

REGIONAL PLANNING IN CHILE: SOME THEORETICAL
ASPECTS

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The author is associated with the National Planning Office (CHILE). Nevertheless, this article reflects his personal viewpoints.

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"The regional planner, in fact, appeared to be held generally in suspicion, as someone who, unless watched, would want to take too large a share of the national investment cake".

Regional Development and

Accelerated Growth.

OECD, 1965.

I.- FOREWORDS.

Chilean inflation will soon reach its one-hundred birthday (it started around 1879), therefore, every Chilean living to day was born in times of inflation and some of them will also die in times of inflation. Due to this extremely long non-desired partnership, inflation has modelled the attitude towards life of the Chilean people. Due to the same fact and also due to its peculiar side effects (unemployment instead of employment, for instance), Chile has been a common case study in most of the graduate programs in economics, throughout the world.

It is the hope (of the present author among others) that in the next future, Chilean economy can also serve as a case study, but now in a positive way. The regional planning scheme developed in Chile during the last years, both in its theoretical and political aspects, has so many interesting features from the methodological as well as from the practical point of view, that a critical examination of this experience could enrich any graduate program in regional development and planning.

The purpose of this paper is to make a description of such experience, pointing out some theoretical issues which are of special interest. Besides, the paper should be viewed as a contribution to the English literature on cases studies of regional planning. From the formal point of view, the paper will be divided

into three main sections: an introduction to acquaint the reader with the Chilean situation, the discussion of the principal theoretical aspects of the Chilean experience and a final section containing a critical analysis of some visible results. Additionally, a selected Chilean bibliography will be included.

II.- INTRODUCTION.

a) Geographical background.

The need of regional planning is not independent from the geographical shape of a country. It is, of course, quite obvious that the greater the area of a country, the greater the possibilities of a very differentiated pattern of resources endowment and therefore, the greater the possibilities of inter-regional income disequilibria (1), not to mention problems connected with the efficiency of the public administration system.

As important as the total area is the shape of the area and in this context the geographical shape of Chile is rather peculiar. It is an extremely large and narrow country, some 4,500 kilometers long and with an average width of some 240 kilometers.

Not all the territory is physically integrated. About one third (in the extreme south) consists of a great number of islands and fiords with a topography similar to Norway.

Natural resources and climate are quite different along the Chilean territory. The northern part of the country is one of the most arid deserts in the world, rich in nitrate, iron and copper. It is, by definition, the mining zone of the country. Following to the south, the climate becomes milder

and the soil is mainly used in agriculture. An overwhelming majority of population and economic activity is concentrated along this Central Valley. The southern part of the country possesses a cold and rainy climate; wood and oil (but mainly gas) are the principal natural resources (as a potential resource it should be mentioned the great hydroelectrical reserves).

This uneven distribution of resources on the space has had a determinant influence over the spatial distribution of population and industries and one of the purposes of the actual regional policy is to incorporate non exploited resources (and areas) into the national economy.

The total area of the country is around 750.000 square kilometers (not considering the Antarctic Territory), that is to say, a size greater than most of the European countries. Nevertheless, the average habitability (2) of the country is only 45% with a wide regional dispersion, ranging from 7.1% to 84%.

The urban structure corresponds to what Berry (3) calls a "primal structure" with one big metropolis dominating the whole system. So, the system is characterized by a great number of small and medium size centres but without second order centres. Because of this type of urban structure, it is difficult to identify urban sub-systems which could serve as a basis for the development of growth poles. It is also interesting to note that the capital city (the metropolitan area) is located precisely in the middle of the country, so any flow between North and South (and viceversa) necessarily pass through the capital city.

b) Historical background.

The first historical fact one has to keep in mind in explaining the spatial structure of the Chilean economy and therefore, the actual need of regional planning has to do with the interior war to dominate native Indians. As a matter of fact, this war lasted until the very late years of the XIX Century, encompassing during three hundred years. This means that half of the national territory was incorporated to the Chilean state just 70 years ago.

On the other hand, the extreme Northern part of the country (including two big provinces) was incorporated to the country only in 1882, after a war against Perú and Bolivia.

So, from the geographical and political point of view, the territory came into a common government and legal system just in the last decade of the last century.

In this fashion, Chile can be viewed as a relatively new country. This is an important feature, since spatial phenomena are usually considered as long run phenomena and the spatial structure of the country is not yet as consolidated as in other older countries.

Chile has a unitary government system and one of the most centralized government apparatus in Latin America (4). The roots of this situation should be looked for in the need of a strong central direction of the country to solve problems arising from wars, both internal and external. Besides, and specially during the last century, the civil administration system was highly influenced by the French system which in turn, is an extremely centralized one, following the reform introduced by Napoleon.

This centralized organization has steadily been reinforced due to the growing role of the state. New tasks absorbed by the central government have been covered by an horizontal expansion of the state machinery, without any rationality in most cases.

Of course, this evolution had necessarily a twofold response. On the one hand, provinces located at the extremes of the country began to ask for more local autonomy, arguing that distances and poor communications impeded to take the right decisions at the right moment. On the other hand, community organizations such as municipalities, bitterly complained because a continuous transfer of power (and resources) from the local to the central level. So the reaction against the overcentralization came along regional and functional lines.

In order to keep the country unified, central government had to give some power and some resources to - at least - the most farthered provinces both in the South and the North (5). This type of decision was also pushed by geopolitical considerations. Two Regional Development Corporations were so created.

Also, as it is pointed out by Stöhr, provinces producing copper - the main export product - began to ask for a greater share of the country's exports revenues. Many bills were passed giving budgetary resources to these provinces and creating at the same time local or national organizations to manage these resources.

So, in a step-wise fashion a chaotic structure was superimpose over the country without any kind of central guidance,

From another point of view, there is other historical fact related to the actual regional scheme. As it has been the case in various countries, natural disasters obliged the central government to establish decentralized agencies to cope more efficiently with reconstruction problems. In the case of Chile, the big 1960's earthquakes and floods gave the occasion to reorganize the Ministry of Economics and to create, in each of the 25 provinces a mixed Committee of Reconstruction (COPERE) with participation of both the public and private sectors.

Due to several reasons (6), these comisions failed and after a couple of years they dissapeared. It is doubtful wether this experiment created or not a sense of regional participation in their communities.

Finally, it is necessary to point out that regionalism, as a political feeling, has never been important in Chile, although some regionalism can be found in one or two provinces in the North. Surprisingly enough in a country with so different types of ecological systems; maybe this lack of regionalism is conected with the high degree of racial homogeneity of the chilean population.

There is still another fact one should also mention in this brief historical review in order to arrive at an explanation of the spatial structure of the chilean economy.

The 1929 World Crisis affected the chilean economy perhaps more than any other country in the world. The crisis obliged the country to start a rapid and non planned substitution process. Since most of the industries created were market -

oriented, the already existing population concentration in one or two cities was reinforced by industrial concentration, starting a cumulative process with an increasing dynamics lasting up today (7).

c) Actual situation.

Regional planning function was institutionalized in 1967 when Congress passed the law creating the National Planning Office (ODEPLAN), although the institution was informally working since 1965.

For the first time in Chile, the regional level was recognized as one of the three planning levels and it was introduced within a formal coherent structure containing three planning sub-systems: global, sectoral and regional.

As for the institutional structure of the regional sub-system, this was divided into two kinds of bodies. A centrally located Department of Regional Planning whose main functions are to do all kinds of interregional studies and to elaborate the (national) regional plan, and several local planning offices (theoretically one office in each of the planning regions). The main task of these local offices is to prepare the (intra) regional development strategy. Side functions are the coordination of local public agencies and the transmission of information.

The Department of Regional Planning and the Regional Planning Offices are under the supervision of a Subdirectorate of Regional Planning. It is to note that the National Planning Office is an advisory office directly linked to the President of the Republic.

The task of organizing the regional planning function was impressive. In 1965 there were no accumulated experience in this field, information was extremely scarce and outmoded, universities didn't care in the past about spatial processes so it was extremely difficult to find prepared people to assemble a decent technical staff.

The average technical staff in these five years, has been composed of about 54 people, 50% in the central office and the other half in the regional offices. It is interesting to point out the professional composition of this staff because successes and failures of the regional planning experience can be associated to this composition, to some extent.

About 35% of the staff is composed of economists; engineers represent 20%; architects 18%; lawyers 6%; agricultural engineers 6%. The missing 15% is composed of geographers, sociologists, droughmen, geologists and public administrators.

Only three members of the technical staff had formal post-graduate studies and out of these, only two had a degree in regional science or planning. Also, it should be mentioned that most of the people was recruited among recent university graduates without previous experience.

Under these conditions, foreign technical assistance and in-work training was an urgent need.

Chilean government signed an agreement with the Ford Foundation, which was to provide technical advice in urban and regional planning during four years.

The technical team provided by this program was of outstanding qualifications (8) and a good deal of the successful results of the regional planning experience in Chile can be attributed to their direct or indirect work and advise.

The same program provided short run foreign technical assistance and study trips abroad for top officials. Through this mechanism Chile benefit of a short but fruitful assistance from the Netherlands Economics Institute in the field of econometric models for regional planning (9).

The assistance provided by Ford Foundation Program not only covered the public sector institutions. It also pushed a successful experiment at the Catholic University to develop a graduate center devoted to teaching and research activities in the field of urban and regional development (10). This Center has offered several short run training courses for the medium level staff of the Planninf Office.

The task of ellaborating a development plan (regardless of the temporal and spatial dimention of the plan) can be reduced to some more or less specific stages. Usually these stages are identified in the following fashion: i) diagnosis and prognosis; ii) establishing goals and targets; iii) definition of a strategy; iv) especification of the different policies and, v) evaluation and control of the plan. The institutionalization of the plan is a permanent effort presents in all the stages just defined.

This stepwise process of making a plan also apply to the formulation of an interregional plan.

Broadly speaking, it can be said that Chile has gone through all these stages with a different degree of depth. As it could be expected, the spatial diagnosis has always been the best formulated and soundest part of the plan, given the type of professional background and lack of experience of the people working in regional planning, as it was mentioned before.

There are two main documents which show fairly well the theoretical and technical level reached by the National Planning Office in the regional field.

The first one, entitled "Policy of Regional Development" (11) is an attempt to define a national policy of regional development mainly on the basis of qualitative judgements. The first draft was issued in the late months of 1967. The document is divided into three main sections: a) Factors of integration, with an analysis of the lack of interior integration of the country in physical, economic and socio-political terms; b) Policy of Development, where the objectives, regional priorities and growth poles are defined and, c) Regionalization of Sectoral Plans, where action lines are defined in each economic sector.

Although the document was a non quantitative one, its influence on both the public and private sector was far reaching.

The second document, "The Regional Development of Chile in the Decade 1970-1980" (12), is an ambitious attempt to foresee the likely tendencies of regional development in the country during the next ten years. Formally speaking is not a plan; it is rather a set of alternatives (in terms of strategies, policies and means) which represent different possibilities of handling the spatial development of the country. It will be a political decision to choose one of them.

The document is structured according to four main topics: a) Actual Situation and Forseeable Tendencies of Regional Development, where an evaluation of the achievements (of the period 1965-1970) and an-examination of the regional incidence of some phenomena which are likely to occur in the decade is made; b) Global and Sectoral Strategies for the Decade, where the global and sectoral targets are examined and defined as side constraints for regional policy; c) Some Basic Criteria of Regional Development, this chapter being dedicated to the discussion of some guiding principles, objectives, strategies, policies and regional growth targets for the decade and, d) Means and Instruments of Regional Development, where several policy measures (for instance, industrial location policy) are recommended to attain the goals and targets previously established.

Comparing both documents (which must be viewed as complementary) is an interesting exercise to evaluate the methodological improvement gained so far.

The latter document has gone further in at least four important issues.

First, the philosophy with which the regional problem is approached is clearly stated. As Friedmann once pointed out (13), this should be the very first step in designing a regional policy. In the case of Chile it took some years to formulate such philosophy, due again, to the lack of previous experience in the field.

Second, both general policies for each of the 12 regions and specific growth targets are much more explicit. As a matter of fact, growth targets were not defined in the former

document due to the lack of a method to set them up in a consistent way.

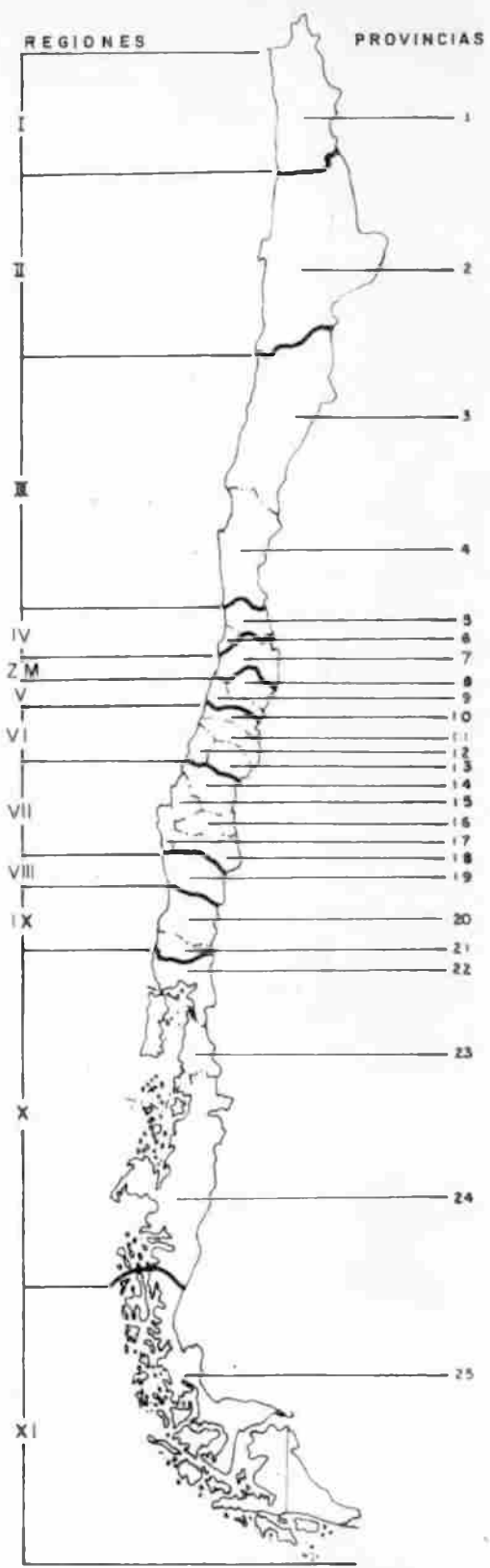
Third, regional growth targets are made consistent each other and with the national growth rate. Since the regional system is composed of a relatively large number of regions, there is a high probability of inconsistent statements and therefore, consistency has a high per se value in the policy model.

Fourth, means and instruments to be used to implement the regional plan are defined and more or less exhaustively examined. Six main "means" are identified: an information system, regionalization of sectoral programs, industrial location, administrative decentralization, regional financial mechanisms and urban policy.

So far for the interregional approach.

At the intraregional level the work has advanced slowly but steadily. At the moment, three regional development strategies have been published while for the rest of the regions some preliminary guidelines have been defined by the central office. In one region (the Bio-Bio region) the planning process has wholly been covered, including annual evaluations.

To study in detail a policy for the big Central Macro Zone (comprising the Metropolitan Zone and adjacent regions) which include more than two thirds of total population, a special contract was signed to hire the full human capacity of the Interdisciplinary Center for Urban and Regional Development. The research program must be completed by 1971.



CHILEAN REGIONS AND PROVINCES

PROVINCES				
1 -TARAPACA	6 -VALPARAISO	11 -TALCA	16 -BIO-BIO	21 -OSORNO
2 -ANTOFAGASTA	7 -SANTIAGO	12 -MAULE	17 -ARAUCO	22 -LLANQUIHUE
3 -ATACAMA	8 -OHIGGINS	13 -LINARES	18 -MALLECO	23 -CHILOE
4 -COQUIMBO	9 -COLCHAGUA	14 -ÑUBLE	19 -CAUTIN	24 -AISEN
5 -ACONCAGUA	10 -CURICO	15 -CONCEPCION	20 -VALDIVIA	25 -MAGALLANES

SCALE: 1 : 10 000 000 SOURCE:

III.- SOME THEORETICAL ISSUES.

The chilean regional planning experience can be classified in a twofold way. On the one hand, it is an experience relatively rich in theoretical improvements and advancements; on the other hand, it is relatively poor in showing material achievements. This last feature can be explained in light of three underlying causes: i) spatial transformation is mainly a long run process; ii) the 1964-1970 national development strategy was based in a few large scale locationally tied industrial projects and, iii) the advisory role of the planning office has proved to be a rather weak role when the need has been felt of breaking down the traditional power structure of the public sector.

According to Stöhr (14), three main issues are the more interesting advancements made during the last years: a) the definition of a national policy of regional development; b) the budget regionalization process and, c) the regional investment allocation model.

Nevertheless, it should be noted that not all of the three aforementioned points can be considered as "technical innovations". For instance, the regionalization of the public capital budget doesn't imply the introduction of new knowledge; it is just an extension of a method already applied, never mind how important this task is.

Besides, since Stöhr wrote his article some new advancements have been made and therefore it is preferable to speak of four main theoretical issues which make the chilean experience a distinct one. These four issues are: a) the design of a coherent national policy of regional development; b) the compatibilization

mechanisms; c) regional population studies and, d) regional strategies. The order reflects a personal valuation.

a) A National Policy of Regional Development.

"Chile has taken a very special course in shaping a regional development policy, different from practically all other Latin America countries. It so far is the only country in this sub-continent which has been able to structure a national policy for regional development embracing all the country" (15).

In order to analyze the scope and nature of the (national) regional development in Chile, it is useful to start with some definitions.

Three elements define an economic policy: the goals the policy-maker desires to attain, the actual situation and the set of instruments used to transform the actual situation into the desired one (16). The two first elements are interrelated to a very high degree and in between, a lot of value judgments are introduced.

Taking as a departure point the first important document precited (17), four clearly defined goals are attributed to the regional development policy:

- 1.- To achieve an acceleration of the GNP rate of growth up to an average anual rate of 5% by concentrating investment in those areas with a greater development potential;
- 2.- To obtain an income redistribution at the regional level (this goal is recognized as a constraint to the first one);
- 3.- To attain full employment by means of a migration policy;

- 4) To attain, as a catch-all goal, the national integration of the country.

Leaving aside the last goal, which is, properly speaking, the only spatial goal, it is easy to see that the others objectives are simple locational adjustments of national goals. In this fashion regional policy is not a policy in itself but just another mean of the national development policy.

However, the picture is not bad at all if the second cited document (18) is considered as a complement of the first one. The following textual statement is made in connection with goals.

".... the fundamental goal of regional development (and therefore of regional planning) which dominates every other goal, is to contribute to the process of nation-building (19) in a general sense. It is assumed that this nation-building process ought to create a "national state" conceived as a well integrated nation from a physical, economical and socio-political point of view".

And a few lines ahead (20):

"The justification of a regional development policy appears quite clear if (the policy) it is conceived as a multiple-goal instrument designed to improve the conditions of integration. Basically, regional development policy must act through a spatial arrangement of activities (in terms of a hierarchy of central places) to promote a greater physical integration, through an adequate manipulation of certain control variables (investment, migration, location, etc.) in order to start a deconcentration process and by means of a decentralization policy

which allows for a greater regional participation in the decision making process. The region is then visualized as a action instrument for the development policy and as a participation instrument for individual, object and subject of planning.

Summarizing, regional development goals have to do with the reduction of interregional disequilibria through a differentiated regional growth leading to the construction of a national state".

As it can be observed, the latter statements are much more in the tradition of spatial thinking (if it is allowed to speak of a tradition). There is one big multiphasetic goal plenty of economic and social (as well as political) implications which is defined independently of national goals (such as growth, inflation control, etc.). This is of course the only way of starting a feeding-back process between global and regional planning levels. After all, regional level is not a subordinate level; it must have the same decisional status as the global and sectoral levels. Of course, to get this is not easy (21).

So far for the first element of any policy: goals.

As for the second element, the analysis of the actual situation, a lot of high level researches have been made (22).

Any economic diagnosis contains two different parts: a description of the present state of affairs and an interpretation of causes and forces operating in the system described, and here a theory is needed, not an historical analysis.

The description of the spatial structure of Chile has been approached from several convergent points of view.

First of all and on the basis of some preliminary data, a system of regions was defined. The definition of the system was bounded by mathematical (exhaustive and disjoint), geographical (regions not too small neither too big), economical (a minimum market size as to support productive investments), urban (existence of at least one growth pole), informational (maintenance of administrative divisions) and sociological (a certain degree of social cohesion) constraints (23).

Having defined the system of regions, economic structure was studied on the basis of calculating the geographic product of each region. Population distribution was also studied on Censuses basis; urban system and sub-systems were identified and the geographical pattern of industrial location was exhaustively examined. Many other complementary studies have been conducted.

Certainly, no overall theoretical explanation of the present spatial structure of the economy has been given, but some studies on comparative statics have been made (24) and some attempts have also been made to explain and to link the spatial structure of Chile to external trade, center-periphery relationship and so on. No doubt, almost everything has to be done yet.

It was pointed out in former pages that goals and actual situation are two interwoven elements of a policy. Comparison between actual situation and goals shows, in most cases, how poorly market forces are doing and how much the intervention of the state is needed.

The main conclusion of the analysis of the actual situation was already advanced: the country has a low degree of interior integration in its three aspects and this fact is

translated into a picture of severe interregional disparities. Moreover, market forces tend to produce a cumulative dynamics which makes all things worse.

So it comes the third element of the policy, that is to say, instruments able to transform the actual situation into the desired one.

The instruments used to shape regional policy may be classified in connection to the following criteria (25) : a) the determinants of regional growth which they influence; b) the size of the area affected and, c) the degree of interference with the market. According to these criteria, means and instruments of regional policy used in Chile may be listed and categorized as follows:

- a.1) Labor - supply measures. The only type of measure used so far to influence the labor supply at the regional level has been a massive program of technical training conducted by the National Institute for Workers Training (26). This action is supposed to affect the labor supply in a qualitative fashion.
- a.2) Capital - supply measures. Instruments affecting regional capital supply have been intensively applied. On the one hand, Government supply social infrastructure in the form of industrial parks (27) according to regional priorities defined by ODEPLAN. On the other hand and on the basis of the industrial location policy defined by the Planning Office, Government offers regional differentiated reduction on import duties for capital equipment, up to 100% of the ad-valorem CIF tax for certain regions and industrial branches.

- a.3) Technical - progress measures. Just very recently, the National Science and Technology Commission has been defining a national and regional research policy. The policy will provide some guidelines to rationalize research centers. It is the purpose to link these activities to regional natural resources and also to regional development strategies.
- a.4) Demand - influencing instruments. The demand side of the coin has been scarcely touched yet. Nevertheless, public spending has been flexible enough as to give quick response to short-run regional problems. Besides, the aggressive government export policy during these last years has had a non yet studied regional impact, specially in those regions producing copper and some industrial goods such as cellulose, paper, chemical products, etc. Of course, it is necessary to point out that in a country where about 75% of the national gross investment is directly or indirectly financed by the public sector, demand-influencing instruments are always in use, in a national sense.
- a.5) Location - instruments. Regional location policy is some kind of a catch-all policy and therefore, it includes the four above mentioned measures. Nevertheless, industrial location policy has always been seen as one of the principal means of regional policy. A good deal of the research efforts of the Planning Office has to do with the industrial location problem. These efforts have lead to the formulation of an interregional location policy (the so called macro-location problem) which is considered as a reference framework for specific actions by the public and private sector. Control and incentivation measures are taken in accordance with this policy.

a.6) Mobility measures. The efficiency of the regional system can be increased if both factors and goods mobility is improved. In this way, any action improving the communication system and the transport system should lead to a better functioning of the regional system. Regional development policy has focussed the attention on the inter-urban level and intra-urban accessibility in the capital city (28) has been recently sin dicated as one of the biggest-consuming-funds problem.

b.1) Regional instruments. According to the second criterion, some policy instruments are designed to affect some specific spatial areas. The principal specific regional measures taken in Chile, within the context of the regional development policy, have to do with a few autonomous regional development corporations. At the present time, there are two corporations, one in the extreme north and the other in the extreme south. The amount of resources managed by these Corporations is rather high in per capita terms. The National Planning Office provides technical advise to these Corporations. In this way, central guidance criteria prevails.

Recently, a completely new regional organism was created by law. It is a new kind of autonomous agency which will operate with budgetary funds and with funds rais ed by the local community.

b.2) National instruments. National instruments (mainly fiscal policy measures) are interesting in this context only if they are regionally differentiated. There are only two examples of these kind of measures in the chilean experience and their effects have not yet been analized.

One of them is a rather old system of wage differentials for public employees, according to the distance of the place of residence from the capital city. It is doubtful whether the differential is large enough as to compensate the rewards of life in big urban centres.

The other one is a rather shy policy of banking credit in supposed accordance with regional needs.

Finally, the regionalization of the national capital budget should also be under this heading. Nevertheless and for the time being it is more a good desire than a sound reality.

- c.1) Government activities. Following the third classification criterion, policy instruments may interfere in a different degree with the market economy. In the case of Chile, direct government activities are extremely important (government is the principal employer, the biggest industrial entrepreneur and so on and so forth).

Granting that this is a summary, the two most important government activities in this field are: first, the decentralization of the public administration system which is being undertaken and the industrial and financial activity realized through the National Development Corporation (CORFO). Both actions are, to some extent, guided by criteria defined by the Planning Office. Needless to say, the main government activity is the planning function in itself.

- c.2) Direct controls. Although direct controls are extensively used in the Chilean economy (such as price controls) they are not used in a regionally discriminatory way. Some consumption regulations (meat regulations for instance) do apply only for metropolitan region, but this is completely due to balance of payments considerations and not to regional considerations.
- c.3) Indirect controls. Indirect controls such as tax policy are not significant neither on the revenue side nor on the ^{diture} ~~expensive~~ side, at least, from the regional point of view.
- c.4) Information measures. The improvement of the information system (production, channelling, storage, etc.) is one of the most important means to implement regional policy. An interesting effort has been made by the Planning Office in order to create a regional information system producing both statistical data as well as qualitative data (29).

At the present, a great amount of coherent statistical information is collected, created and published by the Planning Office. On the other hand, Regional Planning Offices monitor the region and channels information both from the central and to the central level. Decisions are so being taken on a more rational basis.

A final word on the topic. Three elements of an economic policy has been discussed. Yet, there is a fourth one. In the case of regional development policy in Chile, a set of guiding principles have been defined so as to give a conceptual framework where this policy is inserted. Just the enumeration of them is presented here. These principles

are the following ones (30):

1. Regional development is a long run process.
2. The set of regions conforms a system.
3. Regional development is mainly based on natural resources exploitation.
4. From the regional point of view, industrialization is a compensatory instrument.
5. Regional development is an associate process between the state and local community.
6. Regional development is a comprehensive process embracing economic as well as social transformations.
7. The inter-regional strategy implies a process of disperse concentration.

All these elements of the policy merge, giving form to four types of global regional policies applied to groups or to individual regions. These policies are:

- i) A policy of economic control and spatial rationalization, designed for the Metropolitan Zone.
- ii) A policy of economic reconversion (transformation) and polarization for the two regions centered around the two big second order urban centres (Valparaíso and Concepción).
- iii) A policy of economic diversification and spatial integration to be applied in the mono-productive regions of the north and in the extreme south.
- iv) A policy of economic adjustment and complementation designed for the rest of the regions.

Needless to say, there is a lot of job to be done in the next future in order to define in a more precise way the nature of this policies.

b) Compatibilization Mechanisms.

The second area where the Chilean experience in regional planning has produced theoretical innovations is centered around the complex problem of compatibility. Compatibility problems arise in this context, in two ways. Firstly, planners have to make consistent the national rate of growth with the set of regional rates of growth. Secondly, planners also must come out with a consistent solution when comparing national-sectoral rates of growth with regional-sectoral rates of growth.

It is to be noted that the solution to the first problem doesn't guarantee the solution of the second one and that the solution of the latter is necessarily based on the solution of the former.

Maybe this is not a very troublesome problem when regional planners deal with a two-region system (as in the case of Italy). Nonetheless, if the system is composed of twelve regions, as in Chile, the problem becomes quite a difficult one.

Given the large number of regions, consistency has a high value in itself, as it was already said in former pages, although economic consequences of inconsistency are not known. In the case of sectoral planning for instance, consistency in terms of the different sectors' rates of growth is also an important requisite and the input-output table can efficiently handle the problem. In that case however, economists are fully aware of the consequences of a lack of consistency, shortages, bottlenecks, inflation, balance of payments pressures, etc. It is not yet the case for regional planners.

The model used to fix up the set of regional growth rates (31) has the following elements:

1.- Data.

- 1.1. Length of the planning period.
- 1.2. Number of regions.
- 1.3. Actual coefficients of regional share in total output.

2.- Exogeneous variables.

- 2.1. National rate of growth.
- 2.2. Regional percentage increases in population for the planning period.

3.- Control variables.

- 3.1. Future (desired) coefficients of regional share in total output.

4.- Endogeneous variables.

- 4.1. Regional rates of growth.

The model is based on some assumptions, the main of which are related to the nature of the system of regions, the lagged reaction of population movements to economic stimulus and a side constraint in the sense that no interregional compensations are allowed, that is to say, a positive per capita output increase must be reached in each region.

The first step in operating the model consists in identifying the so called "critical region", that is to say, that region in function of which the highest theoretical national rate of growth is determined. If this theoretical rate is greater than the real one, some side adjustments must be made.

However, experience seems to show that the side constraints of the model are easily met by the overall rate of growth. In this case and after calculating the rate of growth of the "critical region", this rate is linked through a set of independent equations to all other regions. Final results must meet the general consistency equation which states that the given overall rate of growth is a linear combination of all regional rates, each of them being weighted by the quotient between actual and future participation coefficients.

In this fashion global rates of growth for all regions are determined and then comes the second compatibility problem in terms of sectors.

To cope with this problem, a linear programming model originally developed by the Netherlands Economics Institute is used (32).

Since english literature is available, just a brief description of the model will be given here.

Attending to its structure, the model is a static linear model with a preference function, of the semi - input - output variety.

The principal characteristic of the model is a new way of sectoral classification, not along functional lines but according to the degree of mobility of products. Three categories of products are distinguished: regional products defined as those goods moving only within the region (due either to technical or economic reasons), national products being those goods with internal mobility only and international products with an analogous definition. This form of classification avoids the explicit introduction of transport costs into the model.

In one of the versions of the model, the objective function is the minimization of gross investment and the function is stated as a vector product. One of the vectors is composed of the gross output increase in each sector and region; the other one is composed of the capital - output ratio of each sector in each region.

This criterion function is subject to at least three types of constraints, namely:

- i) Regional sectors constraints (one for each regional sector) stating that the increase in the sector output must exactly balance increases in intermediate and final regional demand.
- ii) National sectors constraints, which states just a location balance. National output increase must be allocated among regions according to the cost structure.
- iii) International sectors constraints establishing a similar balance for international sectors but taking into account external trade.

Additionally, other types of constraints are included such as the regional constraints to warrant that total sectoral output increases add up to the global regional growth as determined by the other model and specific projects constraints to take into account some exogeneous decisions.

The output of the model consist of two kind of data: sector output increase in each sector and region and investment requirements to support this new production.

The application of this type of model in Chile has not been straightforward and some innovations have been introduced to allow for more flexibility in searching the optimal solution and for handling the difficulties involved in the use of the sectoral-regional capital - output ratios.

The final result of all this compatibilization exercise is reflected in a two entry table or matrix where regions and sectors are represented. Each cell of the matrix has four data: absolute and relative changes in output and investment. The last row and the last column provide the same type of information on an aggregate basis.

This is then, the real departure point of the quantitative planning process. This is the point where central - local discussions begin with the happiness of some regional planning offices directors and the dischancement of others.

c) Regional Population Studies.

The third area where theoretical innovations have been introduced is related to population. This is not the place to insist in the importance of good population studies for planning purposes. Sufficient is to say that population affects both the supply and the demand side of any economic problem.

There is one important methodological as well as empirical distinction between traditional population studies and regional population studies.

While at the national level migration may be disregarded for any practical use (indeed, this was not the case for some countries during some periods of time), migration does markedly influence the regional volume of population both in the short and in the long run. So, migration estimations are the crucial element in any population study at the regional level.

The National Planning Office has lately advanced fairly well in designing a matrix model of demographic projections for open areas (33). The complex model so far used is based on previous theoretical work by Rogers (34) and Keyfitz (35).

Generally speaking, methods used to project population growth and changes are divided into two broad categories: the so called "change component models" and the "cohort survival models". The model here commented belongs to this second category.

Since a detailed explanation of the model is out of the scope of this paper, a bird's eye view will be given. Details are to be found in the cited bibliography.

The model operates with fourteen cohorts or age groups in order to gain insights into demographic processes. Since population projections are usually needed for small areas, the model considers the twenty five provinces as origin and destination points for each cohort. Sex is also differentiated because migration pattern is quite different for males and females.

Three different migration hypotheses are included. One of these hypotheses maintains the historical migration pattern. The other two try to link future migrations to regional economic changes.

The basic results of the model are projections of total population by area up to 1990, each five years. Total population is also breaked down according to sex and age. The model also includes a system of multipliers which allows the openness of results for any calendar and age year. The next step is to apply activity coefficients in order to get estimations of future labor force by area.

Just to give a thumbnail sketch of the research effort involved, it is interesting to note that a complete system of life tables was constructed both by sex and provinces. When the work started, some sampling data on migration by sex and age groups were available and that allowed the explicit introduction of gross migration rates into the model.

The former data, together with the direct estimation of the differential conditions of fertility by provinces (for a 15 years period) possibilitated the calculus of the real migrants flows, considering the survival conditions of movers as well as the survival conditions of the new born people in each period. It is to be noted that traditional models assume no mortality during the movement period nor births in each period.

From the computational viewpoint, uncountless transitional matrices for each age group have been processed. Just the transitional matrices of migration are fourteen, each one containing 625 elements for each period. Clearly, without the full incorporation of computers to the planning function, this type of problem cannot be handled.

Future work in this area will be probably related to the use of some population optimization models.

d) Regional Strategies.

The last area where chilean regional planners may show advancements is related to the intra-regional level of planning.

Strategies are not plans in the ortodox sense of the word (36). Economist are used to think of the concept of "strategy" as a rather global and qualitative statement about the orientation of

the development process. Cases in point are such concepts as "imbalanced growth", "polarized growth", "inward growth" and others.

The term "strategy" is used in the Chilean regional development terminology to denote a formal set of propositions, not as complete and advanced as a "program" but nevertheless, much more than a mere regional diagnosis. There are four (at least) elements which differentiate any of the regional development strategies prepared in Chile, from a traditional economic development program.

First, financial mechanisms, both regional and national, are not analyzed. Second, the external sector of the economy is not studied. Needless to repeat here how important the foreign sector is in explaining regional growth. Third, a portfolio of specific investment projects is generally not included. Fourth, specific economic policy measures are neither identified. Strategies make sound analysis about what to do, but they don't say how to do it.

Of course, these differences between these strategies (37) and plans are not casual, neither they represent a lack of knowledge about what a development program is. Strategies are an original and quite imaginative response to the objective conditions of planning in underdeveloped countries. After all, the Latin American experience in planning teaches, in most cases, that planners come out with nicely prepared plans when the socio-political conditions have upsided down.

So regional strategies should be considered as an intermediate planning stage, formulated with a little bit of readily available quantitative data and a lot of common sense. Maybe the distinguishing feature of these strategies is that they represent a comprehensive diagnosis made with a previous framework of interpretation of regional reality.

All this means that a strategy should be followed by a definite plan after information has been collected and some gross actions have been undertaken.

The usefulness of these strategies is manifold.

First, they represent an in-work interdisciplinary training for the technical staff of the regional planning office. Regional planning function has always been considered as a multi-disciplinary activity.

Two, this exercise in planning provides, maybe for the first time, an entire and comprehensive understanding and knowledge of the region. Moreover, collection of information during the preparation of the strategy, allows to some extent to institutionalize these information channels.

Three, the strategy permits the identification of the modern and backward structures within the region.

Four, the strategy provides to central authorities general recommendations as to guide their regional actions. Besides, the strategy means an improved and increased information for private decision - makers.

Five, the process of designing the regional strategy ought to produce a commitment in favor of regional development by the local community.

If one takes a look to the first regional strategy published in Chile (38), which is by the way, the more comprehensive one, it is possible to obtain a good vision of the content of such pre-plan. The document is developed according to the following structure:

1.- Regional Development.

1.1. Relationships between regional and national development.

1.2. Strategy for the development of the region.

2.- Basis of a regional strategy.

2.1. Backgrounds.

2.2. Intra-regional disequilibria.

2.3. Summary of sectoral strategies.

2.4. Spatial, demographic and economic integration.

2.5. Role of public and private sector.

2.6. Socio-economic development.

3.- Description of the region.

3.1. Geographic setting and historical backgrounds.

3.2. Regional resources.

4.- Socio-economic macro-indicators.

4.1. Population.

4.2. Investment.

4.3. Geographic Product.

5.- Regional economic growth targets and labor force balance.

5.1. Global and sectoral growth targets.

5.2. Regional investment targets.

5.3. Labor force balance.

6.- Sectoral strategies.

- 6.1. Industrial.
- 6.2. Agriculture (and forestry)
- 6.3. Mining.
- 6.4. Economic infrastructure.
 - Transport.
 - Energy.
 - Telecommunications.
- 6.5. Commercial.
- 6.6. Financial.
- 6.7. Tourism.
- 6.8. Social infrastructure.
 - Housing and urbanization.
 - Education.
 - Health.

7.- Hierarchy of central places.

Although it is always difficult to measure the real impact of plans, strategies have markedly improved the bargaining position of regional authorities. A side effect - as mentioned by Stöhr - has been to give prestige to regional offices which are now channelling most of regional pressures (which before were handled by politicians) in a more rational fashion.

IV.- CONCLUDING REMARKS.

So far, the paper has focussed on some possitive issues of the chilean experience in regional planning. It is not the author's purpose to do an evaluation of this experience, but nevertheless some shortcomings ought to be cited.

Regional planning in Chile seems to be too economic biased. Properly speaking, spatial considerations in the sense of the french term "aménagement du territoire" have been relatively absent in policy statements. To be truth, chilean planners have passed from the classical "one - point economy" to a "multiple - point economy", but this is far yet from "spatial economy". This is partly due to the high weight of economists within the planning office and to the already mentioned lack of experience in this field.

No doubt, to link economic and physical planning is not an easy job (39). Within the institutional scheme of chilean regional planning, one way of solving the struggle, is to locate physical planning function mainly at the regional offices while the central office should be mainly concerned with economics aspects.

Another not yet solved question is related to social development and planning at the regional level. Though regional development policy in Chile has been conceived as a comprehensive policy with due recognition of social aspects of development, very little has been done.

Clearly, social development doesn't mean the provision of some social services such as education and health by the state. It is a much more complex phenomenon embracing participation, power distribution, social mobility, social cohesion and solidarity, etc.

Although this phenomena are recognized as important components of regional development, chilean regional development experience has been directed by and for an intellectual and power elite. Has not reached people in the ample sense of the word.

One area where research is mostly needed is the development of a methodology to evaluate investment projects from a regional point of view; without an evaluation criterion, will always be difficult to regional planners to convince central authorities to allocate more resources to regions.

Finally, from the institutional point of view, there are many unsolved problems. The whole planning system (in Chile) was superimposed over a very traditional public administration structure so in too many opportunities, planners have been unable to push ahead their ideas.

To finish this paper with a brief survey of the main shortcomings should not be interpreted as a desire to play the easy role of advocatis diabolis; benefit-cost ratio of the experience is well above unity.

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- (9) Dr. Loet Mennes from the Netherlands Economics Institute was brought to Chile by the Ford Foundation.
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