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Low Income Housing Development
in Bogotá

by

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Abstract

Traditional views of squatter settlement development, those built outside of accepted legal parameters, have been seen as blighted areas that must be removed and replaced by institutional means, and later, as homogenous settlements marginal to the rapid growth of urban areas, but significant in their internal organization, spontaneous creation and development, and potential impact on the city's economic and political life. Only recently has the squatter settlement's importance been identified--that of viable, adaptive physical environments which allow their occupants to participate in and benefit from development.

Moreover, the growth and change which takes place in these settlements, that of transforming aggregations of dwelling units (however rudimentary in nature) into a mature urban community with a full range of public and private services, is duplicated in government sponsored settlements for similar income groups. This evolution is brought about by investment and construction under the control of the dwellers themselves. Their housing costs are kept as low as possible and real economic gains are made from provision of housing and commercial services to the settlements' inhabitants, which improves income distribution.

This phenomenon as it occurs in Bogotá, Colombia, is influenced by the availability of land, construction materials, key public services, and the decision of the settlement dwellers to exercise control over the creation and/or maintenance of their physical environment. All of these are dynamic factors whose modification could bring about reduction or cessation of settlement development.

Low Income Housing Development in Bogotá*

1. Introduction

Patrick Geddes wrote in 1918,¹ "I have to remind all concerned: 1) that the essential need of a house and family is room, and 2) that the essential improvement of a house and family is more room." While written for another place, the statement is still timely if we are to examine in some detail the growth and development of low income settlements in Latin America urban settings. The traditional analysis of the growth of such settlements, usually in sociopolitical and economic terms has left us with an array of classifications by which to understand one of the most significant occurrences in the history of man's urbanization. Such analysis has allowed us to describe in some detail the extent to which low income families, often migrant in origin, have sought to resolve their housing needs outside accepted norms, and to scrutinize the efforts of the public sector to aid in (if not control) the housing of these poor.

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¹Patrick Geddes, Town Planning Towards City Development, a report prepared for the Durbar of Indore, India (1918), Vol. I, p. 85.

What is brought into focus through this are dissimilarities in housing built and maintained by its inhabitants and housing provided through government intervention.

A critical analysis that has received little attention is an effort to describe the commonalities of low income housing development and, more specifically, the physical characteristics which over time make settlements of various legal origins indistinguishable from one another. "That the mass of people demand no more than they can economically support is the existence of the squatter settlement"¹ is applicable not only to clandestine developments, but the key to understanding the housing phenomenon of all low income housing development. Low income families continually match available resources with existing needs and over time change simple shelters into a community with all its services.

The role this housing development plays and some of the economic opportunities it presents are examined in this paper. In summary, traditional views of squatter settlement development, those built outside of accepted legal parameters, have been seen as blighted areas that must be removed and replaced by institutional means, and later, as homogenous settlements marginal to the rapid growth of urban areas, but significant in their internal organization, spontaneous creation and development, and potential impact on the city's economic and political life. Only recently has the squatter settlements' importance been identified--that of viable, adaptive physical environments which allow their occupants to participate in and benefit from development.

¹John C. Turner, "A New View of the Housing Deficit," San Juan Seminar Paper (April, 1966).

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This phenomenon as it occurs in Bogotá, Colombia, is influenced by the availability of land, construction materials, key public services, and the decision of the settlement dwellers to exercise control over the creation and/or maintenance of their physical environment. All of these are dynamic factors whose modification could bring about reduction or cessation of settlement development.

Section 2 of the paper deals with squatter settlements and their role as traditionally understood in resolving urban housing and development issues. Their dynamics are explored to broaden the understanding of their participation in the low income housing sector. Section 3 discusses housing and community, describing how income settlements, regardless of origin, take part in common development processes. In Section 4, some specific characteristics of low income family settlements and sources of income which are derived from investment in building space are examined, as well as some comments on the general housing land market in Bogotá and changes that have taken place recently. Finally, in Section 5, some summary observations are made concerning the future development of these settlements.

2. Some Observations Concerning Squatter Settlements in an Urban Growth and Change Context

Squatter settlements have been the dominant form giver of large urbanized areas in Latin America. Their formation and growth have brought into focus the problems of rapid in-migration of peasants from rural and semi-rural areas. Housing becomes the immediate and most pressing need of these migrants, a need which they are most able and accustomed to provide for themselves.

The formation of such settlements on the edges of urban areas has traditionally been viewed in two ways. These developed out of the realization by governments, planners, and academicians that tremendous growth was taking place in urban areas after the Second World War. This era produced a development boom in most Latin America countries. Urban places expanded as the countries began to industrialize. Rising incomes brought about a rapid in-migration to urban areas--ports, industrialized agricultural and mineral extraction centers--of rural peasants seeking employment, education, housing, and those opportunities and services only urbanized areas could offer. Colonial towns became cities and colonial cities grew rapidly, their character changing from one of an interface between a primarily agricultural-based society and its produce exchange for imported consumer goods to one of a place of production and consumption of goods.

The inner core of the expanding urban areas had been developed during colonial times as residential centers by and for those who controlled both the agricultural production and commercial arenas. Imported advances in transportation and communication, and massive public works projects now allowed those inhabitants to establish residential enclaves on the perimeter

of the urban areas, leaving the colonial cores as their business centers. The vacated colonial dwellings were quickly converted into dense low cost rental units and were rapidly occupied by the peasant influx.

This housing stock being consumed, the migrants were forced to seek housing solutions through other means. The housing institutions, both the private and the newly established public agencies that supplied dwelling units to the middle and upper economic classes, did not respond to the needs of the lower economic class. Alternatives, then, had to be sought outside the existing social, legal, and physical order. This generally took the form of provisional shelters, rudimentary in nature, illegally built on publicly or privately held land in a clandestine manner by migrant families acting individually or in large groups, often numbering in the thousands. Land could also be attained from private entrepreneurs who, capable of withstanding social and political pressure, would sell parcels illegally.¹ These areas grew quickly as cities doubled in size every 20 years, with low income families approaching 50 percent of the urban population.

On the one hand, this growth of invasion and "illegal" housing settlements was condoned, if not secretly supported, by governmental agencies and political parties if only to gain the political support of the migrants, silence their demand for housing, and avert facing the major problems of

¹This form of development, called piratas in Colombia, is especially prevalent in that country, accounting for 41 percent of all dwelling units in Bogotá, invasion settlement dwellings accounting for only one percent of the total dwelling units. See Valenzuela and Vernez, Actividad Constructora Popular: Analisis General Valemontos Para Una Politica de Apoyo (DNP, April, 1972), page 68.

urban development directly.¹ On the other hand, official political and professional positions were formed declaring such settlements as festering sores--rings of poverty, filth, and political radicalism that encircled and threatened the peaceful, orderly social, economic, and physical development of cities. Settlements were decried as illegal, unplanned, dangerous growths that blighted the environment and whose only solution was eradication.² This came at a time when national and international development interests recognized the potential promise and danger of a rapidly urbanizing Latin America and sought to create standards and master plans to guide and control growth and development.³

During the 1960s, research began to examine the origins and organizations of these settlements. It became apparent that while their development was outside the framework of traditional, overt powers and controls, the settlements had mass political potential and (in and among themselves) possessed a high degree of planning and organization. The view of squatter settlements changed to one of marginality--a group of homogenous developments characterized by illegal land tenure, owner-built housing with a migrant base, but necessarily outside the mainstream of urban life. The investigations emphasized the internal organization of the settlements and their roles in the urbanization of peasants as the last step of the

¹ See David Collier, "The Politics of Squatter Settlement Formation in Peru," February, 1973 (Mimeo.).

² See William Mangin, "Latin American Squatter Settlements: A Problem and a Solution," Latin American Research Review (Summer, 1967), pp. 65-98.

³ This parallels policy and planning thinking in most western, industrialized nations, particularly in the United States, laying the groundwork for vast urban renewal projects in deteriorated urban areas, and massive public expenditures to house the urban poor.

rural to urban, colonial core to fringe settlement migration pattern.¹ It was recognized that the settlement dweller's focus in coming to the city for employment and education had changed after arrival. Housing became the only major element of his basic needs he could control and fulfill in an urban environment. Thus, marginality explained the social and physical redeeming graces of squatter settlements and its role as a viable solution to housing the urban poor.

It became apparent, however, that as the "festering sore" view of squatter settlements attempted to devine and control urban growth in traditional terms, assuming that settlements could be removed through power and replaced by institutionalized housing solutions, so too the view of marginality attempted to isolate the settlement phenomenon from its larger urban growth context, particularly in physical terms, and establish a characterization of homogenous micro organizations, residual to urban growth as a whole.

Neither view appears to be adequate.

Squatter settlements are not of one homogenous type, but many. Their formation takes place in a variety of patterns which respond to social and political organization, leadership availability, economic status and ability to effectively operate in the larger urban environment. Migration may take place directly to the settlement from rural or semi-rural areas without participation in the inner city urbanization process.² Although

¹John C. Turner, "Housing Priorities, Settlement Patterns, and Urban Development in Modernizing Countries," American Institute of Planning Journal (November, 1968), pp. 354-63.

²Albert Berry, Algunos Caracteristicas del Sector de Auto Construccion de Viviendas: Proyecciones de Su Importancia Relativa El Futuro (DNP, 1972), p. 16.

their adult population is still predominantly migrant, squatter settlement population will soon be composed of first generation urban dwellers in a majority of cases.

Land tenure is more complex than originally presumed. Invasions and illegal formation of settlements form the basic land acquisition methods, but within this, there are organized, complex systems of buying, selling, and renting parcels of land. The development potential of squatter settlements, which gives an opportunity for capital formation through land acquisition and building has not only been recognized by the dwellers themselves but has also been discovered by the more traditional and institutional land development interests, who have sought entrance into the market.¹

Self-help housing (autoconstruccion), the term usually applied to owner-built dwelling units, has generally characterized the housing development, but there is a growing occurrence of owner-contracted housing, built by a variety of subcontractors for fees or in-kind services by the owner. The volume of such construction nearly surpasses conventional housing construction in quantity and represents a substantial part of total construction materials consumption.²

Most importantly, squatter settlements have become the major form giver to urban places. Their development responds to locational factors in much the same fashion as other sectors of the private housing market. Because of their magnitude, they have dramatically altered the growth pattern of many cities, forming away from and beyond the existing infrastructure of the city, thus dictating where future transportation and other services must

¹Research is underway to examine the legal aspects of pirata land sales and settlement development in Bogotá (FEDESARROLLO).

²Valenzuela and Vernez (1972), op. cit., page 13.

be located. Substantially altering master plans, their growth demands a review of existing construction standards, zoning and building ordinances, and housing policies and programs.

Although externally limited, they are in the mainstream of urban social, economic, and political life. Their role in urban development is that of the most dynamic, adaptive urban physical environment reflecting the aspirations, determination, and ability to grow and change over time.¹

3. Housing: Shelter and Community

Much of the study of squatter settlements stems from the view that these communities have one role to perform--that of shelter. Their formation and development is cast in the fulfillment of this need.

Squatter settlements certainly have as their basis this objective. Because of the inability on the part of the settlement dwellers to substantially gain control over the provision of the other needs they possess--employment, education, health services, transportation, clothing, food--they find shelter the only necessity of their daily lives over which they can exact overt control. Whether inside or outside the existing social, economic, and political standards, shelter is obtained.

Governments and institutions, in the face of rapidly increasing urban population, are pressured to provide housing alternatives. The objective is to house as many families as economically and efficiently as possible.

¹See DESAL, Marginalidad en America Latina, I and II (Santiago, Chile, 1967). For a critical analysis of this concept, see Jose Nun, "La Marginalidad en America Latina," Revista Latinoamericana de Sociologia, V. 2 (July, 1969).

Minimum space standards become maximum accommodations. The production of dwelling units through a variety of projects--self help, sweat equity, sites and services, core units, etc.--often become the short, medium, and long-range goals.

At the outset, then, squatter settlements and public sector housing begin at the same level: shelter. However, as shelter reflects only one need, aggregations of housing units at their conception represent only the static beginning to a dynamic process to create a community. Growth and change occurs. Communities mature; commercial uses are immediately introduced; infrastructure elements are upgraded or established if not already present. A transformation takes place which allows for integration into the larger urban context.

The social, economic and political characteristics of the settlements explain the growth and change: security of ownership, protection from the elements, viability of investment in housing as formation of capital, necessity of supplementing income with home-based business, and the need to establish and identify the dwelling as a personal possession.¹

For Bogotá, it would appear that the issue should not be the production of low income housing across the identified market divisions--invasion, pirata, government and commercial, but whether any or all of these sectors will be able to continue to deliver the opportunity for evolutionary development of housing at the same rate that it has been delivered in the past. "Autoconstrucción (invasion, pirata, and government housing solutions) have accounted for approximately 50 percent of the housing unit

¹Turner (1968), op. cit., pages 354-63.

starts in Bogotá in recent years.¹ These settlements have played a major role in providing shelter to low income families, as well as opportunities for formation of capital, immediate utilization of available disposable income, reduction of housing costs, and sources of income through renting or creation of nonresidential uses.

There are advantages to the government taking a more dominant role in the development of urban areas, particularly with regard to the development of low income housing. Because of the explosion of squatter settlement development over the last three decades, the ability of the government in most cases to determine growth patterns has been minute. The principal advantages of planning for further growth, however, do not lie so much in the more efficient development of the dwelling unit itself,² as in the guiding of growth of the city as a whole and, most importantly, in the adequate infrastructuring of growth areas with the transportation, utilities, health, education, and other social services necessary.

4. Income and Low Income Housing Development

Because of the preponderance of low income families finding housing solutions through self-contracted, self-help means in the invasion, pirata, and government sectors of the housing market, it is necessary to examine the income characteristics of those families and the importance the dwelling

¹Berry (1972), op. cit., page 7.

²It seems doubtful that more controlled construction practices in the development of low income housing, although eliminating some of the inefficiency incurred through phased construction, can offset hidden costs in administration, under-utilization of resources (time, money, exchange of services, etc.), and general loss of control of the owner over the building process.

unit has as a source of income. DANE estimates that 50 percent of all Bogotá households earn less than 2,500 pesos (1970) per month.¹ According to Valenzuela and Vernez,² income categories are distributed across the housing submarket groups in the following way:

TABLE 1: Family Income by Housing Submarkets for Bogotá

Income (1970 pesos)	<u>Invasion</u>	<u>Pirata</u>	<u>Government</u>	<u>Commer- cial</u>	<u>Total units</u>	<u>Per- cent</u>
0-500	653	9,392	1,930	21,530	33,505	7.4
501-1250	2,863	87,897	8,673	21,850	121,283	26.9
1251-2500	1,333	85,143	21,419	13,431	121,326	26.9
2501-4000	104	21,847	10,295	61,382	93,628	20.8
4001+	--	--	6,426	74,934	91,360	18.0
Total	4,955	204,182	48,740	193,124	451,102	100.0
%	1.1	45.3	10.8	42.8	100.0	

Source: Valenzuela and Vernez, La Actividad Constructora Popular: Analysis General Y Elementos Para Una Politica de Apoyo (DNP, April, 1972), page 27.

Since the characteristics of the dwelling units these families occupy are primarily single family attached units built over time (excluding the commercial submarket), it can be assumed that 79.4 percent of families with monthly incomes of 2,500 pesos or less are finding their housing solution as owners, renters or roomers³ in self-contracted units.⁴ Examining

¹DANE, Encuesta de Hogares (E-H2) (unpublished tables); see DAPD, Mercadeo de Tierras en Barrios Clandestinos de Bogotá (April, 1973), p. 10.

²Valenzuela and Vernez (1972), op. cit., page 27.

³Roomers include the "inquilinos" or those who rent rooms from a household, sharing common sanitary facilities.

⁴As will be discussed later, the government housing solutions offered in this income category are of a self-contracted nature, with the family making modifications and/or additions to the units they build or buy through the government programs. See Valenzuela and Vernez (1972), op. cit., pp. 27, 30.

the housing tenure status of these families brings into focus the importance of accumulation of capital through the housing development process. Owners represent the majority of tenure status in all housing submarkets¹ except the commercial² (see Table 2 below). Renters occupy the majority of commercial submarket units and approximately 1/5 of the pirata units, but are not found in the government submarket (government housing for this income category offer ownership rather than rental programs). For the pirata and government submarkets, roomers account for a significant portion of the households and most likely represent the portion above unity (.2 to .3) of the ratio of the number of households per dwelling unit (1.2 to 1.3).³

TABLE 2: Household Distribution by Housing Submarket and Housing Tenure

<u>Housing submarket</u>	<u>Tenure owners</u>	<u>Renters</u>	<u>Roomers</u>	<u>Total %</u>
Pirata	52.9	19.7	27.4	100.0
Invasion	61.8	0.0	38.2	100.0
Government	85.7	0.0	14.3	100.0
Commercial	34.7	65.3		100.0

Source: Valenzuela and Vernez, Actividad Constructora Popular: Analisis General Y Elementos Para Una Politica de Apoyo (DNP, April, 1972), page 30.

¹Invasion settlements are eliminated from the discussion because of their minor role (1.8 percent of total families) in housing this income category (see Table 1).

²Renters and roomers represent 65.3 percent of the families in the commercial submarket. Moreover, this submarket finds its most important role in housing the poorest segment of the population-- 76.0 percent of that submarket have incomes of 1,250 pesos or less.

³See DAPD, Mercadeo de Tierras en Barrios Clandestinos de Bogotá (April, 1973), page 78.

Previous studies done on housing expenditures by Berry indicate that for the pirata settlements, 51 percent of the households pay nothing for housing services,¹ which is approximately equal to the 52.9 percent of the households who are owners in this housing submarket. An even higher percentage of no payment for housing services is noted in invasion settlements.

For those households in this low income category (2,500 pesos or less per month) who do pay for housing services, the cost is generally 20 percent to 25 percent of monthly incomes.² Actual payments seldom exceed 500 pesos or are seldom less than 150 pesos³ with a median cost of 200 to 250 pesos.⁴

If the fraction of households per dwelling unit over unity (.2 to .3) can be attributed to roomers in owner occupied or rented dwelling units, it can be estimated that for approximately 25 percent of the families who rent to roomers, the income derived is 26 percent of total monetary income (median rent paid divided by median total income).⁵ This figure, no doubt, varies greatly from household to household.

A study limited to three distinct settlements--invasion, pirata, and government--at different levels of development and distinct locations in the city⁶ indicates that the percentage of dwelling units with roomers

¹Berry (1972), op. cit., page 8.

²DAPD (April, 1973), op. cit., page 25.

³ICT, Normas Minimas.

⁴DAPD (April, 1973), op. cit., page 48.

⁵Berry (1972), op. cit., page 12.

⁶1974 study of three settlements by Stephen Bender and Timothy Gauhan, Program of Development Studies, Rice University, Houston, Texas.

varied between 38 percent and 22 percent for the government and pirata settlements, respectively (both settlements more than 85 percent developed into permanent structures). The percentage of total monthly income represented by income from dwelling units with roomers was 24.1 percent for the government settlement and 21.5 percent for the pirata.¹ The study indicates that the roomers occupied 1.6 rooms per dwelling or 27.2 percent of the total rooms in the unit (excluding baths, patios and storage areas). Although more detailed study of this phenomenon is necessary, this may serve to indicate the importance of this activity as an income producing source to the dwelling unit renter or owner who has the ability to develop and expand his unit to other uses over time.

Current migration patterns reinforce the importance of offering housing services to migrants. Vernez estimates that between 50 percent and 80 percent of the immigrants to arrive in Bogotá became roomers in pirata and invasion settlements. Only 7 percent to 27 percent of the immigrants arriving first go to the city's center, their traditional destination place.² Migrants are paying a portion of their income as roomers to families who are investing that income in developing housing services. Self-contracted housing, then, includes self-financing where the cost of building one square meter of permanent dwelling is approximately equal to the rental income for two months (1970).³ Given a six to ten year

¹The invasion settlement was less than 30 percent developed into permanent housing, was situated 350 meters above the city in the hills to the southeast of the central business district, and a 35 minute bus ride away.

²Berry (1972), op. cit., page 16.

³DANE, Boletín Informativo de Construcción, No. 8 (May, 1974). Construction costs since that time (1970) have risen 60 percent (January, 1974), suggesting that while rents have probably risen somewhat, the pace of construction may have slowed in recent months.

development period for low income settlement housing, three to five rooms of permanent construction are added to the initial stage of development (one or two rooms of permanent construction inhabited by the owner), and are import financed by income from roomers. It appears that low income families not only provide housing solutions for families with similar income characteristics as theirs, substantially aiding in the resolution of the housing shortage in Bogotá, but also utilize this income in purchasing a greater share of capital.

A second important area of income to low income families is that of utilization of the dwelling unit as a nonresidential use. There has been little study done of the importance of nonwage income as part of the total earnings of low income families. Given that underemployment or occasional employment is prevalent among low income families, the opportunities to supplement fixed income with rental of dwelling unit space for nonresidential uses or the use of space by the family for business or commercial concerns bears attention. Berry states that when small shops in the dwelling provide the principal income source for the family, they generally earn more than incomes from labor or salaried employees. Moreover, a small sample study in Bogotá and Cali indicates that goods producing shops represent the principal income for 14 to 25 percent of the families.¹

A land use inventory done in 1973 of the three previously mentioned settlements plus an additional pirata and invasion settlement (both more than 75 percent developed into permanent construction) by the author shows

¹Berry (1972), op. cit., page 5.

that 21 to 29 percent of all dwelling units have some type of non-residential use present.¹ The percentage of different types of non-residential use can be seen in Table 3.

TABLE 3: Nonresidential Uses in Five Low Income Settlements (Bogotá)

<u>Settlement</u>	<u>Small food store</u>	<u>Small production shop (goods)</u>	<u>Small retail shop (goods & ser.)</u>	<u>Restau-rant</u>	<u>Office</u>	<u>%</u>
Pirata	30.3	21.4	22.3	16.5	9.5	100.0
Invasion	38.0	27.5	19.7	11.3	3.5	100.0
Government	25.2	18.9	30.8	9.4	15.7	100.0

Source: Bender Settlement Land Use Inventory, 1973-74.

The most prevalent activities found are those which provide commercial goods and services to the community (small food stores, small retail shops and restaurants). These more than likely are operated by someone other than the head of the household--the women and children in the family--and can be maintained while carrying on the functions of the family. The two remaining activities (small production shops and offices) most likely are activities carried on by the heads of households and perhaps offer gainful employment to other persons.² Although no detailed information concerning income from these activities is available, the three-Bogotá-settlements study mentioned earlier³ may prove to be of some insight. For the first

¹The invasion settlement mentioned earlier (see note 1, page 15) showed only 7 percent of the dwelling units having some type of non-residential use. This would appear to be due to the recent establishment of the settlement (1967), the yet provisional condition of most of the construction present, the small size of the dwellings, the noncontiguous, hilly characteristics of the terrain, the lack of clearly defined streets, and the travel cost and time to the central business area.

²See Berry (1972), op. cit., page 5.

³Bender and Gauhan (see note 6, page 14).

group of activities--attributed to nonheads of households--the incomes from these represented 15.9, 21.7, and 25.5 percent of total income in pirata, invasion, and government settlements, respectively. For those activities attributed to heads of households, the percentages were 19.5, 24.9, and 13.4 percent, respectively. The lower percentage in the government settlement for the second group is most probably due to the income requirements of the government housing programs which tend to accept heads of households with stable employment and the reduced size of rooms and lots in the government programs which make production activities difficult.

Of the nonresidential uses identified in the three-settlement study, less than 13 percent occur in rooms identified as rented space, indicating that these activities are carried on by families who own or rent the dwelling unit. Comparing the percentage of total income these business activities represent and the rental value of the space they occupy, it appears that the return is approximately the same, although as Berry points out¹ these shops often provide the family with goods at wholesale prices, thus increasing the value of having a business in the dwelling unit as opposed to a boarder. There would also appear to be more family satisfaction in operating a business in that it gives the appearance (if not the income) that the family is progressing and economically active, and given the roomer's accommodations (shared bath and patio), business activities may interfere less with family life than the presence of non-family person(s).

¹Berry (1972), op. cit., page 5.

Less than two percent of those dwelling units with roomers indicated that they also rented space for nonresidential uses. Unfortunately, specific data is not available as to whether or not in those dwelling units with businesses operated by dwelling owners or renter families, roomers are also present. From the above, it would seem that it is improbable. Since dwellings in these settlements tend to have 5.77 rooms and 7 persons per unit, it can be assumed that no more than 1 to 1.6 rooms per dwelling would be devoted to nonfamily use (the family occupying a living area, kitchen, and two sleeping areas).

Summing the percentages of dwelling units with nonresidential uses and those with roomers, 10 to 57 percent of the dwelling units surveyed utilize dwelling unit space as an income producing source representing 15 to 25 percent of the total monthly family income. While further study needs to be done in this area, the initial insight presented in this study gives an indication as to the importance of the dwelling unit as an income source to the families during the development of the settlement.

TABLE 4: Space Utilization in
Low Income Settlements (Bogotá)

	<u>Settlement</u>		
	<u>Pirata</u>	<u>Invasion*</u>	<u>Government</u>
% Nonresidential	21	7	19
% Boarders	<u>22</u>	<u>3</u>	<u>38</u>
% Total	43	10	57

*The low percentage of income producing uses in the invasion settlement is due to its state of development and location rather than its condition of being an invasion settlement (see note 1, page 17).

Source: Bender Land Use Survey in Five Bogotá Settlements, 1973-74; Bender and Gauhan Settlement Study, 1973-74.

Almost all income producing use of dwelling unit space takes place in units which are of permanent construction. Rental of space to roomers is most commonly found in smaller units and associated with households with lower incomes. Nonresidential activities are likewise most generally found in dwelling units of permanent construction and total monthly incomes of the households who own the unit are usually higher than those who rent space.

In summary, the income derived from utilization of dwelling unit space can be matched with perceived opportunities for investment by the dwelling unit owner. Needs can be closely matched to resources at any given moment, giving a flexibility that is not offered by other investment opportunities. It is doubtful that available funds and labor can be invested in other sectors so effectively and efficiently.

A third important area of income to the settlement families is the housing expenditure relief that possession of dwelling unit (with or without legal title) represents. As noted earlier, it is estimated that half of the low income families in the pirata settlements pay nothing for housing services.

The amount this housing expenditure relief represents as a percentage of total income bears comment. Since most units average from 4.5 (invasion) to 6.6 (pirata) rooms per dwelling (Bender/Gauhan)¹, it can be assumed for dwelling units without rental space, the value of monthly housing services consumed is from 1,125 to 1,650 pesos (250 pesos per room)² for units

¹Corresponding to 31 m² (invasion) and 58 m² (pirata) as described by Valenzuela and Vernez (1972), op. cit., page 78.

²Bender and Gauhan Settlement Study, 1973, 1974. Also see DAPD (April, 1973), op. cit., page 67.

without rental space, and from 750 to 1,125 pesos for units with rented space. Table 5 presents the imputed value of housing services as a percentage of total monthly family income.

TABLE 5: Imputed Value of Housing Services
as a Percent of Total Monthly Family Income*

<u>Settlement</u>	<u>Monetary Family Income Level (pesos)</u>			
	<u>1,250</u>	<u>2,500</u>	<u>4,000</u>	
Pirata unit	w/rental space	47.4%	31.0%	22.0%
	w/o rental space	61.1%	39.8%	29.2%
Invasion unit	w/rental space	37.5%	23.1%	15.6%
	w/o rental space	47.4%	31.0%	22.0%

* Based on (1) 4.5 rooms/dwelling unit in invasion settlements and 6.5 rooms/dwelling unit in pirata settlements, (2) 250 pesos per room per month rent, and (3) 1.5 rooms rented.

Although approximate in nature, the percentage of total income represented by the consumption of housing services is significant, particularly in the lower income categories. Clearly, if families who possess dwelling units in these settlements were forced to seek housing on the rental market, it would be extremely difficult for them to duplicate the services that they are now consuming. They, like the families to whom they rent, would be forced to locate in fewer rooms, lose the income resource the dwelling unit represents, and pay a significant portion of their income for rent.

With this emphasis on ownership (legally recognized or not), a final word on the land market in Bogotá seems appropriate. Accessibility to land is the key to evolutionary housing development. Without that resource,

participation in the land development process is impossible, and it is precisely this process which holds much of the promise of urban life to the low income family in Bogotá. As has been noted in Table One, families earning 2,500 pesos or less per month are concentrated in the pirata, invasion, and government settlements where the characteristics of the housing is one of growth and change over time. Moreover, the high propensity of ownership (Table 2) for the low income families and the corresponding reduction of housing expenditures makes these settlements highly desirable. The acquisition of land appears to be the principal motive for intra-city migration.¹ Since most of the migrating families which finally settle in pirata, invasion or government settlements become owners, this would certainly be the case. The need of solving their housing problem first generated low income families to seek land on which to develop dwelling units; such development now appears to be an economic necessity given the limited options under their control in other economic sectors.

Traditional land market operations in the city of Bogotá have allowed over time the provision of affordable land to low income families. This has come about through two important urban development policies and practices that have been followed over the last three decades:

1) Master planning done for the city in the period from 1936 to 1957, reinforced by zoning laws enacted in 1944, determined that the city should develop in a north-south pattern along the foothills of the Andes Mountains with the colonial core (now the central business and administrative center) to separate middle and high income housing development in the north and already developing "popular" housing development in the south. This plan

¹Berry (1972), op. cit., page 18.

reinforced earlier development patterns or affluent housing development in the north made possible by transportation improvements (trolleys, later followed by major expressways),¹ and was institutionalized by zoning regulations which set maximum densities lower in the north than in the south. The two areas are divided by an institutional and industrial zone extending from the core of the city west to the sabana, serviced by major railroads, and by expressways to the airport.

2) Dividing the land market in Bogotá into three areas: A--the high slopes above the city's north-south spine, B--the marginal agricultural land which encompasses the city's spine, and C--the agriculturally productive sabana, land in the south of the city of areas A and B has traditionally been sold very cheaply because of location, marginal agricultural productivity, and a more or less balanced supply and demand for pirata settlement development. Pirata settlements could also be found to the west and north of the city (in diminishing proportions) coming about when small land owners found economic benefit, as in the south, in illegally parcelling the land and selling it without utilities (and often without clear title) to low income families. Competition for residential land was then between the wealthy, who preferred the north, and the poor, who found accessibility to land in the south, and to a limited extent in the west and north. By the mid-1960s, however, the middle class had developed enough demand through increased purchasing power, aided by affordable mortgages through public and private lending sources,

¹See Peter Amato, "An Analysis of the Changing Patterns of Elite Residential Areas in Bogotá, Colombia," Dissertation Series (Mimeo), Cornell University Latin American Studies Program, Ithaca.

as well as access to purchase of private automobiles, to create a new force in the land market. Housing developers responded by building "suburban" communities with segregated land use characteristics, thus consuming much of the land that would have been destined to the pirata market. This situation was further influenced by the growing national and export market for beef and flowers (among other agricultural products) which had become economically profitable in zones B and C.

By 1970, of the total urban area of Bogotá (+/- 27,000 hectares) 14,161 were residential areas. Of this number, 4,915 hectares were developed by squatter settlements (piratas and invasions), some 35 percent of the total residential land area. This area houses, according to Vernez and Valenzuela, approximately 47 percent of Bogotá's families and 42 percent of the city's dwelling units. Average lot size in these settlements is 100 m² with a gross density of 65 dwelling units per hectare.¹ This compares with a gross density of 23 dwelling units per hectare in the remaining residential areas.

The demand for lots to house low income families has been estimated at 24,000 annually for the next five years, or approximately 336 hectares. Prices for lots have varied from 8,000 to 13,000 pesos (1972)² in the past, but figures published by FASE II³ indicate that land values have risen approximately 1.7 times as rapidly as the cost of living, and

¹Valenzuela and Vernez (1972), op. cit., pp. 72-75.

²DAPD (April, 1973), op. cit., page 63.

³FASE II, Estudio de los Valores de la Tierra, Llewelyn-Davies, et al., DPD (September, 1973).

now range from 230 to 560 pesos per m^2 for settlement areas. Thus, for a typical low income settlement dwelling unit of $60 m^2$ on a $100 m^2$ lot, the land cost represents from 30 to 51 percent of the total cost of the unit (881 pesos per m^2 of construction). Conceivable minimum solutions of $65 m^2$ lots with services would necessitate a considerable subsidy and most likely leave the low income family with a monthly housing expenditure consuming all available income that might otherwise be invested in housing construction. Clearly, the demand for land and rising land costs present a constraint to the continued evolutionary housing phenomenon.

5. Some Summary Remarks

Having described the economic importance of owner-built housing, some comments on key issues facing the continuance of this type of development are necessary. For the low income family, access to land, availability of construction materials, provision of public services, and a decision to create, develop, and maintain one's own dwelling are priority issues to be dealt with if the process is to continue.

The problem of access to land has been noted previously. Clearly, land costs will play a major role in deciding the composition of the housing submarket in Bogotá in the future, the locational characteristics low income family settlements will have, and the type and density of dwelling units that will be developed. Although little empirical information is available at present, it appears important to understand the trade-offs of long-range development of dwelling units which may be modified over time and short-range development of multifamily, multistory structures which may be modified to an extremely limited degree. Given the importance of income generated from dwelling unit use, it would seem unlikely that the

multifamily, multistory solution is the wiser unless basic changes are made in the sources of income for low income families and the opportunity cost is replaced by larger, fixed incomes or by a subsidy. Also, to be dealt with would be the impact on the roomer submarket. If ownership of capital is now seen as the most effective way of redistributing income while achieving growth, for half the population, housing may prove to be the most accessible capital to be acquired.

Experiences from existing government projects bear mention. If (from personal observation) income received from renting a portion or all of a dwelling unit, and/or income from a business established in such a project is 5 to 50 times the subsidized mortgage payment being paid by the family, government programs might well look into capturing a return in some proportion to the investment they made in developing the project and certainly capturing a return if land sales take place. One has only to observe the process of distributing lots to beneficiaries of government housing projects to appreciate the land development knowledge and expertise that the new owners exhibit. Land development is the best game in town for low income families.

In the case of provision of public services, by the nature of most low income housing development in urban areas, the communities are established before there is adequate provision of water and sewerage systems, paved streets, public transportation, education and health facilities, telephones, etc. A long process then ensues through legal, political, and administrative channels to bring these services to the community, unless the settlements themselves attempt to provide these services. As reflected by major development loan commitments of international and national agencies, provision of such services is perceived to be a high priority by

governments and dwellers although few studies have been done examining settlement origin, development patterns, and the provision of services by the public sector. Such services are generally part of public sector housing programs for low income families, often provided at the most minimal of levels. In summary, continued growth and development of settlements is dependent on their inclusion into the urban network of services.

Construction costs were briefly mentioned in the preceding section, and some further comment is necessary. In the final analysis, almost all low income housing development, irregardless of submarket origin (with some exceptions in the commercial area) is dependent on construction materials purchased on the open market. Without those materials, construction stops and the services offered by the building of additional rooms do not come into being. Sites and services housing programs remain just that if construction materials are not available at affordable prices; a project being designated "self-help housing" does not ensure continued development if construction materials are absent.

The production and distribution composition of the construction materials market in Bogotá has maintained a fairly constant output over the last decade. Housing policies which would greatly increase the production of middle and upper income housing would appear to have as one effect the lowering of construction activity in the low income family settlements through raising construction material prices and lowering availability. It is not clear if increases in income to construction labor are spent on housing services or on other necessities (food, education, health care, etc.). This is a small segment of employment force; investment by construction labor wage earners is only a small percentage

of the approximately 45 percent of all households in Bogotá that have developed housing in an evolutionary manner. As in the case of land, the access to construction materials at costs which allow the low income family to invest in construction on a short term basis is essential.

Finally, the decision to create, develop and maintain a dwelling as part of a community development process is an issue that should be subjected to further study. It is important to point out that a clear decision is made on the part of the settlement dweller to not only provide shelter for his (or her) family, but also maximize the opportunity that this investment offers in Bogotá where housing and other goods and services are almost exclusively provided through the free enterprise system. The question one could pose would be if those low income families who now directly assume responsibility for provision of shelter and basic consumer goods and services (sometimes including public services through clandestine utilization) assume as obligation or fact that a particular political ideology or administration should and/or will (whether or not they could) provide those services, what would be the effect on evolutionary housing activity? First generation Bogotanos will soon comprise 50 percent of settlement population and will one day seek shelter but perhaps demand more. Their values, experiences, and orientations could be much different from their migrant fathers and mothers. Alternatives of promise may overshadow the alternative of necessity migrants have chosen.

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