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## Basic Needs, Distribution and Growth: The Beginnings of a Framework

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ECONOMIC GROWTH CENTER

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CENTER DISCUSSION PAPER NO. 365

BASIC NEEDS, DISTRIBUTION AND GROWTH: THE BEGINNINGS OF A FRAMEWORK

Gustav Ranis

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# Basic Needs, Distribution and Growth: The Beginnings of a Framework

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## I. Introduction

The post World War II era has witnessed significant transition among many LDCs towards modern economic growth. In terms of rates of growth of per capita income, average performance levels have exceeded expectations. It had been assumed that such growth would more or less automatically bring with it improvements in the quality of life of all people in LDCs. This expectation has unfortunately not been fulfilled: large numbers of people remain poor, with high rates of mortality, low life expectancy, chronic malnutrition, illness, and illiteracy.

The reaction to this disappointment has been a movement in national and international planning circles to include quality of life indicators as explicit development goals. Under the name of Basic Needs (BN), this approach has had strong normative overtones. Without an underlying analytical framework, however, a purely normative approach is likely to prove insufficient for well-founded policy proposals. This paper, therefore, provides a suggested framework for a positive, behavioristic approach to BN. Viewing BN as one part of a general economic system, as we do here, helps establish boundary lines for the BN approach, identifies the relations between

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BN and familiar national accounting variables, and points out areas for possible policy intervention. Section II states the BN concept within a general economic system from both a production and an organizational point of view. Section III presents the alternative ways in which various types of BN goods are likely to be allotted to families. Section IV deals with the implications for planning policy and organizational choices.

## II. Basic Needs Within a General Economic System

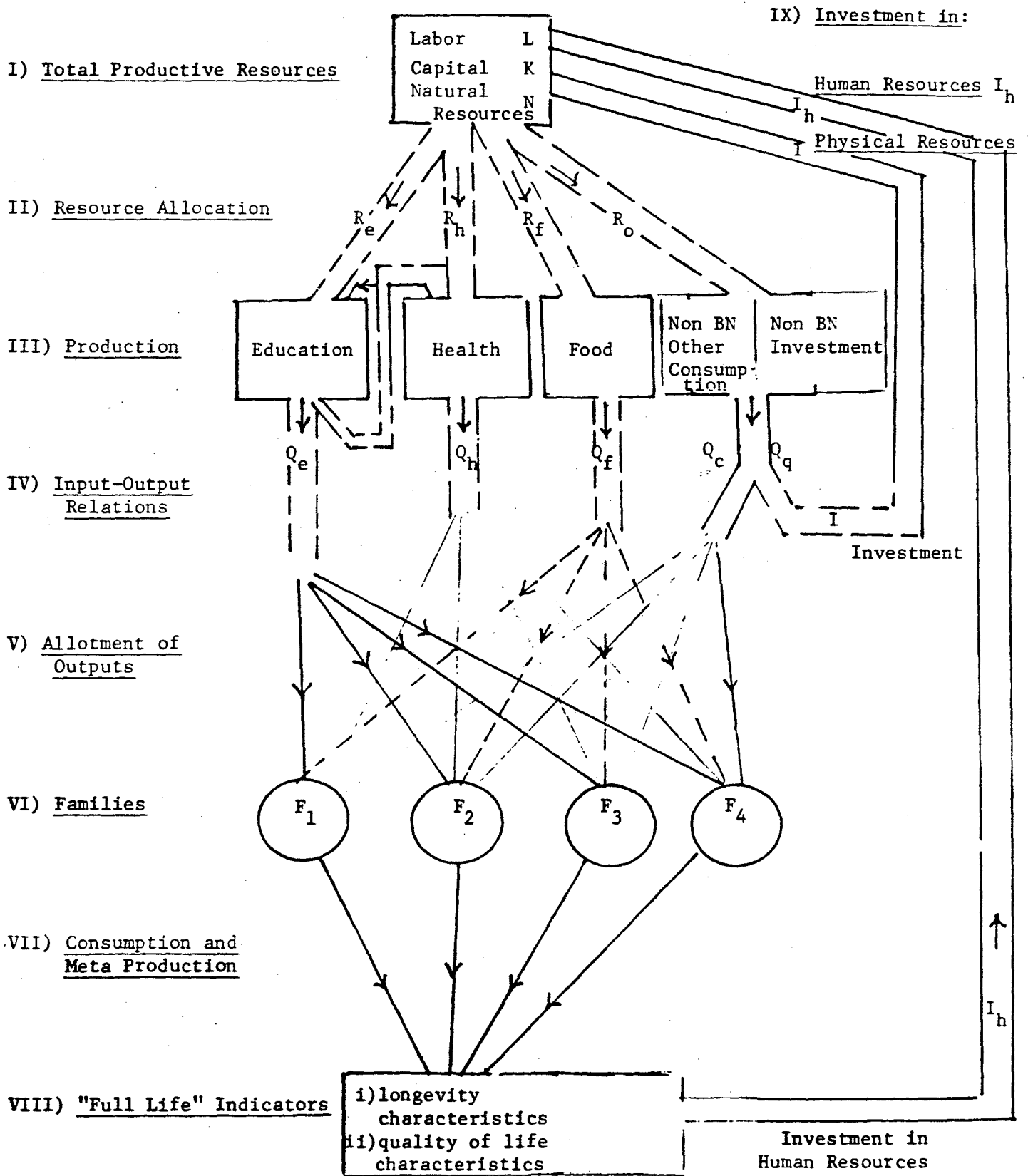
### Total Resources and Resource Allocation

Diagram 1 is a preliminary attempt to consider BN in the context of an entire economic system. The economy's resource endowment is indicated by level I. Various production sectors are postulated, as shown at level III, including BN sectors and "other", non-BN, sectors. During any given year, total productive services are allocated as inputs to the production sectors, such as to education ( $R_e$ ), health ( $R_h$ ), food or nutrition ( $R_f$ ),<sup>1</sup> and "other" ( $R_o$ ). This sectoral representation points out that the BN approach is concerned not only with aggregate production but also with the specific commodity mix, and indicates the basic, inescapable choice of allocating inputs to BN sectors or to non-BN activities. The output of the "other" sector ( $Q_o$ ) is divided into non-BN consumption goods (C) and investment goods (I). The products of the BN sector are education services ( $Q_e$ ), health services ( $Q_h$ ) and food ( $Q_f$ ). More will be said later about

<sup>1</sup>Other BN sectors such as shelter could, of course be added. At the same time the BN sectors ( $R_e, R_h$  etc.) refer only to that portion of the total health and education programs of a society related to BN. Such distinctions may not always be easy to draw in practice but there is no problem conceptually in distinguishing between music education and literacy, for instance.

Diagram 1:

Framework of Basic Needs in a General Economic System



the production of these outputs in the context of particular organizational modes.

#### Family Structure and the Allotment of Output

A society's families, as represented by  $F_1, F_2, \dots, F_4$  at level VI in Diagram 1, represent the basic units or social organization. The composition of these families, including their labor endowment and dependent population, will be taken as given, and for simplicity all families will be assumed to have the same composition. Beyond the output mix encountered at level III, the BN approach is extremely concerned with the equality or inequality of the allotment of  $Q_o, Q_e, Q_h,$  and  $Q_f$  to individual families.

#### The Meta-Production Function and the "Full Life" Indicators

By consuming BN and non-BN goods, families derive benefits. These benefits are conventionally treated in "utility" analysis, but are viewed in the BN approach in terms of what are called "full life" indicators. Though there are two views of these indicators, their level and distribution clearly lie at the heart of the BN approach. One type of full life indicator (see level VIII) emphasizes "longevity" characteristics, such as life expectancy at birth or infant mortality. Another type stresses "quality of life" characteristics like literacy and morbidity. We shall refer to the functional relationship between the allotted pattern of consumption of BN goods and these full life indicators as the meta-production function (see level VII). Formally, if we let  $q_i = q_{ie}, q_{ih}, q_{if}, q_{io}$  represent the consumption pattern

of BN and non-BN goods for family  $i$ , and let  $J = (J_1, J_2, \dots, J_k)$  be a set of  $k$ - full life indicators, the meta-production function represents a mapping  $J = F(q_1, q_2, \dots, q_n)$ . There exist both substitutability and complementarity in the meta-production function, such that there may be various alternative combinations of goods that achieve any defined level of the "full life."

The basic implicit assumption of the BN approach might be that this meta-production function is a stable relation which can at least be approximated empirically. Though there exists some hard evidence on some portions of the function and its characteristics, most portions are, however, only hypothesized about, and many are seldom even made explicit. The production function for food, mentioned at level III, for example, is being studied by economists, though usually only at an aggregate level. With the exception of economic demographers studying the demographic transition, and some education specialists studying functional literacy, economists have paid almost no attention to the meta-production function. Yet we cannot speak of a rational plan for meeting BN requirements without some notion of how the full life indicators flow from the allocation of resources and the allotment of BN outputs. Indeed, the ultimate feasibility--and respectability--of the BN approach is likely to stand or fall with the progress made in understanding the meta-production function.

#### Full Life Objectives and Investment in Human Resources

As mentioned, two views exist on the role of full life indicators in the BN approach. According to one, these indicators represent the ultimate objective of economic activity and therefore require no further

defense as planning goals. Other indicators, such as human rights or the enjoyment of music, are occasionally added to the list to provide added richness, a complication which should, we believe, be avoided at this stage of our understanding of the meta-production function.<sup>1</sup>

According to the second view, improvements in the full life indicators not only are ends in themselves but also feed back positively into the economic system. As represented in level VIII, the indicators constitute investment in human capital in both the quantitative (e.g. life expectancy) and qualitative (e.g., literacy) senses, and so augment the system's productive capacity. In the long run, such feedbacks would also reduce the conflict between current BN goals and some current non-BN but growth-related consumption. It should be noted that these feedback relations pose a whole new set of planning problems. Because they are so difficult to estimate empirically, they must be considered, along with the meta-production function, as weak links in the practical application of the BN approach.

#### National Income and Full Income

Adherents of the "new household economics" have pointed out that the value of output in the monetized sectors of an economy, measured as national income, seriously understates the "full income" of an economy. By omitting parts of the non-monetized sector, such

<sup>1</sup>It is clearly even more difficult, if not impossible, to establish a functional relationship between the intermediate outputs and, say, "the enjoyment of music."



as the output of family members engaged in the household, national income may underestimate full income by as much as 40 percent. Full income is probably the income concept most relevant to the BN approach because of the overwhelming importance of families in BN production. The housewife customarily provides cleaning, cooking, health care, and care for children and the elderly, which activities directly relate to health and nutrition, and is an important agent of education as well. It is, in fact, difficult to name a significant housewife activity whose output does not enter the meta-production function, affecting the full life indicators of the family.<sup>1</sup> We believe that the BN approach must widen its scope to include important non-market oriented activities, ameliorating the deficiencies of conventional income measures and bringing into consideration inputs for BN production which can be increased without decreasing non-BN output.

#### Full Income and the Organization of Production

The resources flow framework of Diagram 1 is institution- or organization-neutral in the sense that the same set of functions (allocation, production, allotment, consumption, meta-production, investment in physical and human resources) must be performed regardless of the broad institutional arrangement (e.g., capitalism or socialism) and the specific organizational devices (e.g., local government or farmers' associations). Having emphasized the

<sup>1</sup>In contrast, the household's contribution to non-BN production is generally quite small.

distinction between national and full income, we can now elaborate on Diagram 1 and consider different types of production organizations as indicated in Diagram 2. All productive resources in the economy, whether privately or publicly owned, are allocated to one of four modes of economic activity: activities in the private market (P), by families (F), by government (G), or by community groups (U) such as farmers' associations or neighborhood associations. Each of these modes contains actual or potential organizations, represented by the boxes at level III, which can produce BN and non-BN goods. Organizations from all four modes may participate in producing the goods shown at level IV. In the health sector, for example, the total output of health services ( $Q_h$ ) may be the sum of the outputs of  $P^h$  (representing private hospitals and clinics),  $F^h$  (family health care),  $U^h$  (communal fly eradication groups) and  $G^h$  (public health and sanitation activities).

#### Output and Organizational Heterogeneity

The variety of organizational forms possible within each BN sector arises in part because the public good attributes of BN goods often induce government and community responses. The public good attributes will be discussed later, but it should be noted at this point that whether or not a good is "public" is logically independent of whether the good is produced by a public organization. The important point to be made here is that certain organizational forms may be especially well suited to the production of certain BN goods, so that many policy issues central to the BN approach

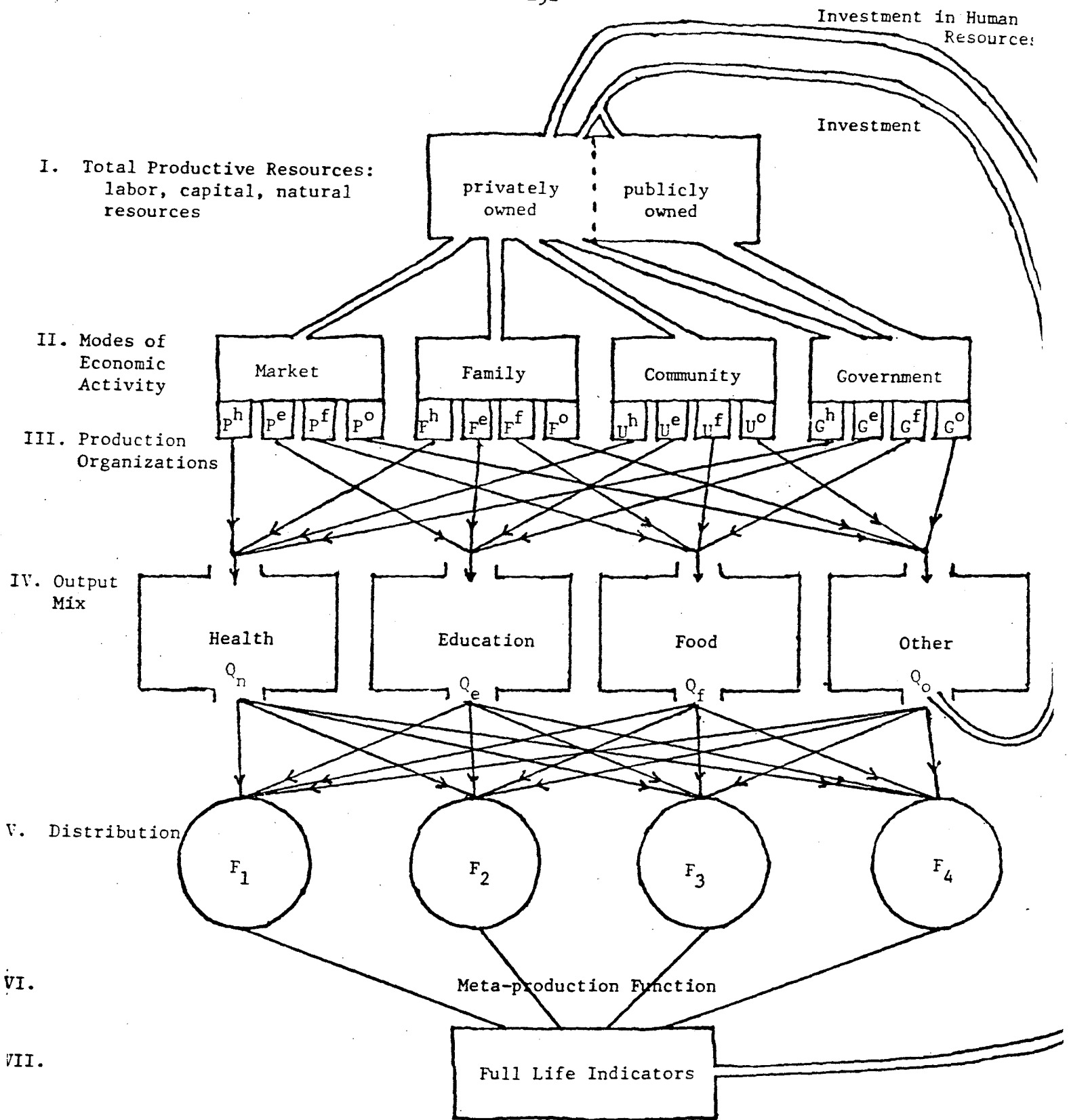


Diagram 2: Organizational Choices

focus on the selection of appropriate organizations and on promoting their efficiency.

### III. Incomes, Allotments and Basic Needs

The level and distribution of achievement measured by the full life indicators depends not only on the allocation of inputs to BN production and the choice of producing organizations, which have been discussed, but also on the distribution among families of the BN goods themselves. Diagram 3 presents an accounting framework in which to consider allotment. A family's full income ( $F_i$ ) consists of its wages ( $W_i$ ), property income ( $\pi_i$ ), imputed household and community income ( $h_i$ ), and income from government revenue, made up of monetary transfers ( $T_i$ ) and subsidized or "free" goods and services ( $g_i$ ). The distribution of full income ( $V = (V_1, V_2, V_3, V_4)$ ) can be described by the pattern of wages ( $W = (W_1, W_2, W_3, W_4)$ ), property income ( $\pi = (\pi_1, \pi_2, \pi_3, \pi_4)$ ), transfers ( $T = (T_1, T_2, T_3, T_4)$ ) publicly provided goods ( $g = (g_1, g_2, g_3, g_4)$ ), and household income ( $d = (d_1, d_2, d_3, d_4)$ ). The primary family income distribution ( $Y = (Y_1, Y_2, Y_3, Y_4)$ ), composed of  $W$  and  $\pi$ , has received most of the attention in the income distribution literature, but  $V$  is the relevant concept for BN analysis.

It is the distribution of BN goods, not  $V$ , which directly determines the full life indicators, but  $V$  is closely related. Families decide how to allocate  $W_i$ ,  $\pi_i$ , and  $T_i$  among BN goods, non-BN goods, and savings. For income from  $g_i$  and  $d_i$ , however, the production choice and consumption choice are usually identical and are made simultaneously, exogenously

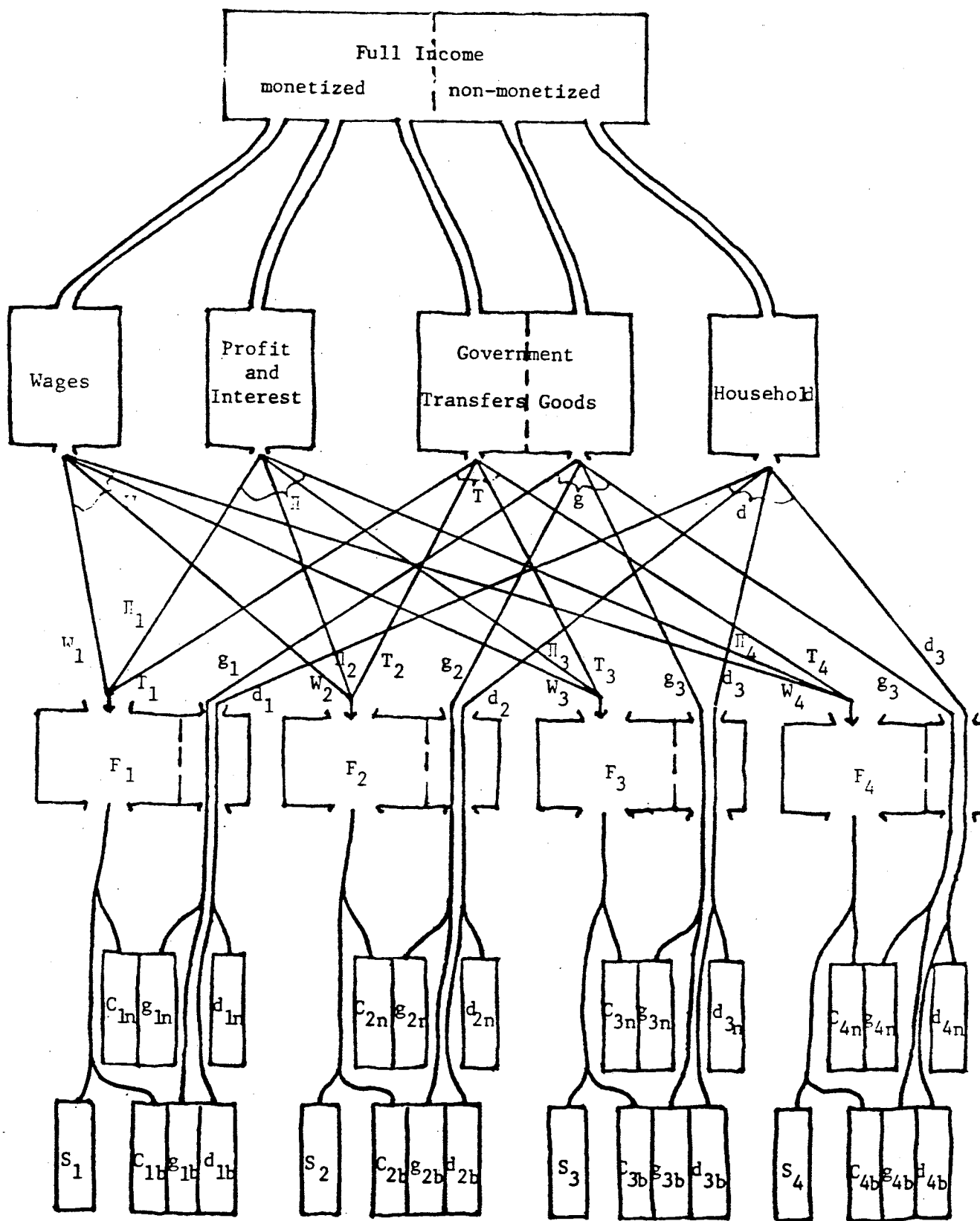


Diagram 3: Income Distribution and Basic Needs

in the public sector for  $g$ , and within the family for  $d$ . We can formally represent the disposition of family full income  $V_i$  among the seven types of goods as follows:

$C_b = (C_{1b}, C_{2b}, C_{3b}, C_{4b})$	family consumption of basic needs goods produced by private firms
$C_n = (C_{1n}, C_{2n}, C_{3n}, C_{4n})$	family consumption of non-basic needs goods produced by private firms
$S = (S_{1n}, S_{2n}, S_{3n}, S_{4n})$	family savings pattern <sup>1</sup> acquiring investment goods
$d_b = (d_{1b}, d_{2b}, d_{3b}, d_{4b})$	family consumption of basic needs goods produced by families
$d_n = (d_{1n}, d_{2n}, d_{3n}, d_{4n})$	family consumption of non-basic needs goods produced by families <sup>2</sup>
$g_b = (g_{1b}, g_{2b}, g_{3b}, g_{4b})$	imputed benefits to families of government expenditures on basic needs goods
$g_n = (g_{1n}, g_{2n}, g_{3n}, g_{4n})$	imputed benefits to families of government expenditures on non-basic needs goods

We will refer to these patterns collectively as  $B = (C_b, C_n, S, d_b, d_n, g_b, g_n)$ .

#### Analysis of Allotments

We now consider the factors determining each of the seven allotment patterns. Market sector goods ( $C_b, C_n, S$ ), government sector goods ( $g_b, g_n$ ), and household sector goods ( $d_b, d_n$ ) will be discussed separately. We examine first how income is distributed among families, then how it is disposed of, with respect to BN and

<sup>1</sup>The family acquisition of ownership in new investment goods, of course, may require financial intermediation.

<sup>2</sup>The sum of  $d^b$  and  $d^n$  is  $d$ , imputed household income.

non-BN goods, noting again that these two stages are really independent only with respect to market sector goods.

#### A. Market Sector Goods

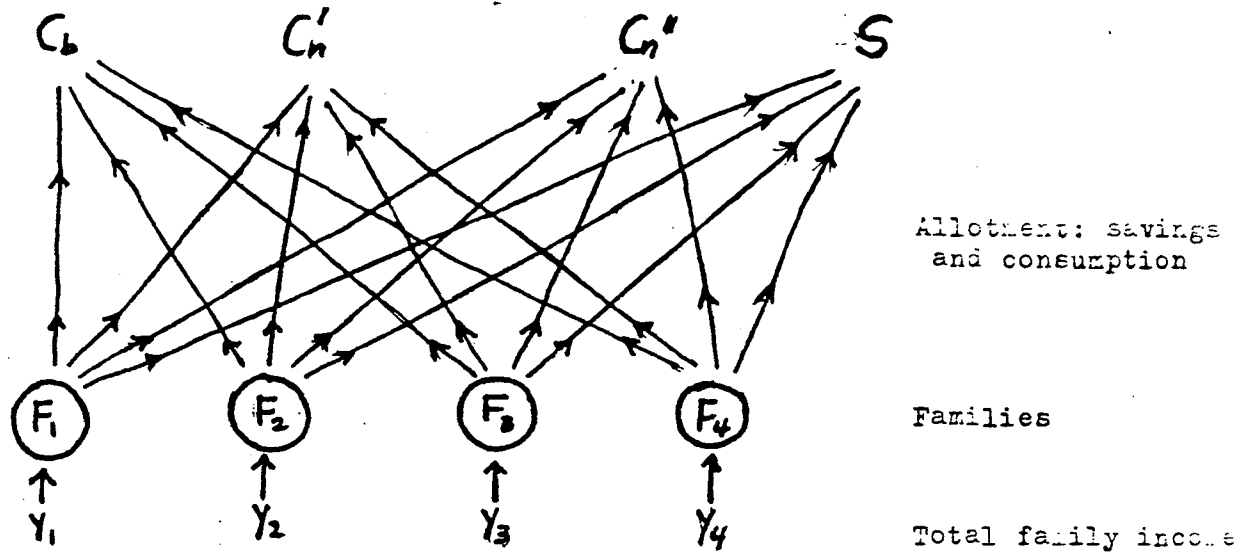
The determination of family income distribution (FID) has been examined extensively elsewhere,<sup>1</sup> especially to explain primary income and its constituent wage and property shares. We will therefore take the pattern of primary income distribution ( $Y = (Y_1, Y_2, Y_3, Y_4)$ ) as given by other determinants. No separate analysis is done here for the distribution of government transfer payments (T) since we can assume that this income is disposed of in the same way as primary income. Though there are exceptions (most notably Sri Lanka), it appears that, in most LDCs, T is similar to Y. New research is needed on the determinants of T, including political, sociological and administrative factors. We explore here the relationship between Y, as characterized by mean income  $\bar{Y}$  and the Gini coefficient  $G_y$ , and the allotment of this income to  $C_b$ ,  $C_n$ , and S.

Diagram 4 depicts the allotment of family income to the patterns  $C_b$ ,  $C_n$ , and S, observing the accounting identity  $Y = C_b + C_n + S$ . Assuming the primary data on these four patterns are available, we can draw a scatter diagram such as Diagram 5. Family incomes and

<sup>1</sup>See Chenery et al, Redistribution With Growth, 1974; Adelman and Robinson, Income Distribution Policy in Developing Countries: A Case Study of Korea, 1978; Fei, Ranis and Kuo, Growth With Equity: The Taiwan Case, 1979.

<sup>2</sup>In Diagrams 4 and 5 we show four types of goods:  $C_b$ ,  $C'_n$ ,  $C''_n$ , and S, of which two are non-BN consumption goods. The second non-BN consumption good is introduced to show what happens when one of the goods is an inferior good. This is an elaboration which we ignore in the text.

Diagram 4 : Family Disposition Patterns



$$Y = (Y_1, Y_2, Y_3, Y_4)$$

Pattern of family primary income

$$C_b = (C_{1b}, C_{2b}, C_{3b}, C_{4b})$$

Consumption pattern of BN good

$$C'_n = (C'_{1n}, C'_{2n}, C'_{3n}, C'_{4n})$$

Consumption patterns of non-BN goods

$$C''_n = (C''_{1n}, C''_{2n}, C''_{3n}, C''_{4n})$$

$$S = (S_1, S_2, S_3, S_4)$$

Pattern of family savings

$$Y = C_b + C'_n + C''_n + S$$



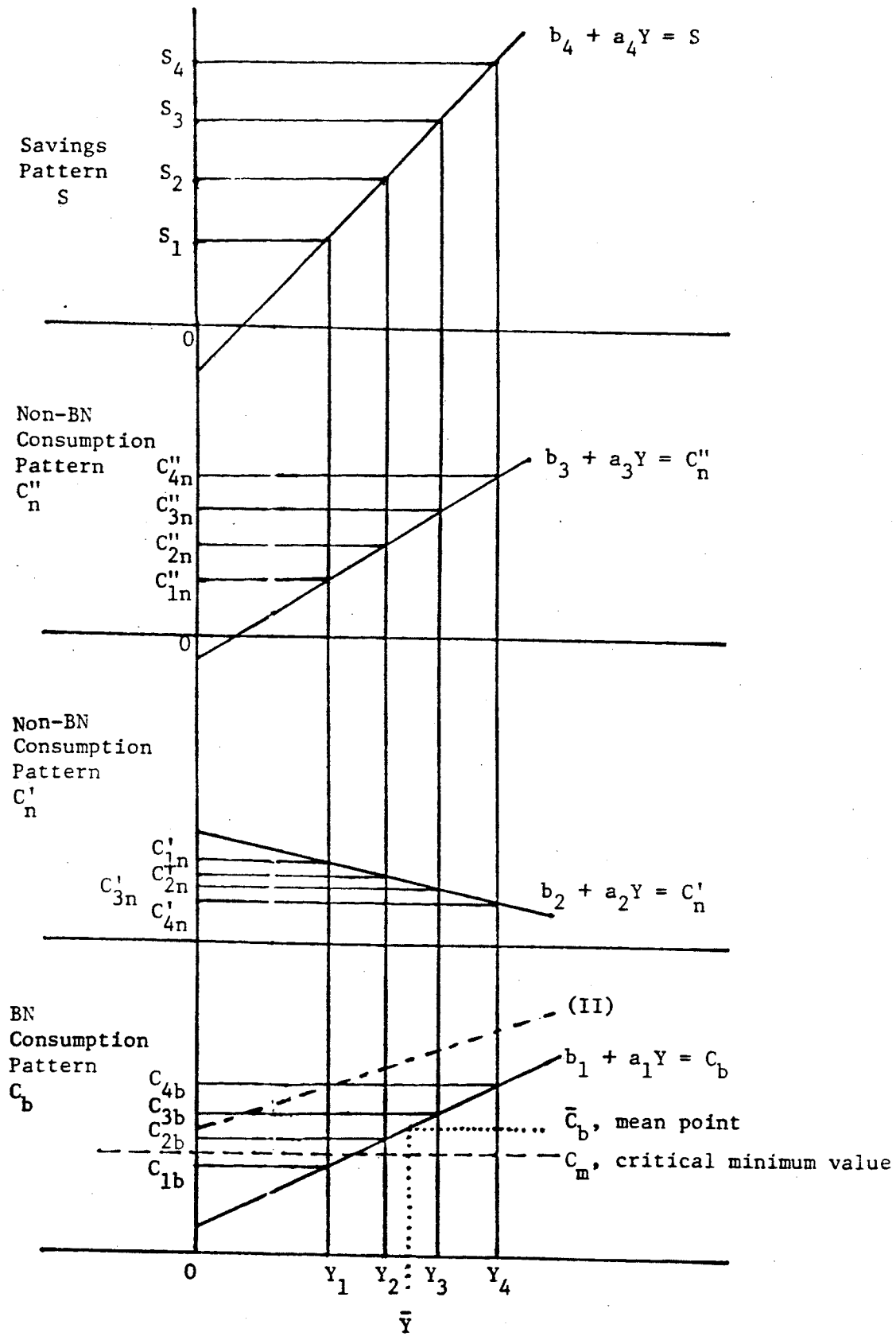


Diagram 5: Consumption and Savings Functions

mean income ( $\bar{Y}$ ) are arranged on the horizontal axis. The vertical axis in each deck represents amounts of each good consumed, or savings. To simplify the exposition we have assumed that the consumption and savings functions are linear, as shown, with  $b_1$ ,  $b_2$ , and  $b_3$  as intercepts and  $a_1$ ,  $a_2$ , and  $a_3$  as slopes. Because of the accounting identity mentioned above,  $b_1 + b_2 + b_3 = 0$  and  $a_1 + a_2 + a_3 = 1$ .

Some elements important to BN and FID analysis can now be introduced. To analyze the issue of the so-called "conflict between growth and equity," let  $\bar{C}_b = (C_{1b} + C_{2b} + C_{3b} + C_{4b})/4$  be the mean value of BN consumption, and let the inequality of BN consumption be measured by the Gini coefficient  $G_b$ . BN advocates also speak of a critical minimum level of BN consumption, represented by  $C_m$ , corresponding to a caloric minimum food requirement, for example.  $\bar{C}_b$  and  $C_m$  appear in the lowest deck of Diagram 5.

In the linear model, a useful linking equation is  $G_b = e_b G_y$ , where  $e_b = a_1 \bar{Y} / \bar{C}_b > 0$  (when  $a_1 > 0$ ) is the elasticity of the BN consumption function at the mean point.<sup>1</sup> If  $e_b = .8$ , for example,  $G_b$  is 80 percent of  $G_y$  and the inequality of the BN consumption pattern is less than for income. Whether  $G_b$  is greater or less than  $G_y$  depends on whether  $e_b$  is greater or less than unity, which depends in turn on the values of  $b_1$  and  $a_1$ . It is empirical information of this type that is needed to strengthen the analytical foundations

<sup>1</sup>In case the slope is negative, as illustrated by  $a_3$  in Diagram 5 for the second non-BN good, the linking equation must be modified to read:  $G_n'' = e_3 G_y$  where  $e_3 = -a_3 \bar{Y} / \bar{c}_3 > 0$  (when  $a_3 < 0$ ). Since the Gini coefficients ( $G_b, G_n'', G_y$ ) are always positive numbers,  $e_1$  and  $e_3$  as defined must be positive numbers.

of the BN approach. Intuitively, we assume that  $b_1$  will be positive because families at all income levels must consume positive amounts of BN goods like food. It is also likely that as incomes rise families will increase their consumption of the BN goods less than proportionately with income, while non-BN consumption and savings will increase more than proportionately. If, as hypothesized,  $b_1 > 0$  and  $0 < a_1 < 1$ , then  $G_b < G_y$  and BN consumption is distributed more equally than family income.

Transforming our linking equation, we can explore the impact of an increase in income per family. Substituting  $\bar{C}_b = b_1 + a_1\bar{Y}$  into the expression for  $e_b$ , we can write:

$$G_b = e_b G_y$$

$$= \frac{a_1\bar{Y}}{b_1 + a_1\bar{Y}} \cdot G_y$$

It is evident that changes in  $G_b$  over time will be determined by the course of  $\bar{Y}$  and  $G_y$ . Suppose that an increase in income per family occurs without any change in  $G_y$ . The effect on  $G_b$  is then seen by taking the derivative with respect to  $\bar{Y}$ :

$$\frac{\partial}{\partial \bar{Y}} G_b = \frac{\partial}{\partial \bar{Y}} \frac{a_1\bar{Y}}{b_1 + a_1\bar{Y}} G_y = \frac{a_1 b_1}{(b_1 + a_1\bar{Y})^2} G_y > 0$$

Inequality of BN consumption increases as income per family increases, even without increasing inequality in income distribution itself. At the same time, however, the number of families falling below a minimum level of BN consumption will decrease. This is evident from the lowest

deck of Diagram 5. If each  $Y_i$  is increased by some multiple,  $G_y$  is unchanged but each  $C_{ib}$  increases, putting more or all of the  $C_{ib}$ s above the level  $C_m$ . Though many BN advocates regard the process of increasing BN consumption through growth as too slow, it may be the most feasible solution for most LDCs. The recent experience of Taiwan seems to indicate that simultaneously rapid and equitable growth can solve the BN problem. In other cases, even if there is a conflict between growth and equity, those who focus on the number of families below critical minimum levels of BN consumption may record progress. Which path will produce the most desirable outcome in the full life indicators is a very complicated subject to which more thought must be given by national as well as international planners.

#### B. Public Sector Goods

We are concerned in this section with the imputed value to families of government expenditures on goods. There is in this area no history of research comparable to that in the market sector which can be drawn upon. We might use as a starting point a very preliminary and tentative finding that suggests a loose association between the distribution of money income and the distribution and disposition of publicly provided goods. In countries with a more egalitarian distribution of monetized or market income, there is some tendency for a more egalitarian distribution of publicly provided goods, and an associated tendency for a higher proportion of publicly provided goods to be BN goods. The positive relation between equality in  $Y$  and equality in  $g_b$  and  $g_n$  might

be explained by connections between political power, or administrative machinery, and economic power, related to income. There are also more straightforward economic explanations. The consumption of publicly provided goods may impose costs on the consumer which can be better borne by consumers with higher incomes. Examples in education would be the opportunity cost of attending school and the complementary costs of clothes and transportation. If this relation were established some of the methods suggested for analysis in the market sector could be applied to the public sector as well; more research on these relations would likely be very fruitful. But this still leaves unexplained the determination of the magnitude of publicly provided goods and their allocation between BN and non-BN goods. For market goods, we use given tastes as the explanatory factor. For publicly provided goods, we have to assume that political factors are the underlying determinants, but we are much less confident about the stability of these factors and their functions. To the extent that planners are bound by these factors the task of changing the distribution and BN content of publicly provided goods is consequently rendered more difficult.

### C. Household Sector Goods

Recent research and analysis into the distribution of household income have produced the not unexpected result that  $d_n$  and  $d_b$  are more equally distributed than  $Y$ . While this obviously means that full income is more equally distributed than monetized income, in normative terms this may not mean much since standards of equity have to be adjusted to allow for the inclusion of full income. It may also be incorrect to

conclude that moving more economic activities into the household would improve full life indicators by making  $V$  more equal, because activity outside the home, especially for women, may result in learning that increases the efficiency of the meta-production function. Efficiency gains of this type are likely to be quite equally accessible to all families, since household activities are generally non-capital intensive and production scale, related to household size, does not vary much. Efficiency increases would thus probably increase the equity of the  $d_b$  and  $d_n$  patterns. Here again clearly much more work is required.

#### IV. Basic Needs Planning Policy and Organizational Choices

##### Basic Needs Planning Models

The methods of the so-called "planning school" represented by Chenery, Tinbergen and others, have significantly informed the policy portion of the BN approach. From this tradition, many BN advocates have adopted the idea of target setting and an emphasis on resource utilization. Specifically, the BN approach is often directed to a target group such as the number of people below the "poverty line," with time-phased objectives for reducing this number. It is recognized that meeting BN goals requires productive resources and that diverting them may conflict with growth goals, but this conflict is reduced or eliminated by the growth-promoting effects of BN consumption.

The general economic system presented in Diagram 1 above may be a useful framework for thinking about the construction of a resources-oriented planning model tailored to the BN approach. We see, for instance, that total resources may be inputs either to the BN sectors ( $R_e$ ,  $R_h$  or  $R_f$ ) or to the non-BN sector producing consumption goods ( $C$ )

or investment goods (I). Here there is a clear case of a possible conflict between growth (or some BN consumption tomorrow) and BN consumption today, necessitating consistent resources planning. As suggested by the diagram, the first step would be to estimate the production functions  $Q_i = f^i(K_i, L_i)$ ,  $i =$  education, health, food, and "other." In the BN literature this production function corresponds to the "costs" of certain BN goods. The next step in the planning process would be the allotment of every component of the BN and non-BN output to all the families,  $q_i = (q_{ie}, q_{ih}, q_{if}, q_{io})$  for each family  $i$ . These patterns must, in turn, be linked to the full life indicators through the meta-production function  $J = F(q_1, q_2, q_3, q_4)$ . If maximization of  $J$  is taken as the ultimate objective, an optimizing process should be able to determine how a consistent resource allocation and BN allotment plan is to be constructed. If  $J$  is specified for a future target date, the solution to the dynamic resources model can conceptually yield the appropriate decisions. If  $J$  is also regarded as contributing to the improvement of the human capital stock, the resources planning task is more complicated but is still conceptually feasible.

#### A. Estimating the Meta-Production Function

Though simple enough in theory, such a BN planning effort would be difficult to implement. The hardest problems are encountered in trying to identify and estimate the meta-production function. Some of these problems are indicated here:

- 1) Statistically, a full life indicator value in one year may be correlated with the level of BN consumption over many previous years. Producing "literacy" or a "long life," for instance, may take the cumulative effects of BN consumption over a considerable stretch of time.
- 2) Both complementary and substitute relations exist between the BN inputs in the meta-production function. Without education, for instance, health services may not be effective in producing a longer life. Food may be a substitute for health services. The economics of such relations and their definition as complementarity and/or substitution elasticities among inputs in a production process are well understood, but both the conceptual and empirical problems are formidable. They are further complicated by dynamic lead and lag considerations. Thus it may well be true that education expenditures must temporally precede health expenditures if maximum resource efficiency is to be realized.
- 3) The multi-dimensional characteristic of the full life indicators  $J = (J_1, J_2, \dots, J_k)$  makes simple maximization more difficult than maximizing a single variable (e.g., growth in GNP per capita) in ordinary resources planning. Moreover, the objective function contains not only the level of these indicators but also their distribution across families.
- 4) The meta-production function is sensitive not only to the levels of inputs, the BN goods, but also to their distribution across families. What is more, this sensitivity to distribution is likely to be different for each  $J_i$ . For example, an unequal distribution of food may lead to a shorter life for the undernourished families and a somewhat longer life



for the well nourished. The maldistribution of sanitation facilities, on the other hand, may result in illness that reduces health levels for all families.

#### B. Estimating Feedback Relations

A whole new additional set of challenging and important problems arise once the qualities described by the full life indicators are also regarded as human resource investments that augment the system's total productive capacity in the future. One of these problems arises because substitutability and complementarity also exist among full life "inputs" feeding back into the system. An example is the effects of literacy and good health on worker productivity. Aptitude tests, administered by the employment offices of certain industries, may provide some clues to these issues. Others can be gathered from research results in the relevant labor market/human capital literature.

The distribution of the full life indicators across families will affect feedback relations differently for some relations than for others, causing further estimation difficulties. In health, to cite one specific instance, it is probable (but by no means certain) that when average health is adequate, a more equally distributed increase in health services for the entire population is more productive than an unequally distributed one. On the other hand, in the case of education this may be inaccurate if a modernizing economy can be expected to require a skill hierarchy or pyramid of workers which are unequal in education. All such societies, regardless of their preference for equity, will demand a small fraction of professionals (doctors, engineers

etc.), and a larger group of skilled workers, resting on a still larger base of unskilled labor.

It may be instructive to review the attempts to relate one set of full life indicators to the resource needs of the economic system. When the age structure declines in the course of demographic transition, the fraction of the dependent population increases, the resource requirements to feed the dependent population increase, and the investment fund, ceteris paribus, declines. Expert demographers disagree among themselves, however, on what causes the decline in age structure. This difficulty in analyzing even one relatively simple dimension of meta-production relations should give us pause before rushing into a resources oriented planning approach to BN.

A resources planning model approach to BN has an unmistakable logical appeal--as had the simple growth-oriented planning models of yester-year--and its political appeal and possible effect on DC aid giving should not be underestimated. Nevertheless, the conceptual difficulties that stand in its way must be clearly admitted. Perhaps the best role for BN planning will be similar to the use now made of conventional planning exercises. Five-year plans are no longer looked on as spelling out actions in quantitative terms, but more as tools in organizing the thinking of decision makers and as pointing out gross inconsistencies in proposed programs. We do not wish to sound negative on the subject of BN-oriented resources planning, but believe that, at this stage of our understanding, scarce energies should be directed towards more modest and realistic objectives. One of these is the determination of better policies addressed to BN objectives.

## Basic Needs Policy

Whether BN resources planning is exhaustive or only suggestive, the implementation of any plan is, of course, not automatic. The macro mechanisms must underlie any BN plan, and the micro organizations charged with specific tasks within the plan are, to a greater or lesser degree, the objects of policy choice; meaningful planning cannot take place without reference to the institutional and organizational back-drop. Conversely, policies regarding organizational forms and plan implementation obviously cannot be framed without reference to the intended plan. Though more work evidently is needed on these interrelationships, it may be useful to highlight some of the relevant policy choices here.

### A. Specification of the Full Life Indicators

An important task for policy makers is the specification of the full life indicators  $J = (J_1, J_2, \dots, J_k)$  to be pursued. It is assumed that a country adopting a BN strategy is giving special weight to the full life indicators, more weight than would be justified by the human resource aspects alone. But this assumption by no means provides a full or sufficiently well specified objective function for decisions about policy. Additional specification is needed in answer to the following questions as well:

- 1) How much special weight will be given to  $J$ ?
- 2) What elements will enter the objective function  $J$ ? These elements must be carefully and specifically defined if  $J$  is to become truly operational.

- 3) What relative weights will be assigned to the elements of J?
- 4) Besides the levels of these elements, how does their distribution across families enter the objective function?
- 5) What tradeoffs across time are acceptable, e.g. what future increases in J are needed to compensate for present abstinence?

B. Implementation of the BN Plan

Another important policy task is plan implementation. Decisions on resource allocation to BN and non-BN sectors, allocation among BN sectors, and distribution across families, already discussed as part of a BN plan, must be translated into reality. This translation is relatively direct for centrally planned economies where resource flows and production levels are simultaneously assigned by planners. A relatively egalitarian income distribution may result from employment intensive incomes planning in the mixed economy, while in a society of few privately held assets, large public sector expenditures with egalitarian allotment should ensure that there is widespread consumption of BN goods.

The market mechanism which may be largely bypassed by planned economy systems lies at the heart of another policy option in the mixed economy context. In the market oriented approach, the main emphasis is placed on the growth of primary income through employment and asset redistribution, while resource allocation and production decisions are left largely in private hands. High income growth rates enable families to spend enough on BN goods to achieve what is considered an adequate level of full life indicators.

For most LDCs, neither full central planning nor total laissez faire is either likely or acceptable. Central planning requires a pervasive political system and institutional choices far beyond the range of the realistic administrative capacities and political economy options of most LDCs. On the other hand, even the most market oriented countries will allow for the need for major "corrections" of market solutions. Intervention in various forms will be justified as income redistribution, to offset private information inadequacies, or to correct underinvestment in public goods. For one thing, some BN goods, such as food, can be provided more appropriately through the market route, while others, such as education, are traditionally public goods. In addition, many countries favoring a market oriented, growth centered approach at an early stage will choose more BN intervention in the medium term, once incomes are rising. We will, finally, consider some of the policy instruments available to us in the majority of typical "mixed economy" LDCs and end with a comment on organizational choices.

#### 1. Direct Income Transfer Policies

This type of policy aims at the transfer of incomes from wealthy to poor families by such means as taxes and subsidies. In the simplest case, relative commodity prices are not affected. An extreme policy would be to transfer incomes until all are equalized, and  $(\bar{Y}, \bar{Y}, \bar{Y}, \bar{Y})$  replaces  $(Y_1, Y_2, Y_3, Y_4)$ . In our model, complete equality of income would lead to the complete equality of BN consumption. If the critical minimum consumption level  $C_m$  is less than the mean consumption level  $\bar{C}_b$ , a less extreme solution would be to transfer incomes until the incomes of the poor are just sufficient to consume  $C_m$ . Such transfers

will not solve the BN problem if  $C_b$  is below  $C_m$ , but would result only in an equal sharing of poverty. In this case, income growth is needed to raise average consumption above  $C_b$ .

There are at least two arguments against heavy reliance on transfer policies, based on considerations of economic efficiency and political realism. It is often alleged that income equalization will hurt economic growth because of disincentive effects. These effects are difficult to assess, because at both ends of the income scale they depend on the form of the transfer. It may be possible, particularly for transfer recipients, to devise forms that encourage rather than discourage economic activity. Moreover, any negative effects on the work and productivity of the poor may be offset by positive effects arising from better nutrition and health. In many cases, administrative and political economy factors, however, may be the real limiting factor on the use of transfers to achieve BN objectives. Though more research is once again needed here, most of the empirical evidence suggests that governments rarely succeed in greatly reducing inequality through transfers alone, particularly when primary income inequality is substantial. In empirical fact transfers usually are slightly unequalizing.

## 2. Publicly Provided Goods

Increasing the volume of publicly provided BN goods--raising  $g_b = (g_{1b}, g_{2b}, g_{3b}, g_{4b})$ --is another form of transfer. The disincentive effects of such a policy may be less than with income transfers if families try to earn more income to provide the complementary resources needed for effective consumption of the publicly provided goods. A

major problem with the public provision of BN goods is that they may be "hijacked" and diverted from the groups in need. An associated problem is that of "targeting" to reduce the cost of the policies. Where income inequality is very great, a small additional expenditure on fiscal transfers of publicly provided goods can make a major difference to income levels among the poorest groups. In Brazil, for example, where the income share of the bottom 20 percent is 2 percent, increasing public consumption by one fifth would double the income level of the bottom quintile. The real problem is ensuring that the middle classes don't manage to take their customary place at the head of the queue.

### 3. Relative Prices and Consumption Patterns

LDC governments may also attempt to change families' consumption patterns in order to increase the proportion of income spent on BN goods. This may be achieved by controlling the price of a particular BN good or by education and information policies. The aim of the policy is to shift the BN consumption function (as indicated by line II in Diagram 5). While everyone consumes more BN goods, low income families ( $Y_1, Y_2$ ) increase their consumption more than the high income families ( $Y_3, Y_4$ ).  $G_b$  is reduced, so that BN goods are more equally allotted, and  $a_1$  is reduced. Fewer families remain below the deprivation line  $C_m$  because the  $b_1$  intercept is now higher. Income levels need not be affected, although in real terms they normally are if the good forms a large proportion of total consumption of the poor.

When relative prices are manipulated, such other measures as rationing and food coupons are often required to effect a smooth delivery of the BN good. The government may impose a tax on the

wealthy and subsidize BN prices for the poor. For these reasons  $(Y_1, Y_2, Y_3, Y_4)$  is probably made more equal by use of this policy, even if associated with some disincentive effects.

Aside from these partial equilibrium effects on BN consumption, there are also general equilibrium implications. In our model, other consumption patterns must move downward (and the slopes become steeper) in response to the change in BN consumption. For example, as BN consumption increases, non-BN consumption  $C_n$ , or savings  $S$ , must drop. These other goods must also be consumed more unequally. Not only is there no "free lunch" today, but the manipulation of relative prices may have other, unintended effects on the production side tomorrow.

#### C. BN Organizational Choices

We have noted earlier the variety of organizational forms which may be employed in the production and distribution of BN goods. One reason for this potential variety, of course, is that BN sectors differ in their "natural" relative reliance on public versus private activity. It is typical, for example, to find relatively heavy government participation in education and public health services, somewhat less in primary health care, still less in shelter, and least in food. This ranking by degree of public intervention corresponds roughly to the ranking implied by the degree of market failure likely in the various sectors. Natural monopoly conditions, under which competitive forces are suspended because only one or few productive units can operate at efficient scale, are commonly given as grounds for public intervention. For example, indivisibilities in production and consumption (as with a school) might justify a relevant geographic area (say two or three villages) cooperating in building and running a school, but do not require



central government participation. Similarly, the inappropriability of benefits, or a high ratio of inappropriable to appropriable benefits (e.g., most public health services) may often apply to a level higher than the normal consuming unit (the individual family) but lower than the whole economy. Hence the most appropriate organizational form--from the point of view of optimal motivation and efficiency--varies according to the level at which public goods type characteristics apply. Natural monopoly exists in providing public health services and to some extent in education as well. Information to households may be inadequate in the health and education sectors, also inviting market correction. The most frequently cited reason for public intervention is the presence of external benefits in the consumption of public health services and education in particular and of BN goods in general through investment in human capital. The public provision of BN goods and services can, of course, also serve to redistribute income, as noted earlier.

While noting the theoretical desirability of correcting market solutions, we would point out that, at least in theory, several alternative means of correction remain available. Refuse collection, one example of natural monopoly in the health sector, can be carried out by a public agency, a regulated private firm or by a franchised competitive firm. Distortions due to imperfect information about nutrition might be corrected by the public provision of certain foods or by public information services. Positive externalities in education might be dealt with through a subsidy program. These possibilities exist "in theory" but it may be difficult to change from one mode of correction to another. In particular, public organizations already in

place in LDCs are not likely to atrophy quietly to make way for alternative solutions. Still, some range of alternatives for BN intervention should be considered, especially for the longer run.

After deciding on the desirable "natural" mix of public and private activity in each BN sector from the point of view of the production conditions, scale, externalities, etc. there still remains some choice about what organizational forms will be depended upon to carry out the activity. Unfortunately, there is not a great deal of information about the relative performance of various organizational forms, or about the circumstances that favor the emergence of one form rather than another.<sup>1</sup> Nor is it always clear whether a public or private organization should be chosen. We therefore limit ourselves here to a few suggestive comments concerning the type of consideration affecting organizational choice as an important part of BN research.

One reason why BN sectors may have been relatively neglected in some areas is the absence of suitable organizational forms, which in many cases fall somewhere between the family and the central government and require an appropriate level of decentralization. Identifying and filling such gaps must be one focus of a realistic BN strategy.

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<sup>1</sup>Vincent Ostrom (The Intellectual Crisis in American Public Administration, 1973, p. 2) has written that public administration "should be able to indicate the conditions and consequences which derive from the choice of alternative organizational arrangements," but cannot in its present state of development. Writing about the private sector, Ronald H. Coase (Victor R. Ruchs, ed., Policy Issues and Research Opportunities in Industrial Organization, 1972, p. 64) points out that "we are, in fact, appallingly ignorant about the forces which determine the organization of industry," including what firm structure is best suited to a particular group of activities and what activities can best be grouped together.

Second, the efficiency of an organization, as ordinarily defined, is not the only criterion for organizational choice. Participation, both moral and financial, may also be significant. To the extent that a BN approach involves determining people's needs, participation enables the producer and consumer to exercise genuine control and choice. The sense of commitment that can arise from participation may be crucial to the long run sustainability of the producing units, especially where recurring costs must be met, as in schools and health clinics. It has also been argued that minimal control over one's life is itself part of a "full life." We did not include it among the full life indicators, preferring to regard participation formally as a means rather than an end, but we do agree on its importance.

Third, as argued above, the family is the primary determinant of the meta-production function. Hence the efficiency of the family becomes critical to the BN approach. In virtually every society, cooking, cleaning, health care and child care habits, etc. are learned within the family. In a traditional society, this learning process is a "closed circuit" which receives relatively little infusion of information from the outside. It is possible and desirable to infuse modern technology into sanitation, nutrition, health care and education as activities, for example, as wider contacts outside the family system open up in the transition to modern growth.

Last, much more emphasis should be placed, we believe, on how to use publicly provided information and services to increase the efficiency of BN production within families and other communal arrangements like farmers' cooperatives. This type of BN production is also much less likely to represent a real drain on resources required for the growth of

the monetized portion of the full income. In the longer run, this may be the most reliable way to infuse a modernizing outlook as well as more modern technology into an area which can have a very substantial and relatively clear impact on various full life indicators.

In sum, this paper has attempted to present a provisional framework which may be useful for the further analysis of the BN approach. Too much of the voluminous literature to date on this phenomenon has either been polemical in nature<sup>1</sup> or failed to relate the concept analytically to the rest of development theory in a general equilibrium context.<sup>2</sup> It is our view that the ultimate validity and usefulness of the BN approach--beyond that of a political rallying cry--depends critically on our success or failure in clarifying many of the theoretical and empirical issues that lie at its center. Among these issues are the meta-production function, the feedback relations, the production characteristics and organizational choices attending various BN goods categories. It is our conviction that, in the absence of such additional "homework", the concept will be remembered a decade hence as a politically motivated passing fad rather than as a potentially useful analytical concept.<sup>3</sup>

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<sup>1</sup>See "Employment, Growth, and Basic Needs: A One World Problem," ILO, Praeger, 1977.

<sup>2</sup>E.g. Paul Streeten and Shahid J. Burki, "Basic Needs: Some Issues," World Development, March, 1978.

<sup>3</sup>For an even more skeptical view on its potential, see T.N. Srinivasan, "Development, Poverty and Basic Human Needs: Some Issues," Food Research Institute Studies, XVI, 2, 1977.