THE WAGES OF MODERNIZATION: A Review of the Literature on Temporary Labor Arrangements in Brazilian Agriculture*

William S. Saint
The Ford Foundation

INTRODUCTION AND BACKGROUND

In two decades, Brazil has shed the image of a stagnant agrarian state and emerged as one of the world's largest agricultural exporters. The price of this metamorphosis has come high: land, resource, and capital concentration; massive rural-urban migration; shortfalls in domestic food supply; and ecological deterioration along the expanding agricultural frontier. Major transformations in the structure of agricultural production have accompanied these changes, and they have led to new patterns in the organization of agricultural work and associated social relations in production. Perhaps the most visible social product of agricultural modernization has been the temporary wage laborer, known commonly in Brazil as the *boia fria*.[1]

In recent years the boia fria phenomenon has received considerable attention from Brazilian social scientists concerned with understanding rural development processes. The following discussion traces the development of conceptual thinking and empirical investigation concerning temporary wage labor in Brazilian agriculture and reviews existing literature on the subject, much of which is poorly disseminated outside Brazil.

One of the first studies of boias frias (Bombo and Brunelli 1966) described this rural worker as follows: "a person of periodic employment and informal work relations, who lives outside of the farm on which he works, usually in the urban periphery of nearby towns or cities." Later definitions, benefitting from greater understanding of this

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phenomenon, qualified or expanded this characterization (e.g., Vassimon 1969, Gonzales and Bastos 1975). The definition used here will be the synthesis offered by Gomes da Silva (1975):

> . . . a salaried rural worker residing outside the agricultural property, generally in the urban periphery of nearby towns or cities, who may or may not be properly registered so as to receive labor legislation and social security benefits; who is paid on a piecework, task-completed or daily basis; and who generally travels some distance each day to his place of work, usually by truck. (P. 8)

A principal distinguishing feature of the boias frias is that they are frequently agricultural workers with urban residence. This characteristic, also noted in similar studies in other countries (e.g., Dotson and Dotson 1978, Wilkinson 1963), has led some researchers to label this social group as "rurban" (Gonzales and Bastos 1975, p. 12) and note the "de-ruralization" of the agricultural labor force (Brant 1979, p. 33).

Agricultural modernization processes in Brazil have perhaps had their most profound impact in the state of São Paulo, and much of the existing research on boias frias is specific to that state. This research interest was stimulated in part by Maria Conceição D'Incão e Mello's landmark study, *The Boia Fria: Accumulation and Misery* (1975), which represents the first major attempt at combining historical and field investigation of rural day laborers. It remains the most comprehensive single reference on the subject.

Focusing primarily on the impoverished Alta Sorocabana region of São Paulo, D'Incão e Mello describes the historical transition from an agricultural production system based largely on coffee to one in which cattle raising and commercial cotton cultivation predominate. As a result of this transition, organization of the production system also changed. Patron-client relations between landowners and resident tenant farmers (called *colonos*) were gradually replaced by an increasingly capitalist agriculture based on mechanization, modern inputs, and temporary wage labor. Temporary labor was especially employed during periods of peak labor demand at cotton harvest, which requires much greater timeliness of execution than the traditional coffee gathering.

This substitution process occurred over a forty-year period between 1930 and 1970. As the configuration of coffee plantations with their associated subsistence tenant-farmer labor force was substituted by the relatively less labor-intensive systems of cattle and cotton, rural residents were forced to seek employment in nearby cities and towns, thereby removing them from on-farm productive activity and contributing to the growing marginal population in urban areas.[2] Because of the large number of ex-rural unemployed and the cyclical high demands for labor, rural landowners found it economically more advantageous to transport day laborers from the towns to the farms than to maintain a

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resident on-farm work force with its corresponding costs of required labor legislation benefits, land for subsistence production, and various in-kind payments (e.g., firewood, foodstuffs, housing, etc.). In consequence, the boia fria emerged as an identifiable social group, working sporadically according to the demand for his or her service, often receiving less than the minimum wage.[3]

As the number of boias frias increased, the composition of the rural work force changed (Graziano da Silva and Gasques 1976, p. 6). During the 1964–75 period, the absolute number of nonresident rural workers increased by almost 44 percent while the overall rural population declined by one third. In consequence, the proportion of nonresident workers in the agricultural labor force expanded from 16 percent to 36 percent. It is noteworthy that by 1975 the boias frias represented one fourth of the population economically active in São Paulo agriculture.

The specific causes of the rural social change processes that have led to the emergence of the temporary day laborer have been variously suggested to include capitalist penetration of agriculture, changing agricultural land-use patterns, increased seasonality in the demand for rural labor, and revised labor legislation governing rural workers. These occurrences are obviously not unrelated and will be discussed more extensively below.

There are currently an estimated six million boias frias in Brazil (Gomes da Silva 1975, p. 16). During the agricultural year, this number fluctuates by up to 15 percent due to the seasonality of labor demand (Graziano da Silva and Gasques 1975). A perhaps generous estimation, this number also represents as much as 39 percent of the Brazilian population that is economically active in agriculture. This proportion varies considerably by region, of course, as suggested by tabulations carried out by Gonzales and Bastos (1975), which are reproduced in table 1. The assumption here is that the large bulk of urban residents who are economically active in agriculture work as boias frias.[4]

The demand for temporary wage labor in agriculture is highly seasonal. When labor demand peaks and wages rise, work groups expand to include persons normally underemployed in the urban economy, including women and children (Lange, Bellotto, and Bastos 1977; Barros and Urban 1977; and Graziano da Silva 1977). Indeed, children under the age of fifteen working as temporary wage laborers represented 9 percent of boias frias, and 3 percent of the total population economically active in São Paulo agriculture in 1975 (Graziano da Silva and Gasques 1976).[5]

While data on children's contributions to agricultural production are sketchy at best, there is some evidence that the number of children in the Brazilian agricultural labor force has expanded in recent years

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TABLE 1 *Population Economically Active in Agriculture in 1970 according to Rural or Urban Residence, for Selected Brazilian States*

State	*Urban*	%	*Rural*	%	*Total*	%
Pernambuco	100,279	13.1	664,440	86.9	764,719	100
São Paulo	346,896	26.6	954,934	73.4	1,301,830	100
Paraná	105,780	7.4	1,333,058	92.6	1,438,838	100
Goiás	76,134	14.5	447,983	85.5	524,117	100

Source: Gonzalez and Bastos (1975), p. 11.

(Martins 1978). During the 1970–75 period, the number of agriculturally employed women and children in the Brazilian Northeast increased by 7 percent (Rezende 1978, p. 13; author's calculations based on 1975 census data). In the same span, overall child labor participation in São Paulo agriculture grew by 21 percent. Concomitantly, the absolute number of children in the boia fria brigades tripled during these years from 11,814 to 33,220 (Antuniassi 1980).

These descriptive studies have only begun to probe the causes of increased on-farm child labor use. Economic advantage has been offered as the principal explanation, since children's wages are generally half of adult rates. However, this interpretation could be enriched by a fuller consideration of household survival strategies in the context of deteriorating terms of exchange for rural workers, and associated migration patterns that attract young adults from the farm family work force into unskilled urban employment.

Women represent a larger proportion of the agricultural work force than do children (Guimarães 1978), and they participate actively as temporary wage laborers. In her well-known study of a women's rural labor gang, Verena Martinez-Alier (1977) notes that these women work outside the home because their husbands' salaries are insufficient to sustain the family. This situation is largely the result of the family's rural-urban migration. Whereas previously these women participated in subsistence agricultural production as an extension of their domestic activities, this is no longer possible in an urban environment. As a family survival strategy, the principal recourse is the "sale" of women's labor power along with that of the men.

The difficulty faced by urban families in sustaining themselves on one salary is clearly registered in Oliveira's empirical study (1978) of boia fria family survival strategies, which to my knowledge is the only existing example of this methodological approach. Of 194 families interviewed, 78 percent contained two or more working members. One result of increased formal employment by women was found to be a change in reproductive behavior in favor of smaller families.[6]

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In many cases, the boia fria—man or woman—literally sells his or her labor to the highest bidder on a daily basis. At strategic collection points in the urban periphery of rural cities or towns, predawn labor "auctions" fill local needs for temporary labor. Labor gang bosses, known as *gatos* or *turmeiros*, recruit the day's work group, basing their choices—to the extent possible—on strength, reliability, productivity, and passivity. The workers, on the other hand, circulate among the gatos in the effort to compare wages offered and the type of job to be done. The choices are quickly made and by dawn the pick-up and flat-bed trucks full of boias frias are on their way to the farm where that particular day's work will be done.

The average work day lasts twelve to fourteen hours, including a lunch break and transportation time of two to three hours. Payment is made on a daily, task-completed, or piece-work production basis. The latter system, called *empreitada,* is preferred since it reduces supervision costs and increases work intensity. Although boias frias tend to earn more on a daily basis than do permanent residents or tenant farmers (including in-kind payments), the intermittency of their employment means that they earn less on an annual basis, hence explaining in part the employer's preference for temporary wage workers (Gonzales and Bastos 1975).

The labor gang boss is linked to the farm employer through one of several different social relationships. He may be the permanent employee of a larger farm who is responsible for recruiting labor. Or he may be simply a truck owner who charges workers a "fare" to transport them to a work site where, upon arrival, they negotiate directly—and at a disadvantage—with the employer. Most often, however, the gato is a labor contractor who agrees to provide a service to the employer for a set fee and then recruits the labor necessary to carry out the task. The gato's earnings derive from the difference between the fee he receives and the payments he must make to the workers. This amount generally represents between 10 and 30 percent of the contract payment (Graziano da Silva and Gasques 1976).[7]

Recent investigation has ascertained that the temporary and transient nature of these work groups is not nearly as pervasive as originally thought. In a number of cases, the work group has been found to be quite stable. In these "fixed" groups (called *turma firme*), a constant core of laborers may work together regularly for the same gato, and often on the same farm, for a year or more (Barros and Urban 1977, Gomes da Silva 1977, Martinez-Alier 1977). At times of peak demand, this core group is augmented through the incorporation of friends or relatives.

Current research has also documented the limits of boia fria participation in the overall temporary wage labor force. In São Paulo, for example, the number of boias frias grew rapidly during the 1960–66

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period. However, after 1966 the total number remained relatively constant, although the proportionate representation of boias frias in the agricultural labor force continued to rise as the result of sharp declines in the number of resident workers (*camaradas*), tenant laborers (*colonos*), and sharecroppers (*parceiros*) (Graziano da Silva 1977).[8]

At the same time, it has become increasingly clear that many of the temporary wage laborers in agriculture are either underemployed or seasonally unemployed members of small farm families (Moura 1978, Wanderley 1978). An extensive field survey of small farmers in the states of São Paulo and Minas Gerais ascertained that temporary wage work contributed approximately 40 percent of annual family income (FIPE 1975). A smaller survey of family farms in the Reconcavo region of Bahia indicated that many household members engaged in supplemental wage labor, generally for periods of six to fifteen weeks a year (Saint 1977b, p. 164). These findings have forced a rethinking of earlier interpretations of the boia fria as a transitory social phenomenon within a broader process of rural proletarianization. Indeed, in the face of agricultural modernization, increased use of all types of agricultural wage labor, and major structural changes in rural areas, the Brazilian small-family farm (*minifundia*) has demonstrated itself to be remarkably resilient and adaptable (Graziano da Silva 1978b, Brant 1979).

The continued and increasingly detailed study of temporary wage labor has demonstrated that the boia fria is not the homogeneous group it was once thought to be. In fact, at least one effort has been made to develop a typology of these workers. Graziano da Silva (1978a) distinguishes three main subgroups: (1) the permanent boia fria who works virtually the entire year, generally as a member of a fixed group; (2) the sporadic boia fria—often minors, women or the aged—who works one or two months a year during periods of peak demand; and (3) the intermittent boia fria, who periodically shifts between rural and urban employment depending on available job opportunities.

At this point, it should be noted that many of the above studies have relied on secondary data sources that have certain limitations. The most commonly used sources are the Instituto de Economia Agricultura (IEA) in São Paulo, the Instituto Nacional de Colonização e Reforma Agraria (INCRA), and the Instituto Brasiliero de Geografía e Estatistica (IBGE). The IEA conducts a yearly sample survey of approximately 5,500 farms stratified by farm size. These data are then extrapolated to form a distributional configuration for all farms in the state. This procedure creates two difficulties. First, once-a-year sampling does not provide much basis for assessing important seasonal variations in temporary labor use; second, the extrapolation process occasionally creates sampling errors that surpass 20 percent (Antuniassi 1980). In contrast, the INCRA and IBGE data avoid the sampling issue since they are national

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censuses. However, they do not resolve the seasonality problem since they are conducted only at five-year intervals. Furthermore, even though these intervals are staggered (INCRA in 1967 and 1972; IBGE in 1970 and 1975), definitions of the sampling unit are sufficiently dissimilar so as to make comparison difficult (Graziano da Silva 1978b).

Very little effort has been made to check the quality and reliability of data on temporary wage labor from these sources. While many researchers have used this information without qualification, there are important exceptions (e.g., Graziano da Silva, Brant). Probably no more than a fifth of all boia fria studies are field based, and many of these employ more qualitative than quantitative methods. Where interview surveys have been used, the sample size—frequently limited by the availability of research funds—has often been questionably small. However, these limitations have not prevented researchers such as D'Incão e Mello (1975) and Martinez-Alier (1977) from making imaginative use of small surveys in conjunction with other methodological approaches. Unfortunately, the ambitious and potentially rich analysis of boias frias in Paraná, concluded in 1979 and based on some twelve hundred field interviews by the Instituto Paranaense de Desenvolvimento Economico e Social (IPARDES), is still not available publicly.

A number of studies have commented on the living conditions of boias frias (e.g., Bombo and Brunelli 1966, Santos 1972, D'Incão e Mello 1975). They note that the work day varies from ten to fourteen hours, that the large majority of workers are illiterate, that health problems are constant and frequently severe, and that most workers' families live in a three- or four-room shack that they do not own. Additionally, nutritional shortcomings are widespread and occasionally reach levels considered to be clinically deficient (Angeleli, Vannuchi and Dutra de Oliveira 1978). Salaries are consistently below the legislated minimum wage (Graziano da Silva and Gasques 1975), and women are routinely paid less than men (Martinez-Alier 1977, Saint 1977a, Guimarães 1978). Political participation is very low; one study found that almost 80 percent of boias frias interviewed had not voted in the last election (Santos 1972). In short, the boias frias constitute a socially marginalized group, which relies on strategies of multiple unskilled rural and urban employment trade-offs for its survival and social reproduction (Brant 1977).

EXPLANATIONS OF THE BOIA FRIA PHENOMENON

Early studies of temporary wage labor in agriculture tended to explain (and almost assume) the emergence of this new social group as the result of capitalist penetration of the countryside (D'Incão e Mello 1975, Gonzales and Bastos 1975). Viewed generally from a Marxist-oriented

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perspective, the boia fria was seen as the natural consequence of this process, a transitional social phenomenon arising from longer-term movements towards rural proletarianization and the creation of a reserve labor pool for industry. In many cases, however, little effort was made to investigate the extent to which changes in rural labor relations were in fact related to increased capital investment and technological innovation.[9]

An additional shortcoming of this literature has been its rather persistent failure to frame rural proletarianization in Brazil within the context of larger historical and international processes. Martins' (1979) careful analysis of tenant laborers (colonos) in the São Paulo coffee industry provides one positive example of such an approach. The study explores effectively the emergence of the colono worker group in relation to local economic development needs and associated patterns of foreign immigration. What is needed, however, are similar endeavors that relate the boia fria to broader patterns of national and international development, and make explicit efforts to develop a comparative understanding of the boia fria phenomenon in light of relevant rural proletarianization experiences from other Latin American settings.

Later studies rectified, at least in part, these earlier omissions and provided greater understanding of the factors that served as catalysts for the appearance of the rural wage laborers.[10] Principal among these have been: (1) technological modernization and concomitant increases in the seasonal variation of demand for agricultural labor; (2) changing cropping patterns and associated shifts in labor requirements; and (3) labor legislation applied to rural workers and represented primarily by the Estatuto do Trabalhador Rural (Statute for the Rural Worker). Each of these factors, not unrelated to the broader process of capital penetration in the countryside, will be discussed in turn below. It should be noted, however, that to date there has been little attempt to weight these variables. The extent to which one is deemed more important than another in provoking this process often seems to reflect personal biases of the authors rather than any clear understanding of causal sequence.

Technological Modernization. Technological modernization in agriculture has been used frequently as a primary indicator of increased capitalization in rural productive processes. The most common measures of technological modernization have emphasized changes in tractor use, fertilizer application, and employment of pesticides (e.g., Brant 1977). The extent of these changes has been summarized in a major study of temporary wage labor in São Paulo agriculture conducted by the State Secretariat of Planning (State of São Paulo 1978).[11] It notes that between 1950 and 1970 the number of tractors in São Paulo increased eighteen-fold from 3,819 to 67,312. Similarly, average fertilizer use per hectare grew from 28.4 kg during the 1961–65 period to 72.9 kg in 1970,

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and expenditures on pesticides by farmers (measured in constant prices) quadrupled between 1950 and 1970.

The expansion of agricultural credit has been a major stimulus to technological modernization. In recent years Brazil has expanded agricultural credit in an effort to finance its costly petroleum purchases by increasing agricultural exports. Between 1955 and 1975, the number of agricultural loans in São Paulo mushroomed from 20,602 to 418,933. At the same time, the value of the average loan provided for the purchases of farm tools and machinery increased five-fold from 1970 to 1975 (State of São Paulo 1978, pp. 120, 148).[12]

Finally, a further indicator of capitalist penetration of rural areas might be the proportion of farm production that is sold, thereby suggesting the extent to which agricultural production is primarily a subsistence activity. Between 1967 and 1972, this proportion in São Paulo increased from 72 percent to 81 percent, thus supporting the notion that agricultural production has become more commercially oriented (Graziano da Silva and Gasques 1976).

To date, capitalist penetration notions have been framed largely in terms of evolving modernization processes on medium and large farms. Attention to the employment consequences springing from increased use of purchased production inputs has tended to overshadow the emergence of new organizational forms for production, i.e., agro-industry. Designed to produce specific export items (and more recently energy crops), agro-industrial enterprises are less tied to local markets and tend to locate in regions where land and labor costs are lower. Consequently, they often create a demand for wage labor that considerably surpasses previous regional requirements. This phenomenon has been particularly observable in the Brazilian Northeast where agro-industrial expansion, often focusing on the production of citrus and other tropical fruits, has generated poorly understood pressures on local production systems. The socioeconomic effects of this expansion process—greater use of wage labor, rural out-migration, reduced regional food supply, declining nutritional status—have been widely hypothesized but not generally confirmed.

Changing Cropping Patterns. Changing cropping patterns and associated shifts in labor requirements have accompanied technological modernization and the massive infusion of agricultural credit. Agricultural land use patterns in São Paulo have suffered major modifications. Between 1968 and 1973, the area planted in subsistence crops (rice, beans, cassava, etc.) fell by 28 percent, the area planted in semi-subsistence or "transitional" crops (corn, peanuts, coffee, bananas, etc.) declined by 13 percent, and the area planted in export or "modern" crops (cotton, sugar, oranges, soybeans, tomatoes, etc.) surged by 53 percent (Gasques and Valentini 1975). During the same period, cattle-

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raising also increased, in part supplanting areas that had previously produced coffee. In the major coffee producing states of São Paulo and Paraná, for example, pasture land replaced 27 percent and 40 percent, respectively, of coffee lands cleared through a government eradication program (Graziano da Silva and Gasques 1976, p. 28).

The expansion of export and industrially oriented crops is directly related to favorable biases in agricultural credit programs and agricultural policy generally. As illustrated in table 2, between 1970 and 1975 certain São Paulo crops received major credit allocation increases: soybeans (2,302%), sugar cane (1,026%), rice (859%), and citrus (712%). Over the same period, the total value of agricultural production credit (*custeio*) for cattle-raising soared to 20 times the original level. These trends were also generally observed for Brazil as a whole. However, it is noteworthy that São Paulo received roughly half of the nation's cotton credit in both years and the average value of São Paulo sugar-cane loans increased much more rapidly than those nationwide. Since cotton and sugar cane are among those crops with the highest seasonal demand for labor, the dynamic growth and concentration of credit for these crops in São Paulo may explain in part why the boia fria phenomenon has been particularly characteristic of São Paulo agriculture.

One effect of changing land use patterns has been a general decline in the regional demand for agricultural labor. Cattle-raising requires only 14 percent of the labor that coffee production does, and under current systems of production export crops are generally less labor intensive than subsistence crops. In consequence, the number of persons economically occupied by agriculture declined in São Paulo between 1964 and 1975 from 2 million to 1.3 million, even as the total amount of agricultural land expanded (Graziano da Silva and Gasques 1976, p. 36). Many of these persons migrated to nearby towns where they oscillate between urban and rural employment.

A second major effect of changing land use patterns and concomitant modernization has been increased seasonal variation in the demand for agricultural labor. Under traditional production systems, labor utilization is higher and more constant during the agricultural year. The introduction of machinery and herbicides tends to reduce the labor requirements for soil preparation and planting and subsequent cultivational practices. However, these techniques, when coupled with fertilizer use, generally increase yields and therefore augment the labor requirements for harvest. The result is greater seasonal variation in labor demand (Graziano da Silva 1978a). From the producer's standpoint, the most economically efficient response to this variation and associated possible labor bottlenecks at harvest is the use of temporary wage laborers.

As export and industrial crops have replaced subsistence crops,

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TABLE 2 *Agricultural Loans for Production Credit* (Custeio) *in São Paulo and Brazil, by Economic Activity: 1970–1975*

	São Paulo					
	1970			*1975*		
	No. of Loans	*Value* (Cr $1,000,000)*	*Average Value (Cr $1000)*	*No. of Loans*	*Value* (Cr $1,000,000)*	*Average Value (Cr $1000)*
Cotton	24,439	262.8	10.8	13,967	736.4	52.7
Peanuts	14,823	67.4	4.5	12,662	231.0	18.2
Rice	7,998	60.8	7.6	12,858	583.3	45.4
Coffee	30,094	336.3	11.2	38,934	1,569.3	40.3
Sugar Cane	5,655	128.3	22.7	5,940	1,445.1	243.3
Beans	1,041	4.8	4.6	3,238	58.2	18.0
Corn	29,575	243.9	8.2	34,512	1,361.9	39.5
Soybeans	974	29.4	30.1	4,665	706.1	151.4
Citrus	24,522	188.9	7.7	37,899	1,533.6	40.5
Cattle	6,409	65.9	10.3	23,262	1,381.1	59.4
	Brazil					
Cotton	96,342	482.2	5.0	69,496	1,737.9	25.0
Peanuts	23,550	98.3	4.2	15,401	269.2	17.5
Rice	68,432	522.3	7.6	120,934	6,475.4	53.5
Coffee	74,270	837.8	11.3	100,381	3,541.3	35.3
Sugar Cane	14,239	345.0	24.2	22,844	3,952.1	173.0
Beans	21,230	91.2	4.3	32,889	519.0	15.8
Corn	136,763	586.2	4.3	157,238	3,964.7	25.2
Soybeans	26,846	187.5	7.0	69,577	6,412.7	92.2
Citrus	61,198	335.3	5.5	259,370	8,248.7	31.8
Cattle	29,513	294.0	10.0	152,661	7,386.9	48.4

Source: State of São Paulo (1978, p. 149).

*In 1971 constant prices.

the value of agricultural production per unit of land has increased. At the same time, agricultural credit programs have also increased the demand for agricultural land. As a result of these processes, prices for agricultural land have risen at extraordinary rates. In São Paulo, for example, between 1969 and 1976, the price of both arable land and pasture land quintupled (State of São Paulo 1978, p. 135). Rising land prices have induced many small holders to sell their plots and relocate in the Amazon or neighboring Paraguay—in which a reported 150,000 Brazilians now reside—where land sale earnings permit the purchase of larger properties. Many others, of course, migrate to nearby urban

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centers where their cash reserves are rapidly exhausted, forcing them to seek employment as unskilled laborers in the town and surrounding countryside.

These land price increases also have contributed directly to the substitution of temporary wage laborers for resident farm workers. As land values climbed, it became cheaper for the employer to pay workers a cash wage, so that they could purchase their food in the market, than to provide the time and land necessary for them to produce their own food (Singer 1975, Brant 1977). Similar processes of credit-fueled land concentration, crop substitution, shifting labor demand, and rural out-migration have been observed in the Northeast state of Bahia (Saint and Goldsmith 1980).

Labor Legislation. The Estatuto do Trabalhador Rural (ETR), signed into law in 1963, subsequently modified and increasingly enforced, established for the rural laborer a series of rights and guarantees identical to those received by urban workers. The more important of these include receipt of minimum wage, annual paid vacation, a 48-hour work week, severance pay in case of dismissal, retirement pension, and a number of medical and other social welfare benefits (Rossini 1977, Chiarelli 1976). At the time these rights were established—and afterward—most rural employers did not comply with these requirements, especially those concerning salary, vacation, severance pay, and the work week. As enforcement of this legislation became more effective,[13] a corresponding strong tendency was observed on the part of the employers to reduce their resident labor force (and consequently their legal obligations) and increase the use of temporary wage laborers contracted through the gatos. Under this arrangement, the gato rather than the farm owner is directly responsible for compliance with the ETR legislation. However, given the transience and tenuousness of employment in many boia fria work groups, violations and noncompliance have been exceedingly difficult to prove.

Under these conditions, researchers have been quick to note that, from an employer's perspective, the boias frias have certain economic advantages over other forms of employment (Gonzales and Bastos 1975, Graziano da Silva and Gasques 1976, Gasques and Gebara 1977). While temporary wage workers can earn more than resident workers at a daily rate, they earn much less on an annual basis. The move to temporary labor thus results in considerable savings to the employers since in-kind payments to resident workers may represent as much as 27 percent of their income, and compliance with labor legislation increases labor costs by a further 27 percent (Gonzales and Bastos 1975). Thus, depending on the agreed conditions under which the resident labor force is maintained on the farm, the switch to temporary wage labor can result in savings to the employers of 10 to 30 percent. However, very little systematic effort

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has been made to check these perceptions directly through the analysis of farm accounting, and of owner decision-making processes and their rationale for these changes.

Considerable attention has been given in the literature to the role of the ETR in the formation of the boias frias and to possible legislative solutions to the problems that they confront. A variety of legal violations have been documented, as well as the boias frias' almost total lack of access to judicial process (Passos and Aranha 1975, Graziano da Silva and Passos 1976). Suggested legal responses have included the formation of labor cooperatives, greater control of gatos and registration of temporary laborers, and land reform (Gomes da Silva and Pinto 1976). At the same time, however, it has been noted that the application and enforcement of existing legislation would probably resolve most of the identified problems (Federação dos Trabalhadores na Agricultura do Estado do Paraná 1976).

CONCLUDING OBSERVATIONS

The appearance of the boia fria in certain regions of Brazil should not suggest that the country's rural labor force is being transformed into a large mass of free-floating wage workers. Rather, it appears that the boia fria has emerged in response to particular region-specific changes in the structure of agricultural production. To the extent that these changes are replicated in other areas, the total number of boias frias may increase, but limits on the seasonal fluctuations of labor demand suggest that this number is not likely to surpass the 25 percent proportion of the labor force that it now constitutes in the more developed agricultural areas of Brazil. However, further understanding of specific agricultural development contexts and associated local agro-social change processes in regions outside São Paulo—particularly the Northeast, the Amazon and the central west *cerrados*—will be necessary to substantiate this observation.

The extent to which the boias frias represent a fully independent rural proletariat may also be questioned. Reinforcing the need for comparative local studies on temporary wage labor, Goodman (1977, p. 25) notes the difficulty of distinguishing free and dependent socioeconomic relationships between employer and worker, and suggests that "aggregative data on wage employment are unlikely to provide reliable measures of rural proletarianization." Although Goodman's remarks refer to the Brazilian Northeast, some of the recent São Paulo research suggests their possible relevance for that region as well. Further study of the turma firme, for example, might prove enlightening in this regard. The existence of stable work groups that are employed the year around on a single farm implies that employer-worker relationships may be more than purely economic. Similarly, the portion of boias frias comprised by

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sporadic laborers—usually women and children not regularly in the job market—is hardly consistent with traditional conceptions of a rural proletariat.

At the same time, complementary lines of investigation might serve to further understanding of the particular circumstances that engender and sustain temporary wage laborers as an identifiable social group. Since these workers also have the option of seeking urban employment—and indeed some of them do on a periodic basis—the degree of articulation between urban and rural labor markets might be explored profitably. In this context, there is a need to comprehend the boia fria phenomenon in relation to the broader dynamics of Brazilian economic policies. For example, trade policies may favor export crops over domestic food production, and exchange-rate policies may result in overvalued currencies that implicitly tax the traditionally export-oriented primary sector. Such policies tend to turn the terms of trade against agriculture, and their negative interaction effects have the strongest impact on the smaller farms. Rural labor generally bears the brunt of this implicit tax burden in the form of limited returns and low wages.

Greater attention to sex and age differentials among temporary agricultural laborers might assist in the comprehension of evolving family survival strategies within low-income populations, which have been severely pressed by the growing income inequities of recent years. Family budget and life-cycle analysis could well generate enlightening information on this subject.

Very little research has been done on temporary wage laborers' own view of their history, their personal ideologies, and their potential for mobilization through cooperatives, rural unionization, or political movements.[14] This topic is particularly important in Brazil's current political setting. Recent political party restructuring, greater tolerance of divergent opinions, and growing rural social tensions have combined to produce a resurgence of rural political and social mobilization activities unequalled in over a decade.

Finally, the role of basic infrastructure development, primarily roads, in creating the preconditions for both capital-intensive agriculture and the use of urban-based farm laborers might be fruitfully explored. Since many integrated rural development projects place heavy emphasis on infrastructure, there may be an association between such efforts and the expansion of wage labor use in agriculture.

It is difficult to judge the degree to which the boia fria may represent a transitory social phenomenon in the history of Brazilian agricultural development. As long as rural wages remain low—currently $2.00 to $4.00 per day—it seems unlikely that mechanization will replace the boia fria.[15] If, however, future government social and economic policies address productively the structural problems of rural income inequality,

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enhanced rural incomes could raise the cost of labor to the point where mechanized substitution of labor might occur on a large scale. Under these circumstances, the large bulk of boias frias could well pass from sporadic employment to chronic unemployment.

Social and economic policies under the administration of Brazil's president, Gen. João Baptista de Figueiredo, who took office in March 1979, appear unlikely to cause any major change in the social conditions under which the boia fria lives and works. Nevertheless, some new developments may be forthcoming. Outgoing Minister of Labor Arnaldo Prieto noted that efforts are underway to organize boias frias into labor cooperatives that would permit workers to negotiate directly and collectively with employers. At the same time, effective means of incorporating boias frias within the rural labor unions are also under discussion.

In this setting, a significant government initiative was launched in 1979 in the effort to create a political opening and "redemocratize" the country. This undertaking has created a less repressive political environment in which organized labor can begin to articulate class-based demands for wage adjustments and improved working conditions. For example, a wildcat strike by Pernambuco sugar-cane workers in October 1979 was accompanied by petitions for salary increases, household plots for subsistence cultivation, and improved transportation security for boias frias. More recently, in May 1980, agricultural workers in the newly established coffee area of Bahia initiated a strike in an effort to obtain a $4.00 per day wage, equal pay for women, half-time work for children, overtime compensation, and employer compliance with legislated labor regulations.

Moreover, a government program of limited "agrarian reform" has been launched recently in selective areas of extreme social tension. For example, an Amazon area twice the size of New York state recently was placed under National Security Council jurisdiction with the purpose of effecting localized land reform. Additionally, a number of land redistribution projects for the impoverished Northeast region are now being prepared for World Bank and Inter-American Development Bank funding. In this context, some landless workers are likely to regain access to land, either through distribution of public terrains or local colonization programs.

Greater remedial attention is also being given to disadvantaged rural groups through government activities aimed at improving rural housing, education, and health services. However, Brazil's current economic difficulties limit sharply the resources available for such programs. Consequently, continuing Brazilian dependence on petroleum imports and associated inflation and balance-of-payments pressures suggest that in the short run little more than cosmetic attention will be given to the problems of the country's six million boias frias.[16]

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NOTES

1. Literally translated, *boia fria* means "cold lunch." The term derives from the day laborers' practice of carrying their lunch with them to their work in the field. Temporary wage laborers are also known as *volante, pau-de-arara, pilão, birolo* (São Paulo and Paraná), *clandestino, caatingueiro* (Pernambuco), *avulso* (Bahia), *biscateiro* or *changueiro* (Rio Grande do Sul).
2. In many ways, this is the Brazilian equivalent to the English "enclosure movement" which occurred in the sixteenth century, and is described by Marx (1906, 1:788–805), who notes the substitution of cropped land by pasture for sheep and cattle, the concentration of land ownership, the transformation of common lands into private property, and the creation of a large group of landless wage laborers.
3. In Paraná, a neighboring state of São Paulo, there are an estimated 400,000 boias frias (*Murad,* 1976). There, too, cattle-raising has replaced coffee, causing land concentration, unemployment, and changing labor relations as documented by Maxine Margolis (1973). In other areas of the state, coffee, which requires 96 person-days of labor for each hectare planted, has been replaced by the mechanized cultivation of soybeans and wheat, which require only 9 person-days and 2 person-days of labor per hectare planted, respectively (*Murad,* 1976).
4. The table 1 percentages are only roughly comparable with similar calculations for Mexico (Dotson and Dotson 1978, p. 694), which showed proportions of urban based agriculturalists from 3 to 9 percent in major metropolitan fringe areas.
5. Overall participation of children aged fourteen and under in Brazilian agriculture has been calculated as 16 percent of the economically active population in the primary sector (Brant 1979, p. 38). In one São Paulo study, which interviewed 303 female agricultural workers, over half reported that they had entered the rural labor force before the age of twelve years (Oliveira 1978, p. 41).
6. For a general discussion of women in Brazil's labor force, see Madeira and Singer (1975).
7. In exceptional cases, the labor gang boss may be a woman. See Gomes da Silva (1977).
8. For discussions of recent changes in rural social relations that focus directly on these differential groups, see Antuniassi (1976); Oliveira Neto (1977); Stein, Medeiros, and Garcia (1977); Sallum Junior (1978); and Brant (1979). For an extensive quantitative description of these groups for Brazil as a whole, see Graziano da Silva (1978b).
9. For a critique of the early boia fria literature that emphasizes this point, see Goodman and Redclift (1977).
10. Much of the debate on the boia fria phenomenon, as well as many of the studies cited here, occurred in the ongoing forums provided by the annual conferences on agricultural wage labor held at the Universidade Estadual Paulista Julio de Mesquita Filho, located in Botucatu, São Paulo, and sponsored by the Departmento de Economia Rural from 1975 to 1980.
11. This project is one of three major research efforts on the theme financed by the Ministry of Labor; it is currently the only one that is concluded and published. The other two are: the Instituto Joaquim Nabuco for Pernambuco State and the Instituto Paranaense de Desenvolvimento Economico e Social—IPARDES for Paraná State.
12. In 1977 total agricultural credit provided in Brazil was approximately $23.5 billion, an amount almost equal in value to the agricultural GNP. Since most of these loans carried interest rates lower than the rate of inflation, the real interest rate was negative. The result is a very sizable social subsidy of the agricultural sector.
13. There are several apparent reasons for increased enforcement. Rural labor unions have become more active in defending workers' rights, especially since they have in many instances come to incorporate union contracted lawyers who provide free legal assistance to union members. Official toleration of these endeavors, and of union activities generally, may be due to efforts to reduce the social tensions arising from extreme income inequality in rural areas, to the declining political influences of rural elites as Brazil becomes increasingly urbanized, and to conscious government efforts to expand the markets for domestic consumer products by providing rural popula-

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tions with guarantees for some cash income and associated increased purchasing power.

14. A partial exception is Sabóia (1978) who analyzes the world views stemming from boia fria survival strategies and the organizational potential inherent in these perspectives.
15. At the present exchange rate, Cr$100 to Cr$200.
16. Brazil presently imports 85 percent of its petroleum needs. Inflation for 1980 was approximately 110 percent. The country's foreign debt is over $54 billion and rising.

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UEPJMF = Universidade Estadual Paulista Julio de Mesquita Filho

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