rich buy goods requiring a great deal of labor in production, while the poor buy goods requiring capital intensive techniques of production; thus a possible effect of income redistribution from the rich to the poor is that many of the latter will lose their jobs. Because a number of factors influence the relationship between income inequality and economic development, and the importance of these factors has changed, the same degree of inequality of personal income distribution can have different effects at different time periods, and appears to have done so in Argentina in the twentieth century. This is clearest in the rate at

138

TABLE 2 Determinants of Consumption and Investment: Argentina, 1914–1954

Years	Dependent Variable	Durbin Watson	R²/SEEᵃ	Logarithm of Real Wage	Logarithm of Real Gross Operating Surplus	Constant
1935–54	Logarithmᵇ of Real Private Consumption	.94	.9777*	.4062*	.4600*	1.614*
	t value		.2703	12.51	6.369	3.508
1950–69	Logarithm of Real Private Consumption	1.49	.9841*	.4801*	.5191*	0.4850*
	t value		.0275	8.582	13.83	9.939
					Logarithm of Real Gross Domestic Income	
1950–69	Logarithm of Real Private Consumption	1.39	.9850*		.9897*	−0.2268*
	t value		.0260		34.33	−3.534
					Logarithm of Real Gross Operating Surplus	
1914–35	Logarithm of Real Investment	.69	.7339*	1.144*	.2972	−4.951
	t value		.3364	3.557	.3777	−1.062
1935–54	Logarithm of Real Investment	.81	.6216*	.7298*	.2157	−1.320
	t value		.1946	3.123	.4148	−0.3984

ᵃSEE = Standard Error of Estimate.
ᵇLogarithms are used to obtain percentage changes.
*Significant at the 5 percent level of probability.

139

which the rich and the poor spend additions to their income, and in the relationship between personal income distribution and investment spending.

It is often asserted that the rich are entrepreneurs and save a larger share of any incremental change in their income than do the poor, who are workers. Therefore, to encourage the savings and with them investment needed for economic growth, it is necessary to give the lion's share of national income to entrepreneurs. This assertion is misleading. People's spending habits are set in relation to their income, not in relation to their income category's share of national income. For this reason, the assertion is recast, and the question examined is: What are the relationships between a 100 percent change in workers' and entrepreneurs' income and (a) real private consumption and (b) real investment, and do these relationships significantly differ from each other?

From 1914 to 1935, a 100 percent increase in real wages was associated with a 114 percent increase in real investment; from 1935 to 1954, a 100 percent increase in real wages was associated with a 73 percent increase in real investment (see table 2). The difference in the relationship between the two periods can be explained in either of two ways. The first is that there were more immigrants in the labor force in the first period. Immigrants presumably obtained less income in their country of origin than in Argentina. It is likely that their spending habits were related to the income to which they were accustomed, rather than the new, higher income that they received. They therefore saved (and made available for investment) a higher share of income than native-born Argentines. The second is that both wage share and investment share are the result of government policy, which shifted between the two time periods.

Table 2 shows that an increase in entrepreneurs' real income (called gross operating surplus) is associated with an increase in real investment in a way that is not significantly different statistically from the relationship between an increase in real wages and an increase in real private consumption. Although at first glance the relationship between an increase in entrepreneurs' real income and real investment appears different from the relationship between real wages and real investment (especially from 1914 to 1935), the two relationships do not differ significantly when subjected to statistical testing for two reasons. The first is the great variation over the years in the relationship between an increase in entrepreneurs' real income and real investment. The second reflects the fact that the largest component of entrepreneurs' income is the income of the self-employed, who range from highly paid professionals to small businessmen. As a result, the entrepreneurial category includes many poor and partly employed persons with low income. A change in the income of entrepreneurs can increase the income of either rich or poor entrepreneurs. If there are differences between them in the share of additions to income they spend on investment goods, then there would be a great variation in how increases in entrepreneurs' income were related to investment spending, depending upon which group's income increased. This point is more important for entrepreneurs than workers; income because income distribution among the former is more unequal than among the latter.[7] Consequently, "entrepreneurial income" is not a satisfactory substitute

140

for the category "income of the rich" or "income of entrepreneurs in the modern sector."

Despite the preceding, much discussion of Argentine income distribution assumes that the category of economic service for which income is received is directly related to the way in which income is spent. This assumption can be justified on the grounds that rentiers and entrepreneurs are rich while workers are poor, so that in economic analysis, functional income distribution is a reasonable substitute for income distribution by decile (for which Argentina has information on selected years from 1953, but lacks a complete time series). Accordingly, the functional income distribution concepts were refined so that the relationship between a 100 percent increase in the income of each category and a percentage increase in personal consumption and national investment could be explored.

We begin by modifying the textbook example that there are two factors of production—workers supply all the labor while entrepreneurs supply all the capital. This is misleading. Part of the income received by entrepreneurs is a return for their own labor and should be excluded from the entrepreneurial income category. Although estimates of net investment that are made using adjusted entrepreneurs' income, or using profit or dividend income alone, predict actual investment well, this is because of their effect on investment climate, rather than because of the unique behavior of recipients of these kinds of income. For example, when adjusted entrepreneurs' income and other income are regressed against real private consumption, there is no significant difference between their effect on private consumption. However, when adjusted agricultural entrepreneurs' income and other income are regressed against real private consumption, there is a significant difference between their effect.[8] The unique case of agricultural entrepreneurs probably reflects their holdings of wealth, compared to other groups of income recipients, rather than atypical patterns of spending and saving. Evidence on the effect of wealth (in the form of property ownership) on consumption patterns is presented below and suggests that holders of real estate save a larger share of their income than do other income recipients. The regression analysis is consistent with popular Argentine belief that agricultural entrepreneurs are far wealthier than other entrepreneurs and average income recipients.

It has already been noted that changes in workers' and entrepreneurs' income have different effects on investment at different times. Greater insight into these relationships may be obtained by subdividing entrepreneurial income into its components, which include interest, rent and net income, net profit of stock companies and public enterprises, and net profit of personal enterprises. This distinction reflects that fact that as economies develop, public and private corporations in capitalist (and in some socialist) societies replace family firms. Thus, because entrepreneurial income includes that of individuals and firms, an analysis of the differences in relationship between workers' income and spending and entrepreneurs' income and spending is not a comparison between comparable groups of individuals; it is, instead, one relating spending habits of

141

a group of individuals (workers) to those of a group that includes corporations (entrepreneurs). Therefore, a detailed examination of the relationship between changes in the level of various categories of entrepreneurial income and changes in personal consumption are presented in the following pages. These studies are cast in the form: What is the effect of a 100 percent change in real income (of each category of income) on real personal consumption? Is the effect of each one of these income categories on real personal consumption significantly different from that of any other income category?[9]

In studying the relationship of various categories of real income to real personal consumption, we would wish ideally to have disposable income figures. However, the only adjustment by category of income receipt that could be made was the exclusion of contributions to social security.[10] Further, the estimates presented here differ from those of earlier investigators because personal consumption is calculated as a residual: I have revised the estimates for investment spending so that personal consumption estimates change in consequence.[11]

The relationship between real income distribution by economic sector and by economic function, and real personal consumption between 1950 and 1969 is indicated by table 3. Applying "t" tests for groups of real income whose change is significantly related to change in real private consumption indicates the lack of significance in the difference in spending patterns for the various groups.

For example, an increase in real agricultural income is more closely associated with a greater increase in real private consumption than is an increase in real urban income, but the difference in spending patterns is not significant. The similar lack of significant difference in the relationship between various groups of gross operating surplus and real private consumption, and between groups of real wages and real private consumption, supports our belief that the relationship between income and spending is associated with levels of income and wealth rather than with the economic function performed in order to receive income. This view is also supported by the fact that the relationship between changes in income received by category of economic function and changes in real private consumption is less significant than that between changes in real gross domestic income and changes in real private consumption.

The spending habits of workers and entrepreneurs can be examined by estimating the percentage change in consumption that accompanies a percentage change in income. For the Argentine economy as a whole, a 100 percent change in real income yields a 98.97 percent change in real consumption (see table 2). This is basically the same as that estimated by Kuznets for the United States for long periods of time.[12] For 1950–69, the difference between Argentine workers' and employers' spending patterns was not statistically significant. Although the regression equations are statistically significant (when based on data for 1950–69), when tested for subgroups of five years within this period, they are not always significant, both because of the small number of years included and, in particular, because the relationship between income and consumption shifts during the business cycle. Five years is too short a period to include the same phases of the business cycle in each of the five-year groups.[13]

142

TABLE 3 Percentage Change in Real Private Consumption as a Function of Percentage Change in Real Income Received by Economic Function, 1950–1969†

Durbin Watson	2.45	Durbin Watson	3.45	Durbin Watson	1.58
R²/SEE	.9960*	R²/SEE	.9930*	R²/SEE	.7018*
t value	.0189	t value	.0251	t value	.1190
Real Agricultural Wage	-0.002	Real Agricultural GOS	0.062	Total Agriculture	.5154*
t value	-0.033	t value	0.588	t value	2.427
Real Mining Wage	-0.072	Real Mining GOS	-0.059	Total Urban	.4259*
t value	-0.841	t value	-1.205	t value	2.635
Real Manufacturing Wage	-0.108	Real Manufacturing GOS	0.237	Constant	-5.579*
t value	-0.723	t value	2.202	t value	-4.655
Real Construction Wage	0.098	Real Construction GOS	0.069		
t value	1.263	t value	0.858		
Real Trade Wage	0.563*	Real Trade GOS	-0.025		
t value	3.920	t value	-0.191		
Real Transportation Wage	0.295	Real Transportation GOS	0.233*		
t value	2.019	t value	2.458		
Real Community Services Wage	-0.020	Real Community Services GOS	-0.024		
t value	-1.261	t value	-1.706		
Real Utilities Wage	0.135	Real Utilities GOS	0.009		
t value	1.242	t value	0.229		
Real Finance Wage	-0.155	Real Finance GOS	0.055		
t value	-1.357	t value	1.210		
Real GOS[a]	0.632*	Real Wage	0.369*		
t value	6.547	t value	2.879		
Constant	-7.812*	Constant	-4.664*		
t value	-11.805	t value	-4.119		

[a] GOS = Gross Operating Surplus
*Significant at the 5 percent level.
†Each column summarizes the results of an individual equation.

143

As the rate of inflation varied considerably during these years, it was introduced into the regression. This did not significantly improve the results for the twenty-year period, although there was a significant improvement in the estimate for 1960–64. Estimates of percentage increase in real private consumption were not significantly improved by using estimates of percentage change of the inflation rate, or by using the deviation of the inflation rate from an anticipated average rate. This was true for estimates of a percentage change of real private consumption using a percentage change of real gross domestic income, of real wages, and of real gross operating surplus. There was no significant difference between the spending patterns of workers and entrepreneurs when inflation was introduced into the estimates.[14]

Since the spending patterns of workers and entrepreneurs do not differ significantly from each other, it is necessary to reexamine the reasons for expecting them to differ. One might be that entrepreneurs were richer than workers; however, as noted above, many small entrepreneurs earn lower incomes than highly skilled and well paid managers and technicians. The functional distribution of income is therefore not a perfect substitute for personal income distribution by decile. Nonetheless, many people believe that entrepreneurs and workers behave differently from each other. Evidence on this point is available from studies of other nations indicating that income is more likely to be saved when its continued receipt is uncertain than when it is viewed as "permanent."[15] Thus, entrepreneurs who undertake great risks in investing would be expected to save a larger share of their income than workers. For example, in England in 1688, the share of additions to income spent was virtually the same for rich and for poor, with one exception: merchants by sea.[16]

Entrepreneurs are rewarded for risk taking, and foreign trade in an era of sail and poor communications is a highly risky business endeavor. Only merchants in foreign trade saved and invested a larger-than-average share of income, because the size and timing of payment was uncertain. Income from rent or interest, was at least as certain as payment of wages and was spent in much the same way. Similar development patterns hold in the United States, where the early textile industry was financed in significant part by New England merchants in foreign trade, and in Japan, where savings are the highest in the world. This savings rate occurs in large part as a result of higher-than-expected bonus payments, which were based on profit sharing in an economic growth that was consistently greater than that forecast by the government in the postwar period.[17] The high Japanese savings rate, which is in part the result of a large transitory income component in total income, and the high savings by merchants in foreign trade, who also experience a large transitory income component in total income, suggests that uncertainty of payment, rather than the economic activity for which payment is made, is an important element in the explanation of savings behavior. A similar point is made in a recent study of United States savings, which suggests that only proprietors' income and dividends should be included in "risky" entrepreneurs' income, with rent and interest, as safe income, added to the wage share.[18] In Argentina, this pattern is modified because rapid inflation (25 percent per annum from 1950 to 1969)

144

TABLE 4 Percentage Change in Categories of Real Gross Operating Surplus and Percentage Change in Real Private Consumption, 1955–1961

Dependent Variable	Durbin Watson	R²/SEE	Logarithm of Real Dividends	Logarithm of Income Other Than Dividends		Constant
Logarithm of Real Private Consumption	2.17	.9730*	.2346*	.7041*		−6.055*
t value		.0240	5.626	6.377		−7.970
			Logarithm of Real Rural Rent	Logarithm of Real Urban Rent	Logarithm of Real Income Other Than Rent	
Logarithm of Real Private Consumption	1.37	.9755*	.1697	−0.078	.9138*	.2352
t value		.0146	2.059	−1.316	8.064	.2175
			Logarithm of Real Interest Income	Logarithm of Real Income Other Than Interest		
Logarithm of Real Private Consumption	2.29	.4530*	−.0607	.9058*		−5.841*
t value		.0175	−.880	5.419		−5.289

*Significant at the 5 percent level.

145

makes employers and workers spend any kind of income rapidly for fear that money received will lose its value. We have seen that the rate at which workers spend additions to their income does not differ significantly from that of entrepreneurs. The next step is to examine the ways in which expenditures of subgroups of income vary from each other (see table 4). Detailed information is available for the years 1955–61.[19]

In general, a 100 percent increase in any subcategory of real entrepreneurial income is not significantly related to a percentage increase in real personal consumption. There is one statistically significant exception: An increase in real dividend income is associated with a significantly smaller-than-average increase in real private consumption, confirming the importance of uncertainty of payment in influencing spending patterns. Interest income, unexpectedly, was spent significantly differently from other categories of income; the relationship between changes in real interest income and changes in real private consumption, however, was not significant. It is possible that in Argentina's highly inflationary situation, the real return on lending is uncertain, so that interest income is spent, in this case, in the same way as other uncertain or impermanent income. Alternately, this relationship may indicate that the contractionary policies associated with increased interest rates decreased real private consumption, and that riskiness of interest income does not provide a full explanation of the relationship.

Although a smaller share of increases in income received from rent is spent on increases in real private consumption than is the share of increases in income received from other categories, the relationship between rental income and private consumption is not significant. However, the fact that rental income is spent somewhat differently from other categories suggests that its recipients have sufficiently above-average wealth for this to affect their consumption patterns.

An examination of other categories of entrepreneurial income (see table 5) indicates that an increase in real withheld profits is associated with a small, nonsignificant decrease in real private consumption; the increase in real public enterprise profits is associated with a smaller increase in real private consumption than is the increase for other income, but the relationship between public enterprise profits and consumption is not significant. Nonetheless, we note that the relationship between a 100 percent change in withheld stock company profits and a percentage change in real private consumption is not significantly different from the relationship between a 100 percent change in public enterprise profits and a percentage change in real private consumption; both withheld stock company profits and public enterprise profits are significantly different in their relationship to real private consumption from other categories of income. In both cases, corporations are able to withhold net income from the spending stream to a degree that affects the rate of real private consumption. Gross profits, however, are not significantly different in their relationship to a percentage change in real private consumption from all other groups of income, as part of gross profits enter the spending stream via dividend payments to individuals.

146

TABLE 5 *Public Enterprise Profits, Stock Company Profits, and Other Determinants of the Percentage Change in Real Private Consumption: 1955–1961*

Dependent Variable	Durbin Watson	R²/SEE	Logarithm of Real Public Enterprise Profits	Logarithm of Real Income Other Than Public Enterprise Profits	Logarithm of Real Stock Company Profits	Logarithm of Real Income Other Than Stock Company Profits	Logarithm of Real Stock Company Withheld Profits	Logarithm of Other Real Income	Constant
Logarithm of Real Private Consumption	1.84	.9423*	.0001	.0076*					−0.0499*
t value		.0002	.4747	7.917					−5.798
Logarithm of Real Private Consumption	2.40	.9502*	−.0004			.0097*			−0.0670
t value		.0002	−.4422			3.113			−2.818
Logarithm of Real Private Consumption	2.08	.9591*	.0130				−.0091	.8903*	.7142
t value		.0188	.6516				−.6302	5.443	.4940

*Significant at the 5 percent level.

147

The above relationships are consistent with the fact that since personal monetary income received is spent rapidly in inflationary Argentine conditions, savings and investment are possible only when funds can be diverted from personal income to public and private corporations. As mentioned above, supporting evidence is provided by the fact that when the relationship of single variables to net domestic capital formation is examined, undistributed profits predicted 97 percent of net domestic capital formation from 1955 to 1961.[20] This indicates (1) the importance of undistributed profits in influencing expectations about business conditions and, consequently, investment, as well as (2) their importance for the size of investment, because the size of undistributed corporate profits, although increasing, was lower than their predictive value for net domestic capital formation. During this period, undistributed corporate profits, together with undistributed profits of personal enterprises, rose from one-quarter to two-thirds of net investment funds. This compares to about 73 percent of investment accounted for by internal financing by firms in the United States.[21]

The increased reliance on internal finance was brought about by credit restrictions that had been imposed to combat inflation. Even without these restrictions, it would have been difficult for firms to raise funds, as inflation had made investment in inventory more attractive than long-term investment; investment in inventory gave a fairly predictable return in the immediate future. The dynamics of inflation were such that government policies favored each sector in sequence; therefore, entrepreneurs in any one sector were well aware that their current relatively favorable profit position, compared to other sectors, would not be maintained[22] and were hesitant to undertake long-term investment.

The pattern of relying on internal finance held for personal enterprises as well as stock companies. A United Nations study states that personal enterprises, less well known on the market, used their current profits to cover their financial requirements.[23] However, the rate at which entrepreneurs spend their net real income after allowing for a return for their own labor services does not differ significantly from the rate for any other category of spending. This implies a lower rate of reinvestment in personal enterprises than in stock companies.

Although undistributed corporate profits explained the bulk of investment behavior, it did not make sense for all firms to invest in themselves. Profits varied widely according to economic activity. For example, the share of private enterprise profits for stock companies in industry, divided by their share of value added by private enterprises at factor cost, was 123 percent of the average for all stock companies from 1955 to 1961; in services, this ratio was 64 percent of average; and in agriculture, 40 percent of average. This is consistent with the contention that investment in industry was more profitable than in agriculture.[24] Under these circumstances, we would expect agricultural and service firms to invest some of their funds in industry, and note that the change in distribution of unit profits among sectors explains 98.6 percent of the level and almost as much of the distribution of Argentine economic activity.[25] This occurred because of the rational response of private entrepreneurs to profit opportunities, and

148

because of government allocation of investment funds through the banking system under Perón and its manipulation of relative prices (and consequently profits) so that activities to which investment was directed were also highly profitable.[26]

Although undistributed corporate profits predict investment, and changes in profits explain the level of production, labor income does enter our final analysis of consumption and investment behavior because labor costs influence profits. All sectors of the Argentine economy reduced the share of income paid to labor. In part as a result of government policies, physical output per percentage of income paid to labor increased by 46 percent in manufacture, but only 35 percent in agriculture.[27] Either labor income would have to be depressed or productivity in agriculture increased, for investment in agriculture to become attractive. The Argentine government has been more willing to depress agricultural wages than to permit increased mechanization of agriculture through importation of needed equipment, which would obviously damage the interests of the dominant manufacturing sector that produced high-cost agricultural equipment under government protection against competing imports.[28]

This analysis of the relationship between income distribution and investment and economic growth in an inflationary situation implies that investment will increase if income is diverted from payments to individuals, regardless of economic function performed, to corporations.[29] If inflation is not an overwhelming factor, investment will also increase to some degree, along with a rise in the share of personal income, the receipt of which cannot be predicted with certainty. Further, if income is redistributed to landowners, savings will increase, because holding of great wealth influences spending patterns. There are no data available for Argentina about the ways in which ownership of differing amounts of wealth affect consumption spending of the various groups analyzed here. It is possible, but not certain, that a redistribution of wealth would have a significant effect on the share of savings and consumption in Argentine gross domestic product. On the other hand, as long as there is no significant difference between the share of additional monetary income spent by workers and that spent by entrepreneurs, and the government's concern is obtaining increased investment, then proposals for either radical redistribution of income to the workers or for increases in the share of national income paid to industrial and technocratic elites must rely on political rather than economic justification.

APPENDIX

A SKELETON KEY TO REGRESSION EQUATIONS

Regression equations are used to present and analyze the relationship between two or more variables. In some cases, the relationship between two variables can be represented by a diagram (see figure 1). In this case, the relationship can also be represented by an equation, $Y = a + bX$. This equation indicates that the value of Y is always equal to amount "a" or more. "a" is called the constant.

149

Y is "a" when X is equal to zero. Y can take values greater than "a"; Y increases as X increases by an amount proportional to X. The proportion "b" in the equation is referred to as the "weight" of X. In the equation $Y = 2 + .1X$, Y equals 2 when X equals zero; Y is 2.2 when X is 2, etc. In the equation $Y = 2 - .1X$, Y is 2 when X is zero; Y is 1.8 when X is 2, etc. Additional variables which influence Y can be included in the regression, e.g., $Y = a + bX_1 + cX_2 + dX_3$. In this case, b is the weight of X_1, c is the weight of X_2, and d is the weight of X_3.
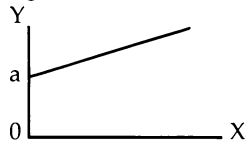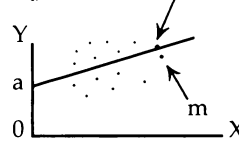
Figure 1

Figure 2

In practice, the relationship between X and Y may not be exactly that indicated by the equation $Y = a + bX$. Individual observations may cluster around the line described by $Y = a + bX$, rather than coincide with it. The value of Y estimated by $Y = a + bX$ may not be identical with the observed value of Y, indicated in figure 2, for example, at point "m," where "m" is the observed value of Y and "n" is the value of Y predicted by the equation for the corresponding value of X. Thus, in describing the relationship between variables, economists usually write regression equations as, for example, $Y = a + bX + e$, where "e" indicates an error term which indicates that the value of Y is not identical to that predicted by the equation $Y = a + bX$.

In discussing statistics from a regression equation, we say that a variable makes a "positive and significant" contribution to the explanation of the behavior of a dependent variable (e.g., X makes a positive and significant contribution to an explanation of Y). It is positive when an increase in X is associated with an increase in Y; it is negative if a decrease in X is associated with a decrease in Y; it is significant if tests of the relationship between X and Y indicate that the relationship could have occurred by chance only five times out of one hundred, for example. In this case, we say that the relationship is significant at the 5 percent probability level.

A number of terms are used to describe the variation in the values of a variable such as gross domestic product. A rough measure of variation is the "range," which is the absolute difference between the smallest and highest gross domestic product. Because the range only describes the two extreme values of the gross domestic product, alternative measures are used to describe the variation in its value. The variance is the mean of the squared deviations of individual observations of gross domestic product from its mean. This variance can be separated into two components: Gross domestic product can be computed from a regression equation, as in the example above; similarly, the variance of

150

the computed gross domestic product can be calculated. The computed gross product is not identical to the observed gross product; the difference between the two is termed the residual; its variance can also be calculated. The variance of gross domestic product is equal to the variance of the computed gross domestic product (called the "explained variance"), plus the variance of the residual (called the "unexplained variance"). The larger the share of variance of gross domestic product accounted for by the explained variance, the better the explanation.

"t" statistics are used to indicate the chance that the relationship between an independent variable (X) and a dependent variable (Y) are significant. Statistical tables are used in evaluating "t"; in the case that there are thirty or more observations, "t" is usually significant if it is equal to two or more; if there are less than thirty observations, "t" must be considerably greater than two to be significant. Those variables for which "t" is significant at the 5 percent probability level have been starred throughout the tables.

The Durbin Watson coefficient, is used in the technical analysis of time series; for a detailed explanation, see any introductory text on econometrics.

NOTES

1. Simon Kuznets, "Quantitative Aspects of the Economic Growth of Nations, Part 8, Distribution of Income by Size," *Economic Development and Cultural Change* (January 1963), pt. 2).
2. The estimates for 1914–35 are derived from the indices of salaries and occupation for Buenos Aires and are linked to the 1935 wage figure provided by the Ministerio de Asuntos Económicos. For 1935–69, wage data are from the Ministerio de Asuntos Económicos, ECLA/CONADE worksheets, and from Economic Commission for Latin America, *Statistical Bulletin for Latin America*, vol. 9.
3. Morris A. Horowitz, "High Level Manpower in the Economic Development of Argentina," in Frederick Harbison and Charles A. Myers, *Manpower and Education* (New York: McGraw Hill, 1965), pp. 1–36, and Organization for Economic Cooperation and Development, *Education, Human Resources and Development in Argentina* (Paris, 1967).
4. Matthew Edel, "Regional Integration and Income Distribution: Complements of Substitutes?," in Ronald Hilton, ed., *The Movement towards Latin American Unity* (New York: Praeger, 1961), pp. 185–202.
5. See Appendix.
6. Samuel A. Morley and Gordon W. Smith, "The Effect of Changes in the Distribution of Income on Labor, Foreign Investment and Growth in Brazil," Program of Development Studies Paper No. 15, Rice University (Summer 1971).
7. Economic Commission for Latin America, *Economic Development and Income Distribution in Argentina* (New York: United Nations, 1969), p. 7.
8. For full data, see Laura Randall, *An Economic History of Argentina in the Twentieth Century* (New York: Columbia University Press, 1977).
9. The regressions are cast in a form such that only the conditions of a current year influence current spending; various studies indicate that the adjustment period in Argentina is less than one year. The most recent statement is R. Lucas, Jr., "Some International Evidence on Output-Inflation Tradeoffs," *American Economic Review* 43, no. 3 (June 1963).
10. See Irwin Friend, *The Propensity to Consume and Save in Argentina* (Buenos Aires: Instituto Torcuato Di Tella, Centro de Investigaciones Económicas, 1965), p. 4.
11. The revisions were based on the use of 1935–39 price weights. Detailed adjustments

151

were made using data provided in Victor Elias, "Estimates of Value Added, Capital and Labor in Argentina Manufacturing, 1935–1963 (Ph.D. dissertation, University of Chicago, 1969).

12. Simon Kuznets, *National Product since 1869* (New York: National Bureau of Economic Research, 1946).
13. Randall, "Personal Income Distribution and Investment in Argentina, 1950–1969," Paper presented at the meeting of the Latin American Studies Association, 15 November 1974.
14. The same is true when the logarithm of inflation was introduced into the estimates.
15. Milton Friedman, *A Theory of the Consumption Function* (Princeton, N.J.: Princeton University Press, 1957).
16. Gregory King's estimate was used as the basis of the calculations. King's estimate is reprinted in Peter Mathias, *The First Industrial Nation, An Economic History of Britain, 1700–1914* (New York: Charles Scribner's Sons, 1961), p. 24.
17. Ryutaro Komiya, "The Supply of Personal Savings," in Ryutaro Komiya, ed., *Postwar Economic Growth in Japan* (Berkeley: University of California Press, 1966), pp. 157–81.
18. Edwin Burmeister and Paul Taubman, "Labour and Non-Labour Saving Propensities," *Canadian Journal of Economics* 2, no. 1 (February 1969): 78–89.
19. Economic Commission for Latin America, *Economic Development*. Estimates are presented in this study of the effect of changes in prices of various categories of goods on real income by quintile, and of various government policies on redistribution of family income. There was, however, not enough data to incorporate these effects into this article. We also note that evidence for the United States is that "a large proportion of savings to finance private (and other) capital formation originates not in the income from assets (too often viewed as the *only* source of national savings) but in compensation of employees and income of entrepreneurs, particularly the former. Indeed, judging by the estimates for recent years, no more than half of the household savings to finance capital formation can be credited to household income from assets net of taxes" (Simon Kuznets, *Modern Economic Growth: Rate, Structure and Spread* [New Haven: Yale University Press, 1966], pp. 175–76).
20. Note that this result was obtained using a behavioral equation. The net domestic capital formation variable was obtained by subtracting amortization at historic cost as a percent of net remuneration of capital and enterprise, from gross domestic capital formation as a percent of gross domestic income. This estimate of net domestic capital formation yielded better results than any other, and lies between the traditionally computed estimates of net domestic capital formation as a percent of gross domestic income. See Randall, "Personal Income Distribution," for detailed comparisons.
21. Robert Heilbroner, *Understanding Macroeconomics* (New York: Prentice Hall, 1972), p. 94. Includes undistributed corporate profits and depreciation allowances.
22. See Randall, "Personal Income Distribution."
23. Economic Commission for Latin America, *Economic Development*, pp. 211, 212.
24. For full data, see Randall, *An Economic History*.
25. See Randall, "Personal Income Distribution," and *An Economic History* (forthcoming).
26. See Randall, *An Economic History* , chaps. 2 and 6.
27. Economic Commission for Latin America, *Economic Development*, p. 213.
28. See Randall, *An Economic History* chap. 7, and David Felix, various works, on the problems associated with manufacturing when tariffs are levied on inputs used in manufacturing as well as on the finished good.
29. A United Nations study indicates that the degree to which this is true will probably be influenced by whether the corporation is owned by private domestic stockholders, a government, foreign entrepreneurs, or some mixed arrangement. For example, see "Public Enterprises: Their Present Significance and Their Potential in Development," *Economic Bulletin for Latin America*, Jan.-Jun. 1971, pp. 1–70. The question of the implication of redistribution of income to foreign corporations is not included in this article, as foreign investment was a trivial share of total investment in Argentina during the period for which statistical analysis is presented here. Further, the relationship of

152

a percentage increase in either imports or machine imports to net domestic capital formation is weaker than that between withheld profits and net domestic capital formation. Readers interested in these points are referred to Guillermo O'Donnell and Delfina Linck, *Dependencia y Autonomía* (Buenos Aires: Amorrotu, 1973), and to Randall, *An Economic History* .

153