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I. Introduction

In a recent paper the authors have made a critical evaluation of present regional development doctrine with regard to equity considerations in market and mixed economies (Stöhr and Tödtling, 1976). The present paper contains an evaluation of concrete regional development trends and policy instruments for less developed areas in a number of market and mixed economies and tries to interpret their success or failure in the light of regional economics and regional development theory.

Explicit policies for regional development have now been undertaken for about half a century ever since major regional programs such as the Ruhrsiedlungsverband in Germany, the Special Areas Policy in Great Britain and TVA in the USA were initiated. These programs were essentially oriented towards the solution of problems of individual regions or of specific types of regions. Since the 1950's, broader policies for regional development evolved, most of which were oriented towards reducing spatial disparities of living levels at the national level.

Spatial disparities in living levels had increasingly become a policy issue, both for objective and for subjective reasons. Objectively, because integration permitted formerly contained flows (of production factors, commodities, information, organizational linkages etc.) to move over much wider areas. This led to a change in the spatial pattern of activities and living levels by which some regions gained while others lost. Subjectively it became a policy issue, because with increasing scales of interaction and information
exchange, existing spatial differences in living levels came to be perceived much stronger by local and regional communities than they had been before. These facts are valid for market and mixed economies as well as for planned economies.

In market and mixed economies, these flows and the choices of activity locations are essentially left to the individual decision-maker. Only when the divergence between private and social costs of such individual decisions surpasses a magnitude considered tolerable in economic, social or political terms, does policy intervention take place, either by promoting development in regions which lag behind the national average, or by controlling it in areas of extremely rapid growth accompanied by severe problems of agglomeration and congestion.

The actual effectiveness of these measures to avoid major divergences between private and social costs is still largely unknown. Much of what has been considered a success of regional development policies in the past decades may in reality have been due mainly to the market mechanism, which in periods of rapid economic expansion has produced "spill-overs" from congested to less developed areas (OECD, Working Party, 1976). It is nearly impossible to separate the influence of these two factors neatly because, like in most complex social science situations, it can rarely be defined ex post by empirical test of how the system would have behaved without certain of these factors. Conclusions can therefore only be drawn from indirect statistical inference or from theoretical considerations. The present paper combines the results of a number of available statistical analyses (section II) with theoretical interpretation undertaken...
in section III. One of the contentions made in this paper in fact is that traditional regional policy instruments recently practiced in most market and mixed economies have essentially only accentuated existing market trends but not attacked the basic parameters underlying spatial inequalities in living levels.

A major evaluation of regional development policies has been in the air for at least the past decade. More recently it has been prompted by a number of facts: (1) spatial disparities in living levels have by far not decreased to the extent regional policy had hoped for, in many cases they have even increased (as have international disparities); (2) there are signs of increasing dissatisfaction of regional communities (often ethnically defined) with the degree to which they are able to define and realize their own objectives of development; (3) the recent reduction in the rate of overall economic growth and its foreseeable limitations indicate that with future resource limitations it may become increasingly difficult to mobilize sufficient funds to reduce spatial disparities of living levels with traditional policy instruments; (4) the reduction in overall economic growth is likely to reduce or even invert the "automatic" spill-over processes from congested to less developed areas and thereby increase the absolute magnitude of the regional problem in the foreseeable future; (5) the world-wide limitations of natural resources may require for regional (as well as for national and international) policies a much stronger emphasis on optimum resource utilization and conservation instead of the strong demand orientation which has predominated so far.

Essentially three types of evaluations of regional development policies have been made so far:

(a) Informal general evaluations of the experiences of regional
policies have been undertaken in great number with varying degrees of systematization for the past ten years ever since Friedmann's (1966a) work on Venezuela. Abundant case studies have been compiled in continental and national surveys such as those in the Regional Planning Series of UNRISD edited by Kuklinski and in Kuklinski's more recent books (1975 and 1977). There exist few systematic comparative studies of different national experiences of regional development policies, however, such as that organized by Hansen (1974).

(b) Formal macro-evaluations of regional policies have been made in the past three years to simulate the operation of regional systems and to estimate the effects of regional policies. These have either been formulated as complex (usually econometric) theory-based models (Klaassen and Venter 1974; Courbis 1975, Thoss 1976, Böltling 1976, etc.), as heuristic statistical analyses (Moore and Rhodes 1975, Berentsen 1976, etc.) or as more narrowly defined impact studies (Dawson and Ulrich 1975, etc.). Those formal approaches which use complex models, in most cases face operational and data problems and have therefore hardly been applied yet. Those which are more narrowly conceived usually shed light only on a small number of economic variables (e.g. aggregate regional investment, production, employment/unemployment, regional per capital income, net or gross migration, balance of payments, or rate of inflation) and remain on highly aggregated regional, state or provincial levels. Instrument variables evaluated are mainly of an economic type such as investment incentives, building grants, depreciation allowances, employment premiums, public infrastructure investment, growth center policies, development controls, etc.

(c) Formal or informal micro-evaluations of regional policies have increasingly been undertaken in the past five years to analyze the
effects of regional planning instruments (such as the above mentioned ones) at the level of individual (or types of) plants and to evaluate their effects on local labor markets and local socio-economic conditions. They usually try to capture a broad scale of variables including qualitative and structural ones (qualification structure and stability of new plants and new jobs, wage levels and their differentials, organizational linkages, control mechanisms and functional characteristics of new plants, changes in regional wage bargaining positions, etc.) and disaggregate these variables to relatively small geographic, economic or demographic units.

The macro-studies (b) mentioned have the advantage of showing broad regional trends (usually in a national setting) and the respective policy implications for a few important economic variables using mainly rigorous analytical techniques. They usually, however, neglect qualitative and structural characteristics and changes in economic, social or political disparities at lower levels.

The micro-studies (c), on the other hand, are able to provide detailed insights into the effects of specific policy instruments and projects and analyze not only the quantitative but also important qualitative and structural transformations of small-scale communities. They are usually descriptive, use less sophisticated analytical techniques and their ideographic findings usually are more difficult to generalize as they often depend on specific regional conditions.

In the present paper we have tried to synthesize the major findings of various macro-studies (section II/B) and a large number of micro-studies (section II/C) and to interrelate them, not in a formal quantitative way (which would have been impossible because of methodological
and data differences of the various studies) but rather by applying some basic concepts of regional economics and regional development theory (section III) to them. We have particularly tried to fill in - on the basis of available theory - some explanatory variables which are difficult to operationalize in formal analysis on a larger scale but which for that reason seem no less important in their effects on the well-being of regional populations. Examples of such explanatory variables are regionally differentiated external economies (essentially non-measurable), "leakages" via intra-organizational linkages (particularly of multiregional firms), changes in regional import and export propensities and the terms of trade, regional income and employment multipliers, power relations in space, etc..

As it would have been impossible to undertake primary empirical research on the broad questions involved, only secondary information was used. In order to reach a fair degree of representativeness of the often ideographic results of available case studies, undertaken from different viewpoints and with different methodologies, it seemed necessary to use as large a sample as possible by including a maximum of macro- and micro-studies that could be made available.

At the end of the paper we present some hypotheses on alternative regional development policies which in the long run may prove to be more effective in reducing spatial disparities of living levels, particularly under conditions of reduced rates of overall economic growth.
relevant case studies.

A further limitation with regard to the topic of the present paper was that most authors found it difficult to distinguish clearly between autonomous and policy induced trends of spatial development. Most case studies therefore evaluate the cumulative result of both. The policy effects have not in all cases been calculated in quantitative terms (e.g. by spatial or temporal correlation) and in some instances were estimated by rather subjective criteria. A third limitation is that most of the indicators used in these case studies refer to material indicators of living levels or what Allardt (1973) would call conditions of "having" (changes in income and employment trends, migration and spatial linkages of the input-output type; in a few cases broader socio-economic variables were aggregated by factor analysis). Evaluations of indicators of non-material conditions (of "loving" and of "being" in Allardt's terms) are hardly available in spatially disaggregated form and by no means on a similarly broad comparative international basis.

The studies which have been used in the following section have been selected and analysed with a view towards getting information on both the quantitative aspects of spatial development trends (mainly in terms of numbers of created jobs, level of regional unemployment, etc.) as well as on the qualitative and structural aspects of these trends (sectoral composition and level of technology of new activities,
control and ownership relations, organizational characteristics of new plants, qualification of jobs, wage levels, cyclical and structural stability, etc.

Although the quantitative and qualitative aspects are interrelated and not clearly separable, a grouping of the analysed studies according to each of these two criteria seemed useful because the respective studies usually also referred to different aggregation levels and used different indicators and methodologies.

A. Quantitative aspects of interregional and regional development trends

In this section we have tried to synthesize studies which contain information on the performance of indicators such as "jobs created", "reduction of regional unemployment", "income disparities", "net out migration", etc. These sources have been grouped into studies which investigate the behaviour of regional systems in response to both regional policy instruments and "market trends" ("overall trends") and studies which try to relate inter- and intraregional trends to specific types of strategies or instruments (such as "growth center policies", transport investment to improve interregional accessibility, investments incentives etc.).

1) Summary of major findings

We shall try to summarize first the most important findings of the studies which will be presented under points 2, and 3 of this section. Concerning the overall trends of interregional and intraregional disparities the main conclusions seem to be:

- In most of the countries analysed there is no clear indication of a

x) While the "quantitative" aspects of regional trends usually were studied on the basis of the total regional system of a country or of one region (case study) the basic units for the studies of the qualitative aspects are usually smaller (firms, specific employment strata, etc.).

xx) These conclusions are a further development of those presented in Stöhr and Tödtling (1976).
major convergence of regional per capita income or other indicators of material living levels. This seems the case particularly in countries with sizeable regional problems (Italy, France, Brazil). For most countries it is difficult to say to which extent the trend is due to the "autonomous" forces of the market mechanism or to explicit policies of spatial development.

From more detailed analyses available for some countries it seems that spatial development policies in general were not able to change spatial inequalities in material living levels significantly. In cases where this was possible at one scale (e.g. at the inter-regional one), it was usually accompanied by an increase in disparities at other scales (e.g. at the intra-regional or interpersonal ones). Such shifts in disparities from one geographical scale to another could be observed particularly where policies of "concentrated regional development" were applied, usually combined with sectorially unbalanced development (mainly industry) and a strong emphasis on overall efficiency (Brazil and Spain, and to a lesser extent France and Italy).

In most countries where a reduction of spatial material disparities at least in some respects seems to have taken place (Austria, Japan, FGR, USA, Canada, Great Britain) either spatial material disparities in other indicators increased (Great Britain, Canada), initial regional inequalities have been relatively small (Austria, FGR), spatial development policies were fuzzy and little articulated (Austria, USA) or were considered to have had little effect upon the reduction of spatial disparities (Japan). The reduction in spatial disparities were then either attributed to market forces (v.Böventer for FGR) or to specific national geographical or historical conditions (Austria). There is some indication that this partial quantitative success of the establishment of jobs in peripheral areas has been slowing down recently due to the

x) "Federal German Republic"
Concerning the impact of specific policy instruments and strategies of regional policy, studies have been selected which refer to "growth center policies", transport investment to improve inter-regional accessibility and to investment incentives and development controls.

The major findings of the studies on growth center-hinterland effects (we concentrated on these spread effects rather than on the development of the growth centers themselves) can be summarized as follows:

- Spread effects from growth centers were usually smaller than expected, or less than backwash-effects and therefore had a negative net result on the hinterland. They were narrowly limited in geographical extent, usually restricted to the commuting area, often as a function of the size of the center (Morrill, 1974).

- Increases in income of lower order centres or rural areas create strong income multipliers in higher order centres but not the other way round (Nichols 1969, Moseley 1973 a, 1973 b and 1974) i.e. they move upward rather than downward within the urban hierarchy.

- In the context of policies for broad spatial development it is difficult to justify growth-center policies for lagging areas due to their lack of spread effects from the growth center to a broader hinterland or downward in the urban hierarchy (Hansen 1975 a, Nichols 1969, Moseley 1973 a, 1973 b and 1974).

With regard to the improvement of interregional accessibility some of the most important results of the studies selected are:
The improvement of interregional accessibility seems to contribute more to the relative rate of development of the "core regions" than to that of "peripheral regions". This is particularly the case in developing countries (Pedersen, 1975b and Gauthier, H.L., 1968, for Latin-America and the Sao Paulo Region respectively).

Initial production and settlement systems of small-scale-rather intensive production units and interaction patterns in peripheral areas become superseded by large-scale units and interaction patterns. This seems particularly pronounced in developing countries. For example, in Brazilian peripheral areas due to the improvements in accessibility to core-regions a great number of settlers and farmers were displaced by large scale core-region based enterprises, introducing usually very extensive resource utilisation (Becker B.K. 1976).

The impact of inter-regional highway investment on absolute levels of development in peripheral areas is more difficult to identify. Particularly in industrialized countries the effects of inter-regional highway investment on the absolute levels of peripheral development are ambiguous and in most case small (Frerich, J. 1974 and Dodgson, J.S., 1974).

In general there exists a lack of thorough empirical studies which evaluate the impact of improved accessibility between different types of regions (core regions, declining industrial regions, peripheral depressed regions, peripheral resource regions, etc.) on their rate of development.

Empirical findings on the impact of financial incentives are also to a certain extent ambiguous:

Some studies (especially on Britain and Scotland) indicate the high importance of investment incentives and building grants for the creation of jobs in, and the movement of firms to peripheral areas (e.g. Moore and Rhodes, 1975; Board of Trade, 1968).
other studies (e.g. Wolf, 1974 for Hessen in the FGR) indicate that capital incentives are very weakly associated with investment decisions especially with those for the expansion of existing plants.

There is some agreement on the fact that investment incentives seem to have more impact on the establishment of capital intensive branch plants and foreign firms than on the establishment or movement of complete firms (Fürst and Zimmermann, 1973; Wolf, 1974; Firn, 1975; McDermott, 1976; Dicken, 1976). On the whole this may indicate that financial incentives mainly induce the establishment of branch plants and subsidiaries of core-region based enterprises but hardly the expansion of firms already existing in peripheral areas or the transfer of entire enterprises from core regions to peripheries.

Concerning the impact of development controls in core regions the British experience seems to indicate that this instrument contributes to a considerable decentralization of industrial activities to peripheral areas.

2) Overall trends of inter-regional and intra-regional disparities

For Brazil detailed investigations of trends in inter-regional and intra-regional income disparities have been undertaken by A.Gilbert and D.Goodman (1976) with special reference to the North-East. Testing Williamson's hypothesis of a convergence of inter-regional income disparities in the course of national development for the

This point will be analysed in section B), Qualitative and structural aspects.

This is further developed from Stöhr and Tödtling (1976).
period 1939 - 1968, the authors found that the statistical evidence was inconclusive and suggested that "(inter-) regional income differentials have remained fairly stable" (p.129). Conclusive results became evident, however, in the case of income inequalities within the North-East of Brazil where the authors found sharply increasing inter-personal income inequality during the 1960's, especially within the urban areas.

In Spain there also seem to exist increasing intra-regional income disparities. Lasuén, evaluating Spain's regional policy, points out that the consequences of the policies which have been pursued during the past two decades have been (1) a reduction in interurban income differentials and (2) an increase in urban-rural income differentials $x)$, the net effect of which has been a reduction of income differentials among regions. Similar conclusions for Spain have been arrived at by Richardson (1975).

For Italy, the persistence of sizeable spatial disparities in such indicators as per capita income within the Mezzogiorno (for which a major development programme has been in operation for about two decades) is pointed out by Allen/McLennan (1970, p.119).

Sundquist even indicates that these intra-regional disparities have been increasing rather than decreasing and states that the "developing" disparities have led to a modification of the regional development strategy away from the growth center policy in 1971 (1975, p.171 ff).

Regarding interregional disparities the following trends, similar to the findings of Sundquist, were found (OECD 1976): although there has been some improvement with regard to the South's share in gross industrial investment, heavy migration from the South continued in the late 1960's (with higher absolute numbers 1968-1970 $x$) Lasuén states further that "until the early sixties, both rural-urban and inter-regional income differentials were widening. It seems that only from the early 1960's onwards have the interurban and interregional income differentials been ameliorated, in spite of the continuous worsening of rural-urban differentials due to the growing weight of urban income in the underdeveloped areas".
than in previous years), and the South's share of national employment fell from 33% in 1951 to 30.6% in 1970. With regard to per capita-income, the South could keep pace with the national growth rate but the gap towards the rest of Italy was not noticeably diminished (DECD, 1976 p.30 ff; similarly Rodgers, 1970 and Cao-Pinna, 1974).

In France regional economic policy at first sight seems to have been quite successful (Remy Prud'homme, in Hansen, 1974): The regional distribution of population and economic activities (particularly industrial employment) was modified in the desired direction, the century-old flow of people from the provinces to Paris had been halted and possibly reversed (p.56 ff.).

A closer look however, shows that industrial employment increased in the Western regions mainly around Paris but not at larger distance from it where the most backward areas of France are. Similar findings relate to the distribution of industrial employment (Sundquist 1975, p.119 f.).

Concerning income disparities between regions both Remy Prud'homme (1974, p.59 ff) and the DECO (1976, p.26) indicate that these disparities have not been significantly reduced.

Lack of success of regional policy measures is also indicated for Belgium (Ruehmann, 1968; Davin, 1969).

There seem to exist also some examples of at least partial goal fulfillment of regional policies:

For the United States, Cumberland (1973) and Thoman (1976) evaluate the Appalachian program in at least some respects as successful.

The large gap between Appalachia and the rest of the nation in terms of economic development was narrowed, whereas income disparities were not significantly reduced.

Sundquist, however, states also a slight improvement of the more distant provinces with regard to industrial employment in the late 1960's (p.120):
of employment rates, migration balance and per capita income has narrowed slightly in the period 1965 to 1973 (Thoman, R.S., 1976, p.20 f., Cumberland, J.H., 1973, p.101 f.).

A Canadian study on the development of interregional disparities between Canadian provinces, 1961-1975 (Canada, Ministère de l'Expansion Économique Régionale, 1976) revealed a reduction of interregional disparities in relative levels of personal income per capita, and of earned labour income per employee; it also shows an improvement of problem regions' net migration rates (Atlantic and Québec). On the other hand it was found that in these two regions overall employment growth was (despite high employment growth rates in the manufacturing sector) considerably below the national average. This resulted - because of a strong growth of the labour force - in above average and increasing unemployment rates, in marked differences in participation rates and in an increase in disparities of the absolute levels of personal income per capita. While a reduction of interregional disparities was found in some respects only there is no indication of how intraregional disparities within the two problem regions behaved.

Cameron (1974, p.24) states for the United Kingdom that regional policy has contributed to an improvement in the relative unemployment level and the per capita income growth. Moore and Rhodes (1975) in evaluating the effects of British regional policy as a whole compare periods of "active" and "passive" regional policy and take account of the effects of sectoral composition as well as of differences in cyclical trends at the national and at the regional levels. They estimate the regional policy effect over the period 1960 to 1971 to have been of the order of

\[x\]

There is no clear answer to the questions of how much of this trends is due to regional policy and how intra-regional disparities developed.
In relation to the size of the regional problem they state however, that for reaching certain goals such as to equalise registered unemployment notes between Development Areas and low unemployment areas, to equalise activity rates between these regions, and to eliminate (net) outward migration from Development Areas, regional policy would need to have been about two and half times more effective (in terms of jobs created) than in fact it was over that period (p.83).

A certain lack of success of British regional policy is also indicated in Sant (1975), who investigated the performance of a broader range of indicators. He found somewhat in contradiction to Cameron (1974) above that despite the movement of over half a million jobs in the development areas (by policy support and market forces) from 1945 to 1971 and despite an improvement in industrial composition income disparities, unemployment and migration showed little trend and almost no improvement (Sant, M., 1975, pp.189 ff).

In the Federal Republic of Germany there has been some decentralization of industry into development areas (Fleck, W., 1975, p.55) and Hötger indicates that about 550 000 jobs have been subsidized by regional policy measures from 1969-1974 (Hötger, 1974, p.167 ff.). Other investigations indicate however, that the causal relationship between subsidies and job creation is rather weak and that the diversity and qualification of jobs created is small (Wolf,F.,1975, p.431 ff.). Vöckeler (1969) indicates that regional trends in Western Germany are very much due to market forces rather than to regional policy measures.

x) These estimates are broadly consistent with those undertaken by Cameron and Clarke (1966), Brown (1972) and Sant (1975).
Concerning the quantitative success of German regional policy one must add that a change of the trend seems to have taken place in 1973 because the numbers of newly created jobs have slowed down considerably since that time and have stabilised at a low level [Floré, C. 1976, p.776]. The more qualitative aspects of German regional trends (and policy will be discussed further below in this section.

In Austria, inter- and intra-regional material disparities seem to have been decreasing during the 1950's and 1960's. In an unpublished doctoral dissertation Berentsen (1976) found that regional inequalities of per capita product during the period 1961-1971/2 have considerably declined both at the Bundesländer (province) level and at the Bezirk (county) level. Similarly a broader analysis of nine indicators of regional levels of living by factor analysis (1957-1971) shows that a considerable decline in the factor score inequalities was observed (p.97 ff). Berentsen hypothesizes that Austrian regional policy has (although little coordinated) certainly positively influenced the partial goal fulfilment of reducing inter-regional and intra-regional disparities. But it is difficult to say to which extent the little coordinated regional development policy or other specific Austrian conditions have contributed to this phenomenon. x)

x) Such specific conditions might be [some of these points were indicated by Berentsen, others by the authors]:

- the small geographical size of Austria,
- the expansion of commuting radii from the main employment centres to cover the majority of populated areas [Berentsen, p.11]
- the long-standing traditions of tourist activities in many rural areas,
- the stagnation and peripheral Eastern location of the richest province (Vienna), and the fact that the second richest province lies in the other extreme periphery (Vorarlberg)
- certain factor scarcities (land, labour) within the major cities, particularly in Vienna, reinforced still by rigid land use regulations and a fragmented land-market,
- the entrenched federalist character of the country,
- a very rigid and all-embracing legal and administrative system acting as a forceful break for the rapid adoption of innovations.
For Japan, Koichi Mera (Nagoya Centre, 1976) also shows evidence of decreasing income disparities for the 46 prefectures of Japan during the period 1961-1972. He further analyses how much regional policy, and particularly the growth pole strategy in existence since 1962, might have contributed to the reduction of income disparities.

He concludes from the analysis that the government's industrial decentralization policy at selected growth poles did neither materially contribute to a reduction in income disparities among prefectures nor to a reduction in the trend of population concentration (p.260 f).

3) Specific strategies and instruments and their relation to spatial development trends

The studies utilized in this section refer to evaluations of growth centres (both spontaneous and induced ones) and of other important policy instruments such as the improvement of interregional accessibility, and financial incentives and controls. The selection of these instruments has been made according to their magnitude in practical policy contexts, by their importance in theoretical terms and by the availability of evaluative studies.

a) Growth centre - hinterland effects

Explicit studies about the impact of "Growth Center Policies" are scarce so that it was necessary to draw specific information also from broader regional policy surveys.

Most of the available studies are oriented towards either

- the growth and development of the growth centres themselves and/or
- the spread effects which growth centres generate within their surrounding hinterland.
Studies about the growth and development of the growth centres themselves usually investigate the amount and quality of jobs created, of services and of population growth. The implicit question usually is whether the growth center was able to reach the take-off point to self-sustained development. This question shall not be pursued further here, however. Since the main concern of spatial development policy is the effect which growth centres have on their respective hinterland we shall concentrate on the question of whether spread or backwash effects have been stimulated in the hinterland of the growth centres. The definitional problems of "spread" and "backwash" effects will not be discussed here in detail (cf. e.g. Hansen, 1975a) and we shall limit ourselves to quoting the interpretation which various authors have given in the context of specific case studies.

We shall attempt to distinguish between studies on "induced" growth centres and on "spontaneous" ones (Alonso and Medrich 1972)

"Induced" Growth Centres

Studies about hinterland effects of "induced" growth centres exist (though partly in very rough form) for various countries such as Spain, France, Italy and the US. Some of these studies are concerned with the state or change of spatial interaction patterns or with changes in population distribution (e.g. Richardson's study on Spain) but not directly with the spatial pattern of economic growth. For Spain Richardson (1975) provides some interesting insights:

- Data about the geographical distribution of sales and purchases of poles indicate weak links to other nearby poles (little support for the "internal blocking strategy"), but in some cases there exist
relatively strong purchases and sales with the rest of the same province. x)

More important for the medium and long term impact however, are the data about the development of population in the poles and their respective provinces: they show considerable "backwash effects" of the poles on their hinterland xx).

Richardson finds that there is some support for the hypothesis that the poles have promoted intra-provincial polarisation rather than fostered provincial-wide development. xxx)

In the United States, the findings of a major internal evaluation of EDA's growth centre strategy on the basis of twelve in depth case studies have come to similar conclusions (Hansen, 1975a,p.136):

... "Residents of surrounding depressed counties designated as redevelopment areas received almost no employment or public service benefits from the EDA growth center projects surveyed by the evaluation team". The same study also found that "the twenty-eight completed EDA projects in the growth centres analyzed showed no evidence of stemming out-migration from redevelopment areas or economic development districts."

For France, Penouil (in Robinson, 1969) analysed the regional impact of an industrial complex in Lacq (built up after the discovery of xx)

This is contradictory to Waller's findings in the case of a Peruvian (spontaneous) growth centre which showed weak input-output linkages with the hinterland; the difference in the findings might be due to different delineations between "centre" and "hinterland" or to different economic structures of the respective centres and the hinterlands (Waller, in Helleiner/Stöhr, 1974).

xx) If one is prepared to interpret considerable outmigration from the hinterland as "backwash effect", which is not clear at all (cf. Hansen 1975, p.134 f.).

xx) Richardson states that "... The poles' share of national population increased in both decades (1950-60 and 1960-70) but very rapidly in the 1960's. Conversely, the pole provinces' share of national population declined in both decades, but somewhat more rapidly after 1960" (p.125 ff.).
the gasfields) which is situated in a backward South West region of France. He comes to the conclusion that purchases from sources within the department made by the enterprises in the complex have been limited and says that the induced effect, while not totally negligible, was certainly much lower than might have been expected (p.109).

The second kind of growth centre policies which have been pursued in France since 1965 is the policy of the countervailing Metropolises: One of the reasons of widespread criticism in the 1970's of that policy was the concern that the metropolises would drain their regions of population and investment, just as Paris had done at the national scale (Moseley, 1974). Sundquist (1975, p.123 ff.) comes to similar conclusions.

In Italy growth centre policies seem to have been even reinforcing existing disparities at the intra-regional level, or at least they have not been able to diminish them (Allen and McLennan, 1970, p.118 ff; Sundquist, 1975).

Similar results of "growth center strategies" for many "Third World-countries" are indicated by Appalraju and Safier (in Gilbert, A., 1976) xx).

"Spontaneous" Growth Centres

Important indications about the hinterland effects of growth centres can also be gained from the observation of "spontaneous growth centres":

x) Moseley states that "... there is little empirical (or, indeed theoretical) basis for the belief that metropolises will stimulate development in areas 100 miles or more away, ...." (1974, p.49).

xx) They state that "...... these centres have had a severely limited impact in transmitting developmental impulses through their surrounding areas because the linkages involved in the deve-opment of the center itself have been largely with "external" suppliers and markets and because the drived demand for labour and for agricultural produce has stimulated migration and supplies from "outside" the relevant region in which the center is located." (p.157).
Studies which are similar in the methodology applied and also in their results have been undertaken by Moseley (1973 a, 1973 b, 1974) and Gilbert (1975). Moseley investigates the spatial impact of Rennes (France) on the respective hinterland, and Gilbert the region around Medellin (Columbia). Both deal with the impact of spontaneous growth centres on rural hinterlands by constructing "development surfaces". Moseley found that the index of development fell rapidly in an area of up to 20 km from Rennes, then levelled out in the band between 20 and 40 km, and rose in the areas beyond that distance (due to proximity of other centers). Gilbert found that the level of development fell rapidly away from Medellin for a distance up to 50 km, and thereafter declined gradually (1975, p.329). Another analysis of spatial flows in East Anglia by Moseley (1973 b) casted further doubts on the efficacy of the centre-hinterland "trickle down" development process. The author found that the recruitment of labour has benefitted residents of many villages and small towns around the growth centres but that the generation of supplementary economic activities has largely occurred in the growth centres themselves, in the larger regional centres or outside the region altogether. (These two towns which Moseley investigated have been expanded under the Provision of the Town Development Act so that they might be considered as "induced" growth centres).

Moseley concludes from the two studies that the possibility of daily journey to work to "large" towns is the most important single determinant of the level of prosperity in rural areas (1974, p.131).

x) These are gained by factorial analysis of 21 (Gilbert) respectively 15 (Moseley) variables on demographic, educational, cultural, social service, housing and agricultural conditions.

xx) This finding which was further supported by Morrill (in Helleiner and Stöhr, 1974, and in a lecture held in Vienna, 1975), by Berry (1969) and Hale (1967).
A further contribution to the question of spread-effects was made by Waller (in Helleiner and Stöhr, 1974) who investigated a spontaneous growth centre in Peru. He concludes that a vague concept of fostering growth poles to induce spread effects into the hinterland is worth little. Instead, it has to be based on studies about existing and possible hinterland-city flows (p. 295).

Additional evidence for the limited extent of spread effects is summarized in Hansen (1975b).

b) The impact of improved interregional accessibility

Transport investment intended to improve the accessibility between peripheral and core regions are an important instrument in most policies for the development of peripheral regions. There are few empirical studies, however, which show whether such transport investment has promoted more "spread effects" or more "backwash effects".

Of the studies selected for this point we shall review only the major findings, the scale and principal methods of analysis in a very succinct way. For more detailed questions the reader is referred to the sources.

Pedersen P.O. (1975b) investigated the role of information accessibility for the development of 54 regions in Latin America by cross section regression and correlation analysis. He found that Waller used a two-region input-output model to analyse the direct stimulation of economic growth in the hinterland of the centre which was due to the growing demand in the centre (he did not try to investigate the "indirect effects" which come from flows of capital and ideas from the centre): He found that households spent only 10% of their income on inputs from the hinterland and that the inputs to industries in the centre (Arequipa) stemming from the hinterland were even lower (only 5% of all industrial inputs were agricultural goods from the hinterland and 2% were industrial materials from the hinterland; 34% of all inputs were imported).
for "consolidated" core regions per capita income is dependent mainly on information accessibility while for peripheral regions other factors, such as capital and natural resources, are more important (pp.130 ff). Pedersen states that these findings have been consistent with results of investigations in the United States (Warntz, 1965), Sweden (Nordborg, 1967) and Denmark (Larsen, 1970). The following two studies also refer to changes in interregional accessibility in Latinamerica but differ from Pedersen's analysis in scale and methodology. Also they refer to resource frontiers only. Katzman M.T. (1975) investigates the impact of improved inter-regional accessibility at a smaller scale than Pedersen in studying the developmental effect of the Belem-Brasilia Highway: Katzmann concentrates on rural settlement (rather than on industry and inter-regional trade as does Pedersen) and estimates that the net impact which the highway may have induced at between 160 000 and 320 000 new settlers (p.101 ff).

Because of Katzmann's concentration on the pure settlement aspects it is difficult to draw conclusions about the impact on general regional welfare or selected "welfare" indicators. Interesting additional insights concerning the characteristics of the new settlements along a section of the above mentioned Belem-Brasilia highway are provided in Becker B. K. (1976) throwing a different light on "development" there: Her study is concerned with the smallest units of urban settlement-the "povado" (village). Becker starts from the hypothesis that the construction and improvement of big roads is interrelated with a change in the scale of the "mobilization of surplus value" which both influences the spatial distribution of development and of urbanization. She found that between Imperatriz and Castanhal, of 21 existing "povados", 19 sprang up during the period of highway construction (between 1957 and 1963). The paving of the highway in 1973 and
financial incentives which brought about an increase of the value of land, attracted large enterprises with headquarters in Sao Paulo, which have been buying up land and replacing individual farmers. This increase in the scale of "extraction of surplus value" has also brought about a change in the distribution of "povados" such that "a new one springs up and a number of them grow more rapidly and extend their areas of influence but the majority are in decline".

As reasons for this Becker considers the improvement of interregional accessibility which promoted the expansion of cattle raising enterprises and contributed to the decline of the "povados", while improved intraregional accessibility eliminated some "povados" in favour of the growth of others with locational advantages (p.12).

Becker interprets this development by saying that "It seems then that once the "povado" has exercised its role of concentrating a labour force to clear the area for the large landowners, it becomes unnecessary" and ".. it is therefore questionable whether the initial multiplication of urban centers on the periphery really expresses the diffusion of a process of development" (pp.13 ff).

The identification of substantial developmental impulses for peripheral areas due to interregional highway investment seems to be even more difficult in the case of industrialised countries as the following two studies indicate:

Frerich J. (1974), also in a case study approach, analyzes the development of a peripheral region along a highway in Baden-Württemberg (Germany) during and after highway investment. Using time series data in a multiple regression analysis the author found the expansion effects on total sales of existing firms to be relatively low (p.202); the expansion effect on sales of newly established firms attributable to the highway also was rather low (about 1.8 % annual increase of total sales). In addition to this, Frerich interviewed the newly
established firms by questionnaire: In the responses the highway had a "locational weight" of about 5% of all locational factors, a result which lies above that of the regression analysis (p. 206 ff).

In comparing the investigated region with a "reference region" (of similar location, economic and demographic structure etc.) without major highway investment Frerich found a better performance of the first mentioned region after the highway investment.

Another investigation in industrialised countries has been undertaken by Dodgson J.S. (1974) and results in similar findings: Dodgson undertook a case study of a British motorway (the Trans-Pennine M62) and its possible economic impact on the areas through which it passes. He found that the maximum increases in employment in the areas affected by the M62 (assuming the validity of the employment growth model) were not very great. Dodgson concludes from this and other studies (Peaker, 1971, Straszheim 1972) that at least for developed economies "the effectiveness of transport policy in stimulating regional growth may be somewhat limited and uncertain in relation to other, more direct, regional policy measures".


Most of the available studies on the impact of transport investment on regional development do not explicitly distinguish between different types of regions affected. It is to be expected that both direction and intensity of impact may be different e.g. for core regions, peripheral depressed regions and peripheral resource frontiers.
The impact of financial incentives and development controls

Only few studies have been available which try to trace the effect of single instruments of a regional policy package on inter- and intra-regional development trends. We will summarize here two studies which apply different methodologies in estimating the effects of financial incentives and development controls, and which distinguish between effects on "new factories" and on "indigenous firms".\(^{1}\)

The first study has been undertaken by Moore B. and Rhodes J. (1975) and tries to estimate the economic effect of the most important regional policy instruments in Great Britain (cf. A/2). On the basis of multiple regression analysis of official statistical data and the results of questionnaires sent to some 350 firms, the authors estimate for the period of 1960-1971 that out of the about 140,000 jobs created in new factories more than 50% have been associated with Industrial Development Controls and Government Factory Building, about 35% with investment incentives, building grants selective assistance and special Development Area assistance, and more than 10% with the Regional Employment Premium.\(^{xx}\)

In the case of "indigenous firms" (which have a smaller share of total new employment than the newly established ones) the largest number of jobs (both in absolute numbers and on a per year basis) are associated with investment incentives and building grants (more than 90%) followed by the Regional Employment Premium.

The term "new factories" refers to three categories, namely entire relocated plants, new branch plants stemming from outside the region, and newly established firms from within the region. - The term "indigenous firms" here refers to the expansion of firms which already existed within the region.

If one takes account of the different periods of duration of specific policy instruments and calculates the average of created jobs per year, the most important group of instruments are the investment incentives and building grants followed by industrial Development Control and the Regional Employment Premium.

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These findings on the high importance of investment incentives and grants for the creation of jobs especially in the case of "indigenous firms" are not completely consistent with those of a study by Wolf F. (1974) who in 1970 investigated 164 firms in Hessen in the FGR which received regional policy assistance in 1970.

Wolf found that investment decisions especially for plant extensions ("indigenous firms") are very weakly associated with investment incentives. In the case of new plants, public financial aid is more important but becomes effective only in those cases where the necessary bundle of other locational prerequisites are available (p. 96).

Furthermore, he found that the critical threshold for incentives to become effective is about 15% of actual investment cost. He also found that incentives have more impact on the establishment of new branch plants than on the movement of complete firms.

x) Wolf found that about 70% of the promoted firms had started their expansion investment before they applied for financial aid and more than 90% had started their expansion before their application has been positively decided upon.
B. Qualitative and Structural Aspects of Interregional and Regional Trends

In this section we shall analyze not how many but rather what kind of plants and jobs have been created in peripheral areas either by policy support or by market forces.

The case studies have been selected with a view towards getting information on the following groups of questions:

- Which sectors have been promoted in or decentralised to peripheral areas? (sectoral growth characteristics, sectoral combination of production factors, wage levels, etc.) and
- Which level of technology has been introduced to peripheral regions by the new plants? (highest, intermediate, low, "adequate" technology);
- What are the control- and ownership relations of the plants which were established in peripheral areas? (branch plants, subsidiaries with partial autonomy, autonomous firms; firms with total or partial extraregional or foreign ownership) and - associated with these questions -
- What are the organizational characteristics of these plants? (functions of production, trade, administration, decision-making, research etc.) and which kinds of jobs are associated with these characteristics? (blue or white collar, type of qualification, etc.).

1) Summary of major findings

Concerning the sectoral characteristics and the level of technology of new (mostly policy supported) activities in peripheral areas the major conclusions from available studies are:

- The regional policies investigated tended to promote capital intensive and usually regional export oriented "growth industries" x)

x) These are usually industries with medium and long term production and/or employment growth.
(Ohlsson L. et al., 1975, for Sweden; Pencouil, 1969, for the Aquitaine Region in France; Sandmeyer, U., 1976, for the North East of Brazil; Wolf F., 1974, for Hessen in the FGR).

- For countries and regions with urgent unemployment problems these regional policies - because of the capital intensity of promoted firms - contribute little to the reduction of the unemployment problem (e.g. Sandmeyer, 1976, for Brazil).

- In problem regions of industrialized countries, policy supported "growth sectors" and high productivity sectors have in many cases not been in a position to offset the market trend towards the establishment of low wage industries in the peripheral areas (e.g. Pernitz and Kunze, 1970, and Bobek and Steinbach, 1975 for Austria; Lutz and Reyher, 1975, for Lower Bavaria in the FGR; Fleck, 1975, for the FGR).

- There exist few empirical studies on the technology-impact of regional policies to permit general conclusions but there exist various examples of a rather undifferentiated promotion of "highest" and very capital intensive technology with a rather detrimental impact on regional employment (Sandmeyer, 1976, for the North East of Brazil).

- From the investigated case studies and examples of regional policies, no policy instruments oriented specifically towards sectors with high intra-regional multipliers could be identified.

Concerning the control, ownership and organizational characteristics of the newly established or expanded plants in relation to their impact on regional development the following conclusions can be drawn:

- A large proportion of new activities in peripheral areas are
branch plants or subsidiaries with extra-regional control and/or ownership (Bade, 1977, Fleck, 1975, Wolf, 1974, for the FGR; Board of Trade, 1968, Keeble, 1971 and 1972, for Great Britain; Firn, 1975, McDermott, 1976, and Lever, 1974, for Scotland).

The findings on the performance and developmental effects of these branch plants or subsidiaries with extra-regional control and/or ownership are somewhat ambiguous:

Generally there seem to be differences in impact between (usually smaller) branch-plants, narrowly specialized on segregated routine functions of production in low wage sectors, on the one hand, and (usually larger) more diversified branch plants and subsidiaries with partial control functions on the other hand.

With respect to the narrowly specialized branch plants conclusion of a number of case studies are fairly unanimous:

- Branch plants seem more likely to be located in peripheral areas (in comparison with relocated firms) because they find it easier to bridge larger distances in their moves (Fürst and Zimmermann, 1973, Spanger and Treuner, 1975, and Fleck, 1975, for the FGR).

- Because of their large share of routine production processes and the lack of their own administrative and research activities branch plants very often create relatively low skill jobs and they are not able to stop outmigration of the younger and more qualified population (Kohler and Reyher, 1975, Wolf, 1974 for the FGR).

- Especially smaller branch plants and plants in certain sectors (leather, textiles and clothing and electrical equipment) show more instability with respect to macroeconomic fluctuations because their headquarters tend to reduce employment at first in the peripheral branch plants (Clark, 1976, for Sweden; Fürst and Zimmermann, 1973, Gerlach and Liepmann, 1972, for the FGR).\(^x\)

\(^x\) Concerning the stability prospects of branch plants Bade (1976) states that branch plants which are more integrated into the production process of the enterprise show more stability (see below).
- Branch plants tend to have linkages over larger distances and therefore less regional purchases and multiplier effects (Spehl et al., 1975, for the FGR; Lever, 1972 and 1974, for West Central Scotland).

- One of the most important findings of the studies seems to be that regional policy instruments (especially investment incentives) tend to support the establishment of branch plants and of subsidiaries with foreign ownership in peripheral areas (Wolf, 1974; Fürst and Zimmermann, 1973; Dicken, 1976; McDermott, 1976; Thoman, 1973).

- With respect to more diversified branch plants and subsidiaries with partial control functions no clear findings emerge from available studies (Finn, 1975; McDermott, 1976; Pernitz and Kunze, 1970; O’Farrell, 1976; Thoman, 1973).

2) The sectoral and technological characteristics of new or expanded plants in peripheral areas

There are only few studies available which give information about the sectoral composition of newly established or enlarging firms in peripheral areas supported by regional policy. This lack of analysis may be due to the fact that most countries don’t have an explicit orientation of their regional policy instruments toward specific sectors. There seems to exist a general tendency however - at least in goal formulations - to promote industries which produce for export markets.

Implicitly, however, the wide use of instruments which reduce the cost of and thereby attract capital tend to promote activities which are capital intensive.

Two follow-up studies about the sectoral orientation of regional

x) Lever (1976) states in this connection, however, that while branch plants receive lower inputs from the local economy, they have a greater volume of regional exports compared to indigenous firms (p.133).
policy have been available:
Sandmeyer U., 1976, in analysing the industrialisation policy of
the Brazilian government and of the SUDENE in the North East of Brazil
found that the sectors which have been promoted most heavily have
been regional export sectors with high capital intensity such as the chemical
industry (which received 25% of total investment since 1971) and
the metalurgical industries (20% of the total investment). While
there exist good natural conditions for the chemical industry in
the North East Region, both sectors have contributed little towards
resolving of the unemployment problem of this region (while both
sectors received about 45% of the total investment, their share in to-
tal employment has only been 22%, cf. Sandmeyer, p.306 ff).

another study (L.Öhlsson et al. 1975) assesses Swedish regional policy
and finds that of the promoted firms an above average share is in
the capital intensive iron, steel and metal industries, in the paper
and pulp industry, as well as the labour intensive wood industry. A
lower than average share is in other industries such as the human
skill intensive engineering industry (p.12). In studying the wage
and salary levels of promoted firms compared to industry in general
the authors found that there exist differentials in wage levels due
to
- the higher proportion of blue collar workers in promoted firms and
- substantially lower wage rates per employee in promoted new plants
  as against all promoted plants and the respective sector as a whole.

These differences may well be due to the above mentioned sectoral
characteristics (high proportion of routine activities) as well to
a higher proportion of narrowly specialized branch plants (below
average proportion of white collar workers).
Wolf F. (1974) in his above mentioned study for Hessen in the FGR found that the economic structure of the region has been improved however by the promoted firms (about 160 firms received financial aid in 1970): Almost 70% of the created jobs had been in "growth industries" with expected above average employment increase (mainly the chemical industry, machinery, wood processing and plastic industry). Since also about 70% of the funds had been allocated to these industries Wolf expects that some implicit sectoral policy might have existed (pp.127 ff).

Some further studies investigate the sectoral composition of new establishments in peripheral areas in relation to the general (market and policy supported) development trend. In an Austrian study Pernitz K. and Kunze E. (1970) investigated new plants which were established in Lower Austria between 1955 to 1968. They found that peripheral areas of Lower Austria-inspite of regional industrial promotion-had not only a below average share of jobs of new establishments but also a below average share of establishments in "growing industries". This resulted in increased structural disparities between core regions and peripheral areas. It may be due to this structural weakness that the stability of establishments in most of the peripheral areas also has been below average (p.6).

These results are consistent with a study by Bobek H. and Steinbach J. about the regional structure of Austrian industry (1975): The authors find that one of the reasons for below average development of local revenues from wage taxes in the peripheral areas of Lower Austria and Burgenland has been the fact that more than 65% of jobs in newly established plants have been in the (low wage) sectors of textiles and clothing (which have also often had little economic stability) so that there has been no improvement of the peripheral economic structure (p.61).
A similarly high proportion of new plants in the textile and clothing sector in peripheral areas of Upper Austria (partly problem regions) was found by Rothschild K.W. and Lackinger O. (1971). The authors furthermore indicate, that between 70 and 87 percent of the employees have been women and that the share of white collar workers has been extremely low (7 per cent). Wages offered were often so low that firms had difficulties to recruit their workers on the local labor market.

Although in the above mentioned cases Austrian regional policy may not have been the major cause of these sectoral developments in peripheral areas, regional policy instruments both at the federal and at the provincial levels have not been able to change these increasing structural weaknesses.

The findings of the Austrian studies concerning sectoral trends in peripheral areas are confirmed by a study for the FGR (Fleck, 1975):

In analysing the new industrial establishments in the FGR from 1955 to 1971 for different types of regions Fleck found a relatively high location intensity in rural areas of sectors such as textiles, leather, wood-processing, tobacco, clothing and shoes. In differentiating between promoted areas and non-promoted areas Fleck found that in the promoted areas the share of employment in new plants in industries with slow employment growth was 47.5 %, while it was only 37.4 % in non-promoted areas.

There are also, however, less clear-cut conclusions on the relations between sectoral composition and regional employment trends:

In the British case Moore and Rhodes (1973) and Sant (1975) indicate that from 1963 to 1970 the industrial structure of the Development Areas has "despite the apparent lack of positive effects on total

\[x\] This lack of jobs with higher qualifications may also be due to the high proportion of branch plants with a lack of control functions within the region.
employment" (Sant 1975, p.195) become more like the national sectoral composition. Sant indicates, however, that this approximation of industrial structure between core regions and Development Areas has been more due to the faster contraction of declining industries there than to the growth of nationally expanding industries.

Studies which systematically investigate the level of technology promoted by regional policy have hardly been available. Despite the fact that it is difficult to draw general conclusions from single studies we shall summarize a careful and detailed analysis which has been undertaken for the North East of Brazil because the results might well be representative for other regions with severe unemployment problems.

Sandmeyer U. (1976) investigates the phenomenon that the manufacturing industry of NE region of Brazil from 1959 to 1970 has had a relatively high increase of production but (compared to all of Brazil) a very low employment increase (the percent increase of production to that of employment in the NE has been 5: 1 as against 2.2 : 1 for all of Brazil). The author found that the transfer of new technology had been one of the most important reasons for this low employment effect in the North East. He estimates the hypothetical loss of jobs due to the introduction of high technology in the North-East at about 86 000 jobs. Concerning the role of regional policy in general the author found that the industrial projects subsidized by the SUDENE had (because of their capital intensity and sectoral composition, cf. above) contributed little to a reduction of the unemployment problem.

x) It must be added here that in the course of a large modernisation programme for the textile industry SUDENE tried even to eliminate old machinery (with more labour intensive technology) which resulted in a loss of about 19 000 jobs for workers of the textile industry during the sixties (p.231 ff).
3. Control- and ownership relations and organizational characteristics of new plants in peripheral areas

From the foregoing section it appears that, besides the sectoral structure of new activities in peripheral areas, the control and ownership relations (intra- vs. extraregional control and/or ownership) and the organizational characteristics of new establishments (types of functions performed within the plant, such as production, trade, administration, decision making, research) have implications for the qualification structure of created jobs, for their stability and wage levels, as well as for regional development of peripheral areas in general.

Various studies reviewed in the foregoing section indicated that new branch plants which are extraregionally controlled or owned have considerably reduced impact on the labor market and on the development of peripheral areas in general compared to that of autonomous regional firms. The first group of extraregionally controlled or owned plants have a large weight in the industrial development of peripheral regions. We shall therefore concentrate in the following particularly on these plants.

A closer look on extraregionally controlled or owned plants showed that with regard to regional development implications there exist differences between

a) branch plants with rather narrowly specialized routine functions of production and a high level of extra-regional management and ownership control and

b) branch plants and subsidiaries with diversified internal functions and a certain degree of administrative semi-autonomy.
In the following we shall summarize the conclusions of the case studies specifically on the forementioned types of plants with regard to
- their share in the industrialization process of peripheral areas,
- their labor market and general regional development implications and
- their reaction to regional policy instruments.

Since most case studies refer to various of the forementioned types of new activities in peripheral areas, overlaps between them could not be completely avoided.

a) Narrowly specialized branch plants with a high level of extra-regional control

In an analysis of about 3800 industrial moves in the FGR within the period 1951 to 1971 Bade (1976) found that in peripheral areas - many of which have been declared problem areas - a much higher share of branch plants has been established than in metropolitan areas and their surroundings.\(^x\) He also found that new branch plants were established mainly in sectors such as clothing, textiles, leather and electrical equipment, which are typically located in peripheral areas (cf. above 2 B). Especially these sectors have shown a relatively high closure rate of plants. In investigating branch plants which were established in the period 1963-1970 in Saarland the author found that of the established branch plants there had survived until 1975: none in the leather industry, only 8 per cent in the textiles industry, and only 24 per cent in the clothing industry. Bade interprets this phenomenon as being caused by the relative low risk of establishment of branch plants in these sectors: the firms are in a

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\(^x\) In the case of the areas outside metropolitan regions and their surroundings the proportion of branch plants to relocated entire firms was about 3:1 while in the case of metropolitan regions and their surroundings entire relocated firms were about 1:1 (pp. 18 ff).
position to establish parallel production processes at relatively low investment cost and are able to reduce this expansion again relatively easily in the case of decreasing demand. The author states in this connection that branch plants which are more integrated into the production process of the whole firm should show more stability because the firm's total production process is more dependent on the production of the branch plant.

His findings and interpretations are broadly consistent with the results of a study by Fürst and Zimmermann (1973) in the FGR in which the location decisions of industrial firms were investigated by questionnaire. Fürst and Zimmermann find that presently used regional policy instruments in general - though unintended - have a selective impact: they find the greatest response on the part of branch plants of larger enterprises, the lowest by the movement of complete firms. Fleck (1975) also for the FGR analysing industrial firms established between 1955 and 1971 shows that at the national level the share of branch plants in all new plants is substantial (53 %) and that the establishment of new branch plants fluctuated more than that of autonomous firms. Furthermore he found (similar to Bade) that moves of plants tend to bridge larger distances than relocated entire firms. The share of slowly growing or stagnating sectors is also higher with branch plants (53 %) as against entire relocated firms (30 %) or new firms (47 %).

The author furthermore found that between 1962 and 1970 there had been a certain decentralisation of industry into promoted areas, but it took place in stagnating industries and in the form of branch plants to a much higher degree than in the rest of the FGR (p.59).

Similarly, several British studies revealed the importance of branch plants for employment growth in peripheral regions. In an analysis of
Industrial movements between 1945 - 1965 in the United Kingdom the Board of Trade (1968) and Keeble (1971, 1972) found that branch plants represented 82.6% of all movements to peripheral areas and 85.8% of employment created by movement of industrial plants between 1945 and 1965. In Britain too, government regional policy "... has long encouraged this process through its development incentives, on the one hand, and by its restrictions on new or expanded economic activity in certain areas, on the other" (Dicken, 1976, p.402).

In a case study of a Swedish county Clark U.E.G. (1976) investigated one special aspect of branch-plant performance: their cyclical sensitivity. A previously British study had shown that "between 1966-1971, a period of contraction of manufacturing employment, mature branch plants maintained their employment better than their parents" (Atkins, 1973, pp.437 ff) and Clark tries to test the validity of that conclusion for Sweden.

Clark analysed the performance of 310 plants (74 branch plants and 236 parent plants) during the period of 1968 to 1973 in the county of Skaraborg and found significant differences in performance between branch and parent plants as well as between small and large branch plants: Branch plants showed a higher "turnover rate" than parent plants (proportion of openings and closures to total plant number). Concerning different size groups of plants he found that small branch plants (less than 100 employees) were more likely to be closed in the recession period of 1970 and 1971 than the small parent plants, just as there was a greater probability of a small branch plant opening in the upswing of 1972 and 1973. The same does not appear to be true of the large branch plants: Employment in large branch plants appeared to be less cyclically sensitive than employment in large parent plants.
A more policy oriented follow-up study by Kohler H. and Reyher L. (1975) on the establishment of new firms in the period 1955 to 1969 in Niederbayern in the FGR (most of them publicly supported) showed that the region's labour market in quantitative terms (level of employment) had developed satisfactorily. At the same time, however, the qualitative disparity in the job structure between the region and the FGR had increased, mainly due to the below average qualification structure of the jobs in the newly established plants. A large share of the policy supported firms at the same time had been branch plants.

Some authors see as a major reason for this development the undifferentiated reduction of capital cost via investment incentives which leads to the reaction of plants which are in a late stage in the product cycle (with routine production); this is especially the case with many branch plants (e.g. Flore C. 1976).

Similar conclusions emerge from a study on Hessen in the FGR (Wolf, F. 1974). Wolf investigated firms which received regional policy funds during 1970 and found that:

- due to the high proportion of branch plants and the lack of administrative functions in them there has been no improvement of the qualitative job structure (promoted plants have a higher share of non-qualified workers than the provincial average pp.12 ff.), and
- branch plants are more sensitive to investment incentives and depreciation allowances than complete firms; the latter show more sensitivity to low interest credits (pp.100 ff).

Lever (1972 and 1974) investigates the linkage behaviour of 24 carefully selected plants in West Central Scotland: Relating the linkage behaviour to different characteristics of the plants (value/weight ratios of the products, size, organizational types). He found a general

x) funds of the "Regionales Förderungsprogramm" and the "Investitionszulagen-gesetz".
tendency for small plants to purchase more of their inputs from Scottish firms than did larger firms. Branch plants were more dependent upon supplies from the West Midlands, the South East and from abroad than independent local firms (56.2% against 27.3% per cent of all purchases). Concerning the distribution of sales, Lever found that branch plants sell proportionally more of their output to customers in the rest of Britain and abroad than do independent local firms.

Westaway (1974) in a study on the occupational structure of the British urban system found that the (prosperous) South East Region is favoured with regard to both general control functions of organizations (professional and managerial occupations) and lower administrative functions (administrative occupations). Operating or productive functions on the other hand have the highest representation in less prosperous regions of the country. Changes in the distributions of these activities indicate that general control functions, particularly head office activities, are becoming more concentrated in the London area (p.72).

From some of the above mentioned studies (Board of Trade, 1968, Keeble, 19711972) there exist indication that, due to the high representation of branch plants in industrial moves to peripheral areas, the level of external control in these regions is increasing.

b) Diversified semiautonomous branch plants and subsidiaries with extraregional ownership

The following studies deal with ownership linkages and regional development implications of semiautonomous branch plants and subsidiaries either exclusively or in the broader context of the establishment of new plants in peripheral areas. Unfortunately, information on these questions still is rather spotty, in part because they have only recently been considered a problem, in part for difficulties of data access.
An interesting study in this respect is Firn's analysis of external control in Scotland (1975) which is a peripheral location within Great Britain. Firn found that in the case of Scotland 58.8% of total employment in manufacturing in 1973 was controlled externally, of which the largest share were English based companies (39.8%) and North American-based companies (14.9%). Subsidiaries and branch plants had a considerable share in this externally controlled employment. Firn concludes from this evidence that Scotland has been developing slowly a "branch plant and subsidiary" economy, at least with regard to its industrial structure. The most worrying aspect of external control for him is the dominance of branch plants because this has been accompanied by a gradual erosion of decision making from the Scottish economy (p.405).

A study which investigates extra- versus intraregional ownership with respect to regional functional linkages has been undertaken by McDermott, P.J. (1976) for Scotland. The most important findings of his study are:

- Due to strong governmental encouragement of external electronics companies to invest in Scotland the level of non-Scottish ownership is very high (more than 90%). The computer sector which is responsible for almost 15,000 or a third of the jobs in electronics consists of 11 establishments all of which are American controlled.
- Indigenous firms play a distinctive subcontract role and
- Shares of local purchasing in the components sector are low for both local but lower still for externally-controlled firms (36% as against 23% of all purchases).

Firn defines the location of ultimate control as the location of the headquarters of a branch plant, or as the headquarters of the senior holding company in the case of a wholly owned subsidiary.

McDermott studied the ownership of the Scottish electronics industry (101 establishments) and the local linkages of 37 autonomous and semi-autonomous plants.
In evaluating the Belgian 1966 Investment Incentive Program Thoman G.R. (1973) found that out of a sample of 273 foreign industrial investments the majority (66 per cent) were located in depressed areas. In investigating the economic characteristics of these industries the author found that they contributed little to the diversification of the economic structure (textiles and metal industries were represented above average) and that they were mainly low profit and low growth industries with little scientific research activities (pp. 64 ff).

The question of the impact of external control and/or ownership on the performance of plants and on regional development is, however, somewhat ambiguous: While some authors stress the rather detrimental effect of external control and ownership especially on long term regional development (Firn, 1975, Mc Dermott, 1976) other authors indicate that firms with total or partial foreign ownership performed not significantly different and in some regards even better than national or regional firms:

Pernitz and Kunze (1970) found in the above mentioned Austrian study that about 22 % of all newly established firms between 1955 and 1968 in Lower Austria (large parts of which are peripheral to Vienna and to the central European market) have been established with foreign capital. Furthermore they found, that these firms are on the average larger than the rest (in terms of employment), show a lower share of firms in nationally stagnating industries and seem to have a larger job stability than the rest ("job closure rate" of 1 % as against 9,5 % with all firms). Unfortunately it is not made explicit in this study, however, to which extent the "better" performance of industries with foreign capital applies only to firms near Austria's capital Vienna, or also to those located in the more remote areas of Lower Austria.
O'Farrell P.N. (1976) in analysing 418 industrial establishments in Ireland which received grant payments between 1960 and 1973 gives special emphasis to the question of plant closure rates. He showed that - against the findings of many other studies mentioned above - survival or closure of grant-aided establishments is independent of manufacturing group, of organizational type (except for non-Irish plants at the 0.05 significance level) and of nationality (p.445).
Regional policies have essentially aimed at diffusing growth from highly developed core regions to less developed peripheral areas. In this section we shall try to interpret these policies in theoretical terms and show their implications for the operation of inter-regional systems.

We shall simplify regional systems by essentially discussing relations between highly developed "core regions" and less developed "peripheral areas" although there exist of course different intensities and types of these regions in a multi-regional setting.

A. The theoretical background

First, a short description of the theoretical background against which the above policies will be analyzed. Interregional disparities and interactions are basically conditioned by regional differences in access to production factors and to markets. We shall concentrate first on differences in availability of production factors.

Core regions are characterized by a scarcity of natural resources and of labor, while peripheral areas usually have a scarcity of capital and technology. According to neo-classical economic theory, factor returns should be high in areas of scarcity and low in areas of abundance. Core regions should therefore have high returns for natural resources and labor while peripheral areas should have high returns for capital and technology. Under neo-classical assumptions (complete mobility and homogeneity of production factors, decreasing marginal returns, etc.) factors are expected to move from areas of low return to those of high return. Natural resources and labor should therefore flow from peripheral areas to core regions, while capital and technology would be expected to flow in the opposite direction from core regions to peripheries. These flows would increase factor supply in areas
of scarcity and reduce it in areas of abundance, whereby factor prices would be expected to equalize over space. As a consequence, income should also equalize over space (Richardson, 1969).

In reality however, this is not the case. First, because not all production factors tend towards spatial equilibrium of supply and demand. Such tendency is counteracted by different degrees of mobility and heterogeneity of factors and by increasing factor returns due to the unequal spatial distribution of external and scale economies. Second, there occur "leakages" of different types between regions (also outside the factor markets) which can lead to income disparities. Such "leakages" occur through interregional multiplier effects, through changes in import and/or export propensities and in the terms of trade, through organizational linkages, etc..

Regarding the first point of production factors, particularly labor and capital in practice often do not tend towards equilibrium. Although labor in aggregate terms moves from (usually low wage) peripheral areas to (high wage) core regions, this movement should not be considered in aggregate terms but should be disaggregated since migration is highly selective. Migrants from peripheral to core regions usually come from the more mobile and more productive population strata (i.e. the potential high wage earners) of peripheral areas. This therefore tends to reduce the average of wage levels in peripheral areas still further rather than increasing average wage levels due to the reduction of aggregate labor supply, as neo-classical theory would have it. At the same time this selective out-migration reduces the production potential of peripheral areas still further.

Capital flows also do not tend towards a regional equilibrium of supply and demand. Empirical studies (Lasuèn 1961, EC_A 1969, Griffin 1969) have shown that on balance capital flows from peripheral (high capital cost) areas to core regions (with relatively low capital
cost. The major reason for this disequilibrating trend is the higher productivity of capital in core regions due to a comparative advantage in scale and external economies.

Regional policy instruments essentially have attempted to change these disequilibrating flows, but they have hardly made explicit attempts to control the "leakages" mentioned.

Since migration is outside of direct policy control in most market and mixed economies, policy instruments have concentrated on inverting flows of capital (along with technology, often incorporated in it) and on creating greater external economies in peripheral areas through public infrastructure investment (neatly summarized e.g. in Canada, Ministre 1976).

In the following, the major instruments of regional policy in market and mixed economies will be briefly reviewed and related to some of the major findings of empirical evaluations of regional policy reviewed in section II. A synopsis of the policy instruments and related empirical findings is then presented on p. 61.

B. Major instruments of regional policy and their implications

(1) Capital and technology transfers to peripheral areas

These instruments are used in practically all countries analyzed. Essentially they are to create, as far as factor availability is concerned, conditions in peripheral areas more like those of core regions. The strong emphasis of most regional development policies on capital incentives and on the introduction of high technology (often incorporated in capital) have stimulated the emergence of capital intensive industries in peripheral areas (Sandmeyer, 1976 for the NE of Brazil; Pencuil, 1969 for the Aquitaine region in France; Ohlsson, 1975, for Sweden; Holland, 1976 for Italy; Kornikowsky, 1977 for Alabama in the USA) and have thereby increased regional productivity.
and regional output.

At the same time they have produced relatively small employment effects, however, and contributed comparatively little to solving the unemployment problems of peripheral areas (Sandmeyer, 1976; Kerlikowsky, 1977) inspite of the application of employment premiums in some countries.

(2) Promotion of "modern" industries in peripheral areas

Apart from the incentives offered for activities with high productivity (1 above), economic promotion was (often implicitly) oriented towards activities with high demand elasticity and with an "export base" i.e. catering to international and national rather than to regional demand (Lower Austria, 1971; Wolf, 1974 for the FGR, p.168). This meant that economic activities in peripheral areas increasingly became dependent not only on external production factors (external capital and technology, point 1 above) but also on external demand.

Products with high demand elasticity imply "young" industries with a relatively high rate of innovation. Since the highly innovative phases in the product cycle usually last only for a limited time period there exists the danger of relatively high structural instability, especially if these new activities gain a predominant role in otherwise little industrialized peripheral areas. In many cases this was aggravated by the fact that in such "young" industries (e.g. electronics, plastics) mainly routine and less skilled sub-functions were delegated to peripheral areas (see below). The heavy reliance on activities catering to national and international markets was in line with export base theory, which assumes that regional and national economic growth is mainly a function of the value of their exports. The emphasis of new plants on export base activities however, in many peripheral areas increased the dependence on national and international cyclical fluctuations (McDermott 1976, Novotny, 1977).
The emphasis of regional policy instruments on activities with high productivity and high demand elasticity, and on sectors catering to international or national demand (export base orientation), addressed itself to characteristics normally typical of core region activities. Very often therefore this encouraged the transfer of expanding core-region activities (or parts thereof - the so-called "extended work benches") which, due to increasing overall demand, met with bottlenecks in core regions, (particularly shortages of labor and land). With the recent slow-down of national and international economic growth these bottlenecks were reduced however (cf. Flore, 1976) and the new activities having been relocated to peripheral areas constitute there an increased danger of cyclical and structural instability.

Due to the difficulties of overcoming distance from core regions, the major reaction to these instruments came from enterprises most able to overcome distance and locational deficiencies on account of their own organisational capacity and capital reserves: these were to a great extent large-scale multiregional or multinational enterprises, catering to large-scale (usually world) markets and able to shift resources and functions rather freely between areas and countries. If the above mentioned "extended work benches" in economically marginal peripheral areas belonged to multiregional or multinational firms their closure rates often were particularly high (cf. Bade, 1976; Fürst and Zimmermann, 1973; Clark, 1976) and thereby tended to increase still further the already existing cyclical and structural instability in peripheral areas.

Since multiregional or multinational firms were able to shift activities freely within their own highly specialized organizational structures, they usually shifted the low-skill, low-pay routine
activities to peripheral areas, retaining more highly skilled non-routine jobs, including research and development functions, administrative functions etc. in core regions. This meant that the newly created jobs were usually in the low-skill and low-wage categories. (Westaway, 1974, for GB; Wolf, 1974, Kohler and Reyner, 1975 for the FGR; Thoman, 1973, for Belgium). This may in fact have contributed towards a reinforcement of long-standing structural weaknesses of peripheral areas rather than to their relief.

Multinational or multiregional firms are better able to bridge the distance to peripheral areas. If these areas are favored by public incentives or subsidies, the firms will legitimately select the most accessible locations within them and thereby often contribute to an increase of intraregional disparities. The entrepreneurial objective of being competitive interregionally or internationally may in fact lead to increased intraregional disparities (Ray, 1976; Lasuén and Pastor, 1976).

When activities (or parts thereof) were relocated from core regions to peripheral areas, there was a tendency, particularly on the part of multiplant firms, to retain previous input-output and service relations of their organisations wherever possible so that usually little functional relations of these activities within peripheral areas developed. This led to a relatively high regional import propensity for inputs and thereby increased leakages from peripheral areas (Lever, 1972 and 1974 and McDermott, 1976, for Scotland; Spehl et al., 1975, and Wolf, 1974, for the FGR). In fact it has been maintained that these leakages may often be greater than the transfers of capital or public investment (see 3 below) undertaken (Lasuén and Pastor, 1976).
Due to the increasing reallocation of labor and capital to the most efficient activities and to economically backed effective (and increasingly external) demand, scarce production factors (skilled labor, capital) frequently were withdrawn from privately-supplied basic needs sectors. Regional basic needs became less relevant for investment decisions and since (particularly in poorer regions) they are usually backed by small effective purchasing power, became neglected both in quantitative terms and in their specific qualitative articulation. Services increasingly had to concentrate on only few locations or close down completely. With typically scarce population and low demand density in great parts of peripheral areas the access to these basic needs and services deteriorated considerably, particularly for the less mobile and/or economically less powerful population strata (the elderly, the poor, etc.), whose proportion of the total population was increasing due to the selective out-migration process. This meant that intra-regional disparities in access to basic needs facilities also increased considerably as was shown above empirically (II/A/3a). Access to basic needs services also deteriorated because the improvement of inter-regional accessibility (4 and 5 below) increased competition from outside centres and reduced the relative growth potential of regional service centres. Marketing and service channels became increasingly oriented towards supra-regional systems and often made investment in the less developed parts of peripheral areas uneconomic. This further increased the pressure for outmigration.

As furthermore, in most cases there were no explicit incentives for the utilisation of regional natural resources, these often were underutilized (idle agricultural land, idle regional building materials, etc.).
The promotion of "modern" industries therefore usually led not only to increasing reliance on external production factors and demand but also to an underemployment of regional resources and a neglect of regional basic needs. It thereby contributed to an increase in external dependence and to a reduction in regional self-reliance.

(3) Transfer of public investment to peripheral areas:

In most countries this is a major policy instrument intended to reduce spatial disparities. Its major thrust usually is to provide economic infrastructure for new economic activities. This is done mainly by investment in local infrastructure and in the inter-regional transport and communications network.

Local infrastructure investment will, apart from a demand multiplier, create external economies and thereby help to reduce the cost of production in peripheral areas. In cases where this is done by central agencies it will (as with multi-plant enterprises) favor the introduction of core-region based construction technology, building materials and (via core-region based construction firms) other extra-regional inputs. This will tend to reduce potential regional employment effects and the mobilisation of other regional resources (building materials etc.), create leakages and thereby often considerably reduce the expected regional impact of such transfers of public investment (Lasuén and Pastor, 1976). If administered by centrally steered agencies, it will also fail to help develop peripheral areas' abilities to mobilize and handle their own resources.

Public investment in inter-regional transport and communications network will increase accessibility between regions, a phenomenon that needs more detailed discussion.
(4) Extension of transport and communications networks from core-regions to peripheries: Transport and communications investment is usually made with priority between major urban centres and between core-regions and peripheries in order to increase accessibility in these relations. Thereby it follows existing traffic patterns and the thrust of major effective demand. Comparatively little investment is usually made in transport infrastructure between peripheral areas and for interactions within peripheral areas (Törnquist, 1973). Such investment implicitly follows the export-base conception that regional growth must be induced by extra-regional demand and that increased specialization and accessibility within and between peripheral areas can contribute little to the development of peripheral areas because of their low density and low growth rate of demand.

The same applies to (mass) communications networks which essentially are extended from core-regions to peripheral areas. Communication flows emanate radially from core regions to peripheral areas, but also organizational and power centres determining the kind of information to be transmitted are essentially core-region based.\textsuperscript{x}

(5) Promotion of functional integration between core-regions and peripheries: The above policies are aimed at increasing interregional functional integration (input-output relations, factor flows, etc.) in order to reduce disparities between core-regions and peripheries. They are essentially based on the above mentioned neoclassical assumption that with increased functional integration production factors and commodities will move to the locations of their highest return, and that factor and commodity prices will equalize over space and lead to a

\textsuperscript{x} This applies both to the national and to the international level. On the latter see Raghavan, Ed. 1976.
convergence of regional per capita income (p. 48f.). It was shown above that this is not the case in reality.

The problem in question can also be posed in terms of comparative market access as a determinant of regional growth. The improvement of mutual accessibility between core regions and peripheries at first sight would be expected to give peripheral areas a comparative advantage through improved access to large core-region markets, whereas core regions would gain improved access only to the relatively small markets of peripheral areas and would consequently be expected to benefit less from integration. In reality however, the already highly developed core regions gain much greater comparative advantage from such functional integration due to their greatly superior capacity to utilize agglomeration and scale economies (Pedersen and Stöhr, 1971). Core regions are thereby able to increase their initial advantage.

To peripheral areas major comparative advantages accrue mainly when they possess considerable scarce and relatively immobile resources in sectors of rapidly increasing national or international demand (selected mineral resources, tourism, etc.) or if they offer comparatively greater external and scale economies than competing core-regions. The first is the case in few highly developed countries only; the second is an objective of growth centre strategies. An alternative strategy of increasing aggregate peripheral demand by improved intra-regional accessibility within or between peripheral areas so far has been rarely been attempted.

(6) Growth centre policies:
These essentially involve combination of the characteristics of "modern" industries mentioned above (2) plus the creation of agglomeration
economies in an attempt to reduce the backwash effects between peripheral and developed regions and at the same time create spread effects to the growth centres' hinterlands. Empirical analyses (II/A/3/a) however indicate that this has been achieved only rarely. In the majority of cases it seems that where growth centres were able to increase their own dynamics it was due to increased backwash effects from their hinterlands (withdrawal of labor and natural resources, deterioration of the hinterland's terms of trade). In consequence therefore, even when growth center policies have increased the average growth rate of peripheral regions - and thereby interregional disparities reduced - intra-regional disparities of living levels usually have increased. This means that growth centres have essentially lead to a shift of disparities from the inter-regional to the intra-regional level, but rarely seem to have led to an overall reduction of spatial disparities in living levels. In part this may be due to the lack of explicit incentives for the utilization of regional resources, (point 2 above), particularly natural resources and labor, which are predominantly located in hinterlands. The second reason may be the (7) Lack of an explicit sectoral specification of regional development policy. Regional policy in most market and mixed economies has essentially been sectorally unspecified (Flore, 1976). With the application of regional incentives along criteria of efficiency and growth one expected that those sectors would be attracted to peripheral areas which conformed most to these criteria. The attraction of an efficient and fast growing activity however, did not necessarily mean that the respective locality or region would actually benefit from faster growth. Activities with few local or regional linkages may in fact (e.g. Penouil, 1969) contribute much more to
the growth of other localities or regions with which they maintain intensive functional interaction rather than to the growth of their own region. To become regionally effective, both regional policy and growth centre policy would therefore have to address itself more specifically to sectors which, beyond the criteria mentioned, also produce intra-regional income and employment multipliers; functional relations between the "modern" export-base activities and intra-regional sectors, linkages to regional resources and to regional demand seem important for this purpose. To comply with such rather complex characteristics a more explicitly sectorally oriented regional policy may be necessary. Klaassen, Paelinck and Wagenaar (1976), for instance, propose the selection of activities for regional development along three groups of criteria: regional income and employment multipliers, intra- and extra-regional market potential, and locational profile. Similar suggestions are made by Strassert, 1976.

(8) Extension of core-region based education and training facilities to peripheries: Educational policy in most countries tries to equalize educational and training opportunities in all parts of the national territory. In most countries, particularly those with a centralized educational policy, this means the introduction of uniform (core-region based) educational standards and curricula also for peripheral areas. With standards and curricula oriented towards core-region needs, people from peripheral areas (and particularly the most highly trained of them) are often forced to migrate to core-regions, a fact which increases still further spatially disequilibrating effects already mentioned. On the other hand, the orientation of curricula and educational objectives to regional needs (without discriminating in levels of education) might be able to better serve both human needs
and regional development by reducing the psychic and social costs of economically induced migration.

(E) Extension of core-region based public and private organizations to peripheral areas

A major instrument for the development of peripheral areas in many countries has been the strengthening of national (core-region steered) administrative and planning systems for peripheral areas. This usually manifested itself in the establishment of new or the expansion of existing central government offices (or their dependencies) in peripheral areas charged with designing and implementing plans for peripheral area development. While these new or expanded core-region based organizations often helped to speed up material progress by facilitating the transfer of capital, technology and organizational skills to peripheral regions, they very often supplanted existing autochthonous regional organizations and thus debilitated regional organizing capacity. Only in few cases have these centrally-guided institutions explicitly promoted the organizing capacity of autochthonous regional institutions, or voluntarily transferred powers to them. The forceful drive for the devolution of power on the part of peripheral communities in many countries today (GB, Spain, France, etc.) must be considered as a reaction to this fact. Similar arguments also apply to the extension into peripheral areas of core-region based private sector organizations such as branches of multiregional or multinational firms (II/B/3 and III/B/2 above).

Apart from supplanting and debilitating the organizational capacity of local and regional institutions in peripheral areas, externally-based public or private organizations also tend to apply uniformly to peripheral areas decision
making criteria, their high technology and their organizational principles. The impact on the underutilization of regional natural and human resources has already been discussed (III/B/2). Similar pressure is exerted on specifically regional cultural patterns, value systems, customs and traditions which are important ingredients of regional identity. They serve not only as "comforts" (Scitovsky, 1976) for non-material human satisfaction but also constitute an important prerequisite for sustained material progress.

In various unitary states (France, Great Britain, Sweden) it has been attempted to mitigate the high geographic concentration of administrative functions - rather than by devolving powers to regional units - by relocating public offices from the capital to less developed areas. While this may have created a certain spatial redistribution of income to peripheral areas, effects on the redistribution of decision-making were usually small since central decision-making structures were retained. Similarly small were employment effects since many posts were filled by employees who moved along from core-regions together with the decentralized agencies (Sundquist, 1975).

In federal countries such as Austria, GFR, USA, these problems seem to have been considerably smaller. There, even insignificant and little structured regional policies may already be accompanied by a convergence of regional development trends (II/A/1 above).

(10) Reinforcement of core-region based standards, rules and value systems over periphery

Along with the transfer of public investment (III/B/3), the extension of transport and communications networks (III/B/4), of education
and training facilities (III/B/8), and of organizational structures (III/B/9) from core-regions to peripheries, the extension of core-region based standards, rules and value systems over peripheral areas became reinforced. It is what Friedmann (1973, p. 70) has called "the extension over a given territory of a common basis for social life ... a shared frame of socio-cultural expectations, including language, cultural values, political-legal-bureaucratic institutions, and a market economy."

As long as uniform national standards and rules are set predominantly according to core-region value systems, peripheral areas will usually be at a comparative disadvantage in reaching them, however.

The possibility of maintaining a plurality of value systems and life styles would give regions with different preconditions better chances to develop their respective potentials and reach a comparable degree of satisfaction within their respective value systems.

The following is a synopsis of the policy instruments analyzed above and of the major empirically found conditions which seem to be associated with them.
Major policy instruments for the development of peripheral areas:

1. Capital incentives and technology transfer
2. Promotion of "modern" industries characterized by:
   - high productivity
   - high demand elasticity of products
   - export base orientation
3. Transfer of public investment
4. Extension of transport and communication networks from core-regions to peripheries

Related empirical conditions in peripheral areas:

- Increased regional productivity and output but small employment effect
- Increased reliance on external production factors and on external demand
- Increased underemployment of regional (natural and human) resources
- Predominance of branch plants of core-region based multiregional or multi-national enterprises (possessing comparative advantage in bridging distance to peripheral areas); new "modern" industries and particularly branch plants in peripheral areas contribute to the following phenomena:
  - New jobs mainly in low-skill and low-wage categories
  - Relatively high structural and cyclical instability
  - Few functional relations of new plants within peripheral areas contribute to small intraregional multiplier effects
  - New activities create relatively high regional import propensity, whereby part of their impact is lost through leakages to other regions
  - Comparatively high closure rate of new plants and jobs
  - Scarce production factors (skilled labor, capital) are withdrawn from regional basic needs sectors and intraregional disparities in access to basic needs facilities increase

5. Transfer of public investment external economies reduce production cost in peripheral areas but leakages to other regions occur particularly in the case of centrally steered public investment

6. Reduction of peripheral areas' ability to mobilize and handle their own resources

7. Increase in accessibility mainly amongst core-regions and between core-regions and peripheral areas; little accessibility increase between and within peripheral areas
(5) promotion of core-periphery integration
comparative advantage of spatial integration accrues mainly to core regions (unless peripheries possess considerable scarce and immobile resources or offer other major external economies)

(6) growth centre policies
often shift spatial disparities from one level (inter-regional) to another (usually intra-regional) but little reduction of overall spatial disparities in living levels

(7) lack of explicit sectoral specification of regional development policy
emphasis on efficiency and growth criteria but neglect of (sectorally differentiated) intra-regional income and employment multiplier effects

(8) extension of core-region based education and training facilities
uniform (core region based) curricula tend to neglect differentiated regional educational needs and increase pressure for selective out-migration from peripheral areas, thereby increasing disequilibrium effects

(9) extension of core-region based public and private organizations to peripheral areas
core-region based institutions supplant autochthonous regional ones and debilitate their organizing capacity
application of central decision-making criteria handicaps consideration of differentiated regional needs and full utilization of peripheral resources

(10) reinforcement of core-region based standards, rules and value systems over peripheral areas
due to their different starting conditions peripheral areas are at a comparative disadvantage in reaching uniform core-region based standards
possibility of peripheral areas to maintain a plurality of value systems and life styles would improve their chances to develop their own regional potentials to maximize satisfaction in terms of their respective value systems.
C. Conclusions

Regional development trends and the effects of regional development policies as described in section II have been partly successful in their quantitative aspects (numbers of created jobs, amount of investment, level of regional unemployment, regional per capita income, gross or net outmigration etc.). Spatial disparities of living levels were reduced or at least stabilized in some countries while in a number of other countries they have continued to increase or were merely shifted from one spatial level to another (II/A/1).

Qualitative and structural aspects of spatial disparities (skill structure and stability of new plants and jobs, wage levels and wage differentials, organizational linkages, control mechanisms and functional characteristics of new plants, degree of extraregional ownership etc.), however, have essentially remained unsatisfactory and in some cases - partly as side-effects of traditional regional policy instruments - have even deteriorated (II/B/1).

In order to reduce spatial disparities of living levels, regional development policies have given major emphasis to the transfer of private and public resources from core regions to peripheries through capital incentives and public infrastructure investment (III/B).

At the same time the promotion of new activities was based on efficiency criteria and on demand backed by effective purchasing power. New activities in peripheral areas therefore were to a great extent "modern" industries offering high productivity, high demand elasticity.
nd export base demand. These policies increased production in peripheral areas (mainly for core-region or extra-regional demand) but at the same time led to a re-allocation of scarce production factors in peripheral areas from basic needs sectors (backed by insufficient purchasing power) to regional export products. This frequently led to a deterioration in the access to basic service facilities, particularly for the less mobile and less affluent population strata. At the same time this re-allocation of factors led to an underutilization of factors that are relatively abundant in peripheral areas, especially of natural resources (III/B/1-3).

Traditional regional development policies also led to the extension of core-region based private and public institutions (multiregional firms, large-scale public agencies), of transport and communications networks, and of core-region standards and value systems to peripheral areas (III/B/4-10). Consequently, peripheral areas, in addition to their increasing dependence on external production factors and external demand, also became increasingly dependent on external private and public decision-making. Increased external dependence and reduced self-reliance on regional resources therefore occurred in all these respects. As both these factors have increasingly become objectives of development in their own right and at the same time are considered important prerequisites for sustained economic development, it is not surprising that both the degree of subjective and of objective satisfaction with the results of established regional development policies has been rather poor.

The increase in external dependence and the reduction in self-reliance of peripheral areas have led to variety of "leakages" of the positive
effects experienced in some quantitative indicators of economic development. Such leakages occur via organizational linkages of multiregional firms or public agencies and manifest themselves in the transfer of employment and income effects to other regions, through increases in regional import propensity and a deterioration of the regional terms of trade, through the closure of employment or service facilities by extraregional decisions, etc. Similar disadvantages occur via the introduction of core-region based rules, standards and value systems which put peripheral areas at a disadvantage in reaching uniform national standards (for a synopsis of these effects see p.51f.).

The moderate success of regional development policies so far seems to have been facilitated to a considerable extent by the relatively high rates of economic growth and expansion of demand in the past decades which, due to factor bottlenecks in the highly developed and often congested core regions, have - via the market mechanism - created "spill-overs" of development to peripheral areas. It appears that regional policy has in fact only accentuated and in some cases attempted to redirect the locational pattern of these "spill-overs".

A positive net effect for peripheral areas may therefore be explained by a preponderance of these accentuated spill-over effects over the negative "leakage" effects mentioned above. If one assumes for the years to come a reduced rate of overall economic growth and of demand expansion, these spill-over effects on the one hand are likely to decrease and thereby reduce still further the effectiveness of traditional regional policy instruments. On the other hand, the lack of these spill-over effects will also increase the magnitude of regional problems for the solution of which, due to the reduced rate of overall economic growth, less funds will be available. A grave
negative spiral may therefore emerge.

Formal evaluations of regional policy and particularly the more narrowly conceived impact studies (section I/b) have so far mainly attempted to measure the relations between the magnitude of specific policy instruments (magnitude of capital incentives, subsidies, public infrastructure investment, etc.) and the reduction of spatial disparities. From this type of analysis it might follow that in order to reduce spatial disparities further, more resources should be dedicated to some of the traditional policy instruments.

Essentially the following policy alternatives seem to exist in future if the actual reduction in spatial disparities in living levels falls short of established goals:

(a) to increase the magnitude of inputs into existing policy instruments by making more funds available for direct incentives or for public transfers to less developed areas. This may be economically and politically very difficult (if not impossible) particularly in case of reduced rates of overall economic growth. Even if the latter were not the case however, it is by no means clear whether the interregional leakages mentioned do not increase at least at the same rate - and in part as a function of - increases in the magnitude of traditional policy inputs. x)

This would mean that traditional policy instruments have a built-in self-defeating mechanism. Such suspicion seems to emerge from the interpretations undertaken in section III/B and would in fact be quite in accordance with some of the major critiques which have been

x) From the discussion in section III/B it can in fact be assumed that e.g. increased capital incentives may aggravate underemployment of regional labor and natural resources, increase dependence from outside decisions, lead to a deterioration in regional terms of trade etc.. For an increase in other instruments of established regional policy similar aggravations of the empirical findings described in section III/B (see also synopsis on p. 61) might occur.
It may well be that the unsatisfactory results of regional development policies in some countries are not so much due to insufficient resources allocated to regional development efforts as to an inadequate conceptual structure for regional development policies.

(b) Alternative policies of regional development might have to be oriented more specifically towards changing the basic parameters underlying the "leakages" of developmental effects out of peripheral areas. Measures which already (usually intuitively and implicitly) are being taken in this direction in various countries were compiled in an earlier paper (Stöhr and Tödtling 1976), where they were subsumed under the heading of "measures of selective spatial closure". In practice, these measures have been used so far in isolated form and have therefore hardly been able to change the operation of spatial systems in a coherent way.

It would go beyond the scope of this paper to develop a coherent framework for an alternative regional development strategy. Such a strategy, however, would certainly need to give much more attention to counteracting the negative phenomena which have accompanied traditional regional development policies and a number of which are dealt with in section III/5 and synthesized on p. 61 ff. In essence such an alternative strategy would probably have to move in the direction of what in international development policy is vaguely called

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The critique on present and proposed development and aid policies at the international level is directed against the proposed further emphasis on massive public financial transfers to developing countries which as in the past, it is feared, will increase rather than reduce the dependence of developing countries from the industrialized ones: "... this type of 'aid' is not only a myth, but ... it involves a direct and tangible economic - or at any rate political - gain for the donor countries". (Santa Cruz 1976).
more "self-reliant" development (Erb and Kallab 1975).

At the regional or interregional level within countries an alternative policy would have to lay greater emphasis on:

- projects which mobilize and utilize regional (natural, human, etc.) resources and serve regional basic needs rather than to projects based on satisfying external demand;

- utilizing and possibly transforming existing (or structuring new) regional institutions to promote peripheral development in line with self-defined objectives, instead of utilizing primarily extraregional institutions to promote development by externally-defined standards;

- qualitative and structural aspects of regional development (diversity of employment opportunities, skill structure, wage level and stability of new jobs, regional income and employment multipliers, organizational and decision-making structures of new plants, etc.) rather than the present emphasis on mainly quantitative aspects (regional product, per capita income, number of jobs created, etc.). Many of these quantitative advances are often considerably reduced and even nullified by disadvantages in qualitative and structural aspects and in less tangible areas such as changes in regional terms of trade, extraregional multipliers, increased dependence on extraregional decisions, etc.;

- accessibility increases within and between peripheral areas rather than on the improvement of accessibility mainly amongst core-regions and between core-regions and peripheries;

- including in the evaluation of regional policy instruments the repercussions at all important levels (not only the regional and national ones), in order to ascertain whether specific strategies...
and instruments actually reduce total spatial disparities in living levels or mainly shift them from one level to another;
- the accelerated devolution of decision-making powers from large-scale (private and public) functional units to territorial units at different scales; provisions facilitating the regional differentiation of value systems, cultural patterns, standards and organizational forms; and on the strengthening of organizational capacities for self-organization at the local and regional levels;
- equity in the satisfaction of (usually territorially provided) concrete basic needs, including employment and basic private and public services, rather than the present predominant emphasis on efficiency, growth and more abstract overall objectives such as increase in regional product, per capita income, number of jobs created, or the quantity of infrastructure and service facilities provided by large-scale (public or private) organizations, often with little consideration for the concrete needs of, and the active participation by, small-scale groups using and organizing them;
- selection of technologies which serve the above regional objectives instead of the present search for (or transfer of) the highest available technology chosen by growth and efficiency maximizing criteria. This might involve a certain degree of despecialization of activities (Pedersen 1975 a) and a reduction in large-scale interactions with a view to more energy-saving interaction patterns and radii.

Research in this direction needs to be continued and intensified.
Bibliography:


