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Abstract: The paper is an attempt to study socio-political conflict in czarist Russia using the combined techniques of static and dynamic analyses under certain economic and political parameters. The study used multiple variables to measure SPT (Socio-Political Tension) for the period from 1895 to 1913, both for the empire as a whole and for the 49 Governements West of the Urals. In our study, a model of SPT was constructed that has the potential for giving us more precise ideas about the causes of political stability. Chronological cluster analysis was shown to be useful in generating a typology of different periods of revolutionary movement in Russia and also permitted the mapping of variables at the regional level. A database was gathered that can be used for further analysis. Some correlations were revealed that were previously unknown to scholars of revolutionary movements in Russia.

Quantitative studies of interior socio-political conflict began not very long ago. These studies became possible as a result of recent theoretical work. (1) Specific studies have appeared that deal with concrete problems in agrarian (2) and industrial (3) developments, as well as the history of labor movements (4). The appearance of these studies in the USSR is connected with studies of internal socio-political tension (SPT) in other parts of the world, particularly American studies of socio-economic and socio-political processes. Several methodological approaches have been tried, and a wide spectrum of topics have been explored, such as: work on the comparative analysis of revolutions (5), on scales of intensity of conflicts (6), interrelation of domestic and international conflicts (7), different static models of internal conflict in specific countries (8).

Nevertheless, some American historians hold the opinion that there are problems which have yet to be explored. One of the leading historians in

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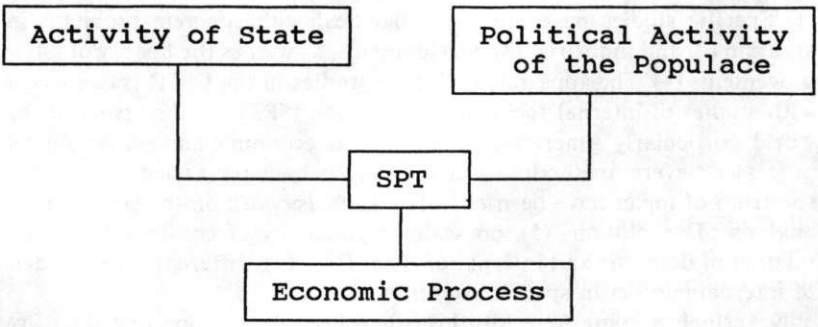
this field wrote not long ago that there is a lack of dynamic socio-political models for socio-political conflicts. (9) In the last few years, works have appeared in Western Europe devoted to the creation of dynamic models of socio-political tension and problems of political stability. Project Globus in Berlin used a systems approach to the problem of political stability, considering a combination of international, internal and economic factors.

The present paper is an attempt to study socio-political conflict in czarist Russia using the combined techniques of static and dynamic analyses under certain economic and political parameters. The character of statistical material used for the analysis of SPT in Russia should be described first. Not all of the data used in the model are equally representative. Most of the data used to define SPT describe the empire as a whole, but some are local in character. For studies of SPT, a knowledge of contemporary public opinion is important. Libraries in both Moscow and Petersburg contain abundant and interesting local material which covers the entire period from 1895 to 1913, providing statistics on who were the readers in these institutions and about what kind of literature they read.

SPT may be studied from different points of view. One may study the influence of economic, political, psychological and ethnic problems on this process. The authors of this article have published an analysis of SPT with the help of a database containing information about political institutions in Russia (Ministry of Internal Affairs, Ministry of Finances, the Defense Ministry, labor unions, etc.). (10) In this article, the database that was compiled is considerably larger because new data has become available with which SPT can be determined from a broad popular base instead of solely from the perspective of institutions at the top of the political hierarchy. This approach is diagrammed as follows:



Activity of State Political Activity of Economic Process was studied for the empire as a whole and in the separate 49 Governments (provinces). This approach will helps to analyze the scale of class conflict and to make a

typology of SPT from both a regional and chronological perspective. The period of study was chosen for the following reasons: the year 1895 began an important period that preceded the first revolution of 1905; the year 1913 was the year before WW1. During the War, the political situation in Russia changed so quickly that the data should be analyzed from month-to-month and such precise data almost unavailable. Two years were selected for analysis of SPT in the provinces, 1901 and 1910. They were chosen for analysis for the following reasons: comparable statistics are only available for these two years, and historians who study this period agree that both of these years mark the beginnings of periods of SPT in Russia, in the first case, the conflict prior to the revolution of 1905, and in the second case, the period of intense unrest before WWI.

During the entire period under study, the political system of Russia was a czarist autocracy. Manifesto 17.10.1905 did not change the political structure of the country. The system can therefore be considered to have been stable. From the point of view of a systems approach, this stability allows us to consider the ties between the elements of the system to be constant. The character of the political system did not change and the causes of the emergence of SPT were constant through the period. This situation was considered when the model of SPT was constructed. An assumption was made that only quantitative changes in the element took place, and that the ties between the elements were constant.

In the first stage of the work we tried to take into account as many factors that define SPT as possible. As a result of work in the archives and libraries, the following elements were included: 1) daily mean average of prisoners; 2) number of soldiers that were called to deal with situations of unrest; 3) annual number of such calls; 4) annual ratio between the openings and closings of popular journals and newspapers; 5) total number of people in prison during the year; 6) all military expediture; 7) number of man-days lost as a result of strikes; 8) average mean of prisoners in penal servitude institutions (hard labor camps); 9) expenditures on Synod; 10) expenditures on the Ministry of Education; 11) expenditures on prisons; 12) number of peasant revolts; 13) number of consumer and producer societies allowed by the government; 14) number of books prohibited by the official censors; 15) number of arson fires set by peasants; 16) annual number of all fires; and 17) financial losses connected with fires. The 17 elements just outlined (11) characterize SPT in the entire empire. Each element is representative because it is not an arbitrary selection, but rather, aggregate data for the entire empire.

Together with these materials, another kind of statistical data was used that described some of the regions mentioned above. Popular journals and newspapers provide an index of public opinion of the time. Because of the lack of data for the entire empire, we used data from only Petersburg and

Moscow where the educational level was higher than the average for the whole. This approach is valid because public life was intense in Petersburg and Moscow. Not by chance, the first three revolutions began in Petersburg. Statistical materials on public opinion were consulted at the Emperor's Public Library in Petersburg and the Rumjantsev Museum and the Turgenev Library in Moscow. From the Emperor's Public Library in Petersburg, the following data were taken: 18) total number of books and newspapers consulted by readers; 19) annual number of new reading cards issued (PLP); 20) annual number of reading cards issued to peasants (PLP); 21) annual number of reading cards issued to petit bourgeous (PLP); 22) annual number of reading cards issued to female readers (PLP); 23) gross number of readers admitted per year (PLP); 24) annual number of historical, political and legal books consulted (PLP); and 25) annual number of books on religious subjects consulted (PLP). Data from such a variety of categories were not available at the other libraries. The Rumjantsev Museum in Moscow had the following data: 26) annual number of new reading cards issued; 27) gross number of readers admitted per year; and 28) annual number of requests for books. At the Turgenev Library, only one class of data was available: 29) gross number of readers admitted per year.

The next stage of the work was to find out which of the above elements had a stabilizing or destabilizing effect on the political system. A correlation analysis was tried. Some factors were found to have contributed to the destabilization of czarist autocracy and strengthening of SPT. For instance, it was found that there exists a high correlation (0.8) between military expenditures and the number of lost man-days due to strikes. In this case it is possible to say that the growth of military expenditures was parallel with the decrease of the standard of living and contributed to the level of SPT. Other dependencies were found between the number of peasant readers at Petersburg and the number of arson fires set by peasants (0.91) and between the number of arson fires set by peasants and the number of petit bourgeous readers at Petersburg (0.73). This correlation is not coincidental. This argument is supported by high correlation between such factors as the total number of readers in the Rumj. Library in Moscow and the number of arson fires set by peasants (0.95) and the number of readers in the Turvenev Library in Moscow and the number of arson fires set by peasants (0.6). The coefficient of correlation for the Turgenev Library is small because there were no data for 1910, 1911, and 1912, and these gaps were filled by interpolation.

Though these correlations might seem illogical, they can be explained. The population of Russia was categorized into different strata for statistical purposes. Many of those classified as peasants lived in Petersburg and were not peasants at all. The peasants in the countryside voiced their pro-

tests by setting arson fires. With increasing unrest, the »so-called« turned to libraries and informed themselves about conditions.

Confirmation of this idea is suggested by the correlation between the number of arson fires set by peasants and the character of literature that was requested by readers. There is a high correlation (0.7) between the annual number of historical, political and legal books consulted with the number of arson fires set by peasants. But the correlation between the annual number of books on religious topics with the same factor is negative (-0.5), and the correlation between the annual number of books on historical, political and legal books with the annual number of books on religious topics consulted is small and also negative (-0.2). Library statistics appear to provide a ready means for studying socio-political tension.

Some conclusions may be drawn with the help of correlation analysis by examing correlations between expenditures on synod and education and other elements mentioned above. At first it was found that expenditures on Synod and the annual number of books on religious topics consulted had a negative correlation (-0.51). Expenditures on religious institutions apparently did not have much effect on the reading public. A notable correlation (0.84) was found between expenditures on Synod and the daily mean average of prisoners. From this correlation the conclusion can be drawn that, even with increasing expenditure on Synod (from 1895 to 1913, expenditures on Synod increased five times), the activities of the church did not produce a stabilizing effect resulting in the reduciton of SPT. On the other hand, the high correlation between the daily mean average of prisoners and expenditures on Synod may be explained in the following way: the state considered the church as a stabilizing factor, and while the SPT was growing, as indicated to the authorities by the growth of the number of prisoners, the state increased its expenditures on Synod.

Sometimes not only the high correlations are of interests, but low correlations allow the drawing of conclusions. At first, it seems that a high correlation should exist between the number of peasant revolts and the number of arson fires set by peasants. In this case correlation analysis gives a very low coefficient (0.37). Two explanations are suggested. One is that the setting of arson fires, as a phenomenon, is entirely unrelated to the character of peasant revolts. The second is that the method of counting peasant revolts itself is at fault because there are really no standard criteria for defining peasant revolt.

As we have seen, the study of these elements by pairs permits the drawing of certain conclusions about the dynamics of SPT that are not forthcoming through the use of traditional methods of historical research. The investigation was carried even further, and the data were subjected to multivariate chronological cluster analysis. Each year was considered to be a cluster consisting of a number of elements. The method commonly used

in historiography for measurement of SPT is based on the analysis of single variables, such as the number of strikes, the number of lost work days, and so on. This method gives some idea of the dynamics of SPT, but by taking into account a larger number of variables, a more precise result can be obtained. The remainder of the study is devoted to a multivariate analysis of SPT.

The same period of study, from 1895 to 1913, was chosen. Chronological clusters were constructed for the 19-year period. An agglomerate hierarchichal method of cluster analysis was used. In this method the distance between two clusters is measured as a mean square of distance between all those pairs of objects where one of them belongs to one cluster, and the other, to another. The metric used in this method was Euclidean distance. (12) Each year from 1895 to 1913 was considered to be a »step« in cluster analysis. As a result, each year that was characterized by a number of definite features appeared to be in some cluster. These clusters could be defined as pre-crisis, crisis or post-crisis, and so on. Two groups of factors were taken to characterize SPT at the level of the empire. The first group was the following: 1) daily mean average of prisoners; 2) number of soldiers that were called to deal with situations of unrest; 3) annual number of Special Journals of the Council of Ministers; 4) number of trade unions; 5) annual ratio between the openings and closings of popular journals and newspapers; 6) total number of people in prison during the year; 7) all military expediture; and 8) number of man-days lost as a result of strikes.

The results of clusterization on the whole coincides with the well-known results obtained by traditional scholars who studied the revolutionary movement in the Russian empire in this period. The year of 1905, that was the year of the first revolution, was a single-element cluster, situated far (0.4) from other clusters. (The maximal distance of the whole cluster uniting all 19 clusters equals 1.0). A separate cluster was formed by the years 1906-07 a time when unrest was declining. Yet another cluster was formed by the years 1908-09, years of political reaction. Another cluster was formed by the years 1910-13, the years of increased revolutionary activity. A single-element cluster was formed by the year 1904, a year of pre-revolutionary crisis. The years from 1895-1903 united in one cluster, suggesting a certain stability.

The results of this analysis were tested with the help of the second group of factors that include more elements than the first group. Twenty-one elements were analyzed: 1) average mean of prisoners in penal servitude institutions (hard labor camps); 2) total number of books and newspapers consulted by readers (PLP); 3) annual number of new reading cards issued (PLP); 4) annual number of reading cards issued to peasants (PLP); 5) annual number of reading cards issued to petit bourgeous (PLP); 6) annual number of reading cards issued to female readers (PLP); 7) gross number

of readers admitted per year (PLP); 8) annual number of historical, political and legal books consulted (PLP); 9) annual number of books on religious subjects consulted (PLP); 10) expenditures on Synod; 1.1) expenditures on the Ministry of Education; 12) expenditures on prisons; 13) number of peasant revolts; 14) number of consumer and producer societies allowed by the government; 15) number of books prohibited by the official censors; 16) number of arson fires set by peasants; 17) annual number of all fires; 18) daily mean average of prisoners; 18) annual number of new reading cards issued (RM); 19) gross number of readers admitted per year (RM); 20) annual number of requests for books (RM); and 21) gross number of readers admitted per year (TL). The results of clusterization of these data did not contradict the results of cluster analysis obtained from the first group of elements. The years 1905-06 formed a single cluster, situated at a distance from other clusters (0.4). The pre-revolutionary years, 1902-04, formed a separate cluster, as did those following, 1907-09. The years 1910-13, years of increasing unrest, formed another cluster. The years 1895-01 also formed a separate cluster.

As we see, the method of chronological clusterization appeared to be effective in determining the dynamics of SPT and suggesting a typology for revolutionary movement in the Russian empire. This approach to the study of SPT has one major disadvantage: it does not take regional differences into account. It is well known that the Governments of the Empire differed greatly in the level of SPT. That consideration drew the attention of the authors, and a regional analysis was attempted.

The heterogeneity of the Russian Empire requires that SPT be studied on a regional level, so each of the Russian Governments West of the Urals was chosen as a unit for analysis (Table 1). A traditional method of making a typology of SPT was to study different Governments by measuring only one or two factors characteristic of SPT. The authors used 11 factors, and at times 8. Two years were chosen for analysis, 1901 and 1910. A typology covering all 49 Governments of European Russia using such a large number of factors is impossible without the aid of a computer. Soviet historians have already analyzed agrarian and industrial aspects of European Russia using cluster analysis. (13)

At first it was decided to study the hierarchy of SPT in different Governments with the following simplified method of clusterization. A matrix of Euclidean distances was constructed between pairs of Governments, then the minimum distance between two Governments was recorded. The two Governments were considered to be the first two clusters. Then distance was measured between the second Government and the next nearest Government. These three points were continued to be the third cluster. Additional clusters were defined in the same manner. This method, of course, gave 49 clusters and permitted the Governments to be arranged

hierarchically according to SPT. Cluster analysis utilized the following factors, defined locally: 1) annual number of fires; 2) financial losses as a result of fires; 3) number of people convicted by the courts; 4) number of fields harvested for consumption (excluding those planted for seed); 5) proportion of ethnic groups to the total population; 6) literacy rate; 7) ratio between urban and rural population; 8) number of soldiers called to deal with situations of unrest; 9) daily mean average of prisoners; 10) number of strikers; 11) mean average of concentration of labor force (number of workers in a Government divided by the number of enterprises); 12) industrial output per capita (in rubles); and 13) number of workers. (14)

All data are per capita. Not all of the factors were represented for each of the two years studied. The common factors for both years are the following: (1),(2),(4),(7),(8),(9) and (10). Elements (5) and (6) exist only for 1901. Elements (3), (11), (12) and (13) exist only for 1910. Therefore, clusterization was done with partially different sets of factors. The results of the first stage of local cluster analysis was a hierarchical list of the Governments by level of SPT. Of course this method is not very precise, but even so, the result is an approximate view of historical reality. In 1901 (Table 2), the Government of Petersberg was at the end of the hierarchichal list of Governments, preceded by the Government of Moscow. Just above were the Baltic Governements. In historiography it is universally recognized that the revolutionary movement in Petersburg and Moscow was stronger in comparison to other regions of the country. That is why it was considered that the last cluster, which characterized the level of SPT in Petersburg, was a cluster with the highest level of SPT. Correspondingly the first cluster in the list was considered to characterize the lowest level of SPT. The analysis of the year 1910 (Table 4) showed that the distance between the Governments of Petersberg and Moscow, which again had the highest level of SPT, on the one hand, and the Governments of Vladimir and Kostroma, on the other hand, decreased. The level of SPT increased in some industrial regions between 1901 and 1910 and became comparable to the level in Petersberg and Moscow. These results do not contradict the results were obtained by traditional historians, but the new element in this work is the following. The 49 Governments that were loaded into the computer in alphabetical order were arranged in a hierarchy by level of SPT.

The next step of our project was to carry out a cluster analysis of the 49 Governments which included the ethnic factor and another which excluded it. Tables 2 and 3 show the results of this analysis. It was found that the ethnic factor alters the hierarchy of Governments with regard to the level of SPT. The ethnic factor was determined with the following formula:

$$N = \frac{P + H}{|P - H|} - 1$$

where N is ethnic factor
P is the number of ethnic Russians in each Government, and
H is the number of other ethnic groups in each Government

The authors realize that it is necessary to improve this kind of measurement, but this approach can be justified: 1) if the population of the Government is ethnically Russian (H = 0), then N = 0, and the effect of other ethnic groups on SPT is null; 2) if the population of the Government is ethnically non-Russian (P = 0), then N = 0, and the effect of ethnic Russians on SPT is null; 3) the critical point occurs when P = H, in this case N = ***infinity,*** and 4) all of the intermediate ratios between P and H are reflected in the corresponding values of N.

Change in the value of SPT as a result of using this factor reflects the existence of different alternative ways of changing SPT. It shows the potential of national liberation movements, which in some historical situations may become a political reality. For instance, in Table 3, the Governments of Astrakhan, Kasan and Minsk show a high potential of ethnic conflict, that in certain political situations could develop into unrest.

To make a more precise typology of Governments using a measure of SPT, it was decided to use the agglomerate hierarchichal type of cluster analysis. The results of this analysis are shown in Tables 5-8. A more precise measure of the level of SPT in each Government can be had. For 1901, the following factors were considered: (1),(2),(4),(6),(7),(8),(9) and (10)(Table 5). Then the factors were analyzed with the ethnic factor (5) added (Table 6). In the first stage of clusterization, Governments were clustered on the basis of minimal distance, then the clusters were agglomerated, making larger clusters until all 49 Governments were united in one big cluster. At first clusters were made of pairs of Governments like Bessarabia and Poltava, Vilno and Grodno, Voronej and Orel, Arkhangelsk and Olonyetsk, Pskov and Novgorod, and so on. The next order of clusters included groupings like Bessarabia, Poltava, Vilno and Grodno; and Voronej, Orel, and Simbirsk. Petersberg, Moscow and Vladimir were single clusters located at a distance from all the others

When the factors were analyzed with the ethnic factor (5) added, a redistribution of clusters was noted. Astrakhan, Vifebsk and Grodno left their clusters and became single clusters; Kasan and Ufa united in one cluster. Even taking the ethnic factor into consideration, Petersberg, Moscow and Vladimir still formed single clusters with a high level of SPT. The reader should be reminded that the ethnic factor does not reflect the real

growth of SPT, but only the potential for conflict in certain political situations.

For 1910 the calculations were done with two groups of factors (Tables 7-8). The second group of factors included new elements characterizing the industrial development of the Governments: (11),(12) and (13). The results of the clusterizations done with the two groups of factors are similar, but with some differences. For example, Nijegorodskaja Government formed a single cluster when analyzed with the factors that characterize industrial development. Our results may be explained in the following way. SPT is a function of those factors that are directly connected with revolutionary activities. The factors describing industrial development are only indirectly connected with potential unrest.

A comparison between the results obtained for 1901 with those for 1910 allows us to make several observations. The single clusters for Moscow, Petersburg and Vladimir combine at first in a double cluster Petersburg-Moscow (1901) and then in a triple cluster Petersburg-Moscow-Vladimir (1910). The distance between the three single clusters and the others is large in 1901: 0.66 for Petersburg, 0.83 for Moscow and 0.88 for Vladimir. In 1910, the distance between the triple cluster and the others was only 0.3 (see Tables 5 and 7). These results show that the level of SPT in other provinces increased to a level closer to that of Petersburg, Moscow and Vladimir. In this case the regional analysis allows us to draw some conclusions about the whole.

In summary, we can report several promising advances in the quantitative study of SPT. The results obtained by our methods coincide on the whole with the image that has developed in traditional historiography of the dynamics of SPT on both the scale of the Russian Empire and in the different Governments. The conclusions drawn from traditional approaches have been based on only one or two factors, for instance, on the analysis of number of strikes or the number of peasant uprisings. The present study used multiple variables to measure SPT for the period from 1895 to 1913, both for the empire as a whole and for the 49 Governments West of the Urals. In our study, a model of SPT was constructed that has the potential for giving us more precise ideas about the causes of political stability. Chronological cluster analysis was shown to be useful in generating a typology of different periods of revolutionary movement in Russia and also permitted the mapping of variables at the regional level. A database was gathered that can be used for further analysis. Some correlations were revealed that were previously unknown to scholars of revolutionary movements in Russia.

Notes

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    elements 1,2- see footnote 11;
    elements 3, 4, 5, 6, 7 - Ejegodnik Rossii sa ... godi.;
    elements 8, 9, 10 - see footnote 11;
    elements 11, 12, 13 - Promischlennaja perepis sa 1908 god. Pod red. Varsar E.V. Petersburg 1912.

Table 1

List of Governements (administrative districts) of the European Part of the Russian Empire.

1. Archangelsk
2. Astrachan
3. Bessarabia
4. Vilno
5. Vitebsk
6. Vladimir
7. Vologda
8. Volyn
9. Voroneg
10. Vjatka
11. Grodno
12. Region of Don (Vojska Donskogo)
13. Ekaterinoslav
14. Kazan
15. Kovno

16. Kostroma
17. Kaluga
18. Kijev
19. Kursk
20. Livland
21. Minsk
22. Mogilev
23. Moscow
24. Nignij Novgorod
25. Novgorod
26. Olonetsk
27. Orenburg
28. Orel
29. Penza
30. Perm
31. Podolsk
32. Poltava
33. Pskov
34. Rjasan
35. Samara
36. Petersburg
37. Simbirsk
38. Saratov
39. Smolensk
40. Tavria
41. Tambov
42. Tver
43. Tula
44. Charkov
45. Chernigov
46. Ufa
47. Cherson
48. Estland
49. Jaroslavl

Table 2

Year 1901. Hierarchical list of 49 Gouvernements by the level of SPT. Clusterization was done with the following set of factors: 1, 2, 3, 4, 6, 7, 8, 9, 10. Numeration of Governements see table 1.

1. Governement 14 Distance - 0.000000E + 00
2. Governement 30 Distance = 0.962626E-01

3. Governement 46 Distance = 0.19591E+00
4. Governement 35 Distance = 0.32205E + 00
5. Governement 28 Distance = 0.49385E+00
6. Governement 9 Distance = 0.59143E + 00
7. Governement 19 Distance = 0.70432E + 00
8. Governement 37 Distance = 0.88455E + 00
9. Governement 24 Distance = 0.10531E + 01
10. Governement 34 Distance = 0.11644E + 01
11. Governement 41 Distance = 0.13327E + 01
12. Governement 43 Distance = 0.15742EH-01
13. Governement 39 Distance = 0.17417E + 01
14. Governement 33 Distance = 0.18884E + 01
15. Governement 25 Distance = 0.20447E + 01
16. Governement 5 Distance = 0.23035E+01
17. Governement 49 Distance = 0.24782E + 01
18. Governement 6 Distance = 0.27128E + 01
19. Governement 13 Distance = 0.30661E + 01
20. Governement 44 Distance = 0.32810E +01
21. Governement 43 Distance = 0.34746E + 01
22. Governement 22 Distance = 0.35819E + 01
23. Governement 16 Distance = 0.37427E + 01
24. Governement 21 Distance = 0.39563E + 01
25. Governement 7 Distance = 0.41739E + 01
26. Governement 26 Distance = 0.43459E + 01
27. Governement 2 Distance = 0.45007E + 01
28. Governement 1 Distance = 0.47567E + 01
29. Governement 17 Distance = 0.51200E + 01
30. Governement 18 Distance = 0.53713E + 01
31. Governement 12 Distance = 0.55584E + 01
32. Governement 27 Distance = 0.56716E + 01
33. Governement 31 Distance = 0.58982E + 01
34. Governement 8 Distance = 0.60874E + 01
35. Governement 40 Distance = 0.64589E+01
36. Governement 47 Distance = 0.66557E + 01
37. Governement 15 Distance = 0.70865E+01
38. Governement 4 Distance = 0.74180E + 01
39. Governement 32 Distance = 0.77247E + 01
40. Governement 3 Distance = 0.79941E + 01
41. Governement 38 Distance = 0.88397E + 01
42. Governement 29 Distance = 0.90164E + 01
43. Governement 11 Distance = 0.94908E + 01
44. Governement 42 Distance = 0.10379E + 02
45. Governement 10 Distance = 0.10764E + 02

46. Governement 48 Distance - 0.12080E + 02
47. Governement 20 Distance - 0.12305E4- 02
48. Governement 23 Distance - 0.13676E + 02
49. Governement 36 Distance - 0.15118E + 02

Remark

Here and in the following tables the distances are given in absolute values. For obtaining relative values of distances (in the article the distances are given in relative values) every distance in the list must be devided by the last distance in the list. In this case the maximum distance always equals to 1.

Table 3

Year 1901. Hierarchial list of 49 governements by the level of SPT. Clusterization was done with the following set of factors: 1, 2, 4, 5, 6, 7, 8, 9, 10. In comparison to Table 2 the ethnic factor was included. Numeration of Governements see Table 1.

1. Governement 9 Distance = 0.00000E + 00
2. Governement 28 Distance = 0.97581E-01
3. Governement 45 Distance = 0.22716E + 00
4. Governement 22 Distance = 0.33680E + 00
5. Governement 30 Distance = 0.48514E+ 00
6. Governement 27 Distance = 0.62336E + 00
7. Governement 12 Distance = 0.77202E +00
8. Governement 18 Distance = 0.96124E + 00
9. Governement 44 Distance = 0.11591E + 01
10. Governement 39 Distance = 0.13325E + 01
11. Governement 33 Distance = 0.14794E + 01
12. Governement 25 Distance = 0.16358E + 01
13. Governement 17 Distance = 0.19187E + 01
14. Governement 19 Distance = 0.21412E + 01
15. Governement 31 Distance = 0.23666E + 01
16. Governement 8 Distance = 0.25647E + 01
17. Governement 16 Distance = 0.28323E + 01
18. Governement 7 Distance = 0.30476E + 01
19. Governement 26 Distance = 0.32271 E + 01
20. Governement 1 Distance = 0.34577E + 01
21. Governement 5 Distance = 0.37696E + 01
22. Governement 49 Distance = 0.40216E + 01
23. Governement 6 Distance = 0.42563E + 01
24. Governement 13 Distance = 0.46110E + 01

25. Governement 24 Distance = 0.47564E + 01
26. Governement 34 Distance = 0.48685E + 01
27. Governement 41 Distance = 0.50370E + 01
28. Governement 37 Distance = 0.52702E + 01
29. Governement 35 Distance = 0.54865E + 01
30. Governement 46 Distance = 0.56794E + 01
31. Governement 14 Distance = 0.58355E + 01
32. Governement 40 Distance = 0.61580E + 01
33. Governement 47 Distance = 0.63583E+01
34. Governement 43 Distance = 0.66386E + 01
35. Governement 21 Distance = 0.69816E + 01
36. Governement 15 Distance = 0.73892E + 01
37. Governement 4 Distance = 0.78375E+ 01
38. Governement 3 Distance = 0.82243E + 01
39. Governement 32 Distance = 0.85140E + 01
40. Governement 42 Distance = 0.92300E + 01
41. Governement 10 Distance = 0.96192E + 01
42. Governement 29 Distance = 0.10496E + 02
43. Governement 38 Distance = 0.10673E + 02
44. Governement 11 Distance = 0.11089E + 02
45. Governement 20 Distance = 0.12065E + 02
46. Governement 48 Distance = 0.12290E + 02
47. Governement 2 Distance = 0.13738E + 02
48. Governement 23 Distance = 0.15542E+02
49. Governement 36 Distance = 0.16984E + 02

Table 4

Year 1910. Hierachical list of 49 Governements by the level of SPT. Clusterization was done with the following set of factors: 1, 2, 3, 4, 7, 8, 9, 10. Numeration of Governements see Table 1.

1. Governement 29 Distance = O.OO000E + O0
2. Governement 43 Distance = 0.10720E + 00
3. Governement 24 Distance = 0.25735E + 00
4. Governement 42 Distance = 0.42213E +00
5. Governement 41 Distance = 0.65166E + 00
6. Governement 10 Distance = 0.92244E + 00
7. Governement 25 Distance = 0.13050E + 01
8. Governement 1 Distance = 0.J6112E + 01
9. Governement 17 Distance = 0.2069 IE+ 01
10. Governement 45 Distance = 0.22820E + 01
11. Governement 19 Distance = 0.24377E + 01

12. Governement 35 Distance = 0.26021E + 01
13. Governement 14 Distance = 0.27531E + 01
14. Governement 12 Distance = 0.29074E + 01
15. Governement 3 Distance = 0.30867E + 01
16. Governement 9 Distance = 0.33359E+01
17. Governement 31 Distance = 0.35910E + 01
18. Governement 8 Distance = 0.37052E + 01
19. Governement 4 Distance = 0.38481E + 01
20. Governement 15 Distance = 0.40481E + 01
21. Governement 7 Distance = 0.42128E + 01
22. Governement 21 Distance = 0.44136E + 01
23. Governement 46 Distance = 0.45954E+01
24. Governement 30 Distance = 0.49249E + 01
25. Governement 27 Distance = 0.51166E + 01
26. Governement 38 Distance = 0.54152E + 01
27. Governement 5 Distance = 0.56974E + 01
28. Governement 18 Distance = 0.58445E + 01
29. Governement 13 Distance = 0.59981E + 01
30. Governement 28 Distance = 0.62840E + 01
31. Governement 39 Distance = 0.65020E + 01
32. Governement 33 Distance = 0.67598E+01
33. Governement 44 Distance = 0.69958E + 01
34. Governement 49 Distance = 0.75717E + 01
35. Governement 48 Distance = 0.80542E + 01
36. Governement 20 Distance = 0.86240E + 01
37. Governement 47 Distance = 0.96013E + 01
38. Governement 40 Distance = 0.10102E + 02
39. Governement 11 Distance = 0.10494E + 02
40. Governement 22 Distance = 0.11488E + 02
41. Governement 37 Distance = 0.11848E + 02
42. Governement 32 Distance = 0.12149E + 02
43. Governement 16 Distance = 0.12881E + 02
44. Governement 2 Distance = 0.13419E + 02
45. Governement 26 Distance = 0.14205E+02
46. Governement 34 Distance = 0.14882E + 02
47. Governement 6 Distance = 0.16014E + 02
48. Governement 23 Distance = 0.16920E + 02
49. Governement 36 Distance = 0.18074E + 02

Table 5

Agglomerate hierachical method of cluster analysis. 49 governements are clusterized by the level of SPT. Year 1901.
Clusterization was done with the following set of factors: 1, 2, 4, 6, 7, 8, 9, 10. Numeration of governements see table 1.

Cluster 1 Distance = 0.3S18E + 00
Governements = 30, 46
Cluster 2 Distance = 0.4192E+00
Governements = 14, 45
Cluster 3 Distance = 0.5006E + 00
Governements = 9, 28
Cluster 4 Distance = 0.5486E + 00
Governements = 14, 45, 31
Cluster 5 Distance = 0.5539E + 00
Governements = 27, 30, 46
Cluster 6 Distance = 0.5816E + 00
Governements = 25, 33
Cluster 7 Distance = 0.5968E + 00
Governements = 9, 28, 37
Cluster 8 Distance = 0.6257E + 00
Governements = 24, 43
Cluster 9 Distance = 0.663JE + 00
Governements = 29, 38
Cluster 10 Distance = 0.6749E + 00
Governements = 2, 26
Cluster 11 Distance = 0.7000E + 00
Governements = 14, 45, 31, 27, 30, 46
Cluster 12 Distance = 0.7017E + 00
Governements = 9, 28, 37, 39
Cluster 13 Distance = 0.7662E + 00
Governements = 9, 28, 37, 39, 44,
Cluster 14 Distance = 0.8123E + 00
Governements = 9, 28, 37, 39, 44, 35
Cluster 15 Distance = 0.8150E + 00
Governements = 12, 14, 45, 31, 27, 30, 46
Cluster 16 Distance = 0.8498E + 00
Governements = 13, 24, 43
Cluster 17 Distance = 0.8680E + 00
Governements = 2, 26, 7
Cluster 18 Distance = 0.9313E +00
Governements = 8, 12, 14, 45, 31, 27, 30, 46
Cluster 19 Distance = 0.9387E + 00

```
    Governements = 13, 24, 43, 41
Cluster 20    Distance = 0.9789E + 00
    Governements = 8 12 14 45 31 27 30 46 9 28 37 39 44 35
Cluster 21    Distance = 0.9929E + 00
    Governements = 3, 32
Cluster 22    Distance = 0.1055E + 01
    Governements = 18, 19
Cluster 23    Distance = 0.1080E + 01
    Governements = 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16
Cluster 24    Distance = 0.1118E + 01
    Governements = 40, 47
Cluster 25    Distance = 0.1144E + 01
    Governements = 5, 25, 33
Cluster 26    Distance = 0.1144E + 01
    Governements = 17, 18, 19
Cluster 27    Distance = 0.1148E + 01
    Governements = 1, 2, 26, 7
Cluster 28    Distance = 0.1192E + 01
    Governements = 3, 32, 4
Cluster 29    Distance  =0.1195E + 0J
    Governements = 13, 24, 43, 41, 34
Cluster 30    Distance = 0.1242E + 01
    Governements = 21, 22
Cluster 31    Distance = 0.1281E + 01
    Governements = 1 , 2 , 26, 7, 5, 25, 33
Cluster 32    Distance = 0.1318E + 01
    Governements = 15, 17, 18, 19
Cluster 33    Distance = 0.1344E + 01
    Governements = 20, 48
Cluster 34    Distance = 0.1344E + 01
    Governements = 13, 24, 43, 41, 34, 49
Cluster 35    Distance = 0.1521E + 01
    Governements = 8 12 14 45 31 27 30 46 9 28
37 39 44 35 16 40 47
Cluster 36    Distance = 0.1524E + 01
    Governements = 10, 42
Cluster 37    Distance = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39
    44 35 16 40 47
Cluster 38    Distance = 0.1680E + 01
    Governements = 13, 24, 43, 41, 34, 49, 15, 17, 18, 19
Cluster 39    Distance = 0.1773E + 01
    Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44
    35 16 40 47 21 22
```

Cluster 40 Distance = 0.1872E + 01
Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19

Cluster 41 Distance = 0.2410E + 01
Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38

Cluster 42 Distance = 0.2570E + 01
Governements - 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38 10 42

Cluster 43 Distance = 0.3341E + 01
Governements = 3, 32, 4, 11

Cluster 44 Distance = 0.3374E + 01
Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38 10 42 20 48

Cluster 45 Distance = 0.3788E + 01
Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38 10 42 20 48 3 32 4 11

Cluster 46 Distance = 0.5536E + 01
Governements - 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38 10 42 20 48 3 32 4 11 6

Cluster 47 Distance = 0.1090E + 02
Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38 10 42 20 48 3 32 4 11 6 23

Cluster 48 Distance = 0.3145E + 02
Governements = 1 2 26 7 5 25 33 8 12 14 45 31 27 30 46 9 28 37 39 44 35 16 40 47 21 22 13 24 43 41 34 49 15 17 18 19 29 38 10 42 20 48 3 32 4 11 6 23 36

Table 6

Agglomerate hierachical method of cluster analysis. 49 governements are clusterized by the level of SPT. Year 1901.
Clusterization was done with the following set of factors: 1, 2, 4, 5, 6, 7, 8, 9, 10.

Cluster 1 Distance = 0.5006E + 00
Governements = 9, 28

Cluster 2 Distance = 0.5842E + 00
Governements = 25, 33

Cluster 3 Distance = 0.6130E + 00
Governements = 9, 28, 45
Cluster 4 Distance = 0.6506E + 00
Governements = 24, 43
Cluster 5 Distance = 0.6631E + 00
Governements =29, 38
Cluster 6 Distance = 0.6678E + 00
Governements = 7, 30
Cluster 7 Distance = 0.6946E + 00
Governements = 9, 28, 45, 39
Cluster 8 Distance = 0.7247E+00
Governements = 14, 46
Cluster 9 d - 0.7556E + 00
Governements = 9, 28, 45, 39, 44
Cluster 10 Distance - 0.8231E + 00
Governements = 36, 37
Cluster 11 Distance = 0.8794E4-00
Governements = 12, 31
Cluster 12 Distance = 0.9098E + 00
Governements = 13, 24, 43
Cluster 13 Distance = 0.9592E + 00
Governements = 13, 24, 43, 41
Cluster 14 Distance = 0.9783E + 00
Governements = 9, 28, 45, 39, 44, 16
Cluster 15 Distance = 0.1003E + 01
Governements = 1, 25
Cluster 16 Distance = 0.1046E + 01
Governements = 8, 27
Cluster 17 Distance = 0.1052E + 01
Governements = 7, 30, 9, 28, 45, 39, 44, 16
Cluster 18 Distance = 0.1085E + 01
Governements = 7, 30, 9, 28, 45, 39, 44, 16, 12, 31
Cluster 19 Distance = 0.1105E + 01
Governements = 17, 19
Cluster 20 Distance = 0.1213E + 01
Governements = 40, 47
Cluster 21 Distance = 0.1215E + 01
Governements = 13, 24, 43, 41, 34
Cluster 22 Distance = 0.1216E + 01
Governements = 17, 19, 18
Cluster 23 Distance = 0.1279E + 01
Governements = 21, 22
Cluster 24 Distance = 0.1304E + 01

```
    Governements = 1, 26, 25, 33
Cluster 25    Distance = 0.1337E + 01
    Governements - 15, 17, 19, 18
Cluster 26    Distance = 0.1344E + 01
    Governements = 20, 48
Cluster 27    Distance - 0.1353E + 01
    Governements = 13, 24. 43. 41. 34. 49
Cluster 28'   Distance = 0.1356E + 01
    Governements = 8, 27, 35, 37
Cluster 29    Distance = 0.1594E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31
Cluster 30    Distance = 0.1660E + 01
    Governements = 8, 27, 35 37, 40, 47
Cluster 31    Distance = 0.1686E + 01
    Governements = 3, 32
Cluster 32    Distance = 0.1697E + 01
    Governements = 13, 24, 43, 41, 34, 49, 15, 17, 19, 18
Cluster 33    Distance = 0.1708E + 01
    Governements = 10, 42
Cluster 34    Distance = 0.1820E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22
Cluster 35    Distance = 0.1892E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43
    41 34 49 15 17 19 18
Cluster 36    Distance = 0.1914E + 01
    Governements = 5. 8, 27, 35, 37, 40, 47
Cluster 37 d = 0.2262E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43
    41 34 49 15 17 19 18 5 8 27 35 37 40 47
Cluster 38    Distance = 0.2481E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43
    41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38
Cluster 39    Distance = 0.2668E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43
    41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42
Cluster 40    Distance = 0.3454E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43
    41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 48
Cluster 41    Distance = 0.3552E + 01
    Governements = 3, 32, 4
Cluster 42    Distance = 0.3639E + 01
    Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43
    41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 48 11
```

Cluster 43 Distance = 0.3799E + 01
Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43 41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 48 11 14 46

Cluster 44 Distance - 0.4477E + 01
Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43 41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 40 11 14 46

Cluster 45 Distance = 0.5685E + 01
Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43 41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 48 11 14 46 3 32 4 6

Cluster 46 Distance = 0.1095 + 02
Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43 41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 1042 20 48 11 1446 3 324 6 23

Cluster 47 Distance = 0.1242+02
Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43 41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 48 11 14 46 3 32 4 6 23 2

Cluster 48 Distance = 0.3152E + 02
Governements = 1 26 25 33 7 30 9 28 45 39 44 16 12 31 21 22 13 24 43 41 34 49 15 17 19 18 5 8 27 35 37 40 47 29 38 10 42 20 48 11 14 46 3 32 4 6 23 2 36

Table 7

Agglomerate hierachical method of cluster analysis. 49 governements are clusterized by the level of SPT. Year 1910.
Clusterization was done with the following set of factors: 1, 2, 3, 4, 7, 8, 9, 10.

Cluster 1 Distance = 0.4156E + 00
Governements = 29, 43

Cluster 2 Distance = 0.4415E + 00
Governements = 8, 31

Cluster 3 Distance = 0.4506E + 00
Governements = 19, 35

Cluster 4 Distance = 0.6112E+00
Governements = 8, 31, 15

Cluster 5 Distance = 0.6273E + 00
Governements = 27, 30

Cluster 6 Distance = 0.6465E + 00
Governements = 4, 5

Cluster 7 Distance = 0.6759E + 00
Governements = 3, 12
Cluster 8 Distance = 0.6971E + 00
Governements = 19, 35, 45
Cluster 9 Distance = 0.7423E + 00
Governements = 24, 42
Cluster 10 Distance = 0.7484E + 00
Governements = 4, 5, 28
Cluster 11 Distance = 0.7534E + 00
Governements = 7, 21
Cluster 12 Distance = 0.7882E + 00
Governements = 14, 19, 35,45
Cluster 13 Distance = 0.8056E + 00
Governements = 43, 41
Cluster 14 Distance = 0.8236E + 00
Governements = 27, 30, 46
Cluster 15 Distance = 0.8457E + 00
Governements = 13, 18
Cluster 16 Distance = 0.8971E + 00
Governements = 32, 37
Cluster 17 Distance = 0.8983E + 00
Governements = 24, 42, 29, 43, 41
Cluster 18 Distance = 0.9344E + 00
Governements = 33, 39
Cluster 19 Distance = 0.9776+ 00
Governements = 9, 14, 19, 35, 45
Cluster 20 Distance = 0.1003E + 01
Governements = 4, 5, 28, 8, 31, 15
Cluster 21 Distance = 0.1040E + 01
Governements = 3, 12, 9, 14, 19, 35, 45
Cluster 22 Distance = 0.1061E + 01
Governements = 33, 39, 44
Cluster 23 Distance = 0.1085E + 01
Governements = 3, 12, 9, 14, 19, 35, 45, 27, 30, 46
Cluster 24 Distance = 0.1089E + 01
Governements = 4, 5, 28, 8, 31, 15, 13, 18
Cluster 25 Distance = 0.1112E + 01
Governements = 24, 42, 29, 43, 41, 38
Cluster 26 Distance = 0.1204E + 01
Governements = 3 12 9 14 19 35 45 27 30 46 7 21
Cluster 27 Distance = 0.1234E + 01
Governements = 2, 24, 42, 29, 43, 41, 38
Cluster 28 Distance = 0.1276+01

Governements = 45 28 831 15 13 18 33 39 44
Cluster 29 Distance = 0.1407E + 01
Governements = 10, 25
Cluster 30 Distance = 0.1436+01
Governements = 26, 34
Cluster 31 Distance = 0.1501 + 01
Governements = 3 129 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38
Cluster 32 Distance = 0.1565 + 01
Governements = 1, 17
Cluster 33 Distance = 0.1704E + 01
Governements = 11,40
Cluster 34 Distance = 0.1770E + 01
Governements = 3 129 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25
Cluster 35 Distance = 0.1818E + 01
Governements = 48, 49
Cluster 36 Distance = 0.2157E + 01
Governements = 3 129 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44
Cluster 37 Distance = 0.2312E + 01
Governements = 1, 17, 16
Cluster 38 Distance = 0.2436E + 01
Governements = 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44
Cluster 39 Distance = 0.2886E + 01
Governements = 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49
Cluster 40 Distance = 0.3049E + 01
Governements = 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49 32 37
Cluster 41 Distance = 0.3504E + 01
Governements = 1 17 16 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49 32 37
Cluster 42 Distance = 0.3890E + 01
Governements = 1 17 16 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49 32 37 20
Cluster 43 Distance = 0.3946E + 01
Governements = 23, 36
Cluster 44 Distance = 0.5099E + 01
Governements = 11, 40, 47
Cluster 45 Distance = 0.5362 E + 01
Governements = 6, 23, 36
Cluster 46 Distance = 0.6109E + 01

Governements = 1 17 16 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49 32 37 20 11 40 47

Cluster 47 Distance = 0.8044E + 01

Governements = 1 17 16 2 3 12 9 14 19 35 45 27 30 46 7 21 22 2442 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49 32 37 20 11 40 47 26 34

Cluster 48 Distance = 0.1134E + 02

Governements = 1 17 16 2 3 12 9 14 19 35 45 27 30 46 7 21 22 24 42 29 43 41 38 10 25 4 5 28 8 31 15 13 18 33 39 44 48 49 32 37 20 11 40 47 26 34 6 23 36

Table 8

Agglomerate hierachical method of cluster analysis. 49 governements are clusterized by the level of SPT. Year 1910.
Clusterization was done with the following factors: I, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13.

Cluster 1 Distance = 0.4717E + 00
Governements = 29, 43

Cluster 2 Distance = 0.6503E + 00
Governements = 8, 15

Cluster 3 Distance = 0.6825E + 00
Governements = 19, 35

Cluster 4 Distance = 0.7189E + 00
Governements = 4, 8, 15

Cluster 5 Distance = 0.7879E + 00
Governements =19, 35, 45

Cluster 6 Distance = 0.8222E + 00
Governements = 12, 14

Cluster 7 Distance = 0.8452E + 00
Governements = 29, 43, 41

Cluster 8 Distance = 0.9484E + 00
Governements = 4, 8, 15, 31

Cluster 9 Distance = 0.9571E + 00
Governements = 19, 35, 45, 27

Cluster 10 Distance = 0.9620E + 00
Governements = 12, 14, 46

Cluster 11 Distance = 0.9929E + 00
Governements = 7, 21

Cluster 12 Distance = 0.1000E + 01
Governements = 33, 39

Cluster 13 Distance = 0.1021E + 01

```
    Governements =18,44
Cluster 14    Distance = 0.1071E+01
    Governements = 9, 19, 35, 45, 27
Cluster 15    Distance = 0.1076E+01
    Governements = 32, 37
Cluster 16    Distance = 0.1118E+01
    Governements = 25, 42
Cluster 17    Distance = 0.1123E+01
    Governements = 29, 43, 41, 38
Cluster 18    Distance = 0.1135E+01
    Governements = 28, 33, 39
Cluster 19    Distance = 0.1155E+01
    Governements = 9, 19, 35, 45, 27, 12, 14, 46
Cluster 20    Distance = 0.1318E+01
    Governements = 4, 8, 15, 31, 7, 21
Cluster 21    Distance = 0.1382E+01
    Governements = 22, 29, 43, 41, 38
Cluster 22    Distance = 0.1431E+01
    Governements = 3, 9, 19, 35, 45, 27, 12, 14, 46
Cluster 23    Distance = 0.1504E+01
    Governements = 13, 18,44
Cluster 24    Distance = 0.1516E+01
    Governements = 26, 34
Cluster 25    Distance = 0.1517E+01
    Governements = 3 9 19 35 45 27 12 14 46 22 29 43 41 38
Cluster 26    Distance = 0.1530E+01
    Governements = 4, 8, 15, 31, 7, 21, 28, 33, 39
Cluster 27    Distance = 0.1538E+01
    Governements = 10, 25, 42
Cluster 28    Distance = 0.1763E+01
    Governements = 4, 8, 15, 31, 7, 21, 28, 33, 39, 5
Cluster 29    Distance = 0.1776E+01
    Governements = 11,40
Cluster 30    Distance = 0.1903E+01
    Governements = 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42
Cluster 31    Distance = 0.2046E+01
    Governements = 4 8 15 31 7 21 28 33 39 5 13 18 44
Cluster 32    Distance = 0.2247E+01
    Governements = 1, 17
Cluster 33    Distance = 0.2320E+01
    Governements = 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42
Cluster 34    Distance = 0.2363E+01
    Governements = 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8
```

15 31 7 21 28 33 39 5 13 18 44

Cluster 35 Distance = 0.2378E + 01

Governements = 30, 49

Cluster 36 Distance = 0.3096E + 01

Governements = 2 39 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49

Cluster 37 Distance = 0.3174E + 01

Governements = 2 39 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37

Cluster 38 Distance = 0.3413E + 01

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37

Cluster 39 Distance = 0.3472E + 01

Governements = 20, 48

Cluster 40 Distance = 0.4745E + 01

Governements = 23, 36

Cluster 41 Distance = 0.5033E + 01

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37 20 48

Cluster 42 Distance = 0.5144E + 01

Governements = 11, 40, 47

Cluster 43 Distance = 0.5745E + 01

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37 20 48 16

Cluster 44 Distance = 0.5918E + 01

Governements = 6, 23, 36

Cluster 45 Distance = 0.6264E + 01

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37 20 48 16 11 40 47

Cluster 46 Distance = 0.8158E + 01

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37 20 48 16 11 40 47 26 34

Cluster 47 Distance = 0.8807E + 01

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37 20 48 16 11 40 47 26 34 24

Cluster 48 Distance = 0.1298E + 02

Governements = 1 17 2 3 9 19 35 45 27 12 14 46 22 29 43 41 38 10 25 42 4 8 15 31 7 21 28 33 39 5 13 18 44 30 49 32 37 20 48 16 11 40 47 26 34 24 6 23 36