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9. ABSTRACT In 1972 Colombia instituted a policy of increasing the construction of urban housing as a major element in its employment and income distribution strategy. This paper examines the theoretical basis for the belief that urban residential construction would have the effect of increasing employment and income for low income workers. Short-run effects when construction activity is highest is compared with longer-run effects when construction activity and employment levels would be lower. Other investment strategies are considered which may generate lower employment in the short run but would sustain the level for a longer period of time. The production of housing services is relatively more capital-intensive than the production of many other goods and services. Subject to some qualifications, an emphasis on construction of new houses results in a trade-off of more employment and greater equity today for less employment and equity in the future. In the housing program in Colombia, value added in building construction grew rapidly during the period of 1972-74 when the new financial system designed to encourage construction was instituted. Real wages continued to decline, but could be a wage adjustment lag to accelerating inflation. Urban employment in the construction sector increased rapidly with a substantial share of the new jobs apparently filled by the previously unemployed.		
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Urban Building and Income Distribution  
in Colombia:  
Some Relevant Aspects

by

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## Abstract

### Urban Building and Income Distribution in Colombia: Some Relevant Aspects

by

Albert Berry and Ronald Soligo

In 1972 Colombia instituted a policy of increasing the construction of urban housing as a major element in its employment and income distribution strategy. This paper examines the theoretical basis for the belief that urban residential construction would have the effect of increasing employment and incomes for low income workers. Attention is given to a comparison of short-run effects when construction activity is highest with longer-run effects when construction activity and employment levels would be lower. This is contrasted with other investment strategies which may generate lower employment in the short run but would sustain that level for a longer period of time. It is concluded that the production of housing services is relatively more capital-intensive than the production of many other goods and services and that, subject to some qualifications, an emphasis on construction of new houses results in a trade-off of more employment and greater equity today for less employment and equity in the future.

The paper also examines the available evidence on the impact of the housing program in Colombia. The data show that value added in building construction grew rapidly during the period 1972-74 when the new financial system designed to encourage construction was instituted. Real wages continued to decline but this could be a wage adjustment lag to accelerating inflation. Urban employment in the construction sector experienced a rapid increase and the data suggest that a substantial share of the new jobs were filled by those who were previously unemployed.



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A. Theory and Concepts

1. Introduction

Under the Pastrana government the construction of urban housing was elevated to the position of being a major element in the overall employment and income distribution strategy;<sup>1</sup> it was expected to effect a rapid increase in the quantity of employment available in urban areas for relatively low skilled workers. (In principle the objective could be viewed as achieving either an increase in the number of jobs in construction and similar activities with workers moving to these jobs from lower paying ones, or an increase in the real wage rates for these jobs with the number being relatively constant. In other words, the objective was to substantially increase the wage bill for low skilled urban workers.)<sup>2</sup> A component of the strategy was to foster rural to urban migration as a means of increasing real incomes of people who were in rural areas.

The proposition that residential construction could play the role of a leading sector in the growth process is based on the arguments that

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<sup>1</sup>National Planning Department, Guidelines for a New Strategy (Bogotá, 1972).

<sup>2</sup>It was also hoped that indirect effects would include increased capacity utilization in the supplying industries and others whose demand was increased by the plan.

i) the demand for housing is substantially income and price elastic, ii) house construction is one of the most labor-intensive activities in LDCs, and iii) there is a considerable supply of underemployed labor in most LDCs.<sup>1</sup> These factors suggest that a policy which promotes the construction of houses could produce significant increases in output and employment and have a beneficial effect on the distribution of income. On these grounds the ILO Commission report on Colombia recommended that international aid agencies make "seed" money available to credit institutions specializing in financing house purchases in order to initiate what would eventually be a self-supporting process of continued expansion in the house construction industry.<sup>2</sup>

One basis of the ILO recommendations and the policy which was eventually implemented in Colombia was that residential construction was being held down<sup>3</sup> because of insufficient mortgage credit, due in turn to the modest nominal and low or negative real rate of interest paid to depositors in the Banco Central Hipotecario (BCH)--the primary source of mortgage credit to the private housing sector. A low deposit rate was matched by a low rate for mortgage loans, leading to a disequilibrium in the mortgage credit market so that credit had to be allocated on an administrative basis.

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<sup>1</sup>Further, a disproportionate share of the unemployed are usually linked to (e.g., had their last job in) the construction section. In Colombia the 1970 household survey recorded an unemployment rate of 14.9 percent for the construction sector, as compared with 7.4 percent in the economy as a whole and 10 percent for the urban sector. (DANE, Boletín Mensual de Estadística, no. 238 [Mayo, 1971], pp. 63 and 79.)

<sup>2</sup>International Labor Office, Towards Full Employment: A Programme for Colombia (Geneva: ILO, 1970), pp. 127-136.

<sup>3</sup>Strassman found housing construction accounted for 2.5 percent of GDP in a set of seven underdeveloped countries, and 4.6 percent in

The adopted policy was to create a new savings institution and asset (Unidad de Poder Adquisitivo Constante, or UPAC) which would pay depositors and charge borrowers a fixed real rate of interest. The new attractive financial asset was expected to raise savings and, while (nominal) interest rates would be much higher under the new system, it was anticipated that they would still be sufficiently low to induce borrowers to borrow a larger amount than was available under the previous (low interest) system.

In the discussion which follows, we focus mainly on the new system as originally designed and put into practice in late 1972. In the remaining two years of the Pastrana government it was amended in various details (which for example lowered the real return on UPAC's below the original 5-5 1/2 percent pretax). The Lopez administration made substantial changes, which essentially ended the experiment; these included limiting the degree of monetary correction enough to push the real rate of return below zero under the existing inflation rates. The growth of real deposits ended in 1974 and the building boom ended soon thereafter.<sup>1</sup>

## 2. Distributive Aspects of Colombian Housing Strategy

The two most obvious mechanisms by which the building strategy might affect distribution are (i) the impact on returns to monetary assets, related to the way in which new housing is financed; and (ii) the effect on factor use and, hence, factor incomes.

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five middle income group countries—see Table A-1. Colombia's ratio as of 1970 was about 2.5 percent, suggesting the definite possibility of a substantially higher share of GDP in this sector in the future than in the past, since Colombia is approaching the middle level group of countries. (See W. Paul Strassman, "The Construction Sector in Economic Development," Scottish Journal of Political Economy (November, 1970), pp. 391-409.

<sup>1</sup>For a detailed chronology of the changes in rules governing

The creation of the UPAC system would affect distribution directly in two ways. First, the higher interest rates paid to depositors would increase their incomes. Secondly, those who gained access to mortgage credit as a result of the greater funds channelled into mortgages under the UPAC system would gain while those who would have had access to such credit under the previous low interest rate system would now be worse off since they would be required to pay the higher interest rates. Unfortunately, it is more difficult to determine with much precision what groups in Colombian society correspond to these categories. In the absence of hard data one can only speculate on whether the net gains tended toward more or less equity.

Higher deposit rates would be expected to benefit mainly the higher income groups, both because they hold most of the nation's wealth and because they have greater access to the new financial assets. This differential access reflects both the physical proximity of urban as opposed to rural persons to the new savings institutions and the greater degree of sophistication and information required to invest in UPACs. It is unlikely that low income or rural oriented persons will benefit from the higher interest rates that the UPACs provide. To the extent that substitutions by some wealth holders towards UPACs from other financial assets (in particular, from bank deposits) raises the returns on those assets, their holders would benefit. In fact, the interest rate on savings accounts was increased when the UPAC was introduced, and other controlled rates were increased somewhat later reflecting the anticipated and actual substitution towards the UPAC; however, since these rates are in nominal terms the accelerated inflation of the succeeding years made the real

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the UPAC system see Roger Sandilands, "Indexing in Colombia, Brazil, and

returns negative and variable in contrast to the UPAC. The main beneficiaries from the UPACs (relative to their incomes) were probably not the wealthiest strata but rather the middle and upper middle income groups which are likely to hold a higher proportion of their wealth in financial assets (including UPACs). The highest income groups have greater accessibility to investments in real capital goods and presumably would continue to hold substantial portions of their wealth in this form. Also the advantage of UPACs over some other financial assets was less for groups in high tax brackets since real income earned from UPACs was taxable while BCH and ICT bonds, for example, were tax exempt bearer bonds. No tax was paid on income they generated, and being anonymous bearer bonds they constituted a good way to conceal undeclared income. These advantages help to explain why the demand for such assets remained fairly strong after the introduction of the UPAC.<sup>1</sup>

On the borrower's side, the new system has probably contributed to greater equity within the top half of the income distribution. Under the previous system, the allocation of low (real) interest BCH credit required rationing and favored the higher income groups; among loan candidates they could offer the greatest security and some may have had personal ties with those deciding on the loans. Under the new system the corresponding group will pay a higher interest rate. Persons slightly lower in the income distribution will gain from the UPAC system since they are now able to obtain long-term financing on "reasonable" terms for the purchase of

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Chile with Special Reference to Housing Finance," Ph.D. Dissertation, University of Strathclyde, Glasgow, 1976.

<sup>1</sup>Sandilands, op. cit.

housing.<sup>1</sup> The extent to which the higher income candidates will be worse off depends on the access they have to low interest credit from other financial institutions such as the commercial banks; they may be able to substitute such (short-term) borrowing for the longer-term mortgage credit and avoid the higher interest charges; if they borrow large sums from the commercial banks for other purposes (e.g., working capital) it will not be possible in practice to isolate the extent to which such borrowings are substitutes for long-term mortgage credit.

To sum up, the introduction of the UPAC system has probably led to greater equality within the upper income groups, predominantly the top half of the urban income distribution. But the discrepancy between that group as a whole and the poorer groups is likely to have widened since the lower income and rural groups gain little (directly at least) from the financial innovations.

The direct employment and distributional implications of increasing the volume of construction of houses are examined empirically in Part B. These depend largely on the supply elasticity of construction workers. While there may be a large pool of underemployed labor in Colombia, it is not clear how quickly it can be mobilized. Even construction work requires some skills which take time to develop; further, much of the

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<sup>1</sup>Or able to obtain it sooner than would otherwise have been the case. This argument presumes that under the BCH system there was an excess demand for the low cost credit it dispensed. That this was the case seems to be strongly supported by the large excess of loan applications relative to available funds in the UPAC system by 1974. Even allowing for some duplications, the 3:1 ratio by mid-1974 is striking (Sandilands, op. cit.). Since the system was essentially dismantled by the end of 1974, the fascinating question of how large was the excess demand for either the reasonably priced UPAC system credit or the subsidized BCH credit cannot be answered with any precision.

underemployed labor may still be in rural areas. Thus, while the long-run elasticity of supply of labor and construction may be quite high, in the short run elasticity may be much less. Interestingly enough, the availability of housing space for migrants, which could be reduced by a shift to middle and upper income housing, could be an important variable in determining the willingness of labor to migrate.

If the short-run supply elasticity of construction workers is small, an increase in construction activity will generate higher wages but not too much additional employment. Conversely, the larger the elasticity the greater the increase in employment and the smaller the increase in real wages per worker. In terms of the overall distribution of income for the country as a whole, either outcome would be equalizing in the sense of increasing the share of total income going to the lower income groups. However, the two outcomes differ in terms of how they distribute increments to income among the low income groups.

A complete analysis of the distribution implications of the housing strategy would include its effects on rural-urban migration and the implications of this migration for distribution; the distributive effects of changes in the level of output in other sectors which result from increased urban construction; the distributional effects of related changes in relative prices and the rate of inflation; the effects on the self-contracted housing sector; and the supply price of construction workers. Finally, it would be necessary to evaluate the effects of the higher rates of return on savings on the level of savings by income group<sup>1</sup> and ultimately on the long-run distribution of wealth and the

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<sup>1</sup>There is as yet no consensus on the effects of the new financial institutions on total savings. An OAS study concluded there was

functional distribution of income. Some of these effects are fairly "direct" while others can only be handled within a more general equilibrium framework.

In a recent paper, Ballentine has discussed some of the distributional effects of rural to urban migration.<sup>1</sup> Bender<sup>2</sup> has argued that the emphasis on middle and upper income housing has resulted in higher prices of building materials which in turn have cut the rate of investment in self-financed housing by lower income groups.<sup>3</sup> This would imply that the

no net increase (Organizacion de los Estados Americanos, Incidencia de Un Incremento en el Ahorro Destinado a la Financiacion de Vivienda en Colombia (Washington, 1975); a Planeacion study concluded just the opposite, that a substantial increase in total savings had resulted (D.N.P., Evaluacion de la Economica Colombiana 1970-74 [Bogotá: Unidad de Programacion Global, 1974]).

<sup>1</sup>J. Gregory Ballentine, "Some Aspects of the Impact of Rural-Urban Migration on the Distribution of Income," Mimeo., 1977.

<sup>2</sup>Stephen O. Bender, "Low Income Housing Development and Income Distribution: The Impact of Growth and Change," Mimeo., 1977.

<sup>3</sup>The price increases depend on the supply elasticity of construction materials. Price statistics published by the Banco and by DANE do not show any clear increase in the relative price of construction materials during this period, however, as evidenced in the following table:

Price Index of Selected Construction Materials, 1972=100

Year	Wholesale Prices, all goods <sup>c</sup>	Consumer Price Index, blue collar workers <sup>c</sup>	National Income deflator <sup>d</sup>	National Index <sup>e</sup> cost of housing	Four Largest cities			Construction materials in Bogotá <sup>c</sup>
					Cement	Gravel	Bricks	
1970	75.8	78.5	80.2					81.4
1972	100.0	100.0	100.0	100	100	100	100	100.0
1973	128.0	122.0	121.3	113.0	109.5 <sup>b</sup>			120.1
1974	174.1	152.7	154.0	141.8 <sup>a</sup>	143.9 <sup>b</sup>	155.8 <sup>b</sup>	137.7 <sup>b</sup>	163.4

<sup>a</sup> June, 1974.

<sup>b</sup> June-July, 1974.

<sup>c</sup> Revista del Banco de la Republica, various issues.

<sup>d</sup> Cuentas Nacionales.

<sup>e</sup> See page 9.

increased demand for labor generated by the housing strategy would be partially offset by a decrease in employment provided by the subcontracting of work in the self-financed sector.<sup>1</sup> More importantly, a substitution of the construction of middle and upper income housing for that of lower income groups would imply a relative decrease in the rate of capital accumulation by these latter groups. Thus, the wage income of lower income groups could be temporarily augmented by higher levels of employment in the construction industry while capital income, in the form of income in kind from owner-occupied housing and cash income from renting or using the home for commercial purposes, could be reduced permanently. Whether this occurs depends on whether the positive effect on self-contracted housing of the increased incomes of poorer groups does or does not outweigh the negative effect of the increased materials prices.

### 3. Factor Proportions and Distribution Impact The Short Run vs. the Long Run

The empirical analysis of this paper is limited to the direct effects of housing on factor demands and, thereby, on income distribution. Within that focus, however, it is important to distinguish the short run, during which the labor intensity of the building activity is expected to cause a

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<sup>e</sup>CENAC, Estadísticas del Costo de Construcción en Colombia, Oct. 1974, p. 42, 49, 50, 52; based on DANE data.

Note: The statistics on construction material prices are less than persuasive, since the three different sources (Banco de la República, DANE, and Camacol) frequently show quite different price increases for a given city. (See CENAC, Estadísticas..., op. cit., pp. 35-39). CENAC believes the differences for cement may be due to the use by DANE and CAMACOL of sales prices and by the Banco of distributor's prices, and in iron to the use of official prices by the first two vs. the distributor's prices by the Banco. Series from the three sources were generally fairly closely parallel up to 1974, when serious divergences occurred, implying wide differences in the price increases reported for 1972-74. The issue requires more detailed attention.

<sup>1</sup>The extent of this offset is probably small.

positive distributional impact from a shift toward that sector, and the longer-run where the distributional impact is less obvious. More precisely it is necessary to distinguish a period during which the demand for building services is rising relative to other final goods and services, and a later period when this is no longer the case. If the increase in building activity is once for all, the first period is quite short. Housing is a capital good with long length of life; accordingly, the acceleration principle implies that mild changes in the final demand pattern can generate much stronger fluctuations in the demand for the production of the capital good, in this case buildings.

It appears that the wide range of opinions with respect to the labor intensity of housing results from the tendency to focus on one or the other of the two stages in the production of housing services: the construction activity, which is more labor-intensive than almost any other important sector of the economy; and the subsequent stage during which the houses produce a service (lodging) and the labor intensity is relatively low. This difference makes it imperative to decide exactly what the relevant concept of "labor intensity" is.<sup>1</sup>

Labor intensity (L/K ratio) will normally differ among the various stages in the production of a final good or service, including both the production of current inputs (taken account of in input-output tables) and of capital goods, either of which may or may not be produced in the country. A relevant ratio is one which summarizes, in some way, the

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<sup>1</sup>Correspondingly, the relevant concept of "factor shares" between the income received by workers and that received by the owners of capital must also be determined.

"typical" ratio characterizing the whole of the production process. If the ratio varies substantially over the production process, and if that process is a long one, the time sequence of the variation can be important. One must, in other words, take account of both the short and the long-run effects.

Consider, to illustrate the ideas just expressed, a comparison between a policy emphasizing housing construction, and another emphasizing certain manufacturing industries. Suppose, for simplicity, that machinery used in each case is imported. In Figure 1, the period  $t-1$  to  $t-2$  corresponds to the construction of a capital good--the house,  $t-2$ , representing the moment of completion. Up to that moment the amount of capital invested in the construction process per se (measured at each point of time by the height of the curve DA) rises continuously with the purchase of inputs (including physical inputs, labor, and management); from that moment, the value of the capital diminishes (as indicated by the falling price of the house), arriving eventually at scrap value unless repairs permit the house a perpetual life.<sup>1</sup>

A third process of relevance is the production of inputs to the building process--cement, rocks, etc. This must occur before the actual construction, and is here arbitrarily assumed to take place during a period designated in Figure 1 as  $t=0$  to  $t=1$ .<sup>2</sup>

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<sup>1</sup>In situations involving speculation, increased price due to location, restriction of new production, and so on, it is possible that the value of a house does not diminish over time, even in real terms. In such situations a theoretical problem of defining the amount of capital involved arises, as the present value of the services which that capital will render in the future is greater than the cost of construction less the services already rendered. But when markets and predictions are perfect these two measures would always be equal and from a normative point of view the relevant calculation is the one involving historical cost.

<sup>2</sup>Theoretically, of course, this time sequence can go far back in

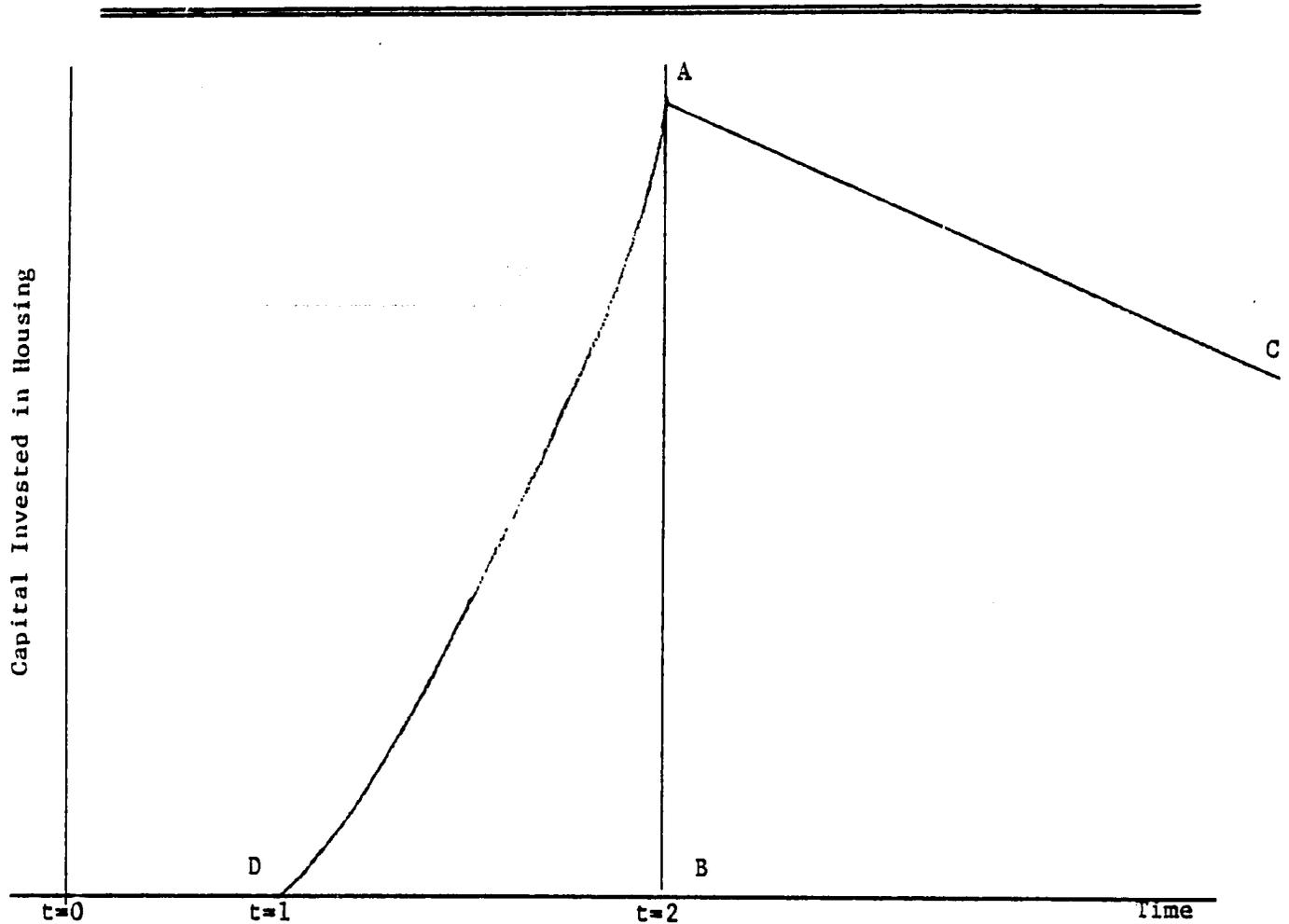


Figure 1

Contrast now the demands for labor and capital in two stationary equilibria, one characterized by a higher production of housing services than the other, but with production maintained at a constant level over time in each case. The total capital stock involved consists of (a) depreciated value of the stock of houses needed to maintain the flow of housing services; (b) the stock of capital invested in construction machinery, inputs and partially constructed housing, needed to produce a

in time, when one considers inputs for the inputs, etc. But the savings involved are much less at these earlier periods and we neglect them.

number of new houses each year equal to the number which goes out of use; and (c) the stock of capital invested in the input industries. The value of this total stock reflects both the amount of savings which have been undertaken to make the investments in question and the time at which the savings must be undertaken, relative to the time when use occurs. So another way to describe the capital requirements of the production process is by the time profile of savings required to finance the production of inputs and construction of the house.

The relevant question is then, "What input of labor and of savings is needed to maintain a continuous flow of housing services at a given level?" This overall relationship depends on the years of life of the house, on the way houses are produced (use of labor and capital) and on the characteristics of the production of inputs (and machinery if locally produced). We assume here that the typical house lasts fifty years and there is relatively little labor input involved in repairs (i.e., in the production of the service of the house once the house itself is built).<sup>1</sup>

If  $V$  is the inventory of houses maintained continuously, then the annual production is equal to  $V/50$ . Assume (a) a rate of return to owning houses of 10 percent, and (b) annual repairs on a house corresponding to 1 percent of its original price and involving a .75 to .25 split of income generated in favor of labor.<sup>2</sup> Then if  $P_v$  is the price of a new

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<sup>1</sup>This conclusion may be disputed--see page 16 below.

<sup>2</sup>This means that the gross rent charged (abstracting from taxes and other costs) would have to be on average twelve percent of the value of the house, ten percent corresponding to return to capital and two percent to repairs. (Assuming the value of the house decreases linearly over time, if repairs are one percent of original cost they will be two percent, on average, of the value of the house over its life). For data on gross rent see Jaime Niño, "Análisis del Mercado de la construcción de Vivienda en Sectores de Altos Ingresos en Bogotá," Investigaciones Económicas, Banco de la República, 1972.

house, the following annual income flows are generated when the house is in use. Capital income is  $(.10) V.P_v/2 + (.0025)V.P_v$  where the two terms correspond to rent and capital income from repairs, respectively;<sup>1</sup> labor income is  $V.P_v(.0075)$ . In other words, in this last stage of production of the housing service, the distribution between capital and labor would be about 7:1 in favor of capital.<sup>2</sup>

Maintenance of the flow of housing services hypothesized here involves the production of  $V/50$  houses annually, in which activity another quantity of income is generated, part corresponding to value added in the housing industry itself and part to value added in the production of inputs. With respect to the former, the division tends to be quite favorable to labor, with the present labor income/capital income ratio in Colombia being about 3 to 1.<sup>3</sup> Of the roughly one-half of the value added, about 60 percent corresponds to blue collar construction labor and roughly 40 percent to administration and profits; of this latter category a part (about a third) is payment to skilled labor, architects, white collar workers in the construction firm, etc. and the rest is payment to capital. The annual income flow corresponding to the value added in construction would be  $VP_v/100$  (one-half the annual value of new housing) of which  $\frac{V.P_v(.74)}{100}$  would go to labor and  $\frac{V.P_v(.26)}{100}$  to capital.<sup>4</sup> The other

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<sup>1</sup>The average value of the stock of houses in a given year is equal to one-half of the original value of that number of houses, i.e.,  $V.P_v/2$ .

<sup>2</sup>Specifically, .0525 to .0075.

<sup>3</sup>It was somewhat higher than this around 1970, according to national accounts estimate.

<sup>4</sup>It is often alleged that capital in the construction industry itself is very limited, and that most of it is borrowed, either from the clients or from the banking system (including the semi-public Banco

half of the value of production corresponds to the purchase of materials from other industries; the functional distribution of income so generated is harder to estimate. From data for the industries producing the most important inputs (nonmetallic minerals, cement, bricks, wood, basic metallic minerals) we can deduce that the income resulting indirectly from housing is divided more or less equally between labor and capital.

Under this assumption, the labor share in the total building process including production of inputs, would be approximately 62 percent. A rough distribution of labor income among blue collar workers, employees, and professionals can be estimated for construction itself, where the share corresponding to blue collar workers is about 60-65 percent.<sup>1</sup> The rest goes to professionals and white collar workers. Data are less satisfactory for the input industries. Taking the most important industries at the two-digit level, it seems that blue collar workers account for about 60 percent of remuneration and about 75 percent of persons employed.

Putting these pieces of information together we may conclude that, given Colombia's cost and price structure of 1969, the maintenance of a given stock of housing would have implied that over 70 percent of the income generated in the provision of housing services would have gone to capital

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Central Hipotecario) through clients. This can imply, among other things, that the quoted price in the contract for building of a house is less than it would have been had all the capital been loaned by people other than the clients; the fact that the capital is supplied by them implies that in reality there is greater capital income related to the production process than would appear to be the case; not all of the savings of the buyer or institutions which finance him are represented in the price of the house.

<sup>1</sup>The proportion of the income of all workers received by unskilled workers and helpers (the lowest skill categories) is about 47 percent: the "maestros" (foremen) receive a little less than ten percent, and the semi-skilled "ayudantes" get the rest.

(Table 1),<sup>1</sup> making this an unquestionably capital-intensive set of activities. As of 1969, the paid labor share of gross domestic product at factor cost was estimated as 41.1 percent in the national accounts; in manufacturing the comparable figure was 40.0. Subtraction of depreciation and inclusion of imputed labor income to reach the more meaningful ratio of total labor income to net domestic product raises the labor share much more in some sectors than others but not disproportionately in construction. In summary, then, if we compare two countries, one of which maintains a relatively large housing stock while the other has a lower stock of housing and greater production in all other sectors, the labor share would be smaller in the first country, if the assumptions used above are reasonably accurate. Although they could be somewhat wide of the mark, the assumption that houses last only 50 years seems conservative, and it is improbable that much more than 1-2 percent of the initial value of the typical house is spent in repairs every year. The range of error in these figures is not so great as to make credible a labor share as low as 50 percent.<sup>2</sup> When, however, one takes account of the factor proportions of items complementary in consumption to housing, e.g., vigilance, cleaning services, etc., the picture becomes cloudier again since some of these are quite labor-intensive.<sup>3</sup> Thus, even after the house is finished, the

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<sup>1</sup>If repairs were 1.5 percent of original price each year, the capital share would be just 70 percent. With no maintenance costs at all, the capital share reaches about 80 percent. The labor share in repairs may also be overestimated, since a considerable part of this cost corresponds to raw materials in whose production a fairly high share of the income could go to capital.

<sup>2</sup>This might conceivably be untrue for certain types of housing. All the considerations discussed should be applied to each different type of housing, since many of the variables (for instance, duration, how produced, etc.) depend on the type of house.

<sup>3</sup>When making comparisons between different types of houses, it may be relevant to distinguish those houses big enough to induce or to necessitate domestic service and those which do not.

TABLE 1: Illustrative<sup>a</sup> Calculation of Functional  
Distribution of Income Generated in  
the Provision of Housing Services  
with a Constant Stock of Houses

(millions of pesos)

Source of current income	Labor Income	Capital Income	Total Income
Stock of buildings			
rent	0	6007	6007
repairs	900	300	1200
Total	900	6307	7207 <sup>b</sup>
Construction of new buildings			
	1092	364	1456
Production of inputs for construction of new buildings			
	728	728	1456
Total	2720	7399	10119
Percent of total	26.9	73.1	100.0

<sup>a</sup>It is important to note that the figures for repairs are guesswork and that the overall functional distribution of income is rather sensitive to them.

<sup>b</sup>Urban buildings only. Rural building is relatively unimportant.

production of the bundle of housing related services may not be particularly capital-intensive. This empirical point, one of those which must be cleared up before we can reach any overall conclusions as to the income distribution implication of housing expansion, has received little consideration to date.

Since the wages of most of the people working either in building repair or housing related services like domestics are low, the labor share in these activities may give a downward biased feel for its effects on distribution. As of 1970, average earnings of workers in urban building were probably about 65-75 percent of those in the urban economy as a whole.<sup>1</sup>

TABLE 2

Stratum	Percent of Persons		Percent of Families classified by activity of family head	
	All Urban	Construction (urban areas)	All Urban	Construction (urban areas)
Lower-lower		16.5		17.1
Lower		58.1		54.4
Lower-middle		13.3		14.5
Middle		6.4		7.2
Upper-middle		1.7		1.9
Upper		4.0		4.9
		100.0		100.0

SOURCES: For construction, Planeacion, La Mano..., op. cit., page 58.

<sup>1</sup> Among affiliates of the ICSS, the ratio of average monthly salary (excluding fringe benefits) of construction workers to all non-agricultural workers was .91 in 1970; the ratio of medians was .87. But these ratios overstate the relative position of workers in building since (a) they do less well than all construction workers as a group (being less well paid than workers on infrastructural projects (see Table A-1); (b) ICSS affiliates are higher paid than non-affiliates and in construction an atypically small share are affiliates; (c) inclusion of fringe benefits would widen the gap between construction and the other sectors. For unskilled workers (helpers of "ayudantes") DANE statistics for 1971 show that the average wages ranged from 15 to 20 pesos per day across nine Colombian cities (Barranquilla, for which a rate of 25 pesos was reported,

They were probably not far from the economy-wide average, which is heavily influenced by the low average wage in agriculture. The distributional impact of an increase in the demand for this relatively low income labor would presumably be more positive, given the labor share, than were the workers highly paid and therefore already high up in the income distribution.

#### Analysis of accelerated production of housing

The above comparison of two stationary systems with different kinds of housing services is not the appropriate framework for a discussion of the Colombian strategy. For here the goal is to increase the relative size of the building sector; accordingly, the transition from a system with a lower share of output in the form of housing services to a system with a higher share must be analyzed. During that transition, the income flows generated in the production of inputs and in the building activity itself, a relatively high share of which goes to labor and especially blue collar labor, dominate; the large capital income flow in the future (from the rent on the houses) is of less importance. In the short run, and while this production is being accelerated relative to that in other sectors, the effect on functional distribution would be positive. Assuming that the income elasticity of demand for housing services does not keep rising, acceleration would eventually end or reverse itself. If

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was out of line with the others [Source: unpublished DANE data]). The average for manufacturing blue collar workers was 80 pesos in 1970, assuming an average of 240 days worked per year; for unskilled workers it was probably 30-40 pesos (counting fringe benefits); in 1970, the last year for which agricultural wages were reported, an average of the most frequently reported wages of the departments was about 18 pesos per day. (A. Berry, "Changing Income Distribution under Development: Colombia," Review of Income and Wealth, Income and Wealth Series, V. 20, No. 3 (September, 1974), pp. 289-316.

the curve  $S_T$  of Figure 2 represents the proportion of income going to labor in an alternative development strategy involving a smaller production of houses and a larger production of everything else, the effects of the choice of a strategy with a heavier emphasis on housing, initiated at time  $t-1$  are (a) a positive effect on the labor share over a certain period of time, and (b) subsequently a negative effect on it; this is illustrated by the curve  $S_{TV}$ . The transitory positive effect on the labor share and hence on the distribution of income may be important, e.g., one might believe that if distribution could once be changed it would not then revert easily to its present level of inequality.

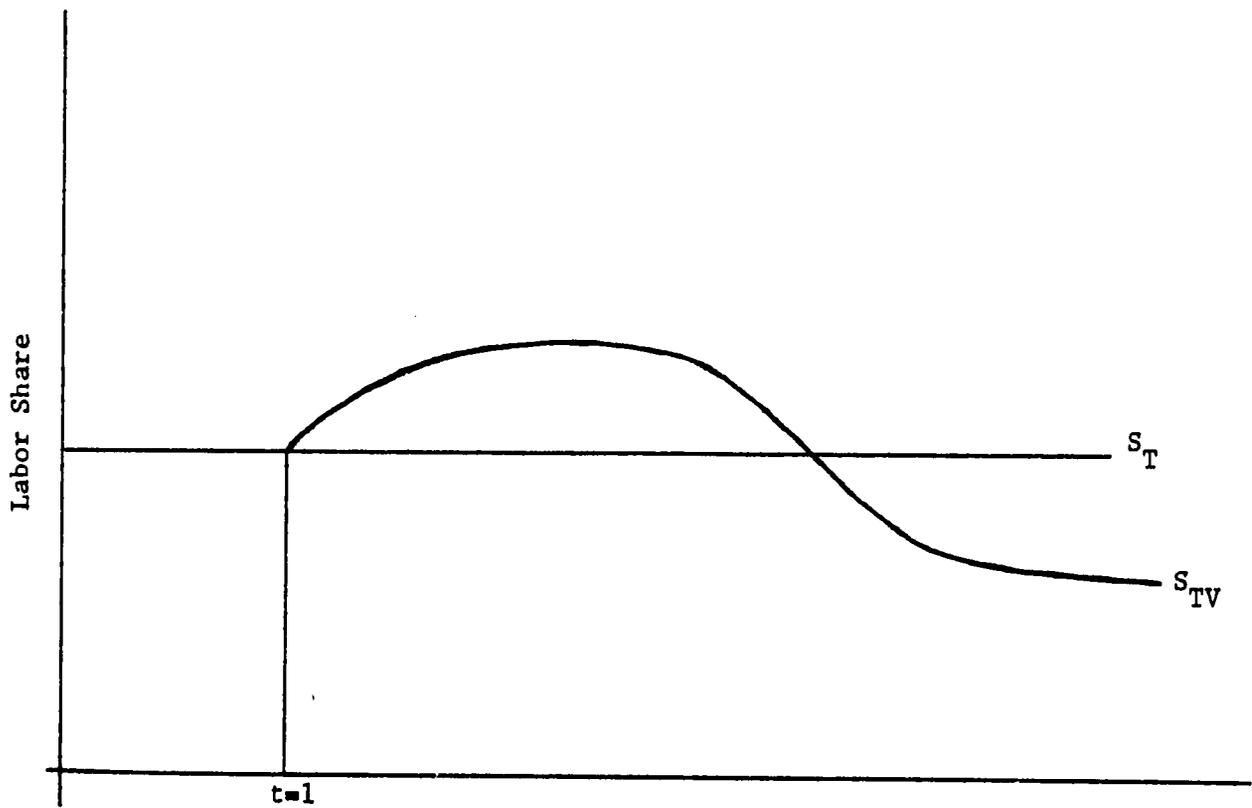


Figure 2

3. Empirical Evidence on the Impact of the Expansion of Housing on Factor Demands

This section considers the direct effects of increased house construction on factor demand, using two types of evidence: (i) observations on employment and wage trends; and (ii) quantitative evidence on the structure and factor proportions of the building and related industries. The former type of evidence has two defects: first, it is incomplete, especially that on employment; second, since building is not one of the larger sectors in terms of employment or output (even after the Plan was in motion) it is difficult to distinguish its effects from those of other unrelated phenomena. The weakness of any analysis which is built on the factor proportions in construction and related industries lies in the inadequacies of this data per se, and the possible invalidity of the assumption that average factor proportions (the only figures available) are a good predictor of the (marginal) factor proportions corresponding to new or additional output. It is, therefore, important to complement each type of information with the other as much as possible. We turn first to the evidence on factor proportions.

1. Factor Proportions and the Predicted Employment/  
Distribution Impact of Accelerated Urban Building

The basic logic for the urban building strategy is reflected in Table 3, which compares the labor-output ratio of urban building,<sup>1</sup>

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<sup>1</sup>A few other estimates have been made of this ratio. Strassman (W. Paul Strassman, "Measuring the Employment Effects of Housing Policies in Developing Countries," Economic Development and Cultural Change, Vol. 24, No. 3 (April, 1976) used an implicit labor productivity of 13,900 (1969 pesos) per worker in the value of low income buildings and site improvements, and 33,900 for high income buildings, 33,000 for Bogotá and 30,700 for other Colombian cities (see page 624 and 627). The average figure implicit in Table 3 is only 16,000 pesos, i.e., a little

TABLE 3: Data Related to the Distribution of Labor Income by Sectors  
(Value data expressed in 1970 pesos)

	Building			Factory <sup>(4)</sup> Industry			Urban nonagricultural sector			Whole economy			Building Plus input industries			Input Industries <sup>(4)</sup> for the building sector		
	A Man-Years per million pesos of value added	B Income shares	C Average incomes	A (1964)	B (1964)	C (1970)	A	B	C	A	B	C	A	B	C	A	B	C
Blue Collar	85-95 <sup>(d)</sup>	0.60	525-600 <sup>(a)</sup>	16 <sup>(e)</sup>	.251	1,280 <sup>(b)</sup>	10	0.08	900	19	0.163	700 <sup>(h)</sup>	57*	0.45	900*	24.7	0.31	1,255
White Collar <sup>5</sup>	3-4	0.15		4 <sup>(f)</sup>	0.155	3,000	23	0.40	1,725 <sup>(c)</sup>	12	0.242	1,650 <sup>(j)</sup>	5-6	0.18	3,000	7.8	0.21	2,700
All Workers	90-100			20		1,655	33		1,500 <sup>(m)</sup>	31		1,068	62		1,085	32.5 <sup>1</sup>	0.516	1,602 <sup>1</sup>
Paid Labour share		0.75 <sup>1</sup>			0.406 <sup>1</sup> 0.480 <sup>2</sup>			0.49 <sup>2</sup>		0.405 <sup>1</sup> 0.445				0.633 <sup>1</sup>				
Blue Collar Share of total labour payment		0.80			0.618			0.18 <sup>5</sup>		0.33				0.714				0.60-.65

\* Approximations.

<sup>1</sup> Of gross value added.

<sup>2</sup> Of net value added.

<sup>a)</sup> Assuming an average daily wage of 30.33 pesos and 40-45 hours paid per week.

<sup>b)</sup> Assuming 50 hours paid per week.

<sup>c)</sup> Using CEDE's estimate of the ratio of average gross income in the nonagricultural urban sector to average income of blue collar manufacturing workers.

<sup>d)</sup> Blue collar income assumed to be 60% of value added, or 600,000 pesos. The annual average blue collar income is assumed to be between 525 x 12 = 6,300, and 600 x 12 = 7,200. Thus 83-95 workers would receive the 600,000 pesos.

<sup>e)</sup> Blue collar share assumed to be 25% or 250,000 pesos. Since average reported annual wage is 15,360, implicit number of workers is 16+.

<sup>f)</sup> White collar share assumed to be 15%, so number of workers, given annual average salary of 36,000, is 4.1.

<sup>g)</sup> Extrapolated from value 0.48, corresponding to 1969.

<sup>h)</sup> The DANE figure, 611, plus 15%.

<sup>j)</sup> The DANE figure, 1,500, plus 10%.

<sup>m)</sup> According to DANE (1970), the figure would be:  $\frac{(810)(10.9) + (1569)(50.3)}{71.2} = 1346$ . The average paid urban salary could have been, say, 10% higher, i.e., 1484 or 1500 pesos.

<sup>4</sup> Small industry excluded (less than 5 workers and 24,000 pesos output).

<sup>5</sup> Note that the definition of "white collar worker" is broad--it includes all sales persons, etc.

its input industries, factory manufacturing and the economy as a whole. Urban building is shown to be much more labor-intensive than the urban economy or the economy as a whole.<sup>1</sup> While the building sector was no more labor-intensive than very small scale manufacturing, commerce or agriculture, it was favored by the Planning Commission partly on the grounds that the policy instruments to activate its growth appeared to be more readily accessible.

Differences in factor proportions within the urban building industry according to type of structure built and type of builder (technology) are also relevant. In terms of the labor share of value of product, differences across types of buildings do not appear to be too great. The possibility that different types of construction firms are characterized by different factor proportions, and that different producers of inputs

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over half as high as Strassman's estimate. His was based on Mexican labor per square meter data (one possible upward bias), which were derived from "designs, handbooks, and interindustry tables" and likely to be "good practice" estimates (another probable upward bias).

<sup>1</sup>Input-output information is important when it is planned to effect a significant change in the structure of final demand, as was the case with the housing strategy; its major direct function is to give some indication as to which sectors will have to increase their output levels for the goals of the plan to be achieved.

The quantification of the direct and indirect demands used to at least illustrate the magnitude of the needs associated with this plan are presented in Eduardo Sarmiento P., Aspectos Cuantitativos del Plan de Desarrollo, Planeacion (Bogotá: Canal Ramirez-Antares, 1973). In a Keynesian world with some underutilization of every resource, the direct and indirect increases in demand associated with an increase in final demand would become increases in total output and employment. In fact, one cannot presume this is true, but must proceed to analyze the supply response to the magnitude of the demand increases implicit in the input-output figures.

Construction has a higher share of blue collar workers and apprentices (including both direct and indirect demands for labor) than any other sector except agriculture.

are, must be taken more seriously. A construction boom built on the expansion of the most capital-intensive of the producers in these two categories could generate much less employment than a proportional expansion of all types. Whether something of this happened when construction expanded in 1973 and 1974 remains to be seen.<sup>1,2</sup>

The impact of accelerating residential construction depends also on its significance in the economy. For the early 1970s, the relative magnitude of urban building in output and employment is shown in Table 4. For most years since 1966, the value of urban building was about 5 percent of gross urban product. However, building accounts for a higher share of the urban labor force (probably about 7.5-10 percent in 1974 and 1973)<sup>3</sup> and a much higher share of male paid blue collar workers (about 22 percent in 1964). It is therefore likely that a rapid expansion of the sector would have significant effects on the labor market of which construction workers are a part.

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<sup>1</sup>Unfortunately Colombia's input/output tables have not yet been disaggregated by size of firm, a variable closely associated with factor proportions. Accordingly, it is not possible to say much about the range in which the direct and indirect employment effects of the program might vary according to the characteristics of the firms where the growth was located.

<sup>2</sup>Strassman ("Measuring...", op. cit., p. 631) has reached the conclusion that the employment effect of a given value of low income housing is 2 to 3 times as great as that of high income housing in Colombia (data based on Bogotá, Barranquilla, Medellín, and Bucaramanga). The conclusion, however, is based exclusively on Mexican data, partly from designs and handbooks, partly from interindustry tables. While it creates some presumption that such a difference might exist in Colombia, the issue must be researched there, and with ex post rather than ex ante data on labor and output ratios. The direction of the difference seems plausible; the magnitude is harder to judge.

<sup>3</sup>The DANE encuestas of 1970 and 1971 showed 4.7 to 5.6 percent of employed persons as in construction. This would imply that about 7-9 percent of the urban labor force was attached to that sector. A majority of these would be in urban building, and to these are added workers in the building input industries.

TABLE 4: Urban Building in the Economy and in the Urban Economy, 1966-1974

	Value of Production in urban building* as a percent of:				Value Added in Urban Building* as a percent of:				Labor Force in Urban building and in production of building inputs as a percent of:		Male Paid Blue Collar Workers in urban building as a percent of:		Male Paid Blue Collar Workers in urban building and production of building inputs as a percent of:	
	Gross Domestic product		Gross Urban <sup>a</sup> product		Gross Domestic product		Gross Urban <sup>a</sup> product		Labor Force in Urban building as a percent of:		Male Paid Blue Collar Workers in urban building as a percent of:		Male Paid Blue Collar Workers in urban building and production of building inputs as a percent of:	
	Current prices	1958 prices	Current prices	1958 <sup>f</sup> prices	Current prices	1958 <sup>f</sup> prices	Current prices	1958 <sup>f</sup> prices	Total Labor force	Urban Labor force	Total Male Paid blue collar workers	Urban Male Paid blue collar workers	Total Labor force	Urban Nonagricultural labor force
1964								2.92-3.11 <sup>c</sup>	5.6 -6.07 <sup>c</sup>	4.0 <sup>d</sup>	8.8 <sup>d</sup>	7.1 <sup>e</sup>	22.2 <sup>e</sup>	
1966		3.46		5.75										
1967		3.29		5.40	1.29	1.17		1.92						27-31
1968		3.46		5.70	1.36	1.22		2.01						
1969		3.35		5.48	1.31	1.19		1.95						
1970	4.00	3.59 <sup>b</sup>	6.44	5.78	1.27	1.15		1.85	2.57 <sup>c</sup>	4.51 <sup>c</sup>	3.4 <sup>d</sup>	6.0 <sup>d</sup>		
1971	3.98	3.43 <sup>b</sup>	6.32	5.45 <sup>b</sup>		1.17		(1.86)						
1972	3.51	3.02 <sup>b</sup>	5.48	4.71 <sup>b</sup>		1.05		(1.64)						
1973	4.12	3.69 <sup>b</sup>	6.33	5.67 <sup>b</sup>		1.19		(1.83)						
1974	4.44	3.80 <sup>b</sup>	6.72	5.75 <sup>b</sup>		(1.33)		(2.01)						

Note: The term "urban" is used here, although strictly speaking the data used are for "municipal seats." Note also that output values are measured at market prices.

+From 1970 on constant price series use that year as base. Figures for earlier years have been spliced to the series with base 1970 in 1970.

\*In the most recently published national accounts (Banco de la Republica, *Sintesis de las Cuentas Nacionales de Colombia 1970-1974*) there has been a substantial upward revision of the 1970 output of both houses and other buildings, for the two together amounting to 10%, as compared with *Cuentas Nacionales 1967a 1970*.

- a) Income generated in urban areas; agricultural income of urban residents is excluded.
- b) Estimated on the assumption that the ratio "value of production/value added" in urban building was the same in 1971-74 as in 1970; i.e., 2.8.
- c) Estimate presented in A. Berry, "La Industria de la Construcción en la Decada de Los Sesenta," *Economía Colombiana*, No. 92, Tercera Epoca (April, 1972), pp. 16-29.
- d) Assuming one-third as many workers in input industries as in building itself.
- e) Assuming the share of all workers who are male paid blue collar is 67% in urban building and 74.12% in infrastructure construction.
- f) This value had to be estimated roughly on the basis of population census data.

## 2. Observation of Empirical Trends

As indicated earlier, the Plan argued that inducing an accelerated growth of urban building would not only speed up the overall rate of growth, but would improve the employment and income opportunities of many low income people. Various indicators might be expected to reflect these developments; most directly, one would expect either employment or wages in the urban building sector and the industries producing inputs to rise.<sup>1</sup>

Information is still incomplete with respect to the impact of the building boom of 1973-74. Value added in building construction, which had grown by only 12.5 percent over the period 1967-72, grew by 47.7 percent over 1972-74.<sup>2</sup> The increase was associated with the new financial system, and there were decreases in the amount of building done by or financed through the ICT and the BCH. (See Table 5)

Wage information from both DANE and CAMACOL indicates a continuation during those years of a downward trend in real wages which began, at least for the four largest cities, in the late 1960s or around 1970 (See Table 6). In all four cities, both series indicate lower real wages in mid-June, 1974 than in 1971. What effect the expansion of housing had on real wages is hard to judge; the major hypothesis with respect to the decline over these

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<sup>1</sup>The most direct impact of the Plan is to raise the demand for labor in these industries; if the supply curve to them is quite elastic, one would not expect an increase in wages in those specific industries, although if the demand increase was sufficiently large one might expect the wage rate of the types of workers involved to be pulled up generally (i.e., in all sectors). If labor were more specific to construction and the input industries, the increased demand should pull wages up. Either effect could be considered as beneficial from the point of view of low income persons.

<sup>2</sup>Cuentas Nacionales.

TABLE 5: Construction Financed by  
UPAC System, BCH, and ICT  
1966 and on  
(Absolute values in millions of pesos)

<u>Year</u>	<u>BCH</u>				<u>ICT</u>	<u>UPAC</u>	
	Loan applications	Loan approvals	Loans effected	Value of loans effected	Units constructed	Value of loan approvals	Value of loans effected
1966	6,304	5,766	5,649	91	9,069		
1967	6,464	5,621	5,209		12,082		
1968	17,755	15,476	13,024		24,868		
1969	25,947	23,593	16,103		20,000		
1970	34,646	32,322	23,146				
1971	38,488	28,305	26,217				
1972	21,911	22,546	19,717		725	370	105
1973	8,678	7,132	14,161		24,100	16,800	6,400
1974					83,378	52,077	33,002
1975 (1st semester)					53,977	30,519	25,947

SOURCES: Sandilands, op. cit., for BCH loans, 1966-73. were converted from the 1954-55 price figures presented by Sandilands back to current prices. UPAC figures are also from Sandilands, op. cit.

TABLE 6: Real Unit Labor Cost in Construction: Indices,  
1967-68 to 1976, DANE and Camacol Series

	BOGOTA		MEDELLIN		CALI		BARRANQUILLIA		BUCARAMANGA	CUCUTA*	MANI- ZALES	CARTA- GENA*	NEIVA*	PASTO
	DANE	CAMACOL	DANE	CAMACOL	DANE	CAMACOL	DANE	CAMACOL	DANE					
Jan. 1960				80.4 <sup>a</sup>										
1967-68		81.6		113.4				101.2						
1969		81.7		107.8		108.0		102.1						
1970		88.7		105.3		106.8		99.1						
1971	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1972	96.7	102.5	96.5	98.2	92.6	93.2	95.5	104.5						
1973	91.9	92.3	90.4	90.2	86.0	88.8	88.4	93.3	87.5	81.7	103.2	108.2	101.1	103.1
June, 1974	90.2	82.3	84.9	97.6	88.2	83.5	83.0	77.8	89.4	84.2	111.1	89.2	110.8	95.3
April, 1975	90.1		87.2		88.5		72.6		90.4	89.8	108.7	89.0	87.2	94.8
Sept., 1975	97.4		88.1		87.6		65.7		89.0	86.0	110.7	84.4	84.0	94.3
Feb., 1976	92.4		87.9		81.5		79.4		84.5	90.4	112.0	80.0	84.7	89.8
Percent change:														
1967/8 to														
June, 1974		+ 0.9		-14.0		-11.9		-23.1						
1972-June, 1974	- 6.7	-19.7	-12.0	- 0.6	- 4.8	-10.4	-13.0	-25.6						

a) Based on data presented in Camacol, Antioquia, Estudio Sobre la Demanda de la Edificacion en Medellin Y Municipios Vecinos (Medellin: 1970), Cuadro 1.7.

SOURCE: For 1967-68 to 1974, Centro Estadistico Nacional de la Construccion (CENAC), Estadisticas del Costo de Construccion en Colombia, CEN-04-74, Bogotá, CENAC, 1974, p. 73, p. 82. Wage indices in nominal terms from this source were deflated by the blue collar cost of living series for the respective cities. The DANE data were originally from DANE, Boletin Mensual de Estadistica (Mayo-Junio, 1973) and unpublished DANE tabulados. Data for 1975 and 1976 are from DANE, Boletin Mensual de Estadistica, No. 297-98 (Abril-Mayo, 1976), and No. 291 (Oct., 1975). In 1971, the wage levels reported by DANE tend to be below those reported by CAMACOL, except in Cali.

Apart from other differences between them, the DANE series and the CAMACOL one are distinguished in that the former (based on figures for maestros, officials and ayudantes) is collected on a monthly basis while the latter apparently is not, judging from the fact that it tends to remain constant over several months or quarters. According to a Planeacion study (La Mano de Obra en Construccion y Alternativas Para Un Programa de Formacion y Capacitacion Acelerada, Documento URH-994 [Nov., 1972], p. 20) the Camacol data is supplied by the construction companies; since the labor contractors or sub-contractors are the ones who deal directly with the workers, these figures may not be very accurate. In 1971, the wage levels reported by DANE tend to be below those reported by CAMACOL, except in Cali.

DANE presents data separately for maestros, officials, and peones rasos; in the table these were averaged into one series, with weights presumably corresponding to relative shares in the total labor cost in building. Alternatively, this series may give a weighted average of labor cost indices calculated in each city for various prototype buildings. Planeacion (La Mano de Obra...op. cit., Cuadro 11-A) presents real wage series for 1967-71 which it describes as being based on nominal salaries published by DANE in 1971. There is a rough correspondence with the CAMACOL series shown above, except for Barranquilla where a rapid increase in real wages is shown for this period.

years is that the accelerating inflation led to a wage-price lag and pushed real wages down. This is suggested by the general decrease in wages for the economy as a whole during this period.<sup>1</sup> Those of construction workers appear to have fallen by about the same amount as those of most other sectors.<sup>2</sup> Over 1971-75, ICSS data show a decline of about 10 percent--the real median wage of affiliates, possibly an overstatement of the actual decline since the data fails to include fringe benefits whose share of total labor costs may have risen.

On the most important question of employment, the key source of relevant data are the DANE samples taken in various years beginning in 1970. These are presented in Table 7. Unfortunately, they fail to distinguish workers in the building industry and in other construction, and they span the housing boom without providing an observation in the middle of it. If that for the four largest cities in June 1974 would be fairly close to that for all urban areas, a comparison with the two previous observations suggests the program's effects were felt. Allowing for the slow growth of output in "other construction" over 1972-74, and the probable stagnation of employment there, the percent increase in building employment between 1972 and 1974 would be greater than suggested by the figures of Table 7; that increase was probably 1-3 percent of the urban labor force between late 1972 and the peak of the boom, perhaps in

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<sup>1</sup>See A. Berry, "Recent Trends in the Distribution of Income in Colombia: Possible Factors," Mimeo., 1978.

<sup>2</sup>It is interesting to note that real wages in construction seem to have held up better in Bogotá than in nearly all the other cities (see Table 6). This may or may not be associated with the demand for labor in construction. Since the share of Bogotá in housing or all building did not rise over 1971-74--in fact, it fell according to DANE's data on licenses--this cannot be the explanation.

TABLE 7: Share of the Construction Sector  
in Employment

Year	Urban	Four largest cities	Seven cities	Bogota	Atlantic region urban areas	Eastern region urban areas	Central region urban areas	Pacific region urban areas
1970 (June-July) (EH1) Urban Bogotá	5.60			6.17	4.50	5.74	5.89	5.69
1971 (March-April) (EH3) Urban	7.09			8.18	5.77	6.53	6.72	8.10
1971 (July-August) (EH4) Urban	7.00			9.41	5.99	5.91	6.07	7.40
1971 (Nov.-Dec.) (EH5) Urban	6.42			8.30	5.92	6.07	6.93	6.20
1972 (Sept.-Oct.) (EH6) Urban	6.15			9.74	3.71	7.66	5.68	5.20
1974 (June) (EH7)		7.17		7.04	4.97 <sup>a</sup>		8.06 (Medellin only)	8.02 (Cali only)
1974 (Oct.-Nov) (EH8) Urban	6.53			7.28	6.48	6.34	6.18	6.25
1975 (Sept.-Oct.) (EH9) Seven Cities		6.49	6.52	6.72	5.37 <sup>a</sup>		6.51 (Medellin only)	6.54 (Cali only)

<sup>a</sup>Barranquilla only.

SOURCES: DANE, Encuesta de Hogares, 1970; DANE, Encuesta Nacional de Hogares, Etapao 3, 4, 5, and the subsequent publications of the same title for etapas 6,7, 8, and 9.

early 1974.<sup>1</sup> Note that Bogotá had a high level of employment in construction before the boom, and the figures indicate a decline between 1972 and 1974; Cali's high figures for early 1971 reflect the construction activity prior to the Pan American Games held in that city. Both Cali and Medellin show high construction employment in June, 1974, suggesting an increase from 1972.

Of crucial importance, of course, is the extent to which the net increase in persons employed in the building sector would otherwise have had less productive and/or remunerative jobs. This cannot be ascertained from available data, though some circumstantial evidence can be brought to bear. In a sample taken in 1975 in urban Colombia, it was observed that 56 percent of the construction workers had begun their careers in it; another 23 percent had been agricultural workers, and only 4 percent had been manufacturing workers.<sup>2</sup> This observation is consistent with the general impression that there is considerable mobility between agriculture and construction and that the ultimate source of most additional workers in construction would be agriculture.

Another possibility, of course, is that they would come from the pool of unemployed. The aggregate unemployment ratio showed no decline between September-October, 1972 and June, 1974, but rather a slight increase; for all urban areas from the former rate was 10.0 percent, and

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<sup>1</sup>These statistics are far from adequate to measure the employment effects of the housing strategy. The seasonality of housing and of other construction probably plays some role in the variations observed, for example.

<sup>2</sup>Bernardo Kugler, Alvaro Reyes and Martha I. Gutierrez de Gomez Papel de la Educacion en el Sector, "Tradicional Urbano" de la Economia (Informe de Progreso), p. 35 (do not cite without permission).

for the four largest cities the latter was 12.7 percent.<sup>1</sup> The share of unemployed looking for jobs in construction and the unemployment rate in that sector did decline (Table 8), as did the unemployment rate in construction, as defined by those seeking work there divided by the sum of those working plus those seeking work in the sector. Both these ratios moved back in 1975 to about the same levels as they had in 1971. It seems fairly clear, therefore, that part of the increase in construction employment did come ultimately from the pool of unemployed, in the sense that that pool became smaller during the housing boom.<sup>2</sup> If the unemployment rate fell, say, from 15 percent to 10 percent (one must again speculate due to the lack of observations during the heart of the boom), this would imply the creation of about thirteen thousand urban jobs, assuming the urban construction labor force reported in EH6 of September-October, 1972. In other words, a substantial share of the new jobs were filled by previously unemployed; judging from the previous paragraph, many of the rest probably came from agriculture

It is of interest to note that unemployment of construction workers is mainly of the "already employed" as opposed to "first job seekers"; this reflects the fact that on average the young job entrants, with above average education, seek higher paying and where possible non-manual jobs.

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<sup>1</sup>The increase was probably less than the difference between these two figures since unemployment rates are usually lower in small urban centers than in large ones.

<sup>2</sup>Consistent with this conclusion are the facts that (a) the level of unemployment for persons with no education appears to have fallen during the housing boom period (Table A-1) although since it appears to undergo considerable fluctuation, this may be coincidence; and (b) the unemployment rate of blue collar workers was sharply lower in mid 1974 than earlier or later; between September-October, 1972 and June, 1974, it fell by several percentage points while that of white collar workers rose. (Table A-2).

TABLE 8: Urban Unemployment in the Construction Sector  
Before and After the Housing Boom

<u>Year</u>	<u>Those Looking for Work in Construction as a Percent of Total:</u>			<u>Construction sector unemployment rate<sup>c)</sup></u>	<u>Total un- employment rate</u>
	<u>Cesantes<sup>a)</sup></u>	<u>Aspirantes<sup>b)c)</sup></u>	<u>Unemployed<sup>c)</sup></u>		
1971(Nov.-Dec.) EH5	15.67	7.30	11.59	16.05	11.55
1972(Sept.-Oct.) EH6	13.03	7.11	10.64	14.81	10.03
1974(June) <sup>e)</sup> EH7					12.68
1974(Oct.-Nov.) EH8	11.19	4.11	8.14	11.43	10.42
1975(Sept.-Oct.) <sup>d)</sup> EH9	14.86	3.78	10.90	15.44	10.58

a) Those currently unemployed who have worked previously and are currently looking for work.

b) Those who have not worked before and are seeking their first job.

c) Figures shown exclude persons who do not designate sector where they are looking for work.

d) Seven cities.

e) Four largest cities.

SOURCE: As for Table 7.

TABLE A-1: Unemployment by Level of Education

	Primary			Secondary			Normal	Superior
	None	Urban	Rural	Basic	Classical	Technical & other		
<u>1971(March-April)</u>								
% of unemployment	5.88	51.55	6.20	13.53	13.42	2.72	2.18	4.53
Unemployment rate	4.74	10.23	5.68	11.61	11.50	10.48	9.39	7.36
<u>1971(July-August)</u>								
% of unemployment	9.92	48.12	6.87	13.11	14.58	2.45	1.62	3.32
Unemployment rate	10.04	11.65	14.37	11.72	14.86	10.18	6.74	
<u>1971(Nov.-Dec.)</u>								
% of unemployment	8.56	51.75	4.19	8.61	19.32	2.54	2.78	2.18
Unemployment rate	8.57	12.24	6.19	16.18	12.72	22.21	15.90	5.31
<u>1972 (Sept.-Oct.)</u>								
% of unemployment	10.96	50.48	4.05	7.93	20.57	2.77	0.62	2.61
<u>1974 (June)</u>								
% of unemployment	2.10 <sup>a</sup>	44.93	3.64	10.95	29.84	2.16	0.97	5.42
Unemployment rate	5.51	13.49	6.75	16.37	14.61	18.75	11.51	7.48
<u>1974(Oct.-Dec.)</u>								
% of unemployment	7.51	44.75	3.42	12.42	24.26	2.10	13.01	4.23
Unemployment rate	8.07	9.75	7.07	15.11	12.77	16.22	8.01	7.75
<u>1975(Sept.-Oct.)</u>								
% of unemployment	3.38	41.97	3.80	8.07	31.98	2.81	.91	7.08
Unemployment rate	7.61	10.32	7.09	13.78	13.12	14.16	6.42	6.82

<sup>a)</sup> For Cali and Medellin, no one was reported in this category, suggesting misreporting.

TABLE A-2: Unemployment Rate by Job Position, 1971-75

	Blue collar	Urban		Blue collar	Bogotá	
		<u>Total</u>	<u>White Collar Clerical</u> <sup>a</sup>		<u>Total</u>	<u>White Collar Clerical</u> <sup>a</sup>
<u>1971(Mar.-April)</u>						
Total	18.01	11.30	n.a.	13.92	10.27	n.a.
Share of labor force	23.51	44.63		14.56	62.86	
<u>1971(Nov.-Dec.)</u>						
PW	10.36	6.77	9.33	4.55	4.51	6.35
FT	7.26	7.86	9.51	6.56	5.27	4.42
Total	17.62	14.63	>18.84	11.11	9.78	>10.77
Share of labor force	21.67	45.82		16.50	60.04	
<u>1972(Sept.-Oct.)</u>						
PW	11.43	6.31	7.49	7.40	4.90	5.88
FT	5.93	5.83	9.96	3.54	3.75	6.83
Total	17.36	12.14	>17.45	10.93	8.65	>12.71
Share of labor force	23.37	41.70		12.68	59.87	
<u>1974(June)</u> <sup>b</sup>						
	11.88	14.34		14.41	13.22	
Share of labor force	21.18	55.55		14.23	62.50	
<u>1974(Oct.-Nov.)</u>						
PW	8.97	8.63	9.34	8.04	7.88	9.97
FT	5.62	7.78	9.20	4.71	5.48	7.83
Total	14.59	16.41	>18.54	12.75	13.36	>17.80
Share of labor force	22.44	47.31		13.45	64.05	
<u>1975(Sept.-Oct.)</u> <sup>d</sup>						
PW	12.30	8.78	10.47	9.38	8.33	10.62
FT	5.35	5.69	6.29	2.68	3.86	5.23
Total	17.65	14.47	>16.76	12.06	12.19	>15.85
Share of labor force	18.53	56.69		14.75	61.26	

<sup>a</sup>"Personal Administrativo." Note that persons in this category are not classified into white collar, employer, etc. But since nearly all fall in the employed white collar category, (96% in 1964, and probably even more by the 1970s), these figures only slightly understate the unemployment ratio for that category.

<sup>b</sup>Four largest cities.

<sup>c</sup>Seven cities.

TABLE A-3: Occupational Positions  
Listed by the Unemployed<sup>a</sup>

		Urban <sup>b</sup>			Bogota <sup>b</sup>		
		Blue collar worker	White collar worker	Inde- pendent worker	Blue collar worker	White collar worker	Inde- pendent worker
<u>1971(March-April)</u>	PW						
	FT						
	Total	37.79	50.40	3.33	23.11	73.66	1.08
<u>1971(Nov.-Dec.)</u>	PW	38.17	52.82	6.11	23.64	69.09	6.36
	FT	27.73	63.46	4.80	20.69	74.71	3.45
	Total	33.05	58.05	5.47	22.34	71.57	4.06
<u>1972(Sept.-Oct.)</u>	PW	44.6	44.0	8.7	20.90	65.5	5.5
	FT	34.2	60.0	3.1	15.49	77.46	2.8
	Total	40.4	50.5	6.5	18.78	70.17	4.42
<u>1974(June)</u> <sup>c</sup>	PW						
	FT						
	Total	31.45	62.79	4.10	18.48	74.51	5.04
<u>1974(Oct.-Nov.)</u>	PW	34.31	57.62	5.04	18.41	77.93	5.03
	FT	27.70	66.95	2.38	16.26	75.37	2.73
	Total	31.42	61.70	3.88	17.55	73.30	4.11
<u>1975(Sept.-Oct.)</u> <sup>d</sup>	PW	33.68	60.30	4.29	23.60	72.10	3.20
	FT	25.99	69.42	1.76	16.28	80.89	1.48
	Total	30.91	63.59	3.38	21.46	74.67	2.70

<sup>a</sup>In response to the request to identify the occupational position category within which one had looked (or would look) for work.

<sup>b</sup>Figures do not add to 100% since a few respondents were looking for positions as "employers," or did not know, or did not answer the question.

<sup>c</sup>Four largest cities.

TABLE A-4: Employment and Unemployment  
by Sex, Persons 12 and Up

	Urban					Bogotá				
	Women as a share of labor force	Rate of un- employment		Partici- pation rate		Women as a share of labor force	Rate of un- employment		Partici- pation rate	
		Men	Women	Men	Women		Men	Women	Men	Women
<u>1970(June-July)</u> <sup>b</sup>						41.26	10.37	16.72	n.a.	n.a.
<u>1971(March-April)</u>	33.84	8.28	11.21	65.54	27.70	39.64	7.51	10.71	69.02	57.07
<u>1971(July-Aug.)</u>	34.44	9.18	15.12	66.09	28.57	39.75	7.75	11.32	67.19	35.10
<u>1971(Nov.-Dec.)</u>	36.06	9.15	15.90	68.24	32.08	40.30	6.43	10.87	68.11	36.15
<u>1974(June)</u> <sup>a</sup>	38.91	10.45	16.22	68.23	36.42	40.86	9.04	14.08	66.95	39.13

<sup>a</sup>Four largest cities.

<sup>b</sup>Various pieces of evidence suggest that this sample may not be very consistent with the subsequent ones.

TABLE A-5: Composition of Open Urban Unemployment

	Rate of Unemployment: National			Rate of Unemployment: Bogotá		
	Previously employed	First job seekers	Total	Previously employed	First job seekers	Total
1971(July-Aug.)	5.67	5.54	11.21	3.66	5.50	9.16
1971(Nov.-Dec.)	5.88	5.68	11.56	4.58	3.62	8.20
1972(Sept.-Oct.)	5.98	4.05	10.03	4.49	2.90	7.39
1974(June)	7.32	5.36	12.68	6.64	5.84	12.48
1974(Oct.-Nov.)	5.87	4.55	10.42	5.87	3.90	9.77
1975(Sept.-Oct.)	6.77	3.81	10.58	5.87	2.43	8.30

TABLE A-6: Construction Wages  
First Semester, 1971

Panel A: Daily Wages by City and Category

	<u>Bogota</u>	<u>Medellin</u>	<u>Cali</u>	<u>Barranquilla</u>	<u>Colombia</u> <sup>a</sup>
Maestro	83.61	65.98	103.60	69.16	74.10
Official	33.19	29.32	41.60	33.84	32.29
Unskilled laborer	20.39	20.72	20.64	25.49	19.23

SOURCE: Unpublished DANE data, compiled by Jorge Rodriguez of Planeacion Nacional.

Panel B: Annual Data, Construction Census of 1969, Colombia

	<u>All personnel</u>	<u>White collar</u>	<u>Skilled blue collar</u>	<u>Unskilled blue collar</u>
<u>Firms which build buildings</u>				
Annual wages per worker:				
w/o fringe benefits	8,339(40.29)	20,712	9,881	5,505
with fringe benefits	10,488(50.7)			
Employed workers	17,601	2,009	4,417	11,175
Average hrs./person/week	39.8			
<u>Firms which build buildings and public works</u>				
Annual wages per worker:				
w/o fringe benefits	10,588(58.85)	27,039	11,669	6,997
with fringe benefits	14,650(81.43)			
Employed workers		1,231	2,523	6,122
<u>Firms which build public works</u>				
Annual wage per worker:				
w/o fringe benefits	13,528(71.87)	31,124	18,218	8,015
with fringe benefits	17,518(93.06)			
Employed workers	8,962	1,100	2,170	5,692
Average hrs./person/week	36.2			

- ( ) wage per hour  
 a) Peon raso  
 b) Empleados Administrativos

SOURCE: DANE, Construccion: Estadisticas Basicas (Bogota: DANE, n.d., p. 13, 14.

66. "Low-Income Housing Development in Bogotá (1975), 32 pp..... Stephen O. Bender
67. "Consumption and Earnings Patterns and Income Redistribution (1975), 26 pp..... J. Gregory Ballentine and Ronald Soligo
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