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A "DUAL MODERN ECONOMIES" GROWTH MODEL

by

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I. Introduction

This paper hypothesizes — in the form of a descriptive model — that the growth process in most developing nations during the 1970s and 1980s will be more accurately and usefully described as that of two parallel, though interdependent, economies than that of a single, increasingly multi-faceted economy. The two economies are those of "the countryside" and of "national urban areas". Growth in the one is agriculture-led; in the other non-agriculture-led.

The model derives from a perception of a certain class of LDC economy in which the agricultural countryside is distinct from the non-agricultural enclaves of industrial, export, and administrative production. This spatial dimension of the national economy is taken to be a crucial distinction when describing growth during this period. Geographically, the perception is a direct throwback to Boeke's dual economy model. However, where Boeke in effect juxtaposed a classical economy in the countryside and a neoclassical world in the "modern" enclaves, here both economies are neoclassical and, in this sense, modern. In addition, whereas Boeke's countryside was organized horizontally, being composed essentially of independent and self-sustaining agricultural communities, this model assumes that a three-tiered pyramid of agricultural market centers exists to serve each agricultural region.

*This paper constitutes a preliminary version of a general model which has emerged in the course of research into the non-farm employment question. It was discussed in summary form at a School of Economics' faculty seminar last June and has benefitted greatly from comments made at that time. The author was a Visiting Research Associate at the School of Economics during 1971-1972. The research was supported by the Center for Research on Econmic Development of the University of Michigan with funds provided by the Rockefeller Foundation.

Three preconditions must be satisfied in any given situation if this model is to be both relevant and operational. First, the geography of the country in question must be such that most of its agricultural regions are unambiguously agricultural in their economic composition in the sense that the bulk of the non-agricultural activity in them may be said to exist solely to serve the agricultural community. This condition is satisfied by most LDCs, the prominent exclusions being very small nations and those such as Taiwan, Malaya, and Egypt having litteral or "strip" settlement patterns. Second, a significant portion of the non-agricultural goods and services consumed by rural households must be produced "locally", meaning within the agricultural region. This condition is satisfied in a large number, possibly all, LDCs. And, third, if the model is to be operational in the near term, it must be possible to break out data on predominantly non-agricultural enclaves from national statistical totals. In most cases this is considerably easier to accomplish than might be thought. Though published tabulations will rarely be sufficient, special tabulations are relatively easy to obtain since the enclaves in question have usually been treated separately by the statisticians in sample designs and data processing operations.

It will perhaps be useful at the outset to summarize the type of empirical evidence which underlies the concepts of this model and to make explicit the findings of recent field research in the Philippines which helped to crystalize its particular structure. Considerable evidence has accumulated over the past two decades that in rural areas consumer preferences extend to a wide range of locally produced goods and services, and that the income elasticity of demand for such products is probably firmly positive. The works of social scientists other than economists provide many descriptions of household asset accumulation and of rankings defining the order

in which assets are accummulated. Income and expenditure surveys suggest that industrially-produced assets must compose only a small part of the household budget at most income levels in rural areas. Turning to the producer, a variety of case study evidence suggests that non-agricultural part of the "traditional economy" in rural areas tends to be broadly-based, responsive to economic incentives, and not lacking in either entrepreneurship or technological ingenuity.

Thus, it came as no surprise when a 1972 case study of an agricultural region in Central Luzon revealed two basic findings.[1] First, the region displayed the economic breadth of a full scale economy, having extensive economic activity in each of the ten Major Industry Group categories. There was activity in most Industry Groups (i.e., at the 2-digit level) as well. Indeed, it can generally be said that the region was meeting most household consumption and investment demands from local production. This was so notwithstanding the fact that most locally-produced goods and services had a degree of "import" content and that virtually all producer goods were "imported". Second, this economy seemed to be growing and responding in precisely the manner that neo-classical theory says a competitive economy of many small producers should do.

The characteristics of the Philippines in general and of the study area in particular tend on balance to encourage generalization from this micro study rather than discourage it. Discussion of this point will be deferred, however, until the model has been specified. Let it suffice here to suggest that the empirical evidence from the Philippines, which will be referred to below on occasion, does not appear to come from a too special case, at least so far as the central concepts of the model are concerned.

II. A DESCRIPTIVE MODEL: THE STATIC ASPECTS

Distinguishing the "Countryside Economy" and the "Enclave Economy". The first objective of the model specification is to isolate all non-agricultural economic activity which is unambiguously the creature of the agriculture sector. The result will be a disaggregation of non-agricultural activity nationally into that which is "directly" influenced by changes in agricultural output and incomes and that which is only "indirectly" influenced by such changes. To assure relative purity in the former entity, activity whose basis is ambiguous is assigned to this latter category. Effectively this means that a rural area contiguous to a non-agricultural enclave is defined as being within that enclave if its essentially agricultural character is in doubt.

Since non-agricultural enclaves are the more clearly defined entities, both statistically and conceptually, it is convenient to define "the countryside" by derivation, first aggregating data on the enclaves and then subtracting them from national totals to arrive at a statistical specification of the countryside economy.

A trade-area criterion is used to characterize economic, as distinct from geographic, regions. It is assumed that geographic regions normally contain more than one economic region. A non-agricultural economic region is defined as one which produces non-agricultural goods and services for part or all of the national market or for the world market. They are more descriptively referred to as National Urban Areas, implying the extent of their trade area and their typically urban character.

All other economic regions are by definition agricultural. Their individual extent is defined in terms of the

trade areas of the largest agriculture market centers, which are analogously designated Regional Urban Centers. Agricultural (economic) regions will be more formally defined in Section III in terms of the respective trade areas of Regional Urban Centers, Sub-Region Urban Centers, and Rural Towns within them. It should perhaps be noted here that "region" as used in this model always refers to an economic rather than geographic region. It normally refers to agricultural regions, often by implication as in the case of Regional Urban Centers and Sub-Region Urban Centers.

The Non-Agricultural Enclaves Economy. The "enclaves economy", for short, is the sum of the economic activity in the National Urban Areas (enclaves). Formally, it is defined as embracing all economic regions having a significant amount of non-agricultural production which is marketed nationally (or to a large part of the national market) or internationally. In addition, it includes enclaves of plantation agriculture producing for the international market. It may be characterized as being the locus especially of the following, which are the "primary industries" of the Enclaves Economy:

(i) Industrial activity, (manufacturing), here defined narrowly as "modern factory production";

(ii) Production for export, excepting smallholder crop production and cottage industries;

(iii) Export-import services, broadly defined to include related transport and finance activities;

(iv) The bulk of government administrative services, including the military.

Tourism centers sometimes qualify as non-agricultural

enclaves. It is sometimes convenient to characterize the economic activity of the enclaves economy more descriptively as that of the "industry/export/administrative enclaves."

Applied to the Philippines in the latter 1960s, the above criteria define the enclave economy as encompassing 20% of the nation's population, 20% of the total labor force, and 25% of total non-agricultural employment.[2] It includes (30) of the (70) chartered cities in the country. It is composed of: the Greater Manila area including contiguous agricultural provinces; the urbanized enclaves focused on the cities of Cebu, Davao, Iliolo and Iligan; the province of Negros Occidental which is largely given over to (plantation) sugar cultivation for export, accounting for 60% of total Philippine production; and the tourism or military base enclaves of Baguio City, Angeles, and Olongapo. The several mining and lumber enclaves which produce for immediate export are not included, though they should be. Their inclusion would not, however, change the population or labor force proportions of the enclave economy significantly.

The Countryside Economy. The extent of the "countryside" is defined as the geographic residual, once the enclaves have been defined. It therefore encompasses all the remaining economic regions, these being by definition unambiguously agricultural. The "primary industry" in the countryside economy is staple-foods agriculture.

All population centers in these regions are by definition agricultural market centers. They are typically structured approximately as follows: one Regional Urban Center, a set of perhaps 3-5 Sub-Region Urban Centers, and perhaps 3-5 times that many Rural Towns.

In the Philippines in the latter 1960s the countryside economy encompassed 80% of the nation's population, 80% of the total labor force, and 75% of total non-agricultural employment. The 20 Regional Urban Centers accounted for less than 10% of the non-agricultural employment in the countryside economy. Of total employment in the countryside economy, approximately 30% was non-agricultural.[3.]

Characteristics of the Two Economies and Their Interdependence

Structure of Industries. Economic activity in each Economy extends over the full range of ten Major Industry Groups in addition to that in the primary industries. It is necessary to distinguish the latter from the other industries within its Major Industry Group. It will be convenient therefore to adopt the following notation. Given a letter symbol for a Major Industry Group, a superscript c or e will be applied to distinguish whether it refers to that group in the countryside or the enclave economy, respectively. A sub-script "1" will be appended to refer to primary industries in that group while a subscript "2" will be used to designate the other industries. Thus, within the enclave economy we distinguish M_1^e, modern factory production, from M_2^e, other manufacturing. Further we specify that no M_1^c exists, by definition. We can utilize an A_1^c and an A_2^c to distinguish production of staple foods (and some export crops) from that of secondary crops. In general, the composition of activity in the two Economies might therefore be represented qualitatively in the form of two sets of column vectors thus:

	Enclaves Economy (superscripted "e")		Countryside Economy (superscripted "c")	
Agriculture	A_2	A_1	A_2	A_1
Forest/Mining Products	F_2	F_1	F_2	
Manufacturing	M_2	M_1	M_2	
Commerce	C_2	C_1	C_2	
Construction	K_2		K_2	
Transport	T_2		T_2	
Business Services	BS_2		BS_2	
Personal Services	PS_2		PS_2	
Government Services	GS_2	GS_1	GS_2	
Utilities	U_2		U_2	

Ignoring production for export for the moment, it will be noted that groups with a sub-script "1" may be interpreted as not only the "primary industries" leading growth in their respective economies but also as those industries producing for the national market. The corollary is that all other industries may be taken to be producers for essentially local markets, local here referring to the economic region in which the production takes place. It will

be noted that production for the local markets in each economy covers the full range of Major Industry Groups.

Within the local industries there are two distinct categories: those which are producing for household demands as opposed to those which exist to support production in the primary industries. Both are sets of derived or dependent industries in the sense that they are creatures of the primary industries. Reflecting this causation, the latter are designated "complementary industries"; the former, "income-effect industries".

The complementary production activities are in general different in the two economies since the primary industries are different. In the countryside they are those relating to the storage, processing, and transporting of the agricultural products of the A_1^c sector plus the supply of agricultural inputs. Thus they correspond to the activities which are loosely described as agro-business. In the enclaves economy the classification complementary industries encompasses the backwards and forwards linkages from the primary industries. Thus it covers finance and distribution activities relating to these industries
and backwards integration of production. These activities are specified as initially occurring entirely within the enclaves economy.

The income-effect industries, in contrast, are essentially similar in the two economies. Assuming that the relatively small part of total household demand which is from high income groups is satisfied to a considerable extent from primary industry production (e.g., modern factory goods and import services) or imports, the income-effect industries are specified to be predominently wage-goods producers — broadly defined — in either economy. They face essentially similar tastes and demends and are substantially identical

in scale of operation, technology used, and products produced. The household consumption goods and services that are produced by them prominently include: personal services, especially laundering, eateries, barber shops and recreation services (PS_2); bakeries and tailoring (M_2); personal transportation services (T_2); trading services (C_2); furnishings manufacture (M_2); housing materials manufacture including sash work, iron work, and cement block manufacture (M_2), and housing up-grading services (K_2).

It is worth noting that in the Philippines' case study of an agricultural sub-region the complementary (agro-business) industries proved to be substantially less important than the income-effect industries in absorbing labor. The former accounted for less than 25% of full-time equivalent employment while the latter accounted for over 50% and was growing at a faster rate. (The unaccounted for residual encompasses public services broadly defined, i.e., government, teachers, and medical services.)

Trade Theory Describes Interdependence. Possibly the most distinctive feature of the Dual Modern Economies Growth Model is that the relationship between the countryside economy and the enclave economy is perceived as that between strong trading partners. Neither is dominant in their interdependence. The dual economy models which present the agriculture sector — which has tended to be equated with the countryside as a whole — as dependent, the source of agricultural and labor surpluses which flow to the enclaves economy to be mobilized for development, are seen to describe a stage of development prior to that being modeled here. This model hypothesizes that for purposes of static analysis the link between the two economies may be dealt with using traditional trade theory.

The countryside economy produces the full range of goods and services required by its populace, excepting only (i) modern producer goods, which include prominently modern agricultural imputs and motor vehicles, (ii) industrial intermediate goods for local production, and (iii) modern consumer goods, defined as those produced in "modern factories". The latter are "imported" from the enclave economy (regardless of whether their origin is domestic or foreign) where a comparative advantage exists in their production. The comparative advantage of the countryside economy being in agricultural production of staple foods or export crops, it "exports" these to the enclave economy in raw or semi-processed form in order to pay for its "imports". The countryside economy has no direct economic relations with the rest of the world, all export-import services having been defined to be located in the enclave economy.

Virtually all principles of traditional trade theory hold in describing the interdependence of the two economies. Barriers to labor migration, remittance flows, and capital flows are minimal. Information moves swiftly between economies in geographically contiguous regions, providing grounds for a presumption of equilibrium resource markets both within and between such contiguous parts of the two economies. In general, competitive conditions hold in all local industries in both economies and in the primary industry of the countryside economy. Primary industries in the enclaves economy may enjoy varying degrees of monopoly power in their market.

Adjusting for Differential Costs of Living. The generally accepted practice of assuming away the index number problem as regards money values in different economic regions is rejected. This is done on the grounds that for the 1970s

and 1930s it would be a crucial assumption affecting strategic variables, perhaps the most mischevious single effect being that it would substantially undervalue the real productivity and income of labor in the countryside economy. In general, employment of the assumption of money values being equal across all regions would substantially misrepresent relative values of factors and products both between the economies and within them.

A less strong assumption is made, namely, that money values are homogeneous within each economy but that there is a significant cost of living differential between them for wage earners. It follows that factor prices must be adjusted for this differential in all calculations of factor productivities and real incomes.

For purposes of exposition it will be assumed the cost of living in the countryside economy is on the order of 50% of that in the enclaves economy for substantially similar wage-goods market baskets. This conveniently round figure is no doubt low. However, to support its approximate proportions one can cite interesting partial measures such as: (i) one study of the labor market in proximity to New Delhi which suggested an equalizing differential of 100% was required to attract unskilled labor into New Delhi from surrounding rural areas[4] and (ii) the median cost of housing in rural areas of the Philippines in 1965 was one-third of that in the Greater Manila Areas.[5]

The cost of living in geographic regions other than that of the primary metropolitan area have often been found to be fairly close to the cost of living in the metropolitan area, say, 75-80% of the latter. These calculations of "regional cost of living differentials" have had the effect of obscuring the true magnitude of the differential that

exists between the countryside and the enclaves. There are two reasons. First, non-agricultural enclaves (which include agricultural export enclaves) within the geographic region are included in the index calculation. Second, these economic regions are more than proportionally weighted in it since their economic activity is relatively monetized and accurately measured while that of the agricultural (economic) regions are less monetized and characteristically underestimated.

Because the geographic regions in question are typically thought of as essentially agricultural in contrast with the metropolitan region, the tendency has been to consider the differential for the geographic region to be a reasonable first approximation of that of agricultural (economic) regions. By extension, since the differential does not appear to be great, these calculations have had the effect of providing support for the argument that assuming away the index number problem is non-crucial with respect to agricultural (economic) regions in general, that is, with respect to the countryside economy. There is a strong presumption that this is not so. Thus, one of the operationally more significant features of the Dual Modern Economies Model is to provide a conceptual basis for disaggregating existing regional cost of living data and reaggregating it in a manner which more accurately corresponds to that in agricultural economic regions.

III FURTHER DESCRIPTION OF THE COUNTRYSIDE

The critical aspect in specifying the organization of the countryside geographically is the nature of the structure of the trade centers. A three-tiered structure is hypothesized here with a further hypothesis that there is differential specialization in production as between the tiers.

The Trade Center Structure in Agricultural Regions

An essentially homogeneous settlement pattern is assumed throughout an agricultural economic region. "Farm settlements" correspond to entities variously referred to as hamlets, barrios, villages, etc. These settlements are by definition not trade centers. They may tend to cluster along lines of communication and around the first-tier trade center, the Rural Town, but in general they are spread across the landscape in about as homogeneous a pattern as is the arable land.

As has been noted, the trade-area criterion is employed to define the three tiers of towns and cities, all of which are agricultural market centers by definition:

(i) Rural Towns are trade centers serving only their immediate agricultural hinterlands.

(ii) Sub-Region Urban Centers may be thought of descriptively as "cross-roads town", which they frequently are. In the model they are defined as agriculture market centers which serve surrounding Rural Towns in addition to their own agricultural hinterlands. Their trade area is the sum of their own hinterlands plus the trade areas of the Rural Towns they serve and it defines the sub-region.

(iii) Regional Urban Centers are defined as those agriculture market centers which serve a set of Sub-

Region Urban Centers in addition to serving the immediately surrounding Rural Towns and their agricultural hinterlands. Their trade area is the sum of their own sub-region plus the trade areas of the Sub-Region Urban Centers they serve. This trade area defines the agricultural economic region.

The designation of the second and third tiers as "urban" centers has both conceptual and pragmatic roots. First, the Rural Town function tends to be accompanied by an agglomeration settlement pattern which is in part a natural clustering of farm settlements around an economic/geographic center and in part a reflection of more truly urban processes. A Rural Town therefore is rarely unambiguously non-agricultural, a characteristic urban definitions frequently attempt to discern. In the model this mixed agricultural/non-agricultural pattern is defined as inherent in the bottom tier of trade centers by specifying them as being non-urban, but towns nevertheless. Second, there is the pragmatic fact that official definitions of urban places often have the effect of drawing the line just above the large group of very small population centers, a group which tends to correspond to the model's concept of Rural Towns. Third, it is intuitively appealing to reinforce the first point by suggesting that in the countryside the classification "urban" be restricted to those trade centers which perform more than an immediately local function, that is, to those which serve other population centers in addition to serving their own agricultural hinterlands.

Specialization in the Trade Center Structure

Trade centers in the model are general economic centers. They are the focii for the marketing of agricultural products, the distribution of trade goods and, equally important, production of non-agricultural goods and services, mainly for

household consumption.

The model hypothesizes that in each of these three areas increasingly specialized goods and services are produced at successive tiers of the trade center structure within an agricultural region. The distinction between the top and bottom tiers is assumed to be unambiguous at almost any level of development. That is, in a given agricultural region, the range of specialized services available in the Regional Urban Center but not in Rural Towns can be readily identified. The differential specialization will be less unambiguous as between successive tiers. Nevertheless, the model specifies that in general within a region there exists distinguishable differential specialization in production between the tiers of trade centers.

Unlike the case of industrial areas where resources flow first to the center and subsequently spread outwards as economic activity expands along the perifery, in agricultural regions non-agricultural functions and specializations accummulate at each successive tier by a process akin to grafting. A Sub-Region Center is essentially a Rural Town with additional functions and specializations grafted to it. Similarly, a Regional Urban Center is recognizable as an augmented Sub-Region Urban Center, one whose prosperity is derived as much from the prosperity of the sub-region which it serves as from the income derived from the regional center functions grafted onto it.

Two implications for economic growth flow from the above. The first is that the process of non-agricultural growth in agricultural regions starts at the bottom, that is, that there is no growth in trade centers independent of that of agriculture. Growth starts in the Rural Towns where it is entirely a function of increased incomes and production in farming communities. The addition of new specializations

to a Sub-Region Urban Center is rooted in these same increases in income and production. So also is the growth of specializations in the Regional Urban Center. The second is that in the model, just as specializations accumulate through a layering process, so do growth rates. A new impetus to growth from the addition of new specializations provides an increment to the basic growth rate of the trade center, so that successive tiers enjoy successively higher rates of growth during a period of increasing agricultural production.

IV. - The Dynamic Aspects of the Model

The Dynamics of Growth

The "Top-Down" Growth of an Industry/Export Enclave

Growth in the enclaves is defined as following from an industry/export-led growth regime. The economic (and usually urban) center of an enclave becomes a growth pole, producing expanding concentric rings of complementary industries, income-effect industries and, eventually, dormitory communities. Spread effects emanating from the core with its leading industries produce these rings of urbanization and suburbanization and continue out of the limits of the "urban shadow", on balance benefitting the entirety of the enclave. Backwash effects by definition fall outside the enclaves.

The "Bottom-Up" Growth of a Unimodal Agricultural Regime

The model assumes the countryside economy is based upon small farm agriculture, that is, a unimodal agricultural regime. Growth derives from broadly-based agricultural modernization, with technological innovation resulting in increased factor productivities and incomes. The increases in income being broadly shared, the new buying power is focused importantly on simple, functional, locally-produced goods and services. These new demands are focused most heavily on the widely spread Rural Towns. Relatively less demand falls on Sub-Region Urban Centers and still less on the Regional Urban Center, the locii of successively more specialized and higher quality products. This phenomenon of progressively more concentrated demands arising from agri-

cultural growth in the countryside economy is the analog to the spread effects of industry/export-led growth in the enclaves. Because they are pyramidal in their impact, they will be referred to as the "pyramid effects" of agriculture-led growth. Like the spread effects, they are essentially positive in impact, creating employment, fostering specialization, and having generally desirable multiplier characteristics.

Differential Urbanization in the Two Economies

The spread effects of growth in enclaves give rise to "spread urbanization", concentric rings of urban development spreading from the core of the enclave. Each urban area may be thought of as being the creature of enonomic activity in a more central location and in turn providing a stimulus to growth of areas farther out. In this sense all urban places in enclaves may be said to be growth poles or potential growth points.

In contrast, the pyramid effects of bottom-up growth in an agricultural region give rise not to growth poles but to "service centers". They are not leaders of agricultural growth but creatures of it. Thus, pyramid effects from agriculture-led growth produce "pyramidal urbanization", the growth of a structure of service centers which exist mainly to meet demands from below. Like a pyramid, this structure is raised from the bottom up - first the broad base of Rural Towns, then the much less numerous Sub-Region Centers, and finally the cap-stone Regional Center.

Intereconomy Interactions

As noted above, the spread effects of industry/export-led growth all fall within the enclaves, by definition. Analogously, the pyramid effects of agriculture-led growth do not extend beyond the agricultural regions. Thus, the

model consigns all positive interactions between the two economies to their trade sectors.

Negative interactions between them derive from imbalences in factor flows. The negative interactions deriving from industry/export-led growth are the classic backwash effects, i.e., the excessive attraction of the high quality and scarcest factors of the nation — both labor and capital — into the enclaves economy. In the model the resulting relative impoverishment all occurs in the countryside economy. The analogous negative effects of countryside growth on the enclaves are a function of the absence of such growth. They are the flow of low-quality, surplus factors into the enclaves undemanded. There they burden the social services out of proportion to the social cost of sustaining them at home. As the two economies move towards an optimal balance the negative interactions diminish until ultimately only the positive interactions of trade remain.

The Interface Between the Two Growth Regimes

The 1970s are seeing the Regional Urban Centers which cap the pyramid of service centers in agricultural regions become the locus of the interface between "top-down" growth and "bottom-up" growth.

Historically the industrialization development strategy was focused initially on the metropolitan center of the nation and subsequently was extended to encompass the, say, three to five economic centers of geographic regions, the second tier of urban centers. Currently economic planners are in the process of extending their purview to the third tier, urban centers in the, say, 50,000 - 100,000 range, of which there may be 15 to 30. They are typically (agricultural) regional urban centers and in the model are so defined. Given that the growth-poles development strategy is so deeply

engrained in the thinking underlying the concept of regional balance, there is a tendency to perceive these third-tier urban places as trade centers in which growth must be induced by the introduction of industry, in the process transforming them into third-order growth poles.

Without a precise perception of Regional Urban Centers as the responsive and growing creatures of agriculture, there will be a tendency to overlook this basis for their growth and hence the policies needed to foster it. Growth which occurs after the establishment of the first industries in such centers will easily be mistaken as being primarily the spread effects of industrialization. An alternative, and more generally accurate, growth dynamic is hypothesized in the model for these urban centers at the interface between the two economies.

Growth in Regional Urban Centers is perceived as occurring in stages, these being equated with particular decades for ease of exposition. Thus, they are perceived as being primarily regional centers for commerce in traded goods during the 1950s. Their growth rates are low, reflecting agricultural incomes which are low and rising only slowly. In the 1960s with agricultural modernization raising incomes sharply the Regional Urban Centers respond to regional demands for increased commercial, manufacturing and social (medical and Educational) services and experience substantially higher rates of growth. In the 1970s these urban centers continue to enjoy substantial growth from rising agricultural incomes in the region and in addition begin to benefit in a small way from the establishment of industries serving the national market. At the end of the decade, however, they are still readily characterizable as agricultural service centers rather than industrial growth poles. It is during this period that they are most appropriately perceived as being the locus of the

interface between the two economies, points where the industrialization development strategy reaches down to touch, but not lead, the countryside economy.

In the 1980s the character of the Regional Urban Centers becomes ambiguous in the model. During this decade or the next they become predominantly non-agricultural enclaves. Their service center function for agriculture is passed down to the Sub-Region Urban Centers. This process parallels the breaking down of the distinction between the agriculturally-based countryside and the non-agriculturally-based enclaves on which the model is predicated. The important point for the model, however, is the fact that for an extended prior period the role of service center for agriculture dominates the growth pattern of the Regional Urban Center.

In sum, going into the 1970s the Regional Urban Centers were growing impressively as creatures of growth from below. During the 1970s they may begin to come under the influence of growth from above as well. In time the latter will probably transform them into industrial centers. But for a significant interim period their growth will be determined by two sets of forces which are analytically distinct.

The Dynamics of Geographic Balance

Regional Versus Rural-Urban Balance

The spatial dimension of the economy which the model defines makes it possible to define precisely the two concepts of regional balance and rural-urban balance.

Regional Balance. The concept of regional balance as conceived by planners and policy makers is effectively an extension of the growth-poles industrialization strategy for development. In the model it is defined narrowly as

referring to the spread of industrialization to second-order growth poles. It is designed to produce better balance of industry among the, say, 3-5 geographic regions. But there is nothing inherent in the concept which would reduce the backwash effects of industrial growth on the countryside economy. Thus, a policy of regional balance is entirely consistent with extreme rural-urban imbalance.7.

Seen in this light, the model specifies that regional balance in industrialization cannot constitute a general development strategy. It is a partial strategy particular to the enclaves economy and has major drawbacks unless pursued in the context of a general strategy of rural-urban balance.

Rural-urban balance. The concept of rural-urban balance encompasses the entire national economy and has general equilibrium properties. This model provides a framework which suggests several possible particular definitions. To avoid diffusing its logic, a single definition will be expounded, though others are readily conceivable.

Rural-urban balance is specified as connoting balanced growth as between the agricultural sub-regions and the three-tiers of urbanization above them. The latter include successively the Regional Urban Centers of the countryside, the second-tier urban centers of the enclave economy, and finally the first-tier, the primary metropolitan area of the nation.

The emphasis of the concept of rural-urban balance is first on protecting and fostering the viability of the agricultural sub-regions of the nation. They are the building blocks of the countryside economy. Each is a definable agricultural area geographically which includes and is focused on a set of Rural Towns and the Sub-Region Urban Center which serves them. In the Philippines in 1968 70% of the non-agricultural employment of the nation occurred in the sub-regions.

In this context, the Regional Urban Center is distinctive primarily for the role it performs in serving its own sub-region.

As a Regional Urban Center it occupies only a point on the geographic mosaic of sub-regions. Thus the Sub-Region Urban Centers may be perceived as being at the center of gravity of the economy, with the three tiers of urbanization above and the agricultural population and Rural Towns below.

Translated into policy terms, the model specifies that the fostering of growth and development of "rural"areas, as the term is normally used by both the layman and the decision-maker, involves first focusing on meeting the infrastructure needs of the sub-regions and second on avoiding unintended policy biases and price distortions which have the effect of drawing resources away from them unwarrantedly.

The concept of balance among the three tiers of urban centers — as defined within this definition of rural-urban balance — must be defined in the context of each particular national economy. This model only goes so far as to assume that present imbalances are primarily those of excessive concentration at the first tier and that the third tier is erroneously perceived as composed of regional trade centers waiting for the dynamics of spread-urbanization to initiate economic growth. It follows that (i) regional balance in industrialization is an appropriate goal with respect to second-tier urban areas, (ii) agriculture-based growth is producing significant urbanization in the third tier which should receive explicit support in public policies well in advance of the entry of industry into this tier, and (iii) third-tier urban centers should be explicitly included in industrialization planning in order to avoid inadvertant biases against their eventual natural participation in supplying the national market as the geographic base of industrialization spreads downward.

The Dynamics of Demographic Balance

The model incorporates two sets of concepts which deal with the question of domographic balance as between the countryside and the enclaves. The first will be couched primarily in terms of relatively untrained labor, the second

in terms of educated labor. (This compartmentalization is far less rigid in actuality.)

Both concepts assume continuity of traditional values into modern life, especially the dominant strength of family ties.

The Dominance of Family and Village Ties

With respect to relatively untrained labor in agricultural sub-regions the model hypothesizes that the pull of family and village ties, even on the young is substantially stronger than the pull of the "bright lights" opportunities of the enclaves. It is only the push of "unacceptable" unemployment at home that tips the scales in favor of migration. Since there is a wide range of acceptability as regards unemployment, it follows that small changes in the quality and quantity of labor absorption in the agricultural sub-regions can have large impacts on rates of migration. The implication is that, if labor absorption in the countryside has increased significantly since the late 1960s, no extrapolations of the migration trends of the 1950s and 1960s are valid.

The Physical Possibilities for Living

For the educated in agricultural sub-regions, the pull of family ties is also remarkably strong. But their willingness to not emigrate hangs importantly on the availability of the physical amenities of life as well as on the availability of suitable employment. The model defines an analog to the concept of physical possibilities of production (PPP) in production theory, namely, physical possibilities of living (PPL). (In strict economic terms this would be defined as a physical possibilities of consumption concept, broadly interpreted to include consumption of unmarketed as well as marketed

goods.) It suggests that the ability of sub-regions to hold their educated people depends importantly upon discrete rather continuous changes in the PPL and that, under the impact of rapid agricultural change, critical thresholds may be crossed by the Sub-Region Centers considerably sooner than is generally expected. Two in particular will be discussed; others will only be alluded to.

Electricity as a Consumption Good. It is difficult to overestimate the impact of the availability of electricity for consumption purposes on town life, especially in a warm climate. The ability to operate lights, refrigerators, electric fans, and television sets (both private and public) fundamentally changes the quality of life in agricultural towns. The change is invariably seen as strongly positive.

Access to Amenities of a City. This is normally perceived as being a function of travel time to the nearest enclave, a slow changing variable. However, this perception overlooks the establishment over time of such amenities in the Regional Urban Center.

To generalize from a particular, there is a case where between 1960 and 1970 travel time from a Sub-Region Urban Center to the nearest enclave was cut by road improvements from 3 to 2 hours. This reduction was perceived locally as the degree to which the Sub-Region Urban Center's isolation had been diminished. Yet during this period most of the amenities which were typically sought in the enclave — especially good stores, urban recreational facilities and higher level schools — had been established in the Regional Urban Center 30 minutes drive in the other direction. There is no question these were acceptable substitute facilities and that the reduction of the Sub-Region Urban Center's degree of isolation over the decade was in fact the difference between three hours and one half an hour.

Prominent among those in this case who were increasingly willing to make their homes in the Sub-Region Center were school teachers and members of local landed families. Many of the latter, who typically had homes both locally and in the nearest enclave, provided concrete evidence of such a change by replacing the old family house in the Sub-Region Urban Center with a new, entirely modern one. Given the substantial entrepreneurial talent and means among this group, their increased willingness to reside in the countryside can be assumed to have significant implications for entrepreneurship and labor absorption.

Other Changes in PPL. Other variables which may be included importantly among the physical possibilities for living in an agricultural town are the availability of medical facilities, the absence of dust as the roads are paved, and the establishment of shops dealing in non-traditional goods as the number of educated, higher income families reaches a threshold level.

V. The Relevance of Recent Philippine Experience

Growth and Development in the Countryside

The experience of the leading agricultural regions of the Philippines during the 1960s is believed to be relevant to the other LDCs to which this model is applicable for two reasons.

First, the Philippines' countryside economy is ahead of that in a fair number of other medium size LDCs by perhaps a decade in terms of the development of its physical and human recources. The average level of education in the countryside of the Philippines is substantially higher than in many; its physical infrastructure is well-advanced; the new high-yielding varieties of rice were introduced there earlier than elsewhere; and its system of over 500 rural banks and 30 local development banks provides an important infrastructure of financial institutions. As a result the immediate past of the Philippines may constitute a model for what will be experienced by others in the 1970s.

Second, the Philippines' countryside provides a variety of sharply delineated circumstances which make causation and change relatively easy to discern. With respect to the process of pyramid urbanization, the early Spanish colonial practice of establishing churches and administrative centers in each municipality early established the structure of Rural Towns on which the pyramid of urbanization has more recently risen. Trade centers tend to be less neatly defined elsewhere. With respect to economic development in the countryside, the central government role has been relatively indirect and growth has occurred primarily as a result of market forces. Central government assistance has tended to occur in response to demands from below rather than from centrally-directed initiatives.

Infrastructure and primary education are important areas in which central government performance has been largely a function of powerful and articulate demands from below. With respect to secondary and higher education, the laissez-faire government philosophy has similarly made visible supply and demand conditions which are typically never clearly established when central public policies are dominant. These two levels of education are almost entirely privately financed with the result that the place of education in the family preference function is relatively explicit. Finally, the pyramid of agriculture market centers is relatively mature and fully formed and thus delineates the differential functions and specializations relatively sharply. This provides a model which is especially useful in projecting the future for countries in which the Sub-Region Urban Centers are only beginning to emerge.

Statistically Defining the Countryside and Enclaves

The Philippines statistical system is relatively advanced among LDCs. Here again it can be argued that its experience of the 1960s can reveal a good deal of the path others will travel in the 1970s. In particular, the national household sample survey design was relatively mature and easy to disaggregate geographically by 1960. It treated each of some 50 provinces and five major urban areas as sample units. It is thus possible to isolate data on the enclaves for 1960 and then obtain that for the countryside by subtraction. The methodology for accomplishing such a disaggregation of household survey data — in this case a sample of the 1960 population census — may be found in the Appendix. It may be possible to follow this methodology in other LDCs using 1970 census data.

Philippine household survey data is very much more accurate than data from surveys of business establishments. As this is typically the case elsewhere, it will usually be necessary to approach the analysis which this model suggests largely using labor force data. Fortunately, this necessity dovetails nicely with current policy interests. In addition, given the relative low level of capital use in the countryside, data on labor may be effectively utilized as a proxy for a variety of other data, including levels of output, cottage industry (part-time female employment), and growth in agricultural market centers (non-agricultural labor force in the countryside).

It seems possible that approximate magnitudes could be established for the important variables of this model in other LDCs. If tabulated regularly for the countryside and enclaves economies, patterns should emerge within a period of a few years that would be useful to decision-makers with respect to policies toward unemployment, geographical balance, and migration.

FOOTNOTES

1. See "Preliminary Data on Non-Farm Employment Changes in an Agricultural Sub-Region," Arthur Gibb, Jr. (I.E.D.R. Discussion Paper No. 72-19, June, 1972)

2. See "Defining the Non-Farm Employment Question", Arthur Gibb, Jr. (I.E.D.R. DP 71-14, August, 1971)

3. Ibid

4. Described by Arnold Harberger in a lecture at the School of Economics, The University of the Philippines.

5. The BCS Survey of Households Bulletin, "Labor Force, October, 1966," (Series Number 21, Table 47, median rent data)

6. As the term is used here small-farm agriculture does not imply ownership by the tiller. It is sufficient if the tiller has security of tenure.

7. One need only envision five major industrial enclaves, instead of one primate enclave, with the backwash effects of all of them extending geographically beyond their spread effects. Theoretically the net effect on the countryside could be simply a more effi-andcient and complete drawing off of scarce resources to the enclaves. Examples of such a pattern could perhaps be found in parts of Latin America in recent decades.

A Methodology for Statistically Defining the "Countryside" and Its Towns and Cities Utilizing 1960 and 1970 Census Data

The proposed methodology has two principle objectives:

1. To distinguish "the countryside with its towns and cities" from the "industrial and export enclaves" in the Philippines and to disaggregate the former into three strata;
2. To provide a basis for overcoming the inadequacies of the rural-urban definition for social science analysis by providing a statistical framework within which "non-agricultural" households could serve as a proxy variable for "urban" households.

The "countryside" is defined statistically as follows:

	1960 Census (Tape of .5% sample: 1 in 20 EDs; 1 in 10 households)	1970 Census (To be tabulated by municipality/city)
I. Total Household Data		
II. Less data for: 5 provinces: Manila, Rizal, Bulacan, Negros Occidental, Lanao del Norte	.5% sample done by province; no problem	Use Bureau of Census and Statistics tabulations.
8 Category I Urban Places: Cebu City, Iloilo City, Baguio City, Cavite City, Mandawe, Davao, Angeles, Olongapo	.5% sample is random for cities for cities but province was sample unit for others. Aggregate sample households in them and assume ok for the group.	Use BCS tabulations.
III. Yields: "Countryside"		
IV. Less Data for 20 Regional Urban Center municipalities (Selected by various criteria. Two were cities in 1960.)	RUC sample households selected with province as sample frame, except for 2 cities (but they only 60,000 so only 3 EDs in sample). Handle as in II, above.	Use BCS tabulations.
V. Yields: Total employment in sub-regions of countryside. Take non-agricultural employment here as proxy for that in all 200 Sub-Region Urban Centers and 1,100 Rural Towns.		

Obviously this is a crude disaggregation as between the countryside and industrial/export enclaves. It excludes Negros Occidental on the grounds the whole province is in effect a plantation. But it includes in the "farm" sector (as the countryside is perceived) the sugar on Luzon, Panay, and Negros Oriental (they account for 40% of total production). It also includes Del Monte, Dole, and the banana plantations. These inclusions have no justifications; they are constraints of the data. So are the non-exclusion of timber and mining municipalities though here there is some justification. Statistically mining accounts for 1/2% of the labor force. Assuming logging for export accounts for a similarly small part of the labor force, it can be argued that these industries have little impact on the countryside in the sense that they inject little income into it and therefore are not statistically significant in that sector. It seems reasonable to assume the really significant purchasing power generated by these industries flows directly to Manila and the like.

The crudeness of this definition of the countryside/sector is justified by the overwhelming weight of the "farm" sector within it. There seems little doubt changes in non-agricultural household data in the sector will be functions, directly or indirectly, of changes in agriculture sector outputs and productivities. Similarly demographic variables within it should fairly reflect the composition and changes in the agricultural community.

The Regional Urban Centers are of particular interest. They are large towns or small cities and constitute the bottom rung of the structure of urbanization as it is usually thought of these days. They are coming in for increasing attention as possible "growth poles" in strategies for regional balance, rural-urban balance, and industrial dispersion. The households sampled in them in 1960 are a sub-set of the 2 stage

sample taken using the province as the population. Inference is not possible, therefore, with respect to any individual Regional Urban Centers. It may reasonably be done with respect to the set of 20 of them. An easy check on bias in the 1960 sample for the set of Regional Urban Centers would be to compare the structure of the RUC non-agricultural labor force with that of the "Sub-Region Urban Center and Rural Town municipalities" and of the 8 Catagory I urban places. If the estimated RUC labor force structure is intermediate between the two for key major industry groups, this fact would suggest any bias was relatively small. This measure of bias in the labor force data would probably serve as a reasonable proxy for bias measurement in the demographic data as well.

Within the countryside data it is felt that "non-agricultural households" would provide a better criterion of agglomeration than available "urban" categories. In addition by using this proxy it would be possible to get around the change of the rural-urban definition in 1970. The tendency of non-agricultural households to cluster in and around the town proper is strong in the Philippines, but not uniformly so. Thus, the usefulness of this proxy variable for households in central places might have to qualified by region. It might have considerable value, nevertheless, especially when the variable one is really controlling on its degree of isolation since these non-agricultural households not near central places tend at least to be on transportation arteries and to be relatively mobile.