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ECONOMIC GROWTH AND REGIONAL DEVELOPMENT;
THE CASE OF POLAND

The present paper deals with the question
of the dependence of the regional structure of the
economy on the character of economic growth, consi-
dered mainly with respect to structural change. The
links between the processes of structural change
of the economy and economic growth have been fully
recognized for a long time. The works of Colin Clark
and F. Perroux are probably the most outstanding
cases of the recognition of these links. Similarly,
in the main current of regional development studies
since the early 1960s, structural economic changes
have been recognized as both the source and outcome
of regional growth processes. Yet, the main focus
of attention has been on the region's economic
structure conceived as a set of interindustrial
linkages, and on the problems connected with the
transmission of growth impulses originating in the
dynamic sectors /propulsive industries/; less atten-
tion has been paid to the interregional growth diffe-
rentials arising as a consequence of the structural
change of the whole national economy.

It was within the framework of shift-share
analysis that gave expression to the idea that the
changes in the distribution of the whole complex
of economic activities /as measured by the total
employment or total output/ might be looked upon
as an outcome of two types of changes:

1/ changes in the spatial distribution of
individual sectors of the economy;

2/ changes in the structure of the national economy, occurring as a consequence of the inter-sectoral differentiation of the rates of growth and affecting the interregional differentiation of growth rates because of the fact that regions have different sectoral structures /activity mix/.

In the framework of shift-share analysis, this idea found expression in the definition of the total shift as the sum of differential shift and structural /activity mix/ shift.

In the present paper, I do not intend to enter into the critical discussion of various prob-lems connected either with definition of concepts or with the interpretation of results of this anal-ysis. I shall operate with the simplest, "classical" formula of the definitions of the component concepts and will abstract from such problems as depedence of the results on the definition of sectors, set-ting the arbitrary time-intervals for calculations that are affected by this decision, or other arbi-trary measures inherent in the use of the method. These special problems are irrelevant from the point of view of the purpose of this paper. I will use the concepts of shitf-share analysis as a frame of ref-erence for some reflections on the relations be-tween structural changes of the economy and the interregional differentiation of growth.

In the text of the paper, a positive total shift for a region is treated as equivalent to e-conomic growth and the "national economy" is conci-eved of as being synonymous with the "whole economy", which is a convenient way of avoiding the question of international economic interdependencies. The differential shift is considered mainly from the

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point of view of the "locational tendency": as used
here, the latter term refers to one aspect only of
the locational behaviour of an economic sector;
namely, to the perspective of "concentration – de-
concentration" either with or without reference to
the hierarchical structure of the spatial economic
organization. Similarly, the term "locational ten-
dency" is used in referance to the total shift. The
term "sector of economy" is used here, unless oth-
erwise specified, as equivalent to "economic acti-
vity" or industry"; while "dynamic sector" denotes
the sector characterized by higher than average
rate of growth.

Determinants of structural shift

The differential and structural shifts do
not represent some distinct type of forces and do
not constitute different, independent movements
in space: the very definitions of these shifts are
not free from certain conventions. Indeed, changes
in the spatial distribution of individual sectors
of the economy are to a large extent caused by the
processes generating structural changes. Therefore,
considering the impact of structural changes re-
sulting in interregional shifts, we distinguish the
"direct impact", expressed by the structural shift,
and the indirect impact, more difficult to measure
and affecting the volume of differential shift.
Particularly, since individual sectors have various
locational tendencies, the direction of national
structural change, dependent on which sectors are
dynamic, determines also whether the positive
structural shifts are accompanied or not by positive
differential shifts. If dynamic sectors tend to grow
more rapidly in regions of existing concentration of

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these sectors /i.e., regions where these sectors
define the specialization of their economy/, the
effect of structural change measured by positive
structural shift will be enlarged by the differen-
tial shift of the same sign.

In which type of situations are structural
shifts particularly high?

In order to define the magnitute of the
structural shift for a region, let's denote

a_i^r as the share of sector i in the total regi-
onal employment,

a_i^N share of sector i in the total national
employment,

E total regional employment,

α_i national growth rate of sector i in the
given period

α_T national growth rate of total employment.

The definition of the structural shift for a region
is thus

$$S = \sum_i a_i \, E \, /\alpha_i - \alpha_T/$$

Let's assume that the national economy is composed
of only two sectors: the dynamic one /i/ and the
sector of remaining activities /j/, so that

$$\alpha_i < \alpha_T < \alpha_j$$

Then, the structural shift for the region equals 0,
as by definition in the closed set of regions

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/"country"/, in the situation described by the
equation

$$a_i \ E \ /\alpha_i - \alpha_T/ + a_j \ E \ /\alpha_j - \alpha_T/ = 0$$

When the regional share of the dynamic sector is
higher than its share in the national economy, i.
e., when

$$a_i^r > a_i^N$$

then

$$S > 0$$

In that case, the positive structural effect for
the region is directly proportional to

1/ the value of the initial share of the
dynamic sector in the region as compared with its
share in the country /$a_i^r > a_i^N$/.

2/ the value of the difference between the
national rate of growth of the dynamic sector and
the average rate for the national economy /$\alpha_i - \alpha_T$/.

In other words, the more dissimilar is the initial
spatial distribution of the dynamic sector as com-
pared with the remaining activities and the more
rapid is the change in the sectoral structure of
the national economy, the higher is the structural
effect for the region.

Let's now take into consideration a sequence
of periods for which the interregional shifts in
the spatial distribution of the economy of the coun-
try are calculated. In case of the continuation of
previous locational tendencies of sectors as well as

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differerces in their relative growth rates, both
the differertial and structural shifts are iden-
tical as to sign and location. If for a given
region or set of regions both the differential
and structural shifts have the same sign, so is
the case with the total shift, which means the
continuation of previous general locational ten-
dency expressed by the total shift.

The change of this general locational ten-
dency in relation to the previous period may occur,
however, in case of changes in the relative diffe-
rences of growth rates of sectors, resulting in the
emergence of new dynamic sectors. Whether or not
the general locational tendency changes in this sit-
uation depends on: a/whether the new dynamic sec-
tors have a different spatial distribution in rela-
tion to the old ones; and b/ whether they have dif-
ferent locational tendencies in relation to the spa-
tial organization of the economy.

Relative importance of structural changes as a factor of interregional differentiation of growth

The above considerations permit certain
stages of economic growth to be distinguished in
which the impact of the changing structure of the
national economy on the spatial growth patterns
tends to be particularly marked. The first of these
is the stage of transition from predominantly agri-
cultural economy to an industrial one. When the
economy of a country is undergoing such a trans-
formation in a short time, high structural shifts
are likely to occur in its regions since both de-
terminants of the intensity of these shifts are
present: the initial regional distribution of in-

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dustry is, as a rule, uneven; and the rate of in-
dustrial employment growth exceeds distinctly the
rate for total employment /while the rate of agri-
cultural employment growth is in most cases nega-
tive/. The intensity of the resulting structural
shifts may be, however, highly differentiated among
countries depending on the relative values of the
growth rates for individual sectors as well as for
total emploment, in the respective economies.

The second type of situation characterized
by a strong impact of structural economic changes
on regional development arises in economically
advanced countries in the period of the "shift to
sevice ecomony", which - accrding to one of the
students of the problem - "is bringing about a
fundamental restructuring of both labor markets and
the economic gecgraphy of the country" /Noyelle,
1985, p. 241/. Again, locational tendencies of ser-
vices are not identical with those of industry, and
while the employment growth rates in this stage are
generally lower, there still exists a marked diffe-
rence between employment growth rates in services
and those in other sectors. On the other hand, the
character of structural shift is here different in
its gecgraphical characteristics as compared with
the stage of rapid industrialization, since it is
most marked in the perspective of hierarchical
strata /ranks/ of the urban system. Thus, the likely
effect of this type of structural change is the new
tendency in the evolution of the spatial organiza-
tion of the economy.

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Polish experiences

Both types of spatial changes resulting from
the changing structure of the national economy are
documented by the studies on regional differentra-
tion of economic growth in Poland. In the earlier
studies of the present author /Wróbel 1980, 1985/,
there were calculated, for the period 1950-1978,
the shifts that have occurred in Poland in the
economies of the voivodeships grouped into two
large areas: underdeveloped East and more develo-
ped West. According to these studies, the negative
structural effect of the high share of the agri-
cultural sector in the economy of the East was so
great that the total shift of economically active
population for this area was highly negative, equal
to about 740.000 persons, i.e., almost twice the
volume of the positive shift of nonagricultural em-
ployment totalling 380.000 and resulting in the
greatest part from the industial location policy
favouring the underdeveloped areas. This negative
shift in total employment had its counterpart in
the negative shift of population, which amounted
to about 1.2 million.

As may be seen by comparing the relevant
figures presented above, the effect of locational
policies did not offset entirely the structurally
determined tendency towards greater concentration
of population in the more developed regions; howev-
er, it succeeded in curbing this tendency and di-
minished the interregional income differences /see
Wróbel 1980/, and thus furthered to a considerable
degree the "regional balance" in the process of e-
conomic growth.

Thus far, I have compared the results of regionally directed development policies with the direct consequences of structural changes in the national economy. The indirect impact of these changes, however, also must be taken into account. A contention of my paper is that this indirect impact was a very significant factor of success of regional development policies. In other words, the above described "regionally balanced" growth in Poland was achieved in specific conditions related to the structural characteristics of growth processes that, in turn, were shaped by specific economic policies.

First of all, it must be pointed out that the structurally determined tendencies towards further concentration of economic development in Poland were not very strong, in contrast to the intensity of the processes occurring in most European countries. To demonstrate this, I will change the level of spatial aggregation from the two macro-regions to the whole set of provinces /49 since the year 1975/. In this approach, I will take the value of interprovincial population shifts as a measure of the intensity of the tendencies towards areal concentration /only positive values will be added, since the total of positive and negative shift values is 0 by definition/. As a relevant country of comparison, I will take Spain: a country with a different social and economic system; but otherwise comparable to Poland in terms of area, population number, and number of provinces /50/.

The sum of positive shifts for Spain in the 1960s - a period of rapid industrialization comparable in intensity to Polish - was equal to about

2.600.000 persons, while for Poland only about
580.000; that is, less than one quarter of the
former value. By way of explanation, I draw your
attention to the relatively low rate of outflow
of labour from agriculture. The importance of the
above variable is self evident, since it was the
high rate of decline of agricultural employment
combined with the high share of agriculture in the
economy of less developed   regions that was de-
scribed earlier as the structural component of the
tendency towards the concentration of economic
activities. Decline in agricultural employment is
a variable related to other components of employ-
ment structure and growth, namely to the rates of
change of total employment and nonagricultural em-
ployment, as well as the ratio of nonagricultural
to agricultural employment at the beginning of the
period under consideration.

In the Polish case, the yearly rate of de-
cline of agricultural employment in the 1960s /as
in the proceeding decade/ was very low: -0,8 %;
although the rate of growth of nonagricultural em-
ployment was high /3,5 %/. Yet, the high demand for
labour outside agriculture was naturalized by the
very high rate of growth in the supply of labour
originating from: a/ high natural increase of popu-
lation in the preceeding years /postwar population
boom/; an b/ high, and growing, activity rate, i.e.,
the share of employed persons in the total popula-
tion /0.467, 0.503, and 0.514 in 1960, 1970, and
1978 respectively/. The latter factor, in turn,
basides its demographic determinants, was associated
with the type of economic development model adopted
/i.e., the model of extensive character, relating

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the growth of production mainly to growth of em-
ployment and massive investments, and, to a more
limited degree, to increases in productivity/.

The above refers to a large extent also to
the situation in the 1970s, although the determi-
nants of the interregional population shifts have
changed. The rates of growth both of total employ-
ment /now 0.8 annually/ and nonagricultural em-
ployment /2,6; for industry alone much less/ di-
minished, while the share of agriculture in the
total employment was now lower; consequently, the
rate of decline of agricultural employment rose
considerably /-2,8/. The sum of interprovincial
population shifts has therefore risen, but was
still much lower in comparison to the Western
European countries in the similar stage of struc-
tural transformation.

The second group of "specific conditions"
related to structural characteristics of economic
growth processes that helped to achieve the "regi-
onally balanced" growth in Poland refers to the
relative role of industry in economic development
of the country, as well as to its employment growth
rate as compared with the service sector. The rate
of industrial employment growth in Poland was very
high /see Table 1/ due to the model of extensive-
type development mentioned above. Thus, the share
of industrial employment increase in the increase
of the total volume of nonagricultural employment
in Poland was equal almost to one half /46%/ in
the 1960s, and the 1970s it was still equal to one
third /34%/.

The above figures help us to understand why the regional distribution of additional industrial employment in Poland determined to a high degree the distribution of the increments of tertiary employment /the same is true also of the distribution of investments in the two sectors/. In other words, the industrial location policy, favouring the less developed regions, was determining at the same time to a large extent the regional shifts of the total volume of nonagricultural employment.

Although this dependence of urban growth on industrial development was most marked in the early period of post-war industrialization, it was still important in the 1970s, when the rate of industrial employment as well as its share in total employment diminished. This fact is illustrated by the 1970 - 78 data in Table 2, in which all the provinces of the country have been grouped according to their degree of urbanization in 1970. There may be seen a tendency towards a more balanced growth of urban population, the rates of which were inversely proportional to the initial degree of urbanization. The data demonstrate similtaneously how strongly such a pattern of urban population growth was still conditioned at that time by the intensity of industrial employment growth, even more differentiated in favour of less urbanized regions. However, the more urbanized the provinces, the less their total employment growth was dependent on industry.

Thus, it may be stated that one of the conditions of the efficiency of regional development policy in terms of "balanced regional growth" was the severe sectoral bias in the distribution of investment funds in favour of industry and general under-

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development of services /as well as all types of
infrastructure/; a bias that over the years was
negatively conditioning the efficiency of the na-
tional economy and later constituted an element
aggravating the economic crisis of the late 1970s.

I would like to devote the last part of my
paper to the changes occurring during the time of
the crisis. The year of the last Polish Population
Census /1978/ may be considered as a terminous of
a certain era in post-war economic and regional
development. The subsequent years witnessed a far-
reaching economic and social crisis. For the first
time in Polish post-war economic history, there
appeared such phenomena as a decline in national
income figures, in industrial output, employment,
investments, etc. For the first time also the trends
of changes in the sectoral structure of employment
were reversed: the share of industrial employment
diminished and that of agricultura increased.

In these circumstances, regional development
policy lost its traditional tools and, indeed,
changed character. It became concerned mainly with
reducing the intensity of certain phenomena influ-
encing negatively the role of regions /particularly
environmental pollution/. It is, however, interest-
ing to note that the process of diminishing of in-
terregional inequalities was occurring even in the
conditions of absence of any policy deliberately
promoting it. This finds its explanation in the
fact that the most urbanized and most industrial-
ized provinces were hit most severely by recession.

It should be kept in mind, though, that in
the conditions of socialist economy, crisis or
recession is connected not with lack of demand but

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with inadequate supply. The latter refers both to consumption goods and to production inputs.

The decline in the standard of living was most acute in great cities and urban agglomerations; this, taken together with employment decline, resulted in diminishing to about one half the volume of interprovincial migrations as well as migrations from villages to cities.

In the sphere of production and employment, most vulnerable to the supply difficulties were industries manufacturing final products and other goods of high stages of elaboration: these were mostly located in greater cities and industrial agglomerations. Thus, while industry as a whole experienced a marked employment decline, the latter was highly differentiated in favour of less developed provinces /the least urbanized ones hardly experienced any industrial employment decline; see Table 2, data for 1978 - 84/. Since changes in service employment were similarly differentiaded to the advantage of less urbanized provinces, the rates of total employment change /negative for the national economy/ were again differentiated in favour of these provinces, which even experienced a positive rate of growth for the "least urbanized" class.

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Table 1

Yearly rates of change of total employment and its components /in %/

Sectors;	1960-70	1970-78	1978-84
Total Empl.	1.7	0.8	x/
Agriculture	- 0.8	- 2.8	x/
Nonagricultural sectors	3.5	2.6	- 0.3
Industry	3.6	2.0	- 1.4
Othes sectors	3.3	3.0	0.5

x/ no comparable data available

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Table 2

Yearly growth rates of urban population and employment outside agriculture /socialized sector only/

Voivodships according to degree of urbanization in 1970	Urban Population		Employment outside agriculture /socialized sector only/					
	1970-78	1978-84	1970-78			1978-84		
			Total	Industry	Services	Total	Industry	Services
1. Voivodships containing large urban agglomerations X	1.7	1.2	2.1	1.1	3.0	- 1.0	- 1.7	- 0.4
2. Remaining voivodships with share of urban population:								
over 40 %	2.3	2.2	2.8	2.3	3.2	- 0.2	- 1.6	0.9
30-40 %	2.4	2.5	3.5	3.6	3.4	0.0	- 0.6	1.3
below 30 %	3.2	3.2	4.5	5.4	4.0	1.0	- 0.2	2.0
P O L A N D	2.1	1.7	2.7	2.1	3.2	- 0.3	- 1.4	0.5

x/ Warszawa, Gdansk, Katowice, Kraków, Lódz, Poznan, Szczecin, Wroclaw