WORLD EMPLOYMENT PROGRAMME
Population and Employment Project

Population and Employment
Working Paper No. 48

POPULATION, EMPLOYMENT AND POVERTY
IN THE PHILIPPINES

by

R. Wéry, G.B. Rodgers and M.J.D. Hopkins

These working papers are issued to stimulate discussion and criticism. They should not be quoted without the permission of the authors.

Copyright © International Labour Organisation
Geneva

February 1977.

Table of Contents

	<u>Page</u>
1. Introduction	1
2. BACHUE-Philippines: Content and Use	5
3. Results of Model Simulations	13
(a) Alternative Futures for the Philippines	13
(b) Policy Analyses	17
(c) Strategy Analysis	24
4. Some Conclusions	31

1. Introduction

There is a long history of concern about the determinants and consequences of population increase. The population element in economic and social development is widely considered to be important, but there has been no general agreement on how, why or where it is important. The Malthusian view, or developments of it, has long had many supporters. Continuing population growth, in this view, is a threat to human welfare. The basic reason is because the resources of the earth are finite, and exponential population growth is bound to exhaust them sooner or later.¹ Another influential point of view, with a similar conclusion, is based on the dynamics of the growth process. Broadly, investment is seen as the major constraint on economic growth. Since children are thought to divert savings into consumption, or to divert investment into unproductive uses, or to prevent capital deepening, high fertility and high rates of population growth are likely to lead to reduced rates of growth of income.²

But the opposite view is also widely accepted. The question of limited resources is sometimes seen as a problem so distant that we need not explicitly consider it now - it has even been argued that given conceivable levels of agricultural progress, the earth could support a population

¹ See Ehrlich, P.R., The Population Bomb (New York, Ballantine Books, rev. edn., 1971) for an influential statement of this view.

² These are the basic elements of the Coale-Hoover or Enke-TEMPO positions, for instance. See Coale, A., and Hoover, E., Population Growth and Economic Development in Low Income Countries: A Case Study of India's Prospects (Princeton U.P., 1958), and Enke, S., "Reducing Fertility to Accelerate Development", Economic Journal, Vol. 84 (June 1974).

hundreds of times its present size.¹ Other writers have pointed to the possible exploitation of non-earth resources. More prosaically, declining rates of population growth in Europe in the 1920s and 1930s led to much speculation as to the possible adverse consequences of a falling population for economic development, and recent rapid declines in fertility in Europe have evoked similar concerns. Population growth is sometimes seen as instrumental in promoting technology change², while Sauvy, among others, has stressed the importance of "moral factors" by which young populations have more dynamism and are more adaptable than old³; this would imply a preference for an age structure oriented towards the young, and therefore for high fertility.

It is not surprising that the role of population factors in development is controversial, because of the wide variety of relationships between economic and demographic change. Apart from the relationships noted above we can point to the impact of fertility on female labour force participation, and more generally, the impact of dependency on labour force participation; to the impact of population growth and migration on the total labour supply in different labour markets (and the consequent implications for wages and income distribution); to the effects of population growth and population age structure on household consumption - with consequent effects on the structure and perhaps the level of production; to the implications of population growth for land tenure systems and agricultural development - or more generally for the ownership and inter-generational transfer of wealth, and thus for the

¹ Based on Clark's estimate of 27 sq. metres continuously cultivated as adequate to provide food for one person, under certain admittedly rather far-fetched assumptions about agricultural development. See Clark, C., Population Growth and Land Use (London, Macmillan, 1967), pp. 155-7.

² See Boserup, E., The Conditions of Agricultural Growth (Chicago, Aldine Publishing Co., 1965).

³ See Sauvy, A., La fin des riches (Paris, Calmann-Lévy, 1975).

organisation of production; to the impact of population growth on government expenditure (in terms of volume, allocation and effectiveness); and to a variety of other ecological, environmental, social and economic effects. These are all relationships in which the direction of causation is from demographic change to economic change; but the reverse direction is equally important. Marriage, household formation, fertility, mortality and migration respond to economic and social changes. Increased job opportunities for women may delay marriage, reduce fertility, and - depending on the location of the jobs - change migration. Mortality, and health in general, are closely tied to over-all levels of living. Wage differentials affect migration. Education levels, themselves often linked to economic change, influence virtually all demographic variables. In general demographic and economic decisions at household level are inter-related, and depend on a variety of economic and social conditions external to the household.

Policy response to population problems has not generally taken into account the diversity of relationships noted above. Measures implemented have varied from incentives to increase fertility (e.g. France and French-speaking Africa, in tax and social security provisions) to attempts at compulsory sterilisation (e.g. India since 1976). But the dominant population policy has been the extension of family planning techniques, aimed at reducing fertility. Migration policies, where they exist, often consist of attempts to reduce population movement by means of controls of various types. Although usually justified by reference to potentially undesirable effects of high fertility or migration, such policies are rarely integrated into a coherent approach to population and development. Thus the application of individual policy measures is for the most part based on partial cause and effect relationships, and so tends to omit indirect effects. Likewise, policies aimed at income distribution or the labour market, for instance,

do not normally take significantly into account the likely implications for migration, fertility, mortality, and so on. Yet there are such implications, which, moreover, feed back into the economic system as secondary effects which can eventually complement or negate the policy maker's originally desired outcomes.

Our basic premise, then, is that where economic or social changes have demographic repercussions, or where demographic changes have social implications, these wider effects need to be taken into account in policy evaluation. More generally, the design of policy packages or approaches to development should be such as to allow for these inter-relations, and for possible complementarities and conflicts between different policies affecting population and development. The importance of these points becomes greater, the longer is the planning horizon. In the short term, say up to five years, demographic issues are relatively unimportant because populations change slowly. In the longer term, however, it is likely that demographic factors are major determinants of development patterns.

In an attempt to allow for these issues in an analysis of population, employment and income distribution in the Philippines, we have built a large scale simulation model which we call BACHUE-Philippines.¹ This model, described briefly below, is a quantitative representation of the economic-demographic system of the Philippines, which permits the simulation of alternative development paths and the impact of alternative policies. There are arguments for and against the development of large quantitative systems models

¹ BACHUE is a goddess of love, fertility and harmony between nature and man in Colombian mythology. A full description of the model and experiments performed in it will be published shortly (Economic-Demographic Modelling for Development Planning: BACHUE-Philippines, by G.B. Rodgers, M. Hopkins and R. Wéry (ILO, forthcoming, 1977)). Other models in the BACHUE series are being developed for Kenya, Brazil and Yugoslavia.

for planning and heuristic purposes, as compared with the use of less formal "mental" models. We discuss some of these below, after briefly presenting the structure of the model. We then go on to present, in summarised form, some of the main results and conclusions we have reached from the use of this model.

2. BACHUE-Philippines: Content and Use

For reasons of space, we give only a very sketchy outline of the content of BACHUE-Philippines here.¹ The model simulates the behaviour in the intermediate to long run (10-50 years) of economic and demographic aspects of development. It is both dynamic and recursive: dynamic in the sense that responses and relationships occur and change over time; and recursive in that even within a single time period, events occur in sequence. BACHUE-Philippines incorporates many lags between changes in one part of the system and consequences in another, and thus treats the process of growth as a disequilibrium one - a process of continually adjusting towards equilibria which themselves change over time.

The model is not based on a theory of optimisation, and thus does not fall in the neo-classical tradition. Rather it attempts to replicate real world phenomena, incorporating observed relationships at both macro and micro (household) levels. The consequences of household decision-making in a number of key areas are built into the model, including fertility, marriage, migration, the allocation of income between saving and consumption, expenditure patterns, and labour force participation. This household model is integrated into a wider macro-model, which covers the relationships between demand, output, employment and incomes.

¹ Readers interested in details of model structure are referred to Economic-Demographic Modelling for Development Planning: BACHUE-Philippines, op. cit.

There is extensive disaggregation of the model. Some 150 basic demographic categories (age, sex, location, education) are identified, with disaggregated labour supply, marriage, fertility, mortality, migration, school attendance, and household headship rates. On the economic side sectoral final demand is disaggregated into six major components, with the determination of household expenditure further disaggregated in detail. There are 8 rural and 9 urban producing sectors, with value added distributed in some 40 profit or wage-earning categories. An idea of the structural dimensions of the model is gained from the fact that it can be described in about 250 behavioural equations and identities.

Two diagrams summarise the content of BACHUE-Philippines. Figure 1 is a schematic of the variables and sub-systems which are endogenous, exogenous, or not considered in the model. This gives a quick over-view of the scope and substance of the model, but, like all summaries, is not as precise a representation as a full description. Figure 2 portrays the main flows and causal relationships between the different elements of the model. The model contains three sub-systems (identified in the endogenous variables of Figure 1) - economic, labour market and income distribution, and demographic - with extensive links between the different sub-systems. The major modelling effort was concentrated on the labour market and income distribution, and demographic sub-systems, and especially on their inter-relationships. By contrast, some major economic variables are omitted or determined exogenously; these include most prices and inflation, and in many runs of the model the determination of aggregate output and investment.

The economic sub-system is a demand-based multi-sectoral model which generates sectoral outputs and value added in both urban and rural areas. Final demand is partly determined by household consumption, in turn a function of population size, structure and location. Exports, government

Figure 1: Schematic of Scope of BACHUE-Philippines¹

¹ This schematic gives a rough idea of the range of issues treated in BACHUE-Philippines. The categories are: (a) endogenous - all major areas determined by the model; (b) exogenous - major variables affecting endogenous variables but not affected by them; (c) outside - other areas which may be important for national development planning, but which are not directly represented in BACHUE (some of their effects may however be indirectly represented). Those in the diagram in this category are only a selection of the most important of the areas not treated in the model.

The method of presentation is due to Donella Meadows and Jenny Robinson of Dartmouth College.

Figure 2
Main Relationships in BACHUE-Philippines¹

¹ Government interaction is not shown in this diagram because it appears nearly everywhere and would make the diagram overcrowded. Many detailed interactions are omitted for the purposes of this summary diagram, and time is also not explicitly shown.

expenditure, and private investment also contribute. Supply constraints, if incorporated, are modelled by imposing an over-all target for total output based on planning targets or estimates of possible growth rates. The sectoral components of output, however, are always endogenous. Using a Leontief input-output production system, output, imports and value added by sector are determined. If aggregate supply is constrained, the output growth demanded in any sector is revised so that the over-all constraint is not exceeded. The agriculture-industry terms of trade are also generated by this part of the model.

In the labour market and income distribution subsystem, labour supply is determined by age-sex specific labour force participation rates, which are functions of jobs in modern sectors, education levels, household incomes, and occupation of household head. The employed are distinguished from the self-employed, and separate labour markets are specified for "skilled" and "unskilled", urban and rural, and modern and traditional sectors. Dualism is represented by the tendency for excess labour supply to be absorbed by traditional sectors; unemployment is modelled, but is treated as more a social than an economic phenomenon. Both rural-urban and intersectoral migration of workers are considered explicitly. The system is then solved to obtain wages and employment. These in turn generate household incomes, which are aggregated into rural and urban income distributions. The latter - in addition to being major outputs of the model - enter into the determination of household expenditure and savings.

The demographic sub-system determines marriage rates, fertility, migration, mortality and education. The approach utilises the concepts of household decision models where possible. Among the behavioural relationships, marriage rates depend on education levels and female labour force status. Fertility is affected by female labour force

participation, mortality, education, and the proportion of the population which is agricultural. Rural-urban migration is based on education levels, rural-urban wage and income distribution differentials, sex, age and marital status. Mortality is a function of the level and distribution of income. Education levels are determined by school graduation rates, in turn functions of government policy. The system then tracks the disaggregated population as it is born, gets older, is educated, migrates, and dies.

Each of the relationships of the model is quantified. In the majority of cases, the method used was econometric estimation using Philippine data. In certain areas, where data were poor, less rigorous approaches were required, including informal estimation methods, consistency scaling, and the application of international cross-section data.

The main purpose for which we have developed this model is to replicate the future evolution of the Philippine economic-demographic system. The model can trace out a path for each element of the system, representing the changes in these elements over time in the real world. The extent to which this path actually coincides with real world phenomena depends on a number of factors. Firstly, the structure of the model should be a reasonable description of reality - i.e. the most important relationships should be built into the model. Secondly, the estimation - the numerical representation of the relationships - should be accurate. Thirdly, the behaviour of elements outside the system, but which affect components of the system, has to be taken into account. Fourthly, we need to allow for the effects on system behaviour of deliberate policy actions.

In practice, none of these conditions is fully satisfied, and this introduces inaccuracy and bias into systems modelling. Some of the biases derive from inadequate knowledge or data; some evidently reflect the value judgements of the modellers. Taken together, they imply that caution is required in the use of models. Our knowledge of the future

is imperfect, and while it is our premise that organising knowledge into a systems framework will improve the way in which we view the future, it will certainly not permit us to accurately predict. The alternative growth paths and alternative futures simulated by the model thus represent conditional forecasts, conditional on the four factors noted above. The first and second factors, relating broadly to knowledge and data, are clearly important. In neither case can we be satisfied with the inputs to model development, and improvements will always be possible. The third factor, exogenous influences on the system, also plays a considerable role. As we move away from the physical towards the social sciences, from the short to the long term, and from simple to more complex systems, the future becomes more likely to be determined by factors which we are unable to explain. The system with which we are concerned is social, long term, and complex, and exogenous factors are therefore likely to be important. Finally, since the range of possible policy actions is wide, any particular development path traced out by the model is dependent, implicitly or explicitly, on the choice of a particular set of policy options.

Thus, for decision-making purposes, the value of single model outcomes - i.e. single projections - is limited. However, the last point above, which contributes to this conclusion, also points to a major use which can be made of a systems model of the BACHUE type. By running the model under alternative policy choices, or under alternative assumptions for exogenous variables, and then comparing the outcomes, we can undertake evaluations of specific policies, and of alternative development paths, which take both indirect and direct effects into account. The model can thus be treated as a policy laboratory, a numerical analogue of the economic-demographic system on which experiments can be performed which would otherwise have to be performed in real life. Whether or not the results of these experiments are valid evidently depends on the first and second factors noted

above; however the importance of the exogenous variables is less for this type of experiment, since they can be held constant from experiment to experiment and therefore only have secondary effects on the results.

To summarise the uses of a model such as BACHUE, then, there can firstly be a contribution to the general debate on development policy. Using the model to investigate specific policies and strategies of development is likely to provoke discussion as to the realism of particular outcomes, and thus to provoke debate on the economic and social mechanisms influencing population, employment and income distribution. This can lead to a refinement of the mental models which ultimately shape development policy. A second, and more specific contribution of the model is as an aid to decision-making. It provides quantitative information on the likely consequences of specific actions. Before decisions are taken, of course, outcomes from the model must be combined with information from other sources, account taken of the various pressures exerted on the policy-makers, and so on. Thus, the use of a model here is to extend, rather than to replace, the previous information base for decision-making.

There are other ways in which a model of the BACHUE type can contribute too. Consistency between actions in different fields (e.g. different ministries), can be assessed using the model; thus improved co-ordination might be promoted. The explicit identification of a range of variables as possible objectives in the model might clarify the importance and relevance of taking multiple objectives into account even in the assessment of policies of limited scope. And gaps in the representation of the system can help identify needs for new data and further research.

While these various contributions are potentially valuable, it is necessary to clearly see the place of a model such as BACHUE in the planning process. It contributes

little to micro-level analysis - project formulation and implementation - except to provide the macro-context. It also says nothing about the political and practical feasibility of many policy measures. And because models of the BACHUE type are imperfect as representations of social systems, they should be used with a clear perception of both their strengths and their weaknesses. The planner or analyst who uses a model such as BACHUE-Philippines would also have a wide range of other information available, which would complement that available from the model alone. Such information can of course also eventually contribute to improving the model. In one sense, no model is ever complete, and a model which is used for planning purposes will evolve over time to allow for new or improved data, ideas, theories and policy options.

3. Results of Model Simulations

A wide variety of simulations have been run with the model. In this section we give summarised results from some of these experiments.

(a) Alternative Futures for the Philippines

(i) The basic scenario or reference run

One of the many possible future development paths has been chosen as a basis of comparison for subsequent experiments, and we refer to it as the "reference run". In order to establish this run, we have selected values and growth paths of a number of variables exogenous to the model, and combined them with an assessment of likely future development policies. The variables involved are important - they include exports, aggregate output, investment, import substitution, education growth, agricultural productivity growth, and a number of others. The values we have chosen reflect certain existing attitudes and expectations of Philippine planners, as well as our own subjective appreciation of what is feasible and what is likely. Of course, much guesswork is involved, and there are many possible

future events which are not taken into account but which could influence the results - war, climatic change, changes in the structure of Philippine society, and so on. Thus the reference run is not a prediction. It can be viewed as a conditional forecast - conditional on the selected values for exogenous variables - but on which is merely a central estimate of a distribution with unknown, but probably considerable variance. The outcomes of this run, which are briefly presented below, should be interpreted in this light.

In the reference run, which is based on a 7 per cent aggregate growth rate for output, the Philippines follows a path of rapid economic development. By the year 2000, which we consider as the terminal year for most of our experiments, the level of development as measured by GDP per capita is broadly comparable with some more developed Latin American countries in the early 1970s, or with Spain, Greece or Japan in the early 1960s. The Philippines enters the fertility decline phase of the demographic transition, but does not complete it by the end of the century. The crude birth rate drops from 44 in 1965¹ to 29 in 2000, but because of low mortality the population growth rate is still over 2 per cent by the latter date, while population size almost doubles between 1975 and 2000. Urbanisation proceeds relatively slowly, from about one third of the population urban in 1965 to almost half in 2000.

Output structure changes, but not dramatically. In constant prices, the primary (agricultural) sectors decline from over a quarter to less than a fifth of output, with secondary (manufacturing) sectors gaining substantially. Modern urban sectors grow faster than any other part of the economy. However, at the same time there is a steady shift in the internal terms of trade towards agriculture, because

¹ 1965 is the date from which all runs of the model start.

the supply constrained agricultural sector cannot keep up with rising food demand as incomes rise. By the year 2000, the terms of trade have turned by more than 50 per cent in favour of agriculture, compared with 1965. As a result, in current prices the share of agriculture in output does not decline at all. Investment, government expenditure, exports and imports all increase relative to GDP.

The pattern of employment and wages changes considerably over the period simulated. Although a considerable proportion of employment is still in traditional agriculture at the end of the century, the share of traditional sectors in employment falls steadily, and after 1975 traditional wages rise at rates comparable with or higher than those in modern sectors. Rural wages in particular benefit from rising food prices. Thus the degree of dualism is being reduced. At the same time, unemployment shows a downward trend. Self-employment and unskilled employment both decline in favour of skilled employment, while skilled-unskilled wage differentials decline, and the richer entrepreneurs do relatively poorly because of an increasing corporatisation of the economy. These factors lead to a significant, though not particularly large reduction in inequality over time - the Gini coefficient declines from 0.50 in 1965 to 0.46 in 2000. At the same time, the incomes of the poor rise, with rural areas doing particularly well up to the mid-80s. However, the growth pattern can hardly be said to have eliminated poverty - the poorest 20 per cent of households in both urban and rural areas have incomes in the year 2000 which are still considerably below average incomes in the initial year, 1965.

(ii) Some alternative options for the reference run

In order to give an idea of the responsiveness of the model to variations in reference run assumptions, certain major alternatives were investigated. These mainly involve changes in output and investment growth and in foreign trade patterns.

The first alternative assumes that a 9 per cent output growth rate is achieved, and that food is imported to satisfy additional food demand (which would otherwise raise food prices to impossible levels because of constraints on agricultural output growth). Exports and investment are also raised. The impact is considerable. Gains from increased growth are very largely urban, where wages are eventually 70-80 per cent higher than in the reference run, and where inequality is reduced. By contrast, rural wages are little changed, and because the small rural modern sector retains a considerable wage differential over the traditional sector, rural inequality increases. Over-all the outcome is slightly inegalitarian compared with the reference run, and the higher growth rate has contributed little to reducing rural poverty. There are some significant demographic feedbacks. Migration is much higher than in the reference run because of increased rural-urban wage differentials. Fertility declines more than in the reference run, with the decline concentrated in urban areas.

A second alternative retains the higher output growth rate, but supplies the food required from increased domestic production instead of from imports. The result is to entirely change the balance of gains from faster growth, with rural areas now doing as well as urban, and modern-traditional wage differentials lower in both urban and rural areas. Over-all, relative inequality is somewhat reduced in comparison with the reference run, while absolute poverty is sharply decreased in both rural and urban areas. Demographic changes are also more balanced; fertility is reduced about 5 per cent relative to the reference run in the year 2000.

When slower output growth - 5 per cent per year - is assumed, the results are not entirely symmetrical. Slower modern sector growth means that traditional sectors are forced to absorb more labour, and their relative wage declines. In addition, lower food demand leads to food prices which decline steadily after 1980. This in turn

worsens the relative position of rural incomes. Relative to the reference run, inequality over-all is worse and migration, fertility, and mortality are all higher.

An "inward-looking" growth path, in which exports and imports are reduced, but over-all output growth is retained at the reference run level of 7 per cent, has surprisingly little effect, because no structural economic changes result. Rural modern sector output and employment is down, as this is an export-oriented sector, and this reduces rural inequality, since traditional sectors are less affected (indeed gain from increased domestic demand). In urban areas, although some of the poorest do badly, increased domestic demand for manufacturing output also has generally favourable effects on employment and income distribution. We should however note that assuming inward-looking development can generate output growth as rapid as the reference run is an optimistic assumption.

Finally, we permitted a higher growth rate of agricultural labour productivity (4 per cent per annum instead of 3) without changing any other parameters of the reference run. This apparently rather small change in the system, nominally favouring agriculture, has a serious adverse effect on rural incomes. This is because demand for agricultural products does not increase to the same extent as supply, and excess supply drives down the agricultural output price relative to other goods. This of course benefits the poor, who spend more of their income on food. But at the same time it adversely affects rural incomes, and since the bulk of the poor are in rural areas the over-all impact is to benefit urban areas at the cost of increasing rural poverty.

(b) Policy Analyses

In the "policy analyses", the response of the model to specific exogenous changes is investigated. These changes represent policies, or the likely direct effects of policies - changing education growth, or introducing public

works programmes for example. These analyses can evaluate the benefits, and to some extent the costs, of such individual policy changes seen within a larger systems framework. A subsequent set of analyses looks at the impact of packages of policies taken together.

(i) Education policy

Educational policies simulated with the model, by exogenously changing school graduation rates, include slow and fast growth in the education system, growth concentrating on primary or on secondary education, and growth concentrated in rural areas. In general, the effects of education changes are widespread, but not particularly large up to the end of the century. This is partly because average educational levels of the population respond relatively slowly to changes in the education system, which in the model (and usually in real life) affect only those of school-age; secondary effects of education changes now are still cumulating well into the 21st century. The distribution of income turns out to be rather insensitive in the face of quite considerable changes in educational policy, but some significant effects on wage structure and on the incomes of the poor nevertheless result from the experiments undertaken. Faster education growth is more egalitarian than slow; more surprisingly, more egalitarian outcomes result from a concentration on secondary education than from a concentration on primary. Promoting rural education tends to relatively raise rural wages and incomes, partly because it promotes out-migration; the effects on migration are large enough to have noticeable effects on the rural-urban balance of population and output by the year 2000. There are also effects on fertility, but these emerge more slowly and significantly affect welfare only after 50 years or more. It is encouraging that the best results are obtained by a broad programme of educational growth, because of the impact of education outside the model - as an objective in itself, and perhaps as a prerequisite for the human adaptability to changing institutions which BACHUE-Philippines assumes in the long term.

(ii) Fertility policy

In the reference run, the crude birth rate declines from 45 in 1965 to 29 in 2000, mostly as a consequence of socio-economic changes. The experiments under the heading "fertility policy" make further - exogenous - modifications to fertility. The main focus here is on the additional decline in the birth rate which might arise from fertility control programmes such as the extension of family planning. Implementing a moderate programme turns out to have only limited effects on welfare before the end of the century - income per household is virtually unchanged as compared with the reference run, and income per adult equivalent is up by only a few per cent. This result is reached despite the assumption in the model that output and population growth are unrelated. In reality, a positive association is likely, and this would further reduce the beneficial effects. By 2015 or 2040, larger income gains are emerging, but this is a very long planning horizon.

The distributional effect of the family planning programme is at first inegalitarian. Demand for food is reduced and rural incomes are reduced relative to the reference run. Eventually, however, restrictions on agricultural output, due to reduced labour, turn the terms of trade back towards agriculture with egalitarian consequences. No fundamental changes in employment structure emerge as a result of fertility decline, and effects on urbanisation, and on government expenditure, are limited to a few percentage points. The extension of family planning enables couples to increase their control over their fertility, and so is potentially a major contribution to family welfare. But this aspect apart, our conclusions suggest that the implementation of fertility reduction programmes is unlikely to have much pay-off in the Philippines within a reasonable time horizon.

(iii) Migration policy

Experiments in this area indicate that migration has an important equilibrating role in the process of development. When it is reduced or stopped, the basic result is, with a lag, to sharply reduce rural wages and incomes, especially in traditional sectors, and to increase urban wages and incomes, especially for the unskilled. The latter result arises because migration is an important source of unskilled urban labour. Income distribution deteriorates more sharply in this than in most other policy experiments. Employment structure moves towards primary sectors, whereas there is only a slight move in output structure in the same direction. Thus the response of the economic-demographic system to migration policy changes is considerably greater in the medium term than its response to policy in the other principal demographic area, fertility reduction, with significant effects cumulating within a decade. Eventually, however, the effects of migration control reach an upper limit, while those of fertility control continue to cumulate indefinitely. Population movement therefore appears to be an important target for policy, if appropriate instruments can be found.

(iv) Labour force participation

Our results here contain few surprises. Increased labour supply has to be absorbed somewhere and it is traditional sectors which absorb more. Unemployment, not directly dependent on labour supply, is little changed. Wages fall relative to the reference run, particularly in traditional sectors. Entrepreneurial and profit incomes are little changed in urban areas, and decline least in rural areas. The net result is deteriorating income distribution, and the incomes of the poor decline relative to the reference run in both urban and rural areas. Even if some effect on output of the increased labour supply is allowed for, the poor do not significantly gain despite increased work effort. There are some effects on fertility

of increased female labour supply but the change in fertility is an order of magnitude smaller than the change in labour force participation rates.

(v) Minimum wages

The minimum wage experiments impose a minimum growth (of 4 per cent) in the wage rather than an absolute minimum, effective only in modern sectors. In urban areas the effect, as expected, is reduced modern sector employment but increased modern sector wages for the unskilled and for the lower-paid skilled. Traditional sector wage levels fall, relative to the reference run. However, the over-all effect on inequality is negligible in the year 2000; although poverty in traditional sectors is increased, the lowest paid in modern sectors are also among the poorest groups, and their wages are raised. Thus an urban minimum wage policy merely changes the composition of poverty. In rural areas the effects are more clearly inequalitarian, largely because traditional agriculture absorbs more labour, increases its output, and - in the face of inelastic demand - generates lower food prices. Here rural poverty is increased, while urban poverty is reduced. In both rural and urban cases, wider economic and demographic effects are negligible.

(vi) Wage subsidies

Although like minimum wages, subsidy policies do not have large effects, they tend to be more successful than minimum wages. Even though subsidies are confined to modern sectors there are spillover effects into traditional sectors, a substitution of unskilled for skilled labour, and increased food demand leaking some effects to rural areas in the case of urban subsidies, or reinforcing rural subsidies. These effects, although all small, reinforce each other to lead to slight reductions in poverty. The policies simulated have only a modest impact on government expenditure - they raise it by 2-3 per cent.

(vii) Self-employment and ownership of capital

Policies to widen self-employment (e.g. through small-scale industry policies) turn out to be moderately effective if profits are really more widely shared. There is both a reduction in the average incomes of the self-employed and capital owners, and - because of decreased supply of wage labour - increased wages, relative to the reference run. The effect on income distribution is more pronounced in urban than in rural areas. More radical policies to extend public ownership of modern sectors have considerably larger effects. Because (by assumption) they channel profits to government revenue they on the one hand reduce income inequality by reducing the higher incomes, and on the other hand considerably increase the resources available to the government. This alone, however, does little for poverty reduction; complementary policies, designed to ensure that the additional resources are directed specifically to the poor, are also required.

In the real world, of course, increased public ownership does not necessarily lead to considerable additions to government revenue. This depends on appropriate operating and pricing policies being followed after nationalisation.

(viii) Public works

As a straight anti-poverty measure, experiments with the model suggest that rural public works can be moderately successful. However, the direct effects of public works are secondary in this. The increased employment in construction reduces labour supply to agriculture, constrains agricultural output¹, and raises food prices and agricultural

¹ This effect would not be present in a purely seasonal programme designed to reduce seasonal unemployment.

incomes, all relative to the reference run. At the same time it increases rural labour force participation rates, and reduces migration to urban areas. The latter relieves urban employment problems somewhat, but urban wages are still relatively reduced. Thus the rural works have effects throughout the economy because of economic and demographic feedbacks, tend to reduce poverty somewhat over-all, and generally shift poverty from rural to urban areas. These effects persist, in weakened form, even after the end of the programme. However, if the programme is designed to increase agricultural output, and is successful, this eventually drives down the terms of trade and offsets the initial benefits in terms of rural poverty reduction.

(ix) Technology

A number of experiments explore the implications of alternative technology choices, which change the rate of growth of modern sector labour absorption without changing the aggregate output growth rate. These have effects which are mostly small. Doubling the rate of increase in capital intensity in modern sectors reduces labour absorption somewhat and reshuffles wage differentials; workers in modern sectors gain, particularly skilled workers, while traditional sector wages are reduced relative to the reference run. However, the consequent adverse effect on income distribution is slight. Somewhat larger effects are generated if the technology change only reduces demand for unskilled labour, since this particularly reduces the lowest unskilled wages and increases both urban and (because of feedbacks, mainly via migration changes) rural poverty. Of course, larger effects could be expected if aggregate output growth were also permitted to vary with the technology changes introduced, but much debate about technology choice focusses on labour-intensity without reference to aggregate output.

(x) The government sector

Many of the policy experiments above have fiscal implications which have not been tracked. However, government revenue is generated by the model, and some experiments have been undertaken to investigate the effects of tax and transfer changes on their own. Experiments with progressive taxation on households, the taxation of corporations, and transfers to the poor suggest that these could, in principle, generate considerable reductions in income inequality and in poverty (though in the model tax changes can be implemented which might not be practicable in the real world). The running of a government surplus, alone, has somewhat inegalitarian side-effects.

(c) Strategy Analysis

The policy experiments described above, although far from exhaustive, give an idea of the range of issues which can be explored with the model, and the type of outcomes produced. However, this type of analysis, although useful, is incomplete. Policies need to be financed, and usually packages of complementary policies are more effective than the independent application of specific instruments. A full analysis therefore requires that the impact of several policies, applied together - a "strategy" - be assessed. Such strategies are implemented in the model by selecting a set of changes, which are intended to reflect the direct and indirect effects of a coherent set of policies aiming at a particular objective, or built around a given set of instruments. Five strategies are presented below, each consisting of 10-15 "policy" (parameter) changes. These are samples drawn from a much wider range of possibilities. In each case, the changes implemented reflect the authors' biases, and while there has been some experimentation to design coherent strategies, improvements are doubtless possible.

(i) An industrialisation strategy

This strategy aims to provide a description of one type of urban, modern sector oriented growth. It includes concentration on large-scale, capital-intensive manufacturing, with an increasing corporatisation of the economy, stress on urban development, relative neglect of rural areas, and food imports. The outcome partly depends on whether faster GDP growth is thereby achieved. If it is (8 per cent instead of 7 per cent is assumed) the result is a growth path which, as expected, has an urban bias and aggravates labour market dualism; but both of these factors are weakened by the higher growth rate, which maintains modern sector employment and reduces unemployment. At the same time the strategy increases demand for food, and thus raises the relative price of agricultural output. By contrast, if higher growth is not generated these mitigating factors are absent and inequality and poverty increase. It is interesting to note that income distribution improves in urban areas, relative to the reference run, largely because of the assumed increase in corporatisation (undistributed profits do not enter into household incomes). Non-corporate industrialisation would have the reverse effect, unless small-scale industry were promoted, in which case a further, though small movement towards urban equality would be generated. In rural areas the modern sector increases in size, partly supplying intermediate inputs to urban industry. This leads to increasing inequality, especially if growth is not increased. The growth in investment is largely financed by capital inflow from abroad; if savings have to be found domestically, further adverse effects may arise. Demographic effects are significant. Migration responds to changing rural-urban differentials. Mortality and fertility both decline a little more than in the reference run if higher output growth is achieved, but both are raised in rural areas, relative to the reference run, if it is not.

(ii) A rural development strategy

This strategy includes increased demand for rural output, a rural infrastructure programme, increased agricultural labour productivity growth, and certain egalitarian measures including land reform, promotion of rural small-scale industry and rural wage subsidies. The programme is financed by direct taxes, mostly felt in urban areas. GDP growth is unaffected. In general, the strategy is successful in raising rural incomes relative to the reference run, satisfying food demand and keeping food prices within reasonable limits. Demand for food imports is reduced because of the increase in domestic production, permitting lower export growth. There is a significant movement towards income equality within rural areas, though much of this is due to the direct effect of land reform, which is implemented costlessly and without side-effects in the model, but is evidently a good deal more problematic in reality. On the other hand, urban outcomes are generally adverse with urban output lower than in the reference run, incomes similarly down, particularly in traditional sectors, and inequality higher than in the reference run as the richest entrepreneurs do less badly. The urban poor do very badly, with their incomes 20 per cent below reference run levels in the year 2000, and considerably lower than the incomes of the rural poor. The relative improvement in rural incomes causes migration to drop substantially, despite improvements in rural education which would otherwise have increased out-migration. There is a sharp reduction in rural fertility, which more than outweighs a relative rise in urban fertility, so that despite reduced out-migration the rural population is hardly larger than in the reference run, and its dependency is sharply reduced. Overall, then, with respect to employment and income distribution objectives, this strategy comes out well in rural areas but poorly in urban areas. However, since rural incomes are generally lower than urban in the absence of the strategy, with respect to these objectives the outcomes are clearly superior to those of the "industrialisation" strategy with the same growth rate.

(iii) An egalitarian strategy

This strategy is designed to increase the incomes of the poor and reduce income inequality. It embodies a variety of the policy instruments which a radical but non-revolutionary government dedicated to the eradication of poverty might attempt to implement. This includes wage subsidies, public works, rural education, transfers to low income groups, extensive modern sector nationalisation, increased migration, increased labour intensity of modern sector production, land reform, small-scale industry promotion, and a shift in the demand pattern towards labour-intensive sectors. Financing is provided by the nationalisation measure and by progressive income taxation. This strategy is relatively successful in achieving more equality; it reduces income inequality substantially by the year 2000¹; at this date the over-all income distribution would be among the most equal presently observed in non-socialist countries after the implementation of this strategy, instead of being among the more unequal. Rural incomes are considerably raised, especially among the poor, who are mostly concentrated in traditional sectors. In urban areas, however, the less well off gain considerably less. The bulk of the poor are now to be found in urban areas. The urban rich, especially capitalists, are the main losers, with their incomes cut by up to half relative to the reference run. The strategy leads to significant changes in the structure of output and employment, with manufacturing sectors particularly increased in size. Agricultural output is raised, but employment is reduced. There is considerably increased modern sector employment in both urban and rural areas, and less traditional employment; the modern-traditional wage ratio also declines. Demographic effects are marked, including significant changes in mortality and fertility; the crude birth rate is reduced by almost 3 per thousand in the year 2000 over and above the decline already occurring in the reference run.

¹ The Gini coefficient is down by almost a quarter on the reference run.

Although there is evidently scope for improvement in this strategy, notably on the urban side, it is relatively successful in reducing inequality and poverty. However, it should be noted that we assume that there is no effect on aggregate output growth. In practice, changes in the organisation of production and the incentive structure might well either raise or lower output - we cannot tell which a priori, and BACHUE-Philippines is not equipped to tell us. In addition, the strategy requires a wide-ranging programme of considerable dimensions, including many elements likely to face major political opposition - e.g. nationalisation - or serious implementation problems - e.g. the tax/transfer programme. Given existing institutional and political constraints in the Philippines it seems implausible that a programme of these dimensions could actually be implemented without structural changes in society.

(iv) ILO Comprehensive Mission Strategy

This experiment aims to simulate the strategy proposed by the 1973 ILO Comprehensive Employment Strategy Mission to the Philippines.¹ Not all their proposals can be covered, but a majority can be represented in the model to some extent. The path they trace out excludes some of the more radical instruments of the "egalitarian" strategy (no nationalisation or wage subsidies, smaller public works programme, less migration instead of more) and includes more emphasis on urban development, a different foreign trade pattern, and promotion of rural industry. A large tax/transfer programme is again included. The outcome from simulating the package in BACHUE-Philippines is a move towards equality of around two-thirds the size of that achieved with the egalitarian strategy. There is a reduction in the relative earnings of the urban middle and higher

¹ The full report is published as ILO, Sharing in Development: A Programme of Employment, Equity and Growth for the Philippines (Geneva, 1974). The interpretation of this strategy is our responsibility, and not that of members of the Mission.

income groups to the benefit of both the urban poor and the rural population. Rural poverty is considerably reduced, though less than in the egalitarian strategy. The output structure moves towards primary production, employment structure towards manufacturing; there is a considerable growth in labour-intensive manufactured exports, with capital-intensive manufactured imports rising to leaving manufacturing output little changed. Unskilled unemployment is rapidly eliminated in both urban and rural areas, but educated unemployment persists, largely because modern urban sectors grow relatively slowly. In fact the educated:uneducated and modern:traditional wage differentials both decline sharply relative to the reference run, as does the entrepreneur:employee income ratio, and these factors lead to greater equality. However, the largest element in the decreased inequality is the tax/transfer programme and this may well be implausibly large. If it is eliminated, the Gini coefficient of income inequality is 10 per cent down on the reference run in the year 2000, not much return for such a large programme. Demographic changes include reduced migration, but otherwise are similar in direction to those in the egalitarian strategy and rather less than half as large.

One of the objectives of the ILO strategy was to increase investment and output growth. If we assume that this is attained, the main impact is additional income gains for all categories, but particularly for the rural poor. Demographic effects are generally increased, and there is a further improvement in income equality. However, these gains are at the cost of a sharp deterioration in the balance of payments, and a rapid rise in food prices.

(v) A population strategy

A "population" strategy cannot represent a total approach to development; population policies should be treated as an integral part of wider development strategies. However, it is interesting to put together a package of

population policies, centred on fertility decline and migration, to assess their potential contribution as a group. Such a package has been simulated, including various exogenous or endogenous reductions in fertility due to family planning programmes, delayed marriage, decreased mortality, increased education, and increased female labour force participation. Net rural-urban migration is raised, resulting in increased urbanisation. Relative declines in government expenditure because of slower population growth permit a small social security programme. The strategy is massive in its assumed effects, perhaps implausibly so - the crude birth rate is reduced from 40 in 1975 to 23 in 1985.

The outcomes due to migration changes and fertility change prove to be largely dissociable, and those due to the fertility change component of the population strategy are qualitatively similar to the results of the experiments on fertility alone (section 3(b) (ii)). If the fertility change leaves output growth unaffected, it generates income gains which are at first small, but which eventually cumulate; the gains in income per adult equivalent by the year 2000 are similar to those which would be achieved by raising the growth rate of aggregate output from 7 to 7.7 per cent per year, and further gains cumulate in the 21st century. The distributional effects vary over time. Initially, the decreased fertility reduces food prices and rural incomes relative to the reference run, and increases rural inequality. Higher migration fails to offset this and leads to greater urban inequality. Thus, poverty is initially increased. However, these effects are gradually offset, as reduced labour supply (because of migration and previously lowered fertility) limits food output and raises food prices, and pressures on the urban labour market are reduced. By the year 2000 the net effect is fractionally egalitarian, and this tendency is reinforced thereafter. Much of this effect is due to the increase in migration; if by contrast, migration is reduced, the strategy leads to a deterioration in income distribution which becomes more accentuated over time.

Although the income gains from this strategy are eventually large, a number of factors suggest that the model overstates the benefits. It is, for instance, very doubtful whether such a large fertility change could arise merely from the elimination of unwanted children; and if it is wanted children which are eliminated, then income per adult equivalent is not a valid measure of - and overstates - the welfare change. Moreover, we have neglected the likely negative effects on output growth of reduced population growth, and have not taken into account the fact that the main beneficiaries of the population strategy are the inhabitants of the Philippines in the next century, who are in any case likely to have considerably higher incomes than the poor today. On balance, these qualifications are unlikely to completely eliminate the gains from the fertility reduction component of the population strategy, but they do suggest a need for considerable caution in the application of fertility control measures.

4. Some Conclusions

Apart from the conclusions specific to each experiment, there are some general conclusions which can be drawn.

(a) The distribution of income is extremely stable, even in the face of quite large modifications to the model. Although individual policy changes and variations in assumptions often generate clear patterns of change in inequality, the range is very small. The Gini coefficient, a standard measure of inequality, rarely varies by more than 5 per cent even after 25 years unless major changes in the development path are imposed. However, this does not mean that the distribution of poverty remains unchanged; many policies shift poverty between urban and rural areas, or between groups within each region, without much affecting over-all inequality.

(b) Demographic response to economic change is varied and often important - at least as important as economic response to demographic change, the direction of causation which is usually stressed. Fertility, mortality, migration and labour force participation all respond to changes in employment, incomes and income distribution. Migration in particular varies considerably and plays an important role in the interaction of different parts of the system. A variety of policies also affect fertility to a greater or lesser degree, with movements towards income equality, in so far as they can be achieved, tending to reduce fertility. It is particularly interesting to note that the most egalitarian of the strategies investigated reduced fertility by as much as might be expected from a reasonably successful family planning programme.

(c) Rural-urban interactions are important and varied. Prices, migration, remittances and shifts of household expenditure all play a role. Of these, prices, as measured by the terms of trade between industry and agriculture, are the most important because they fluctuate the most, considerably changing rural-urban income ratios and the relative incidence of rural and urban poverty.

(d) Of population policies, those concerned with migration have considerably greater implications for employment, incomes, and income distribution in the medium term than those concerned with fertility. Migration responds faster and to a greater extent than fertility, and its effects on the economic system are correspondingly larger. Moreover, the gains from fertility reduction are limited and long term. Since the model covers only rural-urban migration, and inter-regional migration is also important in the Philippines, in reality the stress given to migration should probably be even greater.

(e) In analysing individual policies the model often gives unexpected results, or gives expected results for unexpected reasons. Increasing agricultural output may decrease agricultural incomes if appropriate demand policies are not followed. Rural public works reduce poverty mainly because of indirect, not direct effects. In most cases, the expectations derive from partial analyses, and when the same policies are analysed in a system which incorporates wider interactions, feed-backs and leakages can reinforce, weaken or reverse the conclusions. Thus, a systems approach to economic-demographic issues is likely to improve policy evaluation.

(f) In order to generate substantial changes in income distribution in the face of the stability noted above, wide-ranging packages of complementary changes are required. Our experiments show that successful packages can be devised, but that they involve changes so large that it is doubtful whether they could be implemented under existing political and institutional structures, even if the will to implement them exists. In any case, balanced packages are more successful than a concentrated emphasis on individual policies. Interactions among policies within each package are significant - the total effects of packages were not in general equal to the sums of their components.

(g) As we have noted above, the use of models such as BACHUE in the social sciences requires some caution. Nevertheless, the use of the model has shed light on a range of issues, both from an analytical point of view, and as a contribution to the evaluation of a variety of policies and strategies of development. The conclusions we reach are specific to the Philippines, but many are doubtless valid elsewhere. A comparison of the results from BACHUE-Philippines with those from an independent and very different model for South Korea (which, however, also adopts a systems approach) suggests that broad policy and strategy conclusions

are similar.¹ Other country applications of BACHUE, presently under way in Kenya, Brazil and Yugoslavia, will permit us to further investigate the extent to which conclusions for the Philippines can be generalised.

¹ See Adelman, I., Hopkins, M.J.D., Robinson, S., Rodgers, G.B. and Wéry, R., The Political Economy of Egalitarian Growth (Geneva, ILO, paper prepared for the World Employment Conference, June 1976).

Population and Employment Project

Working Papers

- WEP 2-21/WP.1 Household Savings and Demographic Change
in the Philippines
- by Peter Peek, May 1974.
- WEP 2-21/WP.2 Fertility and Labour Force Participation:
Philippines 1968
- by José Encarnacion Jr., March 1974.
[No longer available.]
- WEP 2-21/WP.3 An Analysis of International Variations
in Birth Rates: Preliminary Results
- by Richard Anker, 1974.
[No longer available; a revised version
of this paper has been issued as WEP 2-21/
WP.16 of this series.]
- WEP 2-21/WP.4 Migration in the Philippines
- by René Wéry, March 1974.
[No longer available.]
- WEP 2-21/WP.5 BACHUE-2: Version - I A Population and
Employment Model for the Philippines
- by R. Wéry, G.B. Rodgers and M.D. Hopkins,
July 1974.
[No longer available.]
- WEP 2-21/WP.6 The Effects of Group Level Variables on
Fertility in a rural Indian Sample
- by Richard Anker, August 1974.
[No longer available.]
- WEP 2-21/WP.7 The Economic Analysis of Fertility: A Study
for Brazil
- by Edy Luiz Kogut, September 1974.
[No longer available.]
- WEP 2-21/WP.8 Patterns of Consumption in the Philippines
with Particular Reference to Demographic
Factors
- by Edita Abella Tan and Gwendolyn R. Tecson,
October 1974.
[No longer available.]
- WEP 2-21/WP.9 Female Participation in Economic Activity
in Colombia
- by Alejandro Angulo and Cecilia L. de
Rodriguez, January 1975.

- WEP 2-21/WP.10 Production, Employment and Wages in
Modern and Traditional Sectors: Argentine
Case (1950-1970)
- by Javier Villanueva, February 1975.
- WEP 2-21/WP.11 Fertility and Desired Fertility:
Longitudinal Evidence from Thailand
- by G.B. Rodgers, February 1975.
- WEP 2-21/WP.12 Income Inequality in the Philippines:
A Decomposition Analysis
- by Mahar Mangahas, February 1975.
- WEP 2-21/WP.13 Family Composition and Female Employment:
The Case of Chile
- by Peter Peek, May 1975.
[No longer available.]
- WEP 2-21/WP.14 Population Change and Economic Growth:
A Long-Term Econometric Model of the
Japanese Economy
- by Ryoshin Minami and Akira Ono,
April 1975.
- WEP 2-21/WP.15 On the Evaluation of Population and
Employment Policy
- by G.B. Rodgers, R. Wéry and M.D.J. Hopkins,
April 1975.
[No longer available.]
- WEP 2-21/WP.16 An Analysis of Fertility Differentials
in Developing Countries
- by Richard Anker, April 1975.
[No longer available.]
- WEP 2-21/WP.17 Technological Change in Input-Output
Relationships
- by René Wéry, May 1975.
- WEP 2-21/WP.18 Employment Structure, Income Distribution
and Internal Migration in Brazil
- by Leda Maria Fraenkel, Mario Duayer de
Sanza, Mary Garcia Castro, Giselia Potengy
Grabois, Eugenio Tucci Neto, May 1975.
- WEP 2-21/WP.19 An Analysis of Migration to Greater
Khartoum (Sudan)
- by Amarjit S. Oberai, May 1975.
- WEP 2-21/WP.20 A Structural Overview of BACHUE-Philippines
- by M.J.D. Hopkins, G.B. Rodgers and
R. Wéry, May 1975.
[No longer available.]
- WEP 2-21/WP.21 The Effects of Household Size, Structure
and Income on Expenditure Patterns
- by Kwang Suk Kim and Dai Young Kim,
May 1975.

- WEP 2-21/WP.22 Labour Force Growth, Utilisation and Determinants in Singapore
- by Pang Eng Fong, June 1975.
- WEP 2-21/WP.23 Aspiration Wages, Migration and Female Employment
- by Guy Standing, November 1975.
- WEP 2-21/WP.24 The Determinants of Labour Force Participation in Yugoslavia,
- by Miroslav Rasević, November 1975.
- WEP 2-21/WP.25 A Simultaneous Equations Model of Household Behaviour
- by Peter Peek, November 1975.
- WEP 2-21/WP.26 1. The Yugoslav Firm: Theory and Reality
2. Investment Decision-Making in the Yugoslav Self-Managed Enterprise
- by Laura d'Andrea Tyson, November 1975.
- WEP 2-21/WP.27 1. The Yugoslav Banking System and Monetary Control
2. Trade Credit and Illiquidity Crises in the Yugoslav Economy
- by Laura d'Andrea Tyson, November 1975.
- WEP 2-21/WP.28 Economic Determinants of Demographic Behaviour in Kenya
- by James C. Knowles and Richard Anker, December 1975.
- WEP 2-21/WP.29 Basic Needs, Growth and Redistribution: A Quantitative Approach
- by M.J.D. Hopkins and H. Scolnik, December 1975.
- WEP 2-21/WP.30 Labour Policy and Fertility in Developing Countries
- by Ronald G. Ridker and Olivia Schieffelin Nordberg, February 1976.
- WEP 2-21/WP.31 Effects of Household Structure, Size and Household Income on Expenditure Patterns
- by M.T.R. Sarma, February 1976.
- WEP 2-21/WP.32 Demographic Change and the Size of the Government Sector
- by A.C. Kelley, February 1976.
- WEP 2-21/WP.33 The Education and Employment of Children: A Comparative Study of San Salvador and Khartoum.
- by Peter Peek, March 1976.

- WEP 2-21/WP.34 Demographic Factors in Government Expenditure: An International Comparison
- by René Wéry, March 1976.
- WEP 2-21/WP.35 Demographic Effects on Tax Shares During Economic Development
- by Bruce R. Bolnick, March 1976.
- WEP 2-21/WP.36 Desired Fertility, Income and the Valuation of Children
- by Chen-Tung Chang, March 1976.
- WEP 2-21/WP.37 1. The Impact of Unionisation on Negotiated Wages in the Manufacturing Sector in Kenya
2. The Role of Competitive Forces in the Determination of Wage Increases in Less Developed Economies: The Case of Kenya
- by William J. House and Henry Rempel, March 1976.
- WEP 2-21/WP.28 Rural-to-Urban Migration and Some Economic Issues: A review Utilising Findings of Surveys and Empirical Studies Covering the 1965-1975 Period
- by Oded Stark, May 1976.
- WEP 2-21/WP.39 The Myth of the Cavern Revisited or Are Models Useful?
- by R. Wéry, G.B. Rodgers and M.J.D. Hopkins, July 1976.
- WEP 2-21/WP.40 Concepts of Labour Force Participation and Underutilisation
- by Guy Standing, July 1976.
- WEP 2-21/WP.41 A Study on the Determinants of Changes in Input-Output Coefficients in the Course of Economic Development
- by Brian Harrop in association with N. Hooper, E. Gahan and M. d'Oliviera, under the supervision of Anthony Bottonley, August 1976.
- WEP 2-21/WP.42 Women's Participation in Economic Activity as a Strategic Factor of Change in Fertility: The Cases of Mexico and Costa Rica
- by Andras Uthoff and Gerado González, November 1976.
- WEP 2-21/WP.43 A Re-examination of the Concept of Economic Dependency
- by A.C. Kelley and Jane Lillydahl, November 1976.
- WEP 2-21/WP.44 Female Labour Supply in an Urbanising Economy
- by Guy Standing, November 1976.

NEP 2-21/WP.45

Economic-Demographic Modelling for
Development Planning: BACHUE-Philippines
- by G.B. Rodgers, M.J.D. Hopkins and
R. Wéry, December 1976.
[Limited distribution.]