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ABSTRACT

The prediction, planning and management of the social development of a rural region presupposed typologization of its communities. This study aimed to: build an overall social typology of the rural communities in Siberia; elucidate the role of employment structure among other type-forming factors of social differentiation; build a special typology of communities by employment structure; investigate the essence and intensity of the shifts in the employment structure between 1967 and 1972; and study the relationship of dynamic shifts in employment to its initial structure in 1967. Data were derived from 2 surveys which described 157 rural communities in Siberia by several social indicators in 1967 and 1972. A "linguistic method" of data processing on computer which combined factor analysis with automatic classification of objects was used. It was shown that the differences in the social status of certain communities were reduced to differences by three factors: social-branch employment structure, educational level, and level of social services rendered to the population. Concurrent examination of the first two factors discerned community types with different social, industrial, and skill structure of employment. The analysis of dynamic shifts between 1967 and 1972 indicated that their nature was essentially different for those community types which were discerned according to the 1967 statistics. (Author/NQ)

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MULTIDIMENSIONAL TYPOLOGY OF RURAL COMMUNITIES AS A MEANS OF STUDYING EMPLOYMENT STRUCTURE (MNOGOMIERNAIA TIPOLOGIA SELSKIKH COMMUNITY KAK SREDSTVO IZUCHENIA ZANIATOSTI NASELENIA)

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Abstract

The paper sets out methods for building a typology of rural communities by means of a linguistic method of data processing on computer combining factor analysis with automatic classification of objects. The study was based on the data on 157 rural communities in Siberia described by several dozen indicators as of 1967 and 1972.

It is shown that the differences in the social status of certain communities can be reduced to differences by three factors, i.e. social-branch employment structure, educational level and level of social services rendered to population. Concurrent examination of the first two factors allowedus to discern community types with different social, industrial and skill structure of employment. The analysis of dynamic shifts over the period of 1967-1972 indicates that their nature is essentially different for those community types which were discerned according to the 1967 statistics.

1. Introductory Notes

The increasing dynamism of the contemporary world, intensification of most social processes, penetration of social shifts into the most conservative elements of society fabric stimulate scholars, sociologists among them, to studying and forecasting the developmental processes. It is not a mere chance that of late in Europe two large-scale international research projects connected with the future of rural communities have been conducted, they were "The Future of Rural Com-

munities in Industrialized Societies" and "Agriculture in the Society of the Year 2000"[1]. In both projects scientists from socialist as well as capitalist countries participated, trying to find out in what ways the countryside will develop in societies with different types of economy, different social systems, different levels of development and different social structure of farming.

For socialist countries with their planned economy, allowing to implement goal-directedly large socioeconomic programs the study and forecast of rural development is of special importance. This is true of the U.S.S.R. also where 40% of population reside in rural areas and about a third of national income is created in agriculture. Industrialization of agriculture and rural socioeconomic development are the foci of the attention of the Soviet state and the CPSU. Only over the last decade the Soviet government has adopted special acts about measures for speedy industrialization of agriculture, development of construction in rural areas, of rural school, services etc. Rural development is studied and forecast by a wide circle of scholars: demographers, economists sociologists, planners, educationalists, medical doctors etc. Similar work is in progress in Novosibirsk too where under the direction of one of the present authors a research project "Prospects of Socioeconomic Development of the West Siberian Countryside" has been being worked out since 1972. This study was dictated primarily by practical needs of social planning and control over the countryside. At the same time it was stimulated, to a certain degree, by the participation in the cross-cultural research project "The Future of Rural Communities in the Industrialized Societies".

The purposes of studying and forecasting processes of rural social development on national or regional scales

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1 The former was initiated by European (Vienna) Center on Coordination and Documentation in Social Sciences, the latter by European Cultural Fund in Amsterdam (Mendras, 1974:468-476; Galeski and Mendras, 1971; Jansen, 1975).

require that two principal notions "rural region" and its "social development" should be defined.

Rural region is a large social-spatial community consisting of many local communities linked with each other, first, by a common political structure, administration bodies, productive and social infrastructures, and , second, by division and cooperation of labour in the spheres of production and social services. The object of our investigation is the Novosibirsk rural region stretching off about 180 thousand km^2. It covers 30 administrative districts and 345 local units, i.e. rural local soviets. The region includes 262 state and 163 collective farms, several dozens of nonfarm enterprises and over 1700 local communities with overall population of about 800 thousand persons.

Social development of a rural region is rather a vague notion. Its most general meaning amounts to changes in rural social structure effected by productive forces and productive relations development in agriculture, by intensified integration of the rural side and the rest of the society and by urbanization of the life style of its population. The specific content of the above processes is essentially different for societies with different socioeconomic systems and previous history.

Agricultural production of the U.S.S.R. is growing on the basis of two types of socialist ownership - state and cooperative. Corresponding to them are two types of enterprises: state and collective farms. Part of farm produce is created in private households which have not been socialized. Over the years of the Soviet power our society has made great progress in rural economic and social development. According to many indicators, including living standard of population, rural living became more equal to urban. At the same time it perceptibly lags behind it by cultural, social and consumer services rendered to population. Farm work is less skilled than industrial, rural people are less educated than urban. All this is reflected on the life style of rural population, less advanced comparing to the life style of urbanites.

In this context, the basic meaning of social development of rural regions is amelioration and complication of their productive, economic, spatial, social and cultural structures, intensification of linkages between them and, on this basis, gradual equalization between rural and urban life by productive relations, content of work and working conditions, by social services rendered to population, by living standard and life style.

Internally integral but compound and multi-sided process of social development of a rural region can be presented as a set of many relatively independent components. The main of them are the following.

1. Changes in employment level and structure of productive population, representing industrialization in agriculture, increased shares of services and industry in agrarian-industrial complex (agribusiness), the development of rural social infrastructure. The employment of rural population in agriculture tends to decline, and in industry and services, to grow. In the farming itself the employment structure is also changing, reflecting higher socialization of labour. Increasingly higher proportion of working time of rural population is spent in public sector and lesser in private economy. Within the public sector the proportion of working time spent on state enterprises is growing up at the expense of the reduction in the proportion of collective farms.

2. Consolidation of rural settlement pattern and development of transportation connections. The exceeding dispersion of rural settlement pattern which was historically inherited is one of the principal brakes on rural economic and social development. According to this, the Soviet state facilitates gradual consolidation of rural inhabitants in more modern and relatively self-consistent settlements. It is supposed that by the end of the XX century out of 460 thousand rural communities which existed in the U.S.S.R. in 1970 not more than a third will remain, the rest of them will be changed to nonresidential seasonal production points. Local governmental bodies, state and collective farms have begun already

to consolidate the construction of dwellings and consumer facilities mainly in settlements which will be developed. Spontaneous migration is also directed from comparatively small outdated to large settlements which leads to gradual redistribution of inhabitants between these settlement types. Rural settlement pattern is improved also by constructing good roads connecting rural hinterland with central communities, and the latter with small and large towns and cities.

3. Development and improvement of social services leads to the rise of rural population proportion in the total volume of consumption of social, cultural and consumer services, of public consumption funds. This is achieved by accelerated construction in rural areas of new shopping facilities, canteens, multiple services establishments, hospitals, dispensaries, schools and other learning institutions, kindergartens and nurseries, Houses of Culture, clubhouses, libraries, multi-purpose sports centres. Not less of a role is played by manpower formation and consolidation: increase in number and skills of medical manpower, school teachers, workers of trade, culture, consumer services and the like.

4. Social development of rural population which manifests itself in higher educational level, social participation, improvement in the structure of their needs, higher culture and spiritual consumption.

It stands to reason, that identification of these components of rural social development is rather conventional. Various facets are interconnected and must be studied concurrently.

The development of structural elements of a rural region is as a rule uneven so as averages of their shifts do not display complicated and sometimes contradictory picture of changes in different types of communities. According to this, prediction, planning and management of the development of a rural region presupposes typologization of its communities, i.e. dividing them into relatively homogeneous types, perceptibly differing from each other by achieved level and kind. The present paper attempts at:

1. building an overall social typology of the communities of the rural region under consideration;

2. elucidating the role of employment structure among other type-forming factors of social differentiation of communities;

3. building a special typology of communities by employment structure;

4. investigating into essence and intensity of shifts in employment structure of identified types of communities over the period 1967-1972;

5. studying the relationship of dynamic shifts in employment to its initial structure in 1967.

2. Factors Differentiating Social Statuses of Communities

Data describing the level of social development of rural communities have been derived from two sociological-statistical surveys based on a single sampling design and comparable programs. The first of them was conducted in 1967, the second in 1972. The sample stratified by several variables and representative of the Novosibirsk province was constructed in three stages. On the first stage 14 out of 29 districts of the province have been selected by means of taxonomy method, on the second, 34 rural local soviets out of 185 were selected by the same method, on the third, every fifth occupied residence of this local soviet was selected mechanically. The sample proved to be representative of the province by all recognized variables, namely: state-to-collective farms population ratio, degree of concentration or dispersion of settlement pattern, net migration, distance from railway stations and from districts and the province centre. Tested were all the communities of the sampled rural local soviets. In 1967 they were 212 (the smallest one-household homesteads among them), and by 1972, as a result of consolidation, they were 171. To build a typology, selected were 157 such communities which in 1967 had 100

and more inhabitants. We have dropped out from the analysis the smallest populated points which accounted in the same year for as little as 1.2% of population.

To build a typology two identical data arrays were formed for 1967 and 1972 which included the values of recognized social indicators for each of 157 communities. The typology of our concern was to be based on a sufficiently broad set of variables describing different facets of community social development. In this connection it should be noted that most typologies of rural communities described in literature are based on extremely limited sets of variables, ranging 1-2 to 8-10 (Galeski and Szemberg, 1969; Planck, 1973; Sianko and Turski, 1968). This is mainly due to technical difficulties in building multidimensional classifications under manual or only slightly mechanized counting rather than to authors' standpoint.

The use of computers opens fundamentally new opportunities in this field removing technical limitations on the number of recognized variables. We had at our disposal a computer program (Braverman et al., 1971; Braverman et al., 1974), which made it possible to analyze simultaneously data about several dozens of variables. According to this, a wide circle of variables was used for task solution, originally their number was 39.

To build a typology a "linguistic method" was used which combined algorithms of extreme grouping of parameters and of automatic classification of objects. The first stage in the use of this method is factor analysis of the property space of a typology. It permits, on the one hand, to sharply reduce the number of relatively independent "axes" by which the objects are evaluated and, hence, to make the typology foreseeable; on the other, to get a deeper knowledge about the structure of the phenomenon under study.

The used algorithm presupposed the interaction with a machine aimed at active construction of the typology property space adequate to theoretical concepts. This was achieved through the analysis and evaluation of the "be-

haviour" of each variable and by consistently dropping out those which were characterized by not quite good information or were included without due consideration.

Working over the variables we tried to get such type-forming factors which would be adequate to requirements of interpretability and social significance, compactness, relative independence of each other (i.e. essentially lesser association between themselves than with variables included into them), informative reliability (when joining several variables), steadiness against the increase in number of identified factors, retaining the same structure in 1967 and 1972. The latter requirement was due to the attempt at finding out true regularities of the phenomenon under study, its "true" inner structure exempt of fortuities.

In effect, the behaviour of each variable was tested for three interrelated criteria: the ability to be incorporated into "good" factors with high enough loadings, steadiness of "behaviour" at increased number of discerned factors, as well as being included in 1967 and 1972 into the same factors. Proceeding upon these criteria, 13 variables were rejected and 26 retained for subsequent use. Later on we list them structured according to the foregoing concept about the components of rural social development.

A. Employment Structure

1. Social-branch type of the enterprise on whose basis the community exists (rank index: 1 - collective farm; 2 - state farm; 3 - auxiliary farm of an urban enterprise; 4 - nonfarm enterprise). Ascending values of this index reflect two interrelated but comparatively independent processes: the shift from farm to industrial specialization and from collective to state ownership.

2. Branch complexity of material productive sphere (number of industries).

3. Percentage farm employed in productive population, %.

4. Percentage productive population employed in manufacturing, %.

5. Percentage of productive population employed in services, %.

6. Average annual income from private economy, roubles per family a year.

B. Place in Habitation

7. Administrative functions of the community (rank index: 3 - district seat; 2 - centre of local soviet; 1 - ordinary community without centrality function).

8. Place of the community within intrafarm habitation and its productive functions (rank index: 3 - central farmstead, 2 - division centre; 1 - ordinary community).

9. Population size, persons.

10. Distance from central farmstead, km.

C. Development of Social Services

11. Diversity of nonproductive sphere (number of industries).
12. School services level (index)
13. Medical services (index)
14. Consumer services level (index)
15. Shopping facilities level (index)
16. Catering level (index)
17. Post services level (index)
18. Library facilities level (index)
19. Clubhouses provision level (index)
20. Children's preschool institutions provision, % of children attending them.
21. Percentage of families in tenancy of enterprises, %.
22. Number of jobs in shops.

D. Social Development

23. Average years of comprehensive schooling per worker, years/persons.
24. Average years of vocational training per worker, months/persons.

25. Percentage of workers at least eighth-grade graduates.

26. Percentage vocationally trained workers, %.

The selected variables have been step by step joined by extreme grouping method into 2, 3 and 4 factors. As the best alternative resulted in 3 factors, whose composition was the same for 1967 and 1972 was chosen. The first factor included 5 variables four of which described the employment structure in sphere of material production. These are: social-branch type of the enterprise of the community, percentage productive population employed in farm and manufacture as well as average size of private households indicating by indirection the amount of time spent on them. The fifth variable turned to be the proportion of families in tenancy of enterprises.

The second factor included 17 variables reflecting the degree of centrality and services. Here included were indexes of administrative and productive significance of communities: distance from central farmsteads of appropriate collective or state farms, indexes of diversity of social production; percentage of population employed in services as well as indexes of the development of all specific forms of services.

The third factor brought together 4 variables characterizing the level of comprehensive and vocational training of the population.

The relationship of groups of parameters forming development components, on the one hand, to statistically emergent factors, on the other, are set out in Table 1 (Table 1).

The finding of statistical analysis have validated in general the theoretical hypothesis of the structure of rural social development process. The majority of theoretical components of this process proved to be enough associated as most of their indicators were related to a single factor.

At the same time the results of factor analysis specify the initial hypothesis of ties. Thus, they show that the characteristics of settlement pattern and of social services form one, instead of two, component of the social development of the community, since the variables characterizing

them change in the closest interrelationship with each other. The variables of material productive sphere diversity and of the employment in services hypothetically related to "employment structure", in effect were more closely associated with the factor of social services. On the other hand, the indicator "percentage of families in tenancy of enterprises", despite the theoretical hypothesis, was joined to the factor of employment in material production instead of social services. This is due to that the extent to which workers are provided by enterprises with tenancies, above all, depends on social-branch type of enterprise: in collective farms it is minimal, in state farms - medium and on nonfarm enterprises high.

Table 1

Variables distribution among theoretical components and statistical factors of development

Theoretical components of social development	Number of variables related to factors of			
	employment in material production	level of social services	educational level	Total
Employment structure	4	2	-	6
Settlement pattern	-	4	-	4
Level of social services	1	11	-	12
Level of social development	-	-	4	4
T o t a l	5	17	4	26

3. Classification of Communities by Employment and Education of Population

The classification of communities was done separately by each factor consecutively into 2, 3 and 4 classes. By factor of employment in material production the most interes-

ting substantively was the division into 3 classes designated by us as agrokokhoz, agrosovkhoz and suburban-industrial. Double names of each class indicate, on the one hand, the key employment sphere of community members (agriculture in the first and second classes, industry, construction, transport and services in the third) and, on the other, the social type of the enterprise (collective farms in the first class, state enterprises in the second and third). Comparative packing of the identified classes and their social-branch employment structure in 1967 were characterized by the following indicators (Table 2).

Table 2

Social-branch employment structure in community classes compared

Indicators	Community classes		
	agrokolkhoz	agrosovkhoz	suburban-industrial
Total number of communities in a class	66	73	18
Ditto in % to all population classed	42	46	12
Percentage rural population per appropriate community type, %	26	52	22
Percentage of communities existing on the basis of:			
collective farms	71	7	-
state farms	29	93	27
nonfarm enterpises	-	-	73
Percentage productive population employed in:			
agriculture	70	56	13
manufacturing	4	8	39
Average family income from private economy, roubles/year	1397	919	521
Percentage of families in tenancy of enterprises	7	42	47

As is seen from the given data, the social-branch employment structure of the identified types is fairly different.

Under the first class 42% of communities with 26% of population were subsumed. They are characterized by the lowest level in production socialization. The majority of them exist on the basis of collective farms, the minority on the basis of economically weak state farms. Employment structure is purely agrarian: in agriculture employed are 18 times as many workers as in manufacturing. Much labour is spent in private households of large sizes. Dwelling resources are almost entirely single-family owner-occupied houses.

The second, the most widespread and packed class of rural communities in the region, included 46% of communities with 52% of population. Its characteristic features are on the one hand a higher level of socialization in occupational and household spheres (private household size three-fifths and socialized housing resources 6 times as large) and on the other equally low industrialization of productive sphere (percentage employed in manufacturing one seventh as high as in agriculture). The overwhelming majority of this class communities exist on the basis of state farms and only a very small part on the basis of highly advanced collective farms.

The third class unites comparatively large nonfarm communities (12% of communities with 18% of population). These are railway stations, construction settlements, health resorts, fringes of large cities. 13% of their population are employed in farming, i.e. about three-tenths as those in manufacturing. Private households are rather small (they are one-third as large as in the first class and half that in the second) which is due to well organized provision of food products by shopping facilities. The proportion of state-owned dwellings is somewhat higher than in the previous class.

As is seen, the division by this factor has allowed us to identify the community classes sharply differentiated by social and branch employment structure.

By education factor two classes have been discerned. Under the first of them, with less educated population, 51% of communities with 30% of population were subsumed; under the second, with a more educated population, 49% of communities with 70% of population. The difference in average schooling of the population for community classes compared is given in Table 3 (Table 3).

Table 3

Schooling differentials by community classes compared

Indicators	Community classes	
	with less educated population	with more educated population
Average years of comprehensive schooling, years	4.5	5.6
Percentage of workers 8-10-grade graduates, %	26.4	43.1
Average months of vocational training, months	3.7	6.6
Percentage vocationally trained workers, %	36.7	44.2

What community features are lying behind different educational levels of population? What causes more educated people to be accumulated in some communities and to move from others?

It seems to us that the main mechanism differentiating communities by this factor is human migration. Migrating population is marked by a considerably higher educational attainments than stable (Zaslavskaia, ed., 1970). For this reason inmigration to a particular community facilitates growth in average educational level of its residents , and outmigration , its decline. From this perspective, it would be reasonable to suppose that educational differentials in communities reflect the accumulated migrational consequences for the previous period. Migration, in its turn, reflects the differences in working and living conditions of the population. The indirect evidence to these considerations

are data characterizing the interrelationship of rural communities distribution by population education and by services level. 93% of communities with less educated population have low services and only 7% high services, whereas for communities with more educated population these figures were 56 and 44%. On the other hand, 62% of communities with low services have less educated and only 38% more educated population, whereas among communities with high services 14% have less educated and 86% more educated population.

The intersection of the above considered classifications of communities by social-branch employment structure in material production and by educational attainments of population enables us to obtain a two-dimensional typology by employment character of population. The packing of its types permits us to judge whether the factors tested are interrelated or not (Table 4).

Table 4

Joint distribution of communities among the classes of social-branch employment structure and of population education

Community classes by social-branch employment structure of population	The proportion of communities related to classes with		The proportion of classes to total communities with	
	less educated population	more educated population	less educated population	more educated population
Agrokolkhoz	60	40	51	32
Agrosovkhoz	48	52	44	50
Suburban-industrial	22	78	5	18
T O T A L	51	49	100	100

The Table indicates a sufficiently close association between social-branch employment structure of population and its educational level. Sovkhoz communities as a rule

have more educated population than kolkhoz and suburban-industrial more educated than agrarian. Therefore, the type of suburban-industrial communities with less educated population is almost empty: it accounts for less than 3% of communities and 1.5% of population.

The close relationship between the analyzed employment aspects seem natural as the economy of communities with a more advanced social-branch structure demands for more skilled workers. Redistribution of population among the communities according to their demand for manpower occurs through migration. Skilled labour and the youth secondary school graduates leave the community where there is no demand for their training and move to where they are supplied with jobs to pursue their trade. On the other hand, human migration depends not only on jobs but on workers' needs in certain living conditions, services, dwellings etc. If these needs cannot be satisfied, even that part of skilled labour which is needed for filling the available vacancies is motivated to leave. According to this, the communities with more educated and skilled population (with the same employment structure) can be viewed as socially advanced and with less educated population as weakly advanced or nonadvanced. In this case we shall have five types of rural communities by employment structure whose characteristics (for 1967) are given in Table 5: 1) suburban-industrial (12% communities, 22% population), 2) advanced agrosovkhoz (24% communities, 35% population), 3) weakly advanced agrosovkhoz (22% communities, 17% population), 4) advanced agrokokhoz (16% communities, 17% population) and 5) weakly advanced agrokolkhoz (26% communities, 12% population).

The given data will illustrate a "two-dimensional" nature of the obtained typology where indicators of social-branch employment structure and of workers' educational level are to a certain degree independent. Thus, the fourth community type differs from the third by less advanced employment structure (higher proportion of unsocialized labour in private economy and higher percentage employed in manufacturing),

Table 5

Population employment in different types of rural communities

Indicators	Community types				
	suburban-industrial	agrosovkhoz		agrokolkhoz	
		advanced	weakly advanced	advanced	weakly advanced
Percentage population employed: in manufacturing	39.6	10.1	5.0	5.2	3.8
in agriculture, %	13.3	51.5	61.5	68.2	69.0
Average income from private economy per family a year, roubles a year	521	839	1008	1340	1372
Percentage of workers:					
high school graduates	44.6	42.2	25.8	38.4	21.1
vocationally trained	38.3	47.4	34.7	45.4	33.9
Average vocational training, months	6.5	7.0	2.9	6.0	3.2

but at the same time by a higher level of education of the population. The same applies to the second and first types. On the whole, however, the identified community types form a sort of scale of the development of social, branch and skill structure of rural population employment.

4. Dynamic Shifts in Employment Structure by Community Types

In 1967-72 there occurred appreciable shifts in the employment structure of rural population of West Siberia and, hence, in tested group of communities. According to our data, the average percentage of farm employed has decreased 56.5

down to 49.2% and that of employed in manufacturing has grown up from 9.9 to 12.4%. Income from private economy per family has decreased from 1069 to 975 roubles a year which was due to intensive involvement of women into public sector of production. All indicators of education have risen up. Thus, average comprehensive schooling among workers of rural public sector increased by half a year, and vocational training by 1.5 month. Percentage of 8-10-grade graduates has increased from 36 to 43%, percentage vocationally trained 42 to 50%. The mentioned shifts resulted from the implementation of the program of industrialization of agriculture outlined at the March Plenum (1965) of the CPSU.

Were there any differences in the nature of employment changes in these types of communities, or did all of them develop in parallel: in the same direction and at about the same rates? To answer this question, we shall examine the changes in average figures of employment and education in each community type during the five-year period (Table 6).

Employment structure shifts in all community types were of progressive nature. The rates of these shifts, however, were rather diverse. Thus, the stablest proved to be the social-branch employment structure in suburban-industrial communities which achieved a fairly high socioeconomic level as early as at the beginning of the period under consideration. Percentage farm employed which even at that time was as little as 13.3% came down to 8.2%, employed in manufacturing and construction remained practically unchanged, and in transport, communications and services went slightly upward. As a result, the specific features of this type as centres of intersettlement services and at the same time of industrial servicing of agriculture can be seen the more vividly.

Having comparatively large size (on the average over 1200 inhabitants per community) and high level of services, suburban-industrial communities attract rural population. In 1967-72 they had the highest figures of inflow and the lowest of outflow and, in consequence, the percentage of this type

Table 6

Employment shifts by community types

	1967-72 shifts					1972 figures				
	community types									
	suburban-industrial	agrosovkhoz		agrokokhoz		suburban-industrial	agrosovkhoz		agrokolkhoz	
		advanced	nonadvanced	advanced	nonadvanced		advanced	nonadvanced	advanced	nonadvanced
Percentage employed in:										
manufacturing	0.2	2.9	3.0	8.1	1.1	39.8	13.0	8.0	13.3	4.9
agriculture	-5.1	-12.9	-3.5	-16.1	-3.5	8.2	38.4	58.0	52.1	65.5
Average income from private economy, roubles	8	-11	-2	-146	-244	529	828	1006	1194	1128
Percentage of workers:										
10-grade graduates	-1.0	4.6	11.4	4.6	15.1	43.8	46.8	37.2	43.0	36.2
vocationally trained	19.0	1.8	11.5	10.6	14.1	57.3	49.2	46.2	56.1	48.0
Average vocational training, months	1.7	0.9	2.2	1.8	3.5	8.2	7.9	5.1	7.8	6.7

in total population grew up from 22 up to 25%. It seems that positive net migration was one of the mechanisms to secure appreciable rise in vocational training attainments of population. The percentage of persons vocationally trained rose up from 38.3% to 57.3%, or one time and a half, average months of this training from 6.5 to 8.2, or about one time and a fourth. This made it possible for suburban-industrial communities to shoot up ahead of other types by the level of vocational training of workers. As to general education, no changes took place.

In the most numerous and most "packed" type of advanced agrosovkhoz communities the percentage employed in manufacturing has moderately grown up (from 10.1 to 13.5%), in agriculture perceptibly lowered (from 51.5 down to 38.4%), in services, transport, communications, trade it has gone up also. At the same time, educational attainments, both comprehensive and vocational, have risen up not very much, may be because in 1967 it was already highest.

In contrast to this, social-branch employment structure of weakly advanced agrosovkhoz communities remained nearly the same. Private households remained the same, employment in manufacturing has grown up by 3 percentage points at the expense of equal decline of farm employment, employment in services remained as it had been. The growth rates of educational attainments and skill upgrading by workers, however, in communities of this type were much higher than in previous As a result, large gap in this areas observed in 1967 sharply diminished toward 1972. In fact, at the beginning of the period considered the difference between advanced and weakly advanced agrosovkhoz communities by percentage of workers 10-grade graduates was 16.4 percentage points (42.2 and 25.8%, respectively), and in 1972 only 9.6 percentage points (46.8 and 37.2%, respectively). The difference between these community types in percentage vocationally trained workers was reduced the more: from 12.7 percentage points in 1967 down to 3 points in 1972, and the difference in average extent of vocational training has decreased from two-fifths

to three-fifths. Obviously, this was a consequence of two social processes: first, of industrialization in agriculture and increase in demands on farm manpower, and, second, shift to compulsory high school attendance implemented in all community types irrespective of employment structure.

A distinctive feature in the dynamics of employment in agrokolkhoz communities were highest rates of industrialization in the sphere of material production. Percentage employed in agriculture has lowered down here by 16.1 percentage points, i.e. more than in any other community type. Percentage of employed in manufacturing, however, has increased by 8.1 points (from 5.3 up to 13.3%), i.e. two times and a half. In 1967 advanced communities of agrokolkhoz type were characterized by more agrarian employment structure than weakly advanced agrosovkhoz ones, but by 1972 the opposite situation occurred. More than that, advanced agrokolkhoz communities, by nature of branch employment structure, closely approached advanced sovkhoz type. The sizes of private households of kolkhoz and sovkhoz population also became more similar. All these processes resulted from the fact that two types of socialist property in farming, i.e. state and kolkhoz, became more similar. Comprehensive educational attainments of workers in this community type were rising at moderate rates, and in 1972 were also at a medium level. The growth rates of vocational training, however, were rather high in spite of high initial level of appropriate indicators in 1967. As a result, by 1972 the communities of this type had about the same educational attainments of population as the most advanced suburban-industrial type. Further research is needed into the reasons underlying this fact.

The dynamics of the last community type, i.e. weakly advanced agrokolkhoz, are also of interest. We should note that this type includes the smallest communities having as few as 100-150 inhabitants each. As a rule small kolkhoz divisions are situated in them. To locate here industrial, construction or transport divisions would be economically unreasonable because of their remoteness from central farm-

steads and of labour deficiency. This community type, moreover, is marked by the most intensive exodus of population whose size over five years came down to three-fourths of what it had been before. The foregoing explains a single-branch agrarian kind of employment and lack of whatever appreciable shifts in this respect over the five-year period. The lagging behind of social-branch employment structure in these communities which had been evident in 1967 already became in 1972 rather substantial. This circumstance may be regarded as a token of the lack of vitality in this group of communities under the conditions of urbanization and industrialization of the countryside. On the other hand, growth rates in educational attainments and skills of population are here highest among all other community types. While in 1967 weakly advanced agrokolkhoz communities were characterized by the lowest educational level, toward 1972 in the field of vocational training they even somewhat outran the corresponding group of sovkhoz communities. We can anticipate that quick rise in general and vocational educational attainments of workers in combination with absolutely stable branch structure of jobs forms a contradictory type of employment development and, in particular, becomes a reason for higher out-migration.

CONCLUSIONS

The conducted study permits us to formulate some general conclusions.

1. Differences in the level of social development of rural communities in West Siberia can be reduced to three comparatively independent factors. Two of them, i.e. social-branch employment structure and educational attainments, considered together, form a specific typology of communities by character of social, branch and skill employment structures. According to this typology, rural communities of the area under investigation are divided into five distinct groups which in 1967 accounted for 22, 35, 14, 17 and 12% of popu-

lation, respectively. These groups of communities exist on the basis of different types of enterprises (collective, state and auxiliary farms, manufacturing enterprises etc.) and are characterized by fairly diverse branch employment structure. Thus, in 1972 in suburban-industrial communities manufacturing-to-farm employment ratio was 5:1, and in weakly advanced agrokolkhoz communities 1:13.

2. In most of rural communities of West Siberia rather intensive reconstruction of branch employment structure takes place. The percentage employed in farming decreases, and in manufacturing and other industrial branches increases. Simultaneously general and vocational attainments are rising rather appreciably.

The nature of shifts in branch and skill employment structure is rather differentiated for community types discerned with due recognition of their initial employment structure. The following patterns can be observed. Differences in branch employment structure in kolkhoz and sovkhoz communities are being levelled off, though slowly. Differences in this structure between socially advanced and weakly advanced communities of both agrarian types, conversely, are essentially increasing since industrialization process of production, development of manufacturing, construction and transport affects almost solely centres of farms marked by higher developmental level. Differences in general and vocational educational attainments, finally, tend to be levelled off as the highest growth rates of these indicators are observed in community types which earlier were lagging behind.

All this permits us to conclude that it is more expedient to study shifts in employment structure not only in intermediate but in different types of rural communities having different conditions and different developmental prospects.

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