

CLUSTER ANALYSIS OF THE TYPES OF CAPITALISM

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ABSTRACT: IN THE PAPER ARE PRESENTED THE MOST IMPORTANT RESULTS OF SUCCESSFULLY DEFENDED THREE-YEAR UNIVERSITY PROJECT ENTITLED "CLUSTERS OF CAPITALISM (TYPOLOGY AND DYNAMICS OF CAPITALIST ECONOMIES)", RESEARCH GRANT SRA 21.03-2/2009. THE MOTIVES, METHODOLOGY AND METHODS OF THE STUDY ARE DISCUSSED. THE RESULTS OF CLUSTERING ARE PRESENTED. THE RESULTING TYPOLOGY OF TYPES OF CAPITALISM IS ANALYZED.

KEY WORDS: CLUSTER ANALYSIS, TYPES OF CAPITALISM, CLASSICAL MARXISM, LIBERAL CAPITALISM, STATE CAPITALISM, BASIC INDICATORS OF CLUSTERING

JEL: B51, C23, C38, N1, N3, N7, O1, P10, P20

1. MOTIVES, METHODOLOGY AND METHODS OF STUDY

INVESTIGATION of the types of capitalism using cluster analysis is a new problem field in the social sciences. Our orientation toward this new problem field is mainly due to methodological prejudice of Prof. Georgi Najdenov to classical Marxism. Official science supports the presumption that it is unacceptable "socialist" economies to be considered as a part of the global capitalist system. Accordingly, due to political and ideological characteristics they are defined as other, different from the capitalism, kind of economies. The situation is different within classical Marxism, which deals with so-called "socialism" as a form of state capitalism.¹ Therefore, a strong **motive** for our research is to see what will happen if this postulate about the qualitative difference of the "socialist" economies from those of the capitalism is been ignored, and they are included in the set of countries subject of clustering of the type of capitalism?!

ANOTHER reason is the following. Current typologies of capitalism are made **by deduction**. Although they also use statistical data, it is subsequently made, **after** the typology. The statistics is used either to **illustrate** the accuracy of the made typology or to reveal the characteristics of one or another type of capitalism. The typology itself is not produced by the data processing and the study of time series. Quite often the **types** of capitalism at the same time are considered as **stages** of capitalist development. Moreover, such an approach is quite reasonable. For example, Max Weber considers two types of capitalism – **irrational** and **rational** which are at the same time stages of the development of capitalism. Commonly are used the concepts about **manufacture** and **industrial capitalism**, which are also considered

¹ Regarding the use of classical Marxism in the study of so-called "socialist" countries and especially in Bulgaria see (1).

both as types and as stages in the development of capitalism. For the modern capitalist society Manuel Castells uses the term “**information capitalism**”.

MOST often for the distinction between the types of capitalism the dichotomy “**liberal capitalism – state capitalism**” is used. Societies with liberal capitalism are those which have a democratic political system, limited public sector and minimal government participation in the economic processes. Societies of state capitalism are those in which the state has an important role both in the economy and in the politics. Social Democratic model of development is considered as a kind of state capitalism.² Some authors add also “socialist” societies to state capitalism – as Tony Cliff, Max Shachtman and Charles Bettelheim Maoists. They are supporters of the theory of “**The Revolution Betrayed**” – that is, the communist elites have made a successful anti-bourgeois revolution, but then due to their low moral characteristics they have “**betrayed**” the Revolution and have restored capitalism in the form of “**state capitalism**”.

FOR a long time Western capitalism is considered as the one “**authentic**”, **autochthonal** and **natural**. Capitalist development of the second and third echelons of capitalism is considered as successful when it in a large extent look likes to the development of the countries of the first echelon. In recent decades, however, arise an understanding that different countries and regions realize the transition from the traditional, patriarchal society to a modern capitalist society in a **specific way**. It is established understanding that there exist **different kinds of capitalism** and that each of them is a **natural** and **authentic** to the countries and regions where there is such transition. In time and space, depending on the specific natural and climatic conditions, the specific historical development, etc. there are different **clusters** of countries where the mode of production is **similar**. Each of these different clusters is a specific **type** of capitalism.

FOR us it is obvious that the next step in the scientific research of the types of capitalism is these distinctive types of capitalism to be found not by **deduction**, but by **induction**. That is, the original type of capitalism to be obtained by “**natural**” way – through cluster analysis of several key indicators.

So in 2009 a scientific team, the core of which are Prof. DSc. Georgi Naydenov and Assoc. Prof. Dr. Kaloyan Haralampiev, participated and won a three-year university grant for a project “**Clusters of Capitalism (Typology and Dynamics of Capitalist Economies)**”, Research grant SRA 21.03-2/2009. The project was successfully completed and defended. In this paper we present one of the most important results of this study – obtained by the cluster analysis types of capitalism during the XX and in the beginning of the XXI century. In short – what is this project!

THE main goal of the research project is to identify clusters of capitalist development (types of capitalist economies): a) **global** – by covering as many countries as possible; b) **temporal** – by covering as much years as possible over a longer period.

² This approach is correct because as the main characteristic of the type of capitalism is considered the mode of production but not the type of political system. Therefore, when we use the term “type of capitalism” we mean the mode of production. If the criterion is not only the mode of production but also the type of political system, various combinations of the liberal and state capitalism with authoritarian and democratic political systems are possible.

To achieve this goal are performed the following **main tasks**:

1. Survey of the scientific literature and overview of the theoretical concepts concerning typology, periodization and clustering of capitalist societies.
2. Choice of methodology and definition of indicators for producing of clusters of capitalism.
3. Data collection and data processing for chosen indicators.
4. Implementation of cluster analysis of data and identification of clusters of capitalism.
5. Study of available data for four others groups of indicators – economic, social, demographic and infrastructure. Gathering relevant data for identified clusters of capitalism.
6. Comparative analysis of the four groups of indicators for three clusters of capitalism.

Initially we **analyzed the documents (desk research)**. Through this method the existing literature, theoretical views, empirical research and available data concerning typology of capitalist societies and economies were examined. Familiarization with the available information contributed to the assessment of the current state of theoretical and empirical research in this area. For the first task – a study of the literature and overview of theoretical concepts concerning typology, periodization and clustering of capitalist societies was involved as a subcontractor Institute for Philosophical Research at the Bulgarian Academy of Sciences in the person of its Director, Prof. DSc. Vasil Prodanov.

To execute clustering we gathered data for three main indicators:

- Degree of development of the country;
- Share of public sector in the national economy;
- State participation in the redistribution of the gross domestic product (GDP).

WHY exactly these indicators we use?

NEED to use the first indicator is obvious – one or more countries at different points in time belong to one or another kind of capitalism based on them level of development. The other two indicators – the share of public sector in the national economy and government participation in the redistribution of GDP stratify countries over coordinate axis “liberal – state capitalism”. As we already noted, this dichotomy is most often used in the typology of the types of capitalism. Both sides of the dichotomy form two main “**fields**” in which there are positioned different types of liberal or state capitalism. Depending on the degree of clustering there may be produced smaller or more numerous types of capitalism.

THE first indicator – “degree of development” we study using GDP per capita.

COLLECTION of statistical data about the **second** indicator – “share of the public sector in the national economy” hinder us. Preliminary study in the first year of the project showed that the countries where there are indicators that allow the **direct** calculation of the share of public sector in the national economy are very few. For most countries there are no indicators **at all** allowing **direct** calculation of the share of public sector in the national economy. Therefore, we use expert estimations on five-point scales:

- Public sector share up to 20%
- Public sector share between 20% and 40%
- Public sector share between 40% and 60%
- Public sector share between 60% and 80%
- Public sector share over 80%

EXPERT estimations are based on the existing empirical data – a) indicators that allow **direct** assessment; b) indicators allowing **indirect** estimates. Methodological basis of this approach is that the **very essence** of a phenomenon manifests itself in various forms. Insofar as the share of the public sector is undoubtedly an essential feature of the capitalist mode of production, it affects, and therefore could be detected by others – quantitative fixed economic phenomena.

THE third indicator – “State participation in redistribution of GDP” we study in two ways: a) trace out the dynamics of the share of government revenue to GDP; b) trace out the dynamics of the share of government expenditure to GDP. Then we take the smaller of the two shares. Our reasons for this are as follows:

- If the budget of the particular country in a particular year is balanced, then both shares will be the same and no matter which of them we will explore;
- If in a particular year there is a budget deficit, it means that the expenditures exceed revenues, but the difference is not financed through tax revenues and by increasing debt (internal or external). But in real the state redistributes only that what is collected by taxes, so we have to take the share of revenue which is less;
- If in a particular year there is a budget surplus, it means that the revenues exceed expenditures, and the surplus remains for future years as reserve. So we have to take the share of the expenditures which is less.

So, taking the smaller of the two shares we receive a portion of GDP which is redistributed by the state.

OUR main working **hypothesis** is that the processing of statistical data for the three indicators will show groupings (clusters) of countries. We have two other hypotheses: a) Most likely the clusters will be grouped into cores (higher level of clustering), which will belong to one of two types of capitalism – liberal or state; b) Some of the countries that have a long historical development will move its position in the cluster, in the cores and in both types of capitalism.

METHOD for statistical data analysis and clustering is “hierarchical clustering”. Countries are grouped in qualitatively homogeneous groups based on the values of the three main quantitative indicators. The main result of the **hierarchical clustering** is so called **dendrogram**. This is a graphical tool that shows the degree of similarity between countries, and using it we could determine the number and structure of the clusters.

ADDITIONALLY, clusters are visualized using multidimensional scaling.

WE underline that our method of study is **inductive**. We start from the study of empirical facts and move toward generalizations. A special feature of our approach is that no distinction of the countries is made **a priory** by the political and ideological characteristics. So-called “socialist” countries are also included in the study.

GRANT from the Research Fund of the University of National and World Economy (UNWE) allow us to involve in the gathering of data and in the other activities several competent colleagues from our university and from other research units. However both I and Assoc. Prof. Dr. K. Haralampiev never imagined that we could execute this project alone. That is why we want to express our acknowledgements for their participation and substantial support to Assoc. Prof. Dr. Andrey Nonchev, Assoc. Prof. Dr. Martin Ivanov, Assist. Prof.

Ralitzia Veleva, Assist. Prof. Dr. Nikolay Tsonkov, PhD student Miroslava Dakovska and all others who in one way or another were involved in the project.

SPECIAL thanks to our two reviewers, Prof. DSc. Vasil Manoff and Prof. DSc. Duhomir Minev.

WE believe that what we have done is just the first step in an **inductive** study of the types of capitalism. We hope that giving publicity of our research will draw attention of the world science to our approach. In the monograph, which is published by UNWE University Press, are given also databases that could be used by colleagues in the guild for analyses of the characteristics of the various clusters of capitalism. We do not claim that those twelve original clusters of capitalism found by us are "final truth". What we can firmly say is that with the available grant we have given everything to achieve project goals. We would welcome any other efforts in the implementation of our approach as well as in the use and enlarging of the database.

2. WHAT ARE THE MAIN TYPES OF CAPITALISM IN THE TWENTIETH AND IN THE BEGINNING OF THE XXI CENTURY?

THE period for which we found sufficiently long time series of statistical data for a minimum of countries is since 1900 to 2005. We use 5-years step. As a result of the combination of the available data for the three indicators we received the following distribution of the countries for which we have data, by years³:

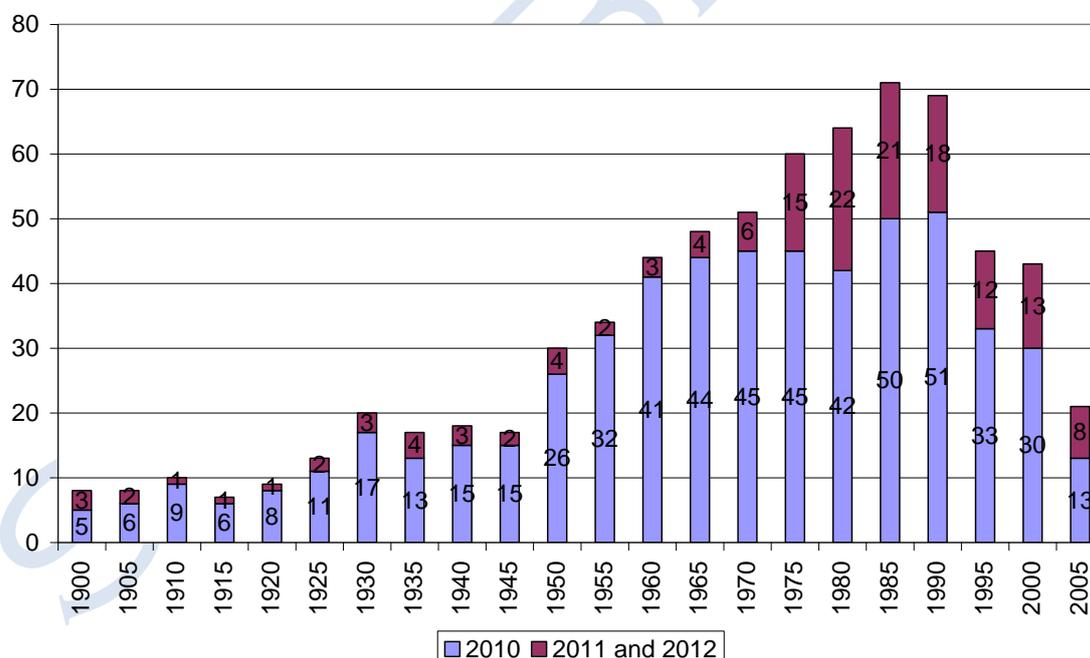


Fig. 1. Number of countries for which we have available data for all three indicators, by year

³ In 2010 our main task was collecting of statistical data for the three main indicators. The number of countries for which we collected data from National Statistical Institute of Bulgaria, Internet and official trip in the town of Mannheim is presented at the bottom of the graph. In 2011 and 2012 we completed two more official trips. The number of the countries for which we gathered recruited additional data is presented in the top of the chart.

As a result of the clustering in each of the 22 fixed years were obtained from four to ten clusters. In each cluster there are from one to 34 countries.

We found that there are cores of countries (or one country-cluster) which "flow" consecutively for a longer or a relatively short period of time during these 22 fixed years. "Flowing" over time, these cores "attract" other countries, or – conversely, some countries "run away" from their cluster. We identified **twelve** such "cases". We believe that these "cases" are developing in time **original** types of capitalism. These are twelve clusters that "pulsate" over time. We conventionally denoted these clusters as: First "Western European" cluster; Second "Western European" cluster; First "Latin American" cluster, Second "Latin American" cluster; First "Eastern European" cluster; Second "Eastern European" cluster; "USA"; "Japan"; First "Arabian" cluster; Second "Arabian" cluster; First cluster of developing countries, Second cluster of developing countries.⁴ (See Table 1.)

NOTATIONS "first" and "second" are related to: a) an earlier or later occurrence in time; b) to a greater or lesser duration.

Table 1.

Cluster	1900	1905	1910	1915
First „Western European” cluster	2L Argentina, Germany, Denmark, Canada	2L Argentina, Germany, Denmark	2L Argentina, Germany, Denmark, Canada, France	2L Argentina, Denmark
Second „Western European” cluster	2S France	3S France		
First “Latin American” cluster	3S Brazil	2S Brazil	3L Brazil	3L Brazil, Japan
Second “Latin American” cluster			1S Chile	1S Chile
„USA”	1L USA	1L Australia, USA	1L Australia, USA	1L Australia, USA
„Japan”	1S Japan	1S Japan	2S Japan	
Cluster	1920	1925	1930	1935
First „Western European” cluster	2L Argentina, Denmark, Canada, France	2L Argentina, Germany, Denmark, France	1L Australia, Argentina, Belgium, Germany, Denmark, Canada, USA, France,	3L Argentina, Belgium, Germany, Canada, Finland, France

⁴ In these conventional names we use quotation marks to refer to the following:

- When the name of the cluster is a collective, such as First "Western European" cluster, quotes show that in this cluster enter and countries outside the designated geographical region. (In this example most often such countries are Australia, New Zealand and Canada.)
- When the name of the cluster consists of the name of a single country, such as "USA", quotes show that this state is only the core of the cluster, and over the years it includes and other countries. (In this example, together with the United States often appear Australia and Switzerland.)

			Switzerland	
First "Latin American" cluster	3L Brazil, Japan	2L Brazil, Bulgaria, Guatemala, Mexico, Honduras, Japan	2L Brazil, Bulgaria, Guatemala, Cuba, Mexico, Hungary, Finland, Honduras, Japan	2L Brazil, Bulgaria, Guatemala, Mexico, Honduras
Second "Latin American" cluster	1S Chile	1S Chile	2S Chile	
First „Eastern European” cluster			1S USSR	
Second „Eastern European” cluster				2S Hungary
„USA”	1L Australia, USA	1L Australia, USA		1L Australia, Denmark, USA, Switzerland
„Japan”				1S Japan

Table 1. (continued)

Cluster	1940	1945	1950
First „Western European” cluster	2L Australia, Denmark, Canada, USA, Switzerland	2L Australia, Switzerland	2L Australia, Venezuela, Denmark, Canada, New Zealand, USA, Switzerland
Second „Western European” cluster			3L Austria, Argentina, Belgium, Germany, Finland, France, Chile
First “Latin American” cluster	3L Brazil, Bulgaria, Ecuador, Cuba, Mexico, Honduras	1L Argentina, Brazil, Guatemala, Denmark, Ecuador, Colombia, Cuba, Mexico, Peru, Honduras, Chile	1L Bolivia, Brazil, Guatemala, Ecuador, Colombia, Costa Rica, Cuba, Mexico, Panama, Peru, Puerto Rico, Honduras
Second “Latin American” cluster	1L Argentina, Guatemala, Finland, Chile		
First „Eastern European” cluster	1S USSR		1S USSR
Second „Eastern European” cluster		1S Bulgaria	2S Dominican Republic, Poland
„USA”		3L Canada, USA, Finland	
„Japan”	2S Hungary, Japan		3S Japan
Cluster	1955		1960

First „Western European” cluster	4L Australia, Venezuela, Denmark, Canada, New Zealand	3L Australia, Austria, Belgium, Great Britain, Germany, Denmark, Canada, New Zealand, Norway, Finland, France, Netherlands, Sweden
Second „Western European” cluster	3L Austria, Argentina, Belgium, Germany, Uruguay, Finland, France, Chile	
First “Latin American” cluster	1L Bolivia, Brazil, Guatemala, Ecuador, Colombia, Costa Rica, Mexico, Panama, Peru, Puerto Rico, El Salvador, Honduras, Japan	1L Argentina, Bolivia, Brazil, Guatemala, Greece, Ecuador, Iran, Colombia, Costa Rica, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, Puerto Rico, El Salvador, Turkey, Uruguay, Honduras, Chile, Japan
Second “Latin American” cluster	2S Algeria, Dominican Republic, Cuba	
First „Eastern European” cluster	1S Bulgaria, Poland, USSR	1S Bulgaria, Poland, North Korea, USSR, Czechoslovakia
„USA”	2L USA, Switzerland	2L USA, Switzerland

Table 1. (continued)

Cluster	1965
First „Western European” cluster	3L Australia, Austria, Belgium, Great Britain, Venezuela, Germany, Denmark, Italy, Canada, New Zealand, Norway, Finland, France, Netherlands, Sweden
First “Latin American” cluster	1L Argentina, Bolivia, Brazil, Guatemala, Greece, Dominican Republic, Ecuador, Iran, Spain, Colombia, Costa Rica, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, Puerto Rico, El Salvador, Turkey, Uruguay, Honduras, Chile
First „Eastern European” cluster	1S Bulgaria, Cuba, Poland, North Korea, USSR, Czechoslovakia
„USA”	2L USA, Switzerland
„Japan”	4L Japan
Second cluster of developing countries	2S Ethiopia
Cluster	1970
First „Western European” cluster	3L Australia, Austria, Belgium, Great Britain, Venezuela, Germany, Denmark, Italy, Canada, New Zealand, Norway, Finland, France, Netherlands, Sweden, Japan
First “Latin American” cluster	2L Argentina, Bolivia, Brazil, Guatemala, Greece, Dominican Republic, Ecuador, Ireland, Spain, Colombia, Costa Rica, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, Puerto Rico, El Salvador, Turkey, Uruguay, Honduras, Chile
First „Eastern European” cluster	2S Poland, USSR, Czechoslovakia
Second „Eastern European” cluster	1S Bulgaria
„USA”	1L USA, Switzerland

First „Arabian” cluster	4S Iran, Syria
First cluster of developing countries	3S Algeria, Ethiopia, India, Iraq
Cluster	1975
First „Western European” cluster	3L Australia, Austria, Belgium, Great Britain, Venezuela, Germany, Denmark, Italy, Canada, New Zealand, Norway, USA, Finland, France, Netherlands, Sweden, Japan
Second „Western European” cluster	1L Switzerland
First “Latin American” cluster	2L Argentina, Burma, Bolivia, Brazil, Guatemala, Greece, Dominican Republic, Ecuador, Ireland, Spain, Colombia, Costa Rica, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, Puerto Rico, El Salvador, Turkey, Uruguay, Honduras
First „Eastern European” cluster	2S Poland, USSR, Czechoslovakia
Second „Eastern European” cluster	1S Bulgaria
First „Arabian” cluster	5S Iran, Oman, Syria
Second „Arabian” cluster	3S Kuwait
First cluster of developing countries	4S Algeria, Ghana, Egypt, Ethiopia, Zaire, India, Iraq, Kenya, China, Tunisia, Chile

Table 1. (continued)

Cluster	1980
First „Western European” cluster	2L Australia, Austria, Great Britain, Germany, Denmark, Italy, Canada, New Zealand, Norway, USA, Finland, France, Netherlands, Switzerland, Sweden, Japan
First “Latin American” cluster	1L Argentina, Burma, Bolivia, Brazil, Venezuela, Guatemala, Greece, Dominican Republic, Egypt, Ecuador, Zaire, Spain, Yemen, China, Colombia, Costa Rica, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, Puerto Rico, El Salvador, Uruguay, Honduras, Chile, RSA
First „Eastern European” cluster	2S Poland, USSR, Hungary, Czechoslovakia
Second „Eastern European” cluster	1S Bulgaria
First „Arabian” cluster	6S Algeria, Kenya, Oman, Tunisia
First cluster of developing countries	5S Ghana, India, Somalia, Sudan
Second cluster of developing countries	4S Ethiopia, Iraq, Jordan, Congo
Cluster	1985
First „Western European” cluster	2L Australia, Austria, Belgium, Great Britain, Germany, Denmark, Italy, Canada, New Zealand, Norway, USA, Finland, France, Netherlands, Switzerland, Sweden, Japan
First “Latin American” cluster	1L Argentina, Burma, Bolivia, Brazil, Venezuela, Guatemala, Dominican Republic, Ecuador, Zaire, Zimbabwe, Iran, Spain, Cameroon, China, Colombia, Costa Rica,

	Mauritius, Madagascar, Malawi, Morocco, Mexico, Panama, Paraguay, Peru, Portugal, El Salvador, Thailand, Turkey, Uruguay, Philippines, Honduras, Chile, RSA, South Korea
First „Eastern European” cluster	2S USSR
Second „Eastern European” cluster	1S Bulgaria
First „Arabian” cluster	6S Algeria, Egypt, Jordan, Congo, Libya, Nicaragua, Poland, Tunisia
Second „Arabian” cluster	8S Greece, Kuwait, Oman
First cluster of developing countries	5S India, Yemen, Kenya, Tanzania
Second cluster of developing countries	4S Ethiopia

Table 1. (continued)

Cluster	1990
First „Western European” cluster	2L Australia, Austria, Belgium, Great Britain, Germany, Denmark, Ireland, Italy, Canada, New Zealand, Norway, Saudi Arabia, USA, Finland, France, Netherlands, Switzerland, Sweden, Japan
Second „Western European” cluster	6S Greece
First “Latin American” cluster	1L Argentina, Benin, Bolivia, Brazil, Venezuela, Guatemala, Dominican Republic, Ecuador, Zaire, Zimbabwe, Iran, Cameroon, China, Colombia, Costa Rica, Mauritius, Madagascar, Malawi, Morocco, Mexico, Nicaragua, Panama, Paraguay, Peru, El Salvador, Syria, Thailand, Turkey, Uruguay, Philippines, Honduras, Chile, Sri Lanka, RSA
First „Eastern European” cluster	1S Poland, Russia
Second „Eastern European” cluster	2S Czechoslovakia
First „Arabian” cluster	5S Algeria, Yemen, Jordan
Second „Arabian” cluster	7S Kuwait, Oman
First cluster of developing countries	4S Burma, Vietnam, Egypt, India, Kenya, Tanzania
Second cluster of developing countries	3S Ethiopia
Cluster	1995
First „Western European” cluster	2L Australia, Austria, Great Britain, Denmark, Israel, Ireland, Spain, Italy, Canada, Mauritius, New Zealand, Norway, Oman, Portugal, USA, Finland, Netherlands, Switzerland
Second „Western European” cluster	4S Sweden
First „Eastern European” cluster	5S Algeria, Bulgaria, Kenya, Russia
First „Arabian” cluster	2S Egypt, Tunisia
First cluster of developing countries	3S Burma, India

Second cluster of developing countries	1S Ethiopia
Cluster	2000
First „Western European” cluster	2L Australia, Great Britain, Denmark, Ireland, Italy, Canada, New Zealand, USA, Netherlands, Switzerland, Sweden
Second „Western European” cluster	8S Austria, Israel, Portugal
First „Eastern European” cluster	6S Czech Republic
Second „Eastern European” cluster	3S Bulgaria
First „Arabian” cluster	4S Algeria
First cluster of developing countries	1S India
Second cluster of developing countries	7S Egypt, Ethiopia, Iran, Jordan, Kenya, Nigeria, Poland, Russia, Syria, Hungary, RSA

Table 1. (continued)

Cluster	2005
First „Eastern European” cluster	3S Algeria, Bulgaria, Vietnam, Jordan, Morocco, Mongolia, Russia, Hungary, Czech Republic
„USA”	1L USA
First cluster of developing countries	1S India
Second cluster of developing countries	2S Ethiopia

THE table clearly shows the twelve clusters, each of them is a separate, original type of capitalism.

IN the columns of Table 1 we have denoted each cluster for each fixed year with one letter – L or S, and one digit. The letter L means that the capitalism in given cluster, i.e. in a given group of countries, is **liberal**. It is about **economic** policy and practice (reality) and not about a political regime. The letter S denotes **state capitalism**, i.e. maximization of state participation in economic life. The digit shows the extent to which this cluster is “liberal capitalism” or ‘state capitalism’. As the digit is lower as the degree of liberal or state capitalism is higher.

WE especially want to emphasize that our proposed names – First “Western European” cluster; Second “Western European” cluster; First “Latin American” cluster; Second “Latin American” cluster; First “Eastern European” cluster; Second “Eastern European” cluster; “USA”; “Japan”; First “Arabian” cluster, etc., are only a first step in determining of the type of capitalism of each cluster. At this stage the name of the clusters is, so to speak, “**geographical**”. Subsequently, we will try to find for each cluster – liberal or state, an appropriate name for its type of capitalism. This could be done after examination of its

characteristics. At this stage we are ready to offer the name of the type of capitalism only for First "Eastern European" cluster. We propose to define it as "the Soviet state capitalism".

OUR reasons are:

- This cluster occurs as a result of the October Revolution in Russia and the establishment of **Soviet** authority. For two decades – since 1930 to 1950, it consists of a single country which is defined as a "Soviet" – Union of **Soviet Socialist Republics**.
- Countries which then "merged" in this cluster are in the sphere of influence of the USSR after World War II. Raised in them mode of production is mainly due to the influence of Soviet authority over their political elites.
- Sometimes in our earlier publications, we have used the definition **socialist** state capitalism. Our reason was that the type of state capitalism in the USSR and other countries in "socialist" camp was determined in the official ideology namely as "socialist". Now we consider this definition as incorrect. First, because we are not obliged to support the official ideology. Second, because "socialism" and "capitalism" are alternative characteristics – both in science and in mass consciousness. Therefore one can not be used as the definition of the other. Third, because the mode of production in USSR and other countries in its camp is not **post capitalist**, and with the term "socialism" Marx calls post capitalist mode of production. So, why we have to "cheat" the Marx's methodology?

3. ANALYSIS OF THE CLUSTERING RESULTS

FIRST, we should note the following "phenomena" that are observed by the clustering:

a) There are clusters of very high **durability** and **stability** over time. To a large extent this is determined by the **availability** of statistical data. The most persistent and uninterrupted in time is First "Western European" cluster. And this is natural because the capitalist way of production has developed first in Western Europe. Accordingly, it was there statistical information is collected early and successfully.

ANOTHER similar cluster according to its durability and stability in time is First "Latin American" cluster. In the first decade of the twentieth century it consists of only one country – Brazil. But then "swells" and until 1990 is the largest cluster – it includes most countries. After 1990 however the situation becomes very complicated. Whether due to a "velvet" revolutions in Europe or because the policy of "neoliberalism" in many Latin American countries or due to some other reasons a strong "mess" in the content of the clusters arises. There is reason one cluster to be considered as First "Latin American" cluster in the period 1995-2005. But countries included in it are very different from those in 1990. For example, in 1995 they are Ecuador, Zimbabwe, Iran, Jordan, China, Costa Rica, Morocco, Peru, Poland, Syria, Thailand, Philipines, Chile, Sri Lanka and RSA. Therefore at this stage we avoid to say with certainty that this is the First "Latin American" cluster. But even excluding the period 1995-2005, surely we can determine the First "Latin American" cluster as one of the clusters with the highest durability and stability over time.

b) There are countries that for a relatively long period are separate cluster. Such a country-cluster for instance is Japan. Japan's original type of capitalism could be traced out since 1900. Toward 1965 this type of capitalism often consists only of Japan. An exception is 1940 when it enters and Hungary. When this cluster "merged" into another cluster in this period, this "more powerful" cluster is First "Latin American" cluster. Since 1970 Japan was not a separate cluster, and it is often part of the First "Western European" cluster.

As an original type of capitalism we can determine and cluster-country "USA". In the first half of the twentieth century, the United States forms cluster most often together with Australia. In the second half of the twentieth century USA forms cluster most often together with Switzerland. There are two cases where the USA itself is cluster – 1900 and 2005. Since 1975 they constantly belong to the First "Western European" cluster. This is a very interesting phenomenon – the two most developed in the last decades of the twentieth century countries – USA and Japan, and First "Western European" cluster harmonize their mode of production and become the same type of capitalism.

BULGARIA also for a relatively long period – 15 years, is a country-cluster – since 1970 to 1985. At that time it itself is Second "Eastern European" cluster. Before – in 1945 it was also country-cluster (Second "Eastern European" cluster). A similar case is Ethiopia. Can we identify the economic development of these countries as original type of capitalism? For Bulgaria – surely – we can not. But for Ethiopia it is worth to consider. Because from nine fixed data points in five of them Ethiopia is separate representative of Second cluster of developing countries.

c) There are three types, or we can say **levels** of "pulsations", i.e. "jumps" of countries and clusters.

- First, the lowest level is when the state "jumps" from one cluster to another.⁵ For example, Australia since 1905 to 1925 is in the cluster "USA". In 1930 it "jumps" in the First "Western European" cluster.

- The next level is when a cluster is moving and changing its location within the space of liberal or state capitalism, but without losing its character as a liberal or state capitalism. For example, the degree of liberalism of the first "Western European" cluster since the early twentieth century until 1950 is 2L (excluding 1930 and 1935).⁶ However, in 1955 its degree of liberalism is substantially reduced – becomes 4L, then 3L. Only in 1980, its liberalism is strengthened and becomes again 2L.

- Similar "jump" – within the liberal or state capitalism, there is when a country-cluster, changing its mode of production "merged" into another cluster and this is connected with a change in the degree of liberalism or state capitalism.⁷ For example, the cluster "USA" in 1970 is a separate cluster with the highest degree of liberalism – 1L. The changes in the mode of production in the next five years cause "merging" in 1975 in the First "Western European" cluster whose degree of liberalism is significantly less – 3L (See Figure 2).

⁵ Perhaps in this case it is more accurate to speak for acts of "merging" or "exit" from the cluster because one is not always necessarily linked to the other. An additional argument for this type of consideration is that such a phenomenon appears with clusters too – one cluster can "disappear" without "merging" into another cluster. Such clusters "fade" over time, simply because for some reason they **objectively** decompose – countries of the "core" since certain moment are developed in a different way.

⁶ If we make a comparison for example to the degree of liberalism of the cluster "USA", we can say that the type of capitalism in the First "Western European" cluster is one degree less liberal than the cluster "USA" which is 1L in the same period.

⁷ However the country-cluster therefore "merges" into another cluster – because in the previous period its level of liberalism or state capitalism has already changed.

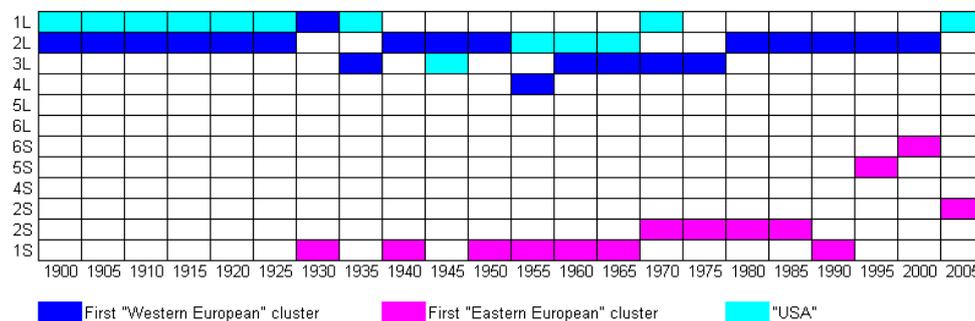


Figure 2. Dynamics of the degree of liberalism and state capitalism of First “Western European” cluster, First “Eastern European” cluster and the cluster “USA”.

- The third level of “jump” is when a cluster changes its character and “moves” from one to the other end of the cluster space – i.e. from liberal became state capitalism or vice versa. For example, the economy of the cluster “Japan” in the first half of the twentieth century has developed as state capitalism. Since 1960, its economy as a separate cluster, or cluster “merged” in another cluster already has developed as liberal capitalism.

d) In evolving in time 22 points of clustering has several points when the way of production changes significantly on a global scale. Accordingly, the types of economies and the countries which constitute the clusters also significantly change. The study of these points and changes in the types of capitalism is a separate issue that deserves special attention. Here we want to pay attention only to the fact that such point is 1990. We already said that by a number of reasons – for example, “velvet” revolutions in the “socialist” countries, the impact of “neoliberal” economic policies⁸, etc. since 1990 serious changes in the composition of the clusters occur. The “mess” is so great that at this stage we very **carefully** identify clusters. For us to identify clusters since 1995 onwards is a challenge for a serious job.

e) What can we say about the “preferences” of clusters to the liberal or the state capitalism?

- Capitalist economies of three clusters in almost the entire twentieth century have developed as liberal economies. These clusters are First “Western European” cluster, First “Latin American” Cluster and cluster “USA”.⁹ When Second “Western European” cluster is observed, it also almost always developed as liberal capitalism.¹⁰ Similar is the case with the Second “Latin American” cluster, in which the affinity to liberal capitalism is also interrupted occasionally by long periods of state capitalism. This is, the period 1910-1930 year when the Second “Latin American” cluster, consisting of Chile, is developing as state capitalism.

- During the first half of the twentieth century the clusters whose economies developed as state capitalism, as the number are equivalent to those clusters whose economies grow as

⁸ We put quotes of “neoliberal” because we have doubts about the official dogma that these policies are neoliberal.

⁹ An exception is the beginning of the century, when in 1900 and 1905 First “Latin American” cluster, consisting only of Brazil, is developing as state capitalism.

¹⁰ The exception is again the beginning of the century, when in 1900 and 1905 years Second “Western European” cluster, consisting only of France, developed as state capitalism. The second and third exceptions were in 1990, when consisting of Greece, and in 1995, when consisting of Sweden, the economies of this cluster are again state capitalism.

liberal capitalism.¹¹ The situation is similar in the second half of the twentieth century. But in the second half of the century a number of special cases exist. For example this one: since 1970 the number of clusters whose economies developed as state capitalism begins to prevail over the number of those clusters with economies which are developing as liberal capitalism. There are at least two more interesting features. First, during this period, the appearing **new** clusters are always state capitalism. Such is the capitalism of appeared in 1970 First "Arabian" cluster consisting of Iran and Syria, and First cluster of developing countries consisting of Algeria, Ethiopia, India and Iraq. Such is the capitalism of appeared in 1975 Second "Arabian" cluster consisting of Quwait. Such is the capitalism of appeared in 1980 Second cluster of developing countries consisting of Ethiopia, Iraq, Jordan and Congo. The second feature is that in this period – after 1970, even the economies of the developed European countries such as Sweden (1995) and Greece (1990), appearing as a Second "Western European" cluster, have the character of state capitalism.

THE table allows many more analyzes. We'll stop there.

TO summarize the previous analysis – what can we ascertain about our three working hypotheses presented at the beginning of the study? We believe that clustering shows the following:

- Our main working hypothesis that the processing of statistical data for the three indicators will show groups (clusters) of countries is **fully confirmed**;
- Our second hypothesis that most likely the clusters will be grouped into cores which will belong to one of two types of capitalism – liberal or state, is **also confirmed**;¹²
- Our third hypothesis is also **fully confirmed** – that some of the countries that have a long historical development, will move its position in the clusters, in the cluster cores and in both types of capitalism – such as Brazil.

WE hope that the presented results show **heuristics** of cluster analysis for typology of types of capitalism.

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¹¹ Even there are cases when they are significantly more in number. For example, in the initial year – 1900, from six clusters four are state capitalism.

¹² This can be seen in Appendix 5 of the monograph (2).