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Notes on a System of Basic Statistics for Regional Planning

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'If statistics are defective it is first of all essential to make an effort to improve them; but this will not be done by those who have no clear idea of the value of statistics. Examples are already known of statistics which have been considerably improved under the pressure of planners whose work was hindered by inadequate data'¹

Introduction

1. The detailed working out of regional plans within the framework of a national organisation has developed relatively recently and in some cases it is difficult to say whether original planning is involved or one is merely being presented with a breakdown of a national plan. It is, nevertheless, certain that statistical series available at a sub-national level, have, for a long time, been merely transpositions of national series in both content and presentation. Only since the beginning of the Fourth Plan (1962-1965) has France made special efforts to provide additional and more accurate regional statistics. In developing countries, multi-subject investigations to examine the socio-economic structure of regions being considered for development or major investment have been carried out since 1955.²

Why regions?

2. The first question to be asked is whether regional planning is justified; if the reply is negative any statistical studies in this field would be useless. In practice, for good or ill, this concept must be accepted for various reasons:

Administration or planning on a national basis cannot be efficient in a country which is so large as to have significant internal disparities. A strictly centralized activity will come up against the non-co-operation of the regional communities concerned. Conversely the dictum of J. Rippert³ 'on the utopian nature of a national plan which is entirely based on regional aims and forecasts' should be remembered.

1 Robert CASSEN – London School of Economics:
Planification et programmes de développement—Etudes de développement No. 1
Organisation de Coopération et de Développement Economique (O.C.D.E) 1964.

2 See for example: La Moyenne Vallée du Sénégal.
Ministère de la Coopération—Presses Universitaires de France—Paris 1962.

3 L'insertion du concept régional dans le Plan—Revue Mensuelle de la Chambre de
Commerce et d'Industrie de Marseille—Juin 1967.

The choice between the various solutions or the adjustment of the initial policy guide lines should be made in the light of knowledge of distortions caused by location or development. Final decisions, of course, remain with the competent political authority.

In other words, regional planning ought to comply with the following conditions.⁴

- (a) application and adjustment of national policies (the region makes detailed forecasts of activities and investigates the best developments in the location of population and employment);⁵
- (b) definition of specific lines of development and drawing attention to necessary action in training or infrastructure;
- (c) arranging collective investment on a regional level;
- (d) investigate lack of equilibrium in local conditions (employment, local finance).

In fact, when the term regional plan is used (and the definition has a direct influence on the statistical data employed) there is a temptation to waver between two alternative approaches:

- (1) the disaggregation of a national plan which has an 'accounting' aspect, thus risking application of strictly similar policies which would be neither reasonable nor permissible;
- (2) the aggregation of regional policies, and a retrospective attempt to make them consistent and compatible with national policies.

In practice, of course, a continuous and repeated dialectical confrontation will follow, but there remains a certain political ambiguity about the constraints affecting regional centres of discussion and decision. This term 'ambiguity' has already been used on the question of regionalization of the budget⁶ from which it appears that effective technical and economic regionalisation is dependent on a certain minimum financial autonomy for the region, which in its turn, runs up against certain reservations if not concealments.⁷ Similarly, it is necessary to allow for the fact that certain choices at the national level will have the effect of destroying the consistency of 'regional proposals' and, in particular, they may totally change the hypotheses and constraints on which the research on the optimum allocation of planned investments was based.

3. The collection, presentation and exploitation of the statistical information necessary for the detailed working out of these regional plans will not be dealt with, as, apart from the length of such a description, one would have to

4 On the history and justification of regional planning in agriculture, see Placide Rambaud in *Etudes Rurales*—Jan.—Mar. 1966 and 'Recherche en Economie Rurale et Développement Régional' by J. Klatzmann.

5 Club Jean Moulin 'Les citoyens au pouvoir'—12 regions, 2000 communes. *Le Seuil*—1968.

6 G. Rastoin—*Delta* No. 19—1968.

7 'The regionalisation of the plan can only be carried out through contact with the population, and technical and administrative services in the Regions'. *Planification et développement*—G. Turin—*Développement et Civilisation* No. 8—Oct.—Dec. 1961.

consider a variety of approaches,⁸ the many political and economic problems (concentration of investments by looking for poles of development, or alternatively by co-ordinated dispersed development), and the very different econometric treatments of the numerical data collected. Instead the emphasis will be placed on regional statistics of agricultural population in developed countries and the employment problem in developing countries.

Population problems

4. Regional planning in agriculture in developed countries has often been directed towards theoretical research on the optimum distribution of the population working in agriculture. At the statistical level certain studies are necessary; present structure of this population, population technically required⁹ forecasts of migration and inheritance,¹⁰ etc At the political level this type of exercise must be carried out with great care, as the reduction in the agricultural population of a particular region can be the source of individual suffering and of additional economic costs (reduced population density) leading finally to an exodus of young people and an impoverishment of community life.

The development of non-agricultural employment may then offer various advantages: maintenance of an adequate density of population, no abandonment of rural property, no recourse to a forced re-settlement of migrants, better distribution of industries which are not tied to a fixed geographic location and the opportunity for part-time agricultural work (peasant-workers).

It is also essential to examine the relationships between agriculture and the other sectors with great care (this interdependence will be a recurring theme).

5. There is a different problem in certain European countries (this objective is explained in the Italian Plan: see *Planification Economique Regionale – Technique et analyse* O.E.C.E. [Regional Economic Planning, technique and analysis, OECD] and in developing countries. All regional plans must take account of agricultural under employment. This factor is fundamental because it involves adjusting national production policies to deal with regional and local conditions. This factor is primarily bound up with population pressure and agrarian structures. Statistical examination shows that, in general, demographic pressure¹¹ encourages parcelling of land ownership

8 There are in fact few points in common between a document such as that circulated by the E.E.C. Directorate General of Agriculture.—*Informations internes sur l'Agriculture* No. 45—Juin 1969 on the methodological study of the socio-economic situation in three Sicilian mountain areas, and the documents on socio-economic development in the Ivory Coast (see for example: *Région de Korhogo—Société d'Etudes et de Développement Economique et Social* 1965).

9 *Réflexions sur la population active masculine techniquement nécessaire en agriculture*. P. Coutin. *Cahiers de l'I.S.E.A.*—Novembre 1964.

10 *Supplément Séries Etudes* No. 28 du *Bulletin mensuel de statistique agricole* 'Perspectives de remplacement des chefs d'exploitations agricoles', Juillet 1967.

11 See 'Relations entre la pression démographique, les systèmes de tenure, le parcellement et les coutumes affectant la fertilité dans les régions rurales'. Michel CEPÉDE. *Congrès de la Population—1965*.

(this phenomenon is nevertheless related to the past history of the populations concerned), and that agricultural under-employment is reduced as the size of holdings increases. To this must be added:

- the investigation of inequalities in land distribution or the concentration of land ownership (which can lead to co-existence of vast estates and mini-holdings);
- the variation in under-employment by type of crop (annual or perennial crops);
- sociological constraints¹² (conflicts between generations, work customarily done by women) and the competition from alternative activities.

But, in view of the high cost of the necessary statistical enquiries, it is essential to take note of the seasonal character of this underemployment¹³ which is related to climatic cycles. A bottleneck in a particular month (shortage of manpower for weeding, sorting cotton seed, etc. . . .) may be sufficient to obstruct some development considered suitable for the area such as cultivation using draft animals. These are very practical considerations which it would be a serious mistake to neglect.

Accounts as a conceptual framework

6. The statistical data collected must be set out within a certain conceptual scheme. In general the tendency is to include it within the framework of national accounts.¹⁴ This has the following advantages:

- (1) the need for consistency is satisfied by seeking to synthesise the national accounts by aggregation (but it should not be concealed that in constructing regional accounts, depending on the information of individual items, there may be uncertainty as to whether to use disaggregated national data or special information available at the regional level);
- (2) it is possible to place a particular economic action within a general framework;
- (3) a scheme is available which facilitates further research, in fact regional programming, to take up the terminology used in a recent

¹² From which arises the need for preliminary enquiries on possible actions and constraints. See *l'Opinion*—Jacques Antonie—Collection Sigma—Dunod 1969.

¹³ Investissements humains, illusions et réalités, E. Raynaud; *Création d'emplois par le développement rural: un projet pilote au Nigeria Occidental*, P. Mueller and K. H. Zevering. *Revue Internationale du Travail*—Août 1969. *Problèmes d'emploi et développement agricole en Amérique Latine*—Solon Barraclough—*Economie et Statistiques Agricoles*—O.A.A., Juillet—Août 1969.

¹⁴ *Le Système de comptabilité économique régionale* (11th conference of the International Association for Research in Income and Wealth—Tel-Aviv 1969) by J. Anfré. For the agricultural branch see particularly the account of Languedoc—Roussillon by Michel Nègre—Tome II—Titre I—Centre de productivité et des Etudes Economiques de Montpellier.

document.¹⁵ As regards techniques used in the preparation of decisions two categories of models can be used:

- (a) a medium term macro-economic model, projecting for 5-10 years on the basis of past regional accounts, conditional on certain hypotheses, and on being consistent with the national budget, which is itself projected. This is a particularly difficult exercise since certain relationships and information may be dependent on inter-regional and external exchanges.
- (b) a medium term micro-economic model which can only be applied to a particular sector such as agriculture. In this case too, dependent relationship with other sectors must be analysed, (particularly as regards employment, marketing, and investment).

7. On the other hand it must be admitted that regional accounting does not provide an exhaustive solution of every problem, and that not every question can be explored by this single method.

- (a) As regards regional planning, it is perhaps unsatisfactory to think of the field of study as homogeneous. In the field of agriculture it may be better to distinguish sub-groups of homogeneous types of holdings, even although the accounts present the evidence of the internal disparities of the situation badly, since a policy of intervention seeks to modify its actions according to these types.
- (b) The heterogeneity of the region can be awkward for certain phenomena where there are dichotomies (urban or rural zones), especially in agriculture, where it is obvious that the concept of the regional farm cannot hide the fact this farm is made up of holdings with very different sizes, characteristics and reactions. Regional aggregation conceals various internal flows.
- (c) An investment project can have an inter-regional character.
- (d) A project which is non-profitable in a strictly accounting sense may contribute to stabilise a low income population.
- (e) The relations of the tertiary sector with the other sectors are generally badly analysed in accounts which are too highly aggregated, as they frequently are. Difficulties can arise in trying to relate the structure of consumption with the structure of production. In this regard, attention should be drawn to the work carried out in the Ivory Coast to relate these structures by an explanatory model (scheme of analysis) giving preference to final demand.¹⁶

8. In the field of agriculture, analysis of disparities in living conditions and of inequalities in opportunities for production provide an essential point of

¹⁵ Les techniques utilisées pour la préparation rationnelle des décisions au sein de la Direction de la Prévision. J. Serisé—Bull. de l'Economie et des Finances—Juillet—September 1969.

¹⁶ Schémas d'analyse et cadres d'action du développement régional pour les pays neufs—S.C. Perrin et H. Lhuillier—O.R.S.T.O.M. Sciences humaines—Vol. IV, No. 2—1967.

departure. Nevertheless, in France this kind of study is quite recent.¹⁷ If a methodology emerges gradually, statistical documentation will necessarily follow the same course with:

- poor information about regional production prices,
- under-estimation of the volume of certain regional production,
- estimates of intermediate consumption and costs which are often imprecise,
- uncertainty in calculating the value of farm consumption of their own production (auto-consumption), estimated according to the period either at farm gate or retail prices.

In this sector a regional development plan ought to take account of:

- (1) the disparity in final product (particularly the net incomes of farms) by homogeneous categories of production units. (The policy of price support ought to be adjusted according to these indicators, in practice the lack of precise documentation has led to the provision of direct support based on simple criteria and to social measures for transfer of income);
- (2) the non-farm income of farm households; this point is related to the attempt to encourage working family members to take up non-agricultural activities (see para. 4 above).¹⁸

17 Mesdemoiselles Morico et Delefortrie—Les revenus départementaux en 1864 and 1964—A. Colin—Paris 1959.—J. Pautard—Les disparités régionales dan la croissance de l'Agriculture, Gauthier—Villars—Paris 1965.

18 C. Lacour—Revenus agricoles et croissances régionales en France—id. 1966. It shows typical differences in income structure such as occur in W. Germany where a policy of spreading industrialisation seems to have been followed, France's density is very concentrated. Consideration of the third column on the right is instructive.

Situation in W. Germany in 1960.	Number of farmers (1000)	of whom farmers whose principal source of income is outside agriculture (1000)	
<i>W. Germany</i>	1,668	736	44
of which			
Bavaria	437	144	33
Hesse	164	95	58
Saar	28	23	84

Source: Les faibles revenus dans l'Agriculture O.C.D.E. 1964.

Situation in France at 1.1.68.	Number of farmers (1000)	of whom farmers devoting more time to (work) outside the farm (1000)	
<i>France</i>	1,688	212	13
Bretagne	162	12	7
Midi-Pyrenees	141	17	12
Alsace	37	9	24

One could also consult 'une enquête sur l'Agriculture à temps partiel dans les zones industrielles de l'Italie' by Corrado Barberis—Economie Rurale—Juillet—Décembre 1969.

The definition of a system of regional statistics.

9. It is a very large task to analyse the field and suggest improvements in regional statistics. Partly so as to simplify and partly because of personal experience, this paper will be particularly concerned with the explanation of certain essential numerical characteristics of a regional plan for a rural area, with examples drawn from available studies, particularly in the field of agriculture.

10. A system of regional statistics will have a double object:

(a) *static*, i.e.

- (i) a description of the basic characteristics of the field of study at a moment in time (descriptive inventory)
- (ii) the background situation of the region studied as against the whole country on which it depends (comparative inter-regional ratios, or comparison with national totals)
- (iii) a measurement of the flow between it and other regions in a financial year.

(b) *dynamic*, i.e.

- (i) measurement of the effect of overall development of the region on the community as a whole, and of the development of sectors of activity on the region and on the community.¹⁹
- (ii) making allowance for variations, particularly in the working population, price relationships, social and economic investments.

This assumes the availability of sufficiently precise information not only on the direct operations of enterprises, but also on their indirect operations which will extend beyond the limits of the region.

The region

11. Up till this point the term region has been used on the understanding that there was a sufficient consensus of opinion on the statistical meaning of the term. In practice it is clear that, in the first place, the definition is heavily weighted towards administrative organisation, for reasons which are historical, political and partly accidental. The regional unit is always formed by grouping smaller territorial units, and it can also be established that limits of a region can be varied considerably to meet various technical requirements.²⁰ Theoretically if one wanted to set up homogeneous regions, the following objective conditions would have to be observed:

- (i) the importance of contiguity of the basic units,
- (ii) a definition of the criteria of homogeneity, which becomes more critical as more systems of activities are introduced. In agriculture it

19 See 'projet de planification rurale intégrée de la région centrale'—Tunisie—Rapport final F.A.O. Rome 1968.

20 Bull. d'information No. 7 de l'Institut National de la Statistique et des Etudes Economiques (I.N.S.E.E) by G. R. Chevry—Sept. Oct. Nov. 1957. It thus seems indispensable wherever possible to make the boundaries of a region official and to require technical Ministries, under regulation, to take these limits into account in their external breakdown.

would be possible to use the distribution of systems of production. Nevertheless because of the difficulty of reflecting this criterion statistically, land is usually classified according to the level of yields, intensity of mechanisation, soil quality, etc. This leaves the difficult problem of allowing for livestock production. In drawing up the limits of these agro-economic zones, consideration must also be given to the structure of industries providing agricultural supplies and processing its products. Alternatively recourse could be made to cartographic methods so as to define the limits of regions. For some authors the geographic limits of a region are based on carrying out investment projects in such a way that market areas of the industries set up are superimposed. For others the criteria are more ultra-modern and make use of such parameters as telephone communications, the number of business journeys, the relationship with services in the higher tertiary sector.²¹

Finally, it is clear that the breakdown selected is closely linked with the objectives of the study and the nature of the problem being dealt with.

As regards the number of regions which result when dividing up a country, it seems generally agreed that a small number of regional units is to be preferred.²² This being so, one must accept a certain heterogeneity in regions because of the lack of finesse with which they have been divided up.

12. A problem which can be difficult is that of defining *regional agents* (regional sources of data).

- (a) For households one may take household residents (a concept which always leads to animated discussion)
- (b) As regards agriculture, in some regions it is convenient to distinguish between:
 - (i) intensive agriculture (with particular attention to statistics on irrigation, manpower, and marketing including processing and marketing channels)
- and
- (ii) extensive agriculture (where the emphasis will be on statistics on livestock herds and mortality, part-time employment, and connections with forestry production)
- (c) As regards the business firm, one is inclined to substitute the notion of the establishment (and this then raises difficulties about the availability of accounts, at this level) and whether the business is public or private; it can be difficult to sort out either receipts which ought to be credited to other regions or the region's share of expenditure on general headquarters overheads, and on amortisation of investments shared with several other regions.

²¹ Les citoyens au pouvoir—12 régions—2000 communes. Club Jean Moulin Le Seuil—1968.

²² See for example: la profession devant le plan agricole. L. Douroux Economie Rurale—Oct.—Dec. 1962.

- (d) As regards services the activities of trading (commercial) establishments in the region are unravelled.
- (e) National administration is separated out from Regional administration.
- (f) Financial institutions are generally located outside the region, but this does not exclude the analysis of channels of saving or methods of redistribution to provide finance.
- (g) In the external sector, the national and foreign sectors are distinguished so as to specify inter-regional exchanges of goods and services.

The difficulties

13. There are difficulties of every kind.

If the limiting framework of regional study is already difficult to define, the difficulties increase in intensity when one comes to deal with the detailed development of regional statistics. In effect, the requirements of the regional planner in relation to those of the national planner are at the same time both *complementary and specific*. Regional economic data²³ is not merely a breakdown of national data; the statistician must innovate, because he has not the same infrastructure available as the national statistician. National models are not always suitable for regional programming. Since the pressure for information is recent, regional research may perhaps be considered as an exaggerated reaction against centralism and regional information units of national ministries may show a certain passive resistance to attempts to circulate this same information at regional levels.

In general a region is an area with open access and its statistics of 'external trade' are difficult to register, one is dealing with a regional area integrated in a national area, there are no more toll barriers.

There is the additional problem of the timing of these statistics and whether they should be established for the same periods as the national statistics. If the answer is no, it is necessary to provide a special organisation to collect and handle the data. It is also useful to vary the headings to take account of local needs. Break down in headings is bound to be necessary so as to make certain aggregation possible at sub-regional or even commune (parish) level.

As various authorities sometimes use the same term for a different concept, the distortions at a regional level are sometimes very disruptive. One cannot be certain that the same definition of a farm holding is being used if one is dealing with Mutualité Sociale Agricole (Agricultural Social Insurance), Crédit Agricole (Agricultural Credit), or services under the Ministry of Finance.²⁴

23 Under this term must also be understood the requirements of the large region such as the province, the agricultural region, the administrative sector, the rural community, the river basin, the homogeneous development zone, the built up area, etc.

24 An illustration of the confusion introduced by differences in definitions of farm holdings is given in 'La Valeur des statistiques agricoles et ses disparités régionales', P. Dubosq—Revue Economique et juridique du Sud-Ouest—No. IV, 1969.

Another of the weaknesses of regional accounts lies in faulty accounting of goods which are 'finished products' for the exporting region but intermediate products for the purchasing regions;²⁵ there are many agricultural examples – exports of weaner piglets for fattening, of day-old chicks, of store cattle, hay, seeds, etc. Another stumbling block is the difficulty of aggregating data in values calculated at regional prices to obtain national data calculated at single national prices which are an average of regional prices.²⁶

The shortness of these time series can be a constraint in constricting forecasting models which are non-normative and this difficulty is often met with in developing countries.

In the case of analytical programmes (by ordinary mechanical methods or by computer) carried out by the state or professional organisations, it is clear that, even apart from lack of experience, cost and lack of organisation, such programmes do not often give priority to regional studies.

14. It must also be recognised that although the sampling method is an extremely powerful tool in obtaining national data, the samples get less and less representative as the size of the geographical area concerned gets smaller, unless the samples are based substantially on regional material. In certain cases the sampling method is genuinely inadequate and this is aggravated by the fact that the regional planner's demands on the precision of his data are much more exacting.

In considering sampling policy, one can imagine a master sample, dense but not too ambitious, providing a minimum collection of indispensable data for both national and regional levels, at the same time, combined with sub-samples to meet more specific requirements. There is no point in concealing how difficult such a procedure is.

15. Study of regional financial flows generally raises the most tricky problems of all.²⁷

- (i) definition and naming of the flows to be taken into account. It is possible to locate certain factors of production (labour, equipment) for industrial statistics on homogeneous groups of enterprises (sector enquiries), but if the products being manufactured involve the assembly of parts originating in various other regions, such as motor cars, the process becomes much more difficult. This is added to, if statistics are based on deliveries, the invoices are often made out to the head office and not to the production establishment. Finally in business statistics and financial accounts, one may meet the difficulty already mentioned of global data relating to the whole

²⁵ It is easier to distinguish the origin of an intermediate product (the buyer is asked to declare the address of the supplier).

²⁶ *Les comptes régionaux de la branche agricole pour 1966. Collection de l'INSEE. C3. 1969.*

²⁷ Refer to the very illustrative description by Rosenfeld 'La statistique dans l'analyse et la programmation de l'économie régionale'—in 'le dialogue interdisciplinaire dans les sciences régionales'—Institute d'Economie Régionale du Sud—Ouest—Edition Bière—Bordeaux 1969.

See also the same author 'Structure et Perspectives économiques de la province de Turin'—Metra—Vol. III, No. 4, 1964.

enterprise and not to the individual establishments. (It seems that for certain countries, and for more important businesses one might, nevertheless, be able to obtain business accounts by individual factory).²⁸

- (ii) decision on the definition of regional agents considered as inside the region and those considered as outside it.
- (iii) organisation of data collection to record the flows of savings and investment.

16. Except in countries with very precise and strict regulations²⁹ there are similarly large difficulties in recording the inter-regional movements of persons. One then has to fall back on special investigations. In France the individual demographic census form has, since 1962, carried a question about the individual's place of residence at the date of the previous census. In addition a sample enquiry carried out by the National Institute of Statistics and Economic Studies at the end of 1963 to the beginning of 1964 on a sample of 25,000 persons analysed the commune of residence, occupation, socio-professional category, status, qualifications, economic activity, and employer's establishment on January 1st, 1959 and January 1st, 1964.³⁰ From this one can distinguish a balance of internal migration (movements within the country) and a balance of external migration (a balance of exchanges between the region and abroad). In parallel, at the regional level, the two phenomena of rural migration to urban areas, and movement from agriculture to non-agricultural employment ought to be analysed, with precise details of individual employment (leaving agricultural employment does not necessarily mean leaving a rural area).

One can establish a fairly high correlation between variations in agricultural employment and migrations from rural to urban areas, but low correlation between the population in non-agricultural employment and these migrations.

In this case global indicators are available, and in certain investigations it may be necessary to make more detailed observations, or, to put it differently, to investigate which types of farms provide the people who change their occupation, or, to put it yet another way, observe a fixed sample of farms at regular intervals so as to understand the characteristic deformation of the sample (using analysis by flow matrices).

28 See *Problèmes statistiques posés par la comptabilité d'entrée et sortie*. Vera Cao Pinna—*Planification Economique Regionale*—Ch. 14, O.E.C.E. 1960.

29 Each individual in developed countries is registered in various card indexes, one could imagine that with a system of inter-connecting banks of existing data that migrations could be recorded daily on these records. However, there are certain disadvantages in such an operation, in particular the risk of limiting individual freedom of movement.

30 *Etudes et Conjoncture*—Octobre 1966. La mobilité professionnelle en France entre 1959 and 1964.

Statistical series

17. The above observations lead naturally to a better specification of the statistical series necessary for regional planning. Although the documents listed in the present paragraph apply to national development projects in developing countries, it seems useful to draw them to the attention of economists concerned with regional problems who have to select numerical data or take part in working out a programme of developing statistics. The following are the references concerned:

Séries statistiques pouvant servir aux pays peu développés dans leurs programmes de développement économique et social (Nations-Unies – Etudes Statistiques – série M No. 31 – New York 1959).

Les besoins en information statistique de la planification (République Française – Ministère de la Coopération – Juin 1964).

Statistics and studies for agricultural development planning: a phased program (F.A.O. Agricultural Planning Studies No. 10 – Rome 1968).

These are, of course, concerned with systems from which elements will have to be selected or diversified according to regional needs. It is also wise to review existing data, whether it is explicit (enquiries, publications, etc.), or merely potentially available in administrative archives, and to tabulate them systematically.

18. A separate system of regional statistics cannot be considered, apart from basic documentation³¹ for the construction of regional accounts, and one can only link the statistical data necessary for regional planning in three groups (the approach is somewhat arbitrary):

- (1) descriptive data summarising the present structure of production (regional structure series).
- (2) diagnostic data making it possible to specify regional orientation and development prospects (regional indicators)
- (3) derived data (dynamic series and indices) allowing an evaluation of the effect of government measures and private activities (for each series regional indices are calculated relative to national averages, thus the following chronological indices are calculated at regional level: employment, investment, standard of living, etc . . .) One thus passes progressively from the regional study to the study of the sector, of the built-up area, and of the specific project³² because one may be led to emphasise this or that aspect according to whether the aim is:
 - (a) to forecast the effects of a very large investment (the creation of a port, a dam, a water supply network);

31 For a descriptive aspect, see the publication of l'I.N.S.E.E.—Statistiques et indicateurs des régions françaises—Edition 1969. Vol. R2.

32 Etude sur les effets du complexe de Lacq sur l'économie du département des Basses-Pyrénées. F. Rosenfeld. Tiers Monde. I.E.D.E.S. 1966.

- (b) to open up a fringe region by investment in highways;³³
- (c) to carry out a broadly based development by a combination of various incentives (extension, measures encouraging migration out of agriculture, the establishment of light industry).

It would then be possible to think of 'sectoral indicators' which would make it possible to evaluate the effects of particular investments.

It is equally certain that the statistical organisation will have to be different if it is trying to measure the incidence of a sectoral project (specialised statistical service) or an integrated project (socio-economic agency of multi-disciplinary scope, regional office of the Metropolitan Area (planning) Study).³⁴

19. It is always arbitrary to adopt a classification, but such a step is essential if, allowing for the above considerations, one wishes to organise a useful series for regional planning.³⁵ They are listed in order of difficulty:

- (i) Descriptive inventories at the sub-regional level of physical data;
- (ii) Description of physical and monetary flows arising out of knowledge of operations of households, businesses, and the State, (so as to provide better cover of movements in supply and marketing flows). Within the grouping of economic agents (sources of economic data) it will generally be necessary, as regards households, to emphasise migration (outside immigration can be a phenomenon of regional origin), natural growth of population, development in populating zones which are becoming rapidly urbanised, and in depressed zones, and the development of income (earnings, social payments, savings). For businesses (agriculture is usually treated separately), real values are investigated by sectors and qualification (designation), supply and demand of employment, etc;
- (iii) In developing countries it is fundamental to understand the ratio

$$\frac{\text{value of self-consumption}}{\text{value of total expenditure (costs)}}$$

according to the rurality of the sector, the socio-occupational category and the level of expenditure;

- (iv) Contingent indicators make it possible to trace the particular socio-economic development of the region and its progress relative to other regions;
- (v) Regional technical co-efficients are located with a view to the construction of development models (this point is briefly outlined in para. 22);

33 Statistics of transport cost by unit of value are often investigated by drawing 'isocosts' curves. *Le chemin de fer Bangui-Tchad dans un contexte économique régional*—O. Sautter—Institute de Géographie Appliquée de l'Université de Strasbourg 1958—Voir aussi l'étude S.E.M.A.—S.O.G.E.P. sur le projet de chemin de fer—Transcamerounais—Paris 1959.

34 *Etude des zones agricoles et rurales dans l'Aire métropolitaine—Marseille 1969*. Direction Départementale de l'Agriculture des Bouches—du—Rhône.

35 See rapport sur le programme des études nécessaires à la préparation d'un plan d'aménagement rural du Lot—Mars 1968—Direction Départementale de l'Agriculture.

- (vi) Finally regional accounts which help to fit together, co-ordinate, and explain the basic statistical series equally well from the intra-regional point of view as in respect of the national balance.

20. Although it would be tempting to draw up a list of all the numerical data necessary for preparing a regional plan, this would be unrealistic, and for most of the headings it would merely duplicate traditional national series.³⁶ Alternatively one can consider a common division which ought to provide a satisfactory minimum. It has seemed preferable, though open to criticism to outline a list of indicators, whose general importance in regional planning is undeniable, and which include the derived (synthetic?) data which are likely to reveal significant differences in inter-regional comparisons. In making this selection, account must be taken

- (i) of the precise guide lines under the national plan and the options of regional development;
- (ii) some indication of the methods of projection which will be used.

We are not concerned here with a basic series such as those listed in the documents cited in para. 17, but rather with indices already derived by using two or more basic series. It is undeniable that the character of the choice is sometimes artificial, as the level of development may influence the statistician or planner to prefer either research or calculation from data which is perhaps not listed below.

The risky nature of this step is again stressed by the recommendation of the European Study Circle of the United Nations on Regional Statistics (Varsovie, 30th September—8th October 1969) which was 'the establishment of a minimal programme of regional statistics which could be used for various types of region and various periods of time'.

21. Basic regional statistical indicators other than the aggregates used in national accounts.

These indicators can be obtained either by sample enquiries, by special studies, or by tabulation of administrative documents related to the particular investigation (particularly local, capital equipment and finance). It must be made clear that this list does not take account of methodological difficulties which vary greatly according to headings, and that for certain items (marked with an asterisk) it is better to use a 'synthetic index of situation' instead of a simple indicator. The content of each item also remains tied to the nature and importance of ultimate policy decisions. If regional decision centres are genuinely autonomous, research into detailed indicators can be fully justified.

(a) *Human environment*

- Rate of natural increase.
- Inter-regional and inter-sectoral migration.
- Employment (working hours for the agricultural population should be specially noted).
- Educational equipment, school education and professional training.

³⁶ Inventories of this type already exist, see 'Catalogue du système d'accumulation des données' de la Délégation à l'Aménagement du Territoire et à l'Action Régionale —Février 1969.

- Housing and living conditions.*
- (b) *Agriculture*
 - Structure and changes in holdings (concentration)
 - Land use and method of valuation.*
 - Mechanisation.
 - Land prices.
 - Costs of production.*
 - Productivity in physical and monetary terms of various factors of production.*
 - Nature and importance of subsistence production (auto-consumption) in total human food consumption.
- (c) *Forestry*
 - Indicator of immediate (not future) potential cubic volume by groups of species, unit of area, and unit of time.
- (d) *Industrial production*
 - Structure and changes in businesses by sub-sectors.*
 - Investments.
 - Value added by branch or sector
 - Capital co-efficients by sub-branch.
- (e) *Transport*
 - Traffic density (origin–destination)
 - Transport costs, by method of transport.
- (f) *Tourism*
 - Frequentation indices (the number of nights or petrol consumption are insufficient).
- (g) *Monetary flows*
 - Structure of family budgets and demand elasticity according to income.
 - Relative importance of public expenditure—current and capital.
 - Inter-dependence of local authorities (municipal and local budgets).
 - Residual service costs on public capital equipment.
 - Primary and secondary effects of regional investments.

Inter-regional Planning

22. It is not possible to discuss regional planning without mentioning the problem of inter-regional planning which is much more than the question of simple location of production, because it cuts across regional policies, and is concerned to examine other hypotheses to do with the optimal distribution of investments and of the working population. One may believe that agriculture cannot be treated separately from the other sectors and may wish to set up a model which is both inter-regional and inter-sectoral which touches the present limits both of statistical documentation and electronic computing.³⁷ There are added practical problems of predicting employment by

³⁷ On the complication of models working with inter-sectional and inter-regional relations, see the paper 'Problemes de l'étude statistique des relations intersectorielles et interrégionales' de Bogusaw Jzbisz (Varsovie 1969)

branch where ignorance of the possibilities of diffusion of technical innovations is a fundamental handicap. Under these conditions a number of countries have put in hand inter-regional programming studies in agriculture³⁸ based on linear programmes (8 regions in Sweden, about 100 in U.S.A., and 180 in France). Although these studies have been assisted by the existence of agricultural accounting, and the existence or improvement of traditional agricultural statistics, the variety and quality of documentation remain a preliminary requirement for improving these models (particularly as regards costs of production). It may be noted that the emphasis in these three countries was somewhat different.

- U.S.A: distribution of the reduction in cultivated area.
- France: study of variants in a trend of change defined by the Commissariat Général au Plan.
- Sweden: to find out constraints operated by capital or by industries processing agricultural products.

As regards different types of model for regional development (at the geographical and horizontal levels) the report of J. Causse to the European Study Circle of the U.N. on regional statistics in Varsovie in 1969 should be noted.³⁹

It is also important to remember the problem of choosing between the danger of overloading the model, or of over-simplifying it, so that it is exaggeratedly normative.

23. An interesting example of regional model construction is that being carried out, at present, by the Research Service (Service des Etudes) of the French Ministry of Agriculture.⁴⁰ Following various preliminary preparatory studies, this service has constructed a model with the following objectives:

- providing for the projection at regional level of a range of situations instead of the usual single projection;
- securing consistency between the results of the 21 regions and the national plan and in particular taking account of EEC constraints and choices as regards inter-regional competition;
- measuring the sensitivity of a region to a particular modification in a variable (change in population employed in agriculture, price relationships, rate of investment, etc . . .)

The principle on which this model is constructed is to begin at the level of the large agricultural regions (180 for the whole of France) and break down the field into groups of homogeneous farm holdings; a farm dossier is then established for each system of production (based on real observations obtained by accounting records at farm management centres). A regional

38 *Programmation interrégionale en agriculture. La méthodologie des études de programmation interregionale dans l'Agriculture.* J. Klatzmann—O.C.D.E. 1965. See also by the same author 'Le développement économique en agriculture' *Economies et Sociétés*—Janvier 1968—Droz—Genève.

39 *Statistiques nécessaires pour l'établissement de modèles du développement économique régional.*

40 *Cahiers du Séminaire d'Econométrie de l'Université de Paris—Février 1970.*

situation is a sum of the systems of production, weighted by the area under each system. This initial regional situation (1962) was first used to make a projection up to 1970. Holding this central situation and modifying the development of 11 guiding products, either up or down, one can obtain some 23 theoretical situations. In practice, only 5 or 6 situations are retained and are then submitted to a regional technical group to be corrected by indices of structural and technological development so that they can be carried forward from 1970 to 1975.

24. Although micro-economic analyses (farm accounts) have frequently been used for inter-regional agricultural programming, it must not be overlooked that, for certain aspects, macro-economics can also provide data for evaluating regional development in a way which is both quicker and less costly. Trials are now being carried out in each programme region with a view to making projections for 1970, 1975 and 1980 on the basis of certain hypotheses of —

- (1) the number of farm holdings;
- (2) the area of agricultural land in cultivation;
- (3) the population employed in agriculture;

by size class of holdings, but these are based on the development of trends in the recent past (1955–1963–1967).⁴¹

Conclusion

25. At the end of this brief description which can only be rather superficial, one is left with a variety of evidence, but also with a number of uncertainties.

In the first place, the need for regional statistics is clearly genuine and corresponds to needs at a wide variety of levels — demographic, economic and monetary. It is also clear that regional statistics can be built up either from series drawn from the national statistical system or from original series arising from the nature of the subject (inter-regional flows) or from the specific needs of the region concerned.

But, nevertheless, there are very few concrete regional models based on a system of permanent regional statistics.⁴²

Regional accounting provides a practical working framework, it has the special merit of being an irreplaceable tool for evaluating the consistency and comparability of all the numerical sources being used, although this framework is not always adequate. Tables of resources and of employment, and of inter-industry exchanges are always instructive, but, in order to complete the numerical documentation, it may be necessary to fall back on specialised

41 See: *Projections du revenu de la main-d'oeuvre et des situations agricoles—Etude pilote pour la France—Claude Mouton—O.C.D.—Novembre 1969.*

Cahiers Mensuels de Statistique Agricole No. 53—'Projections pour 1970 et 1975 du nombre d'exploitations agricoles et de la population active agricole'. P. Greiner—Decembre 1969.

42 'If the subject is interesting the data is scarce'. *Les premières expériences du planification en Afrique Noire—Champître VI—La régionalisation des plans. Michel Gaud Cugs 1967.*

enquiries or on investigations with multiple objectives.

The setting up of regional or inter-regional models demands heavy and sometimes costly intellectual and material investment.

As the pre-occupations of both national statisticians and economists and of international organisations show, we are again in a period of gestation, out of which should come both a rationalisation of research and a simplification of the procedure for exploitation, presentation and analysis of data. One can, nevertheless, without grave risk of error, recommend:

- research into making the maximum use of the numerical resources arising from management accounting (a particular effort ought to be made to harmonise the variety of nomenclature) and to distinguish what is available at the regional level from what has to be investigated at a national level (including the implications in the field of informative techniques)
- putting in hand a plan for periodical statistical enquiries (either by sampling or not) to collect information which can only be obtained by direct observation from households, farms and businesses.

SPECIAL GROUP H REPORT

The Discussion drew upon points raised both in the paper specially prepared for this meeting, which was introduced at the beginning of the meeting, and on the paper of Waardenburg, which had been taken earlier in the Plenary Session.

Topics of importance that arose in the discussion can be considered under five headings, covering Objectives; Stages in Planning; Definitions and Criteria; Methodological Problems; and Applications of their new Planning Techniques, especially in less Developed Countries.

Objectives of Data Collection for Regional Planning

Pursuing a main theme in the paper, the importance was stressed of being sure just what use a regional planning exercise would be, and what questions it might help to resolve. Data was too difficult and expensive to obtain for it to be gathered without a specific use in view, so it was incumbent upon those extolling regional planning to show in what ways it could be useful.

Some instances of the use of this kind of planning were mentioned. In the centrally-planned Socialist economies, the knowledge of existing structures and future possibilities in particular regions had been a fundamental requirement for the development of specialisation (both between and within regions) in agricultural production on the state and collective farms. A second type of advantage mentioned was the use of this aggregative planning (i.e. dealing with sectors and regions as a whole) in bringing out opportunities and economic relationships which might be obscured if planning were left to the whim of individual managers and entrepreneurs. Furthermore, an objective basis could be furnished from such models for resolving conflicts between regional and national interests.

Stages in Planning

Regional Planning held an important position in the overall planning framework of centrally planned countries. In Russia, for example, the individual republics constituted regions at the higher level. Within each republic, sub-divisions were recognized for planning purposes. In the overall planning processes for agriculture, national targets were disaggregated to regions, and individual production unit plans were aggregated up to the lower regional levels, and at that stage, the two approaches equated and differences resolved through the use of accumulated data or the possibilities in each region. Thus the preparation of a form of regional plan was an essential stage in this kind of planning system.

Definitions and Criteria

The problem of definition referred to in the paper was clearly reflected in the discussion, when a wide variety of points were raised. The definition of the region itself was obviously fundamental. In many countries, rational regions had been recognized for a long time, and were clearly identified. This had been a particularly important feature in the planning of Soviet agriculture. However, very often the boundaries of regions as defined on the basis of technical features differed from the regional administrative framework. This presented a conflict so that a plan derived from a regional model could be implemented, it was necessary to adhere to the boundaries of administrative divisions, although this obviously weakened the validity of some of the coefficients that were used in the model to reflect conditions in the region.

Other fundamental problems of definition centered around the concept of planning, and the meaning of 'efficiency' which lay behind the objective function in any linear programming model. Clearly, in a discussion of delegates from both capitalist and communist economic systems, it was likely to be difficult to find a generally acceptable definition. It was suggested that Myrdal's definition¹ of planning might be appropriate for planners in any type of economy, but there was an urgent need to try to establish common ground and understanding regarding the meaning of the term 'efficiency'. To most planners in free economies, this concept was related to some measure of profit; in socialist systems, the attainment of physical production targets were, by themselves, much more important than in free economies.

An interesting problem of definition was referred to relating to agriculture in arid areas. With most resources, once the region had been defined, it was possible to say without difficulty which assets and features lay within it. Nomadic peoples and their animals, however, presented an almost insoluble difficulty. Some moved across regional or even national boundaries without regard to externally imposed lines of differentiation. Consequently, their integration into regional planning was, to say the least, problematical!

1 Myrdal, G. *Beyond the Welfare State*, Duckworth, London, 1961 p. 15.

Methodological Aspects

A number of methodological problems important to the framework of regional planning were referred to. A clear appreciation of the historical background of the region was thought to be a necessary constituent of the planning framework. Similarly, the directional origin of the regional plan was of considerable interest. Most models were obtained by disaggregation from the rational plan, but others could be prepared through a different approach by assembling in full detail, all of the component features of a particular region. It was understood that in France, both types of approach had been considered. Experience from any source of the 'assembling' approach could provide valuable guidance on the usefulness of this strategy, and problems encountered in relating it to the other more common approach.

Attention was also drawn to the fact that, for regional models to be a useful tool for forward planning, the matrix data on which they were based should not refer only to measured conditions, which inevitably referred to past conditions. For some types of project, where technology had not changed much, it was reasonable to use past evidence as the basis for determining input-output coefficients for future activities, but in many cases it was the explicit intention to introduce new activities, or to change the relationship for those that had gone before. Thus, the requirement for regional planning data was in some aspects likely to go beyond that which could be obtained from the types of source mainly considered in the paper.

The Application for this New Planning Method

Regional planning and the models on which it could be based were accepted as a fairly new yet promising branch of applied economics, but more theoretical work and practical experience were undoubtedly required before their contribution to effective planning could be judged. Some countries had for many years appreciated the fact that conditions and economic opportunities varied widely between different parts of a country, yet had felt unable to follow this up by undertaking detailed planning for the separate regions. In any situation, planning of this kind made special demands for data, not all of which could be satisfactorily fulfilled. This was especially true of developing countries, where planning data of all kinds was often very inadequate. This shortage, however, did not always deter planners from trying to make comprehensive national and regional plans. Undoubtedly the experience of making a succession of plans of itself led to the accumulation of useful knowledge which was incorporated in later, improved planning efforts. At the national level, most countries would claim that each mid-term plan in a series tended to embody marked improvements over earlier attempts. The same was likely to be the case with regional plans. An example was cited of a regional model being investigated that used data which often had no reliable objective basis. Sensitivity analyses had shown up those areas in which it appeared most important that improved data was required, and this had provided an important element in determining new data-collecting priorities.

Among the participants in the discussion were V. P. Sotnikov *U.S.S.R.*, A. Kamali-Nafar *Iran*, T. V. Edwards *Australia*, A. Slobodan *Bulgaria*, Ya Kunts *Czechoslovakia*, L. J. A. Folkesson *Sweden*, V. F. Labenets *U.S.S.R.*, H. Alfons *Austria*, P. Pascon *Morocco*, F. Gomez *Spain*, J. D. McArthur *Great Britain*, A. A. Ivantshenko *U.S.S.R.*