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CENTRE–PERIPHERY MODEL EXPLAINING THE REGIONAL DEVELOPMENT OF THE INFORMATIONAL AND TRANSITIONAL SOCIETY

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Abstract

This discussion paper analyses regional development of Estonia and uses a centre-periphery model (CPM) as analytical framework. The aim of the paper is to prepare and test a planned study based on the more detailed population and labour market survey data as well as enterprise development data of the transition period in the 1990s.

The CPM assumed the continuity of industrial society and became less relevant today. Firstly, therefore, this paper analyses concentration-deconcentration factors of the informational society and tries to combine the classical approach with new conditions.

Secondly, the paper sets a hypothesis arguing that Estonia followed rather different spatial development stages, because of the external (political) factors influencing smooth development path. If even the spatial development seems to be very similar to what happened in the Western countries the reasons behind the spatial change may have been sometimes entirely different.

Thirdly, as the Eastern European countries are still industrial their of spatial development can be traced back to the past Western countries development. Hypothetically, according to the CPM, the deconcentration processes should intensify in Estonia.

The empirical part analyses the regional development of Estonia in the historical perspective. The discussion is supported by population data of censuses and other empirical materials.

Finally, we attempt to design a comparison of different urban development stages in the UK, Finland and Estonia.

Key words: *centre-periphery model, settlement development stages, external factors in spatial development*

1. Introduction

This paper analyses regional development of Estonia and uses centre-periphery[1] models (CPM) of Friedmann, Gibbs and Hautamäki as a base for theoretical discussion and analytical framework. The aim of the paper is to prepare and test an extensive study based on the more detailed census data and labour market survey as well as enterprise development data of the transition period in the 1990s.

In general, these models foresee stabilisation and deconcentration population and economic agents after the concentration stages. The post-war spatial processes and deconcentration of the 1970s and 1980s were fairly well described by the CPM.

However, the 1990s turned to a new concentration in a number of countries. The CPM that assumed the continuity of industrial society and relevant factors, both negative and positive for concentration, influencing regional structures and settlement, became less relevant. Therefore, the third chapter in this paper analyses concentration-deconcentration factors of the informational society and tries to plant the classical approach into the new soil.

Secondly, we set a hypothesis arguing that the Baltic Countries, Estonia in this case, have followed different spatial development stages with Western countries. The level of economic development and the amount of capital in circulation is considerably smaller in the Eastern economies. When the Western economies enjoyed economic and political stability after the World War II, regional development of their Eastern counterparts was influenced by several political convulsions. Therefore, similar results in population and settlement structure development may have rather different causes in the Eastern-Europe.

For example, in Estonia, (1) the economy and population were relatively de-concentrating in the 1980s and (2) rapidly concentrating during the mid 1990s. At the first sight, on the basis of population statistics, this seems to be quite similar to what

[1] Terms “centre” and “core” are used as synonyms in the sense of a national (or regional) capital city which operates as a functional (service) and administrative (political) centre and forms a core area of

happened in the Western countries. However, after a deeper look at the processes we see that the driving forces have been entirely different.

The Eastern European countries are still industrial as to their economic structure, just recently moving from labour intensive production towards capital intensive manufacturing which means that driving forces and models of settlement development can be traced back to the Western countries development of the 1970-1980s. Hypothetically, according to the CPM, the deconcentration processes should intensify in Estonia. True, we must consider that the transition processes from industrial and to informational societies will take place simultaneously and at a higher speed.

The empirical part analyses the regional development of Estonia in the historical perspective. The description of the past developments attempts to outline (1) influential causal factors, (2) periods of concentration and deconcentration, and (3) particularities compared with the Western countries. The discussion is mainly supported by population data of censuses, but it also uses other empirical materials such as small case studies, interviews and observations.

Finally, we attempt to design a comparison of different urban development stages in the UK, Finland and Estonia.

2. Friedmann's core-periphery model, models of Gibbs and Hautamäki and the synthesis

John Friedmann (1966) developed the core-periphery model studying differences between regions and the development policy of Venezuela. He differs four stages of development in economic space:

I) **The pre-industrial (agricultural) society**, with localised economies, in which settlement structure consisting of small units remains dispersed and whose economic subjects (population and merchandise) have low mobility.

II) **The concentration of the economy** from periphery to the core begins as a result of capital accumulation and industrial growth. The interregional

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capital investments and economic concentration.

mobility of labour and intensity of trade rises enormously. However, the labour force daily space remains local, as the personal mobility of people remains limited. The periphery is totally subordinated to the centre of political and economic dominance. The industries producing the highest extra-value are located in the core area.

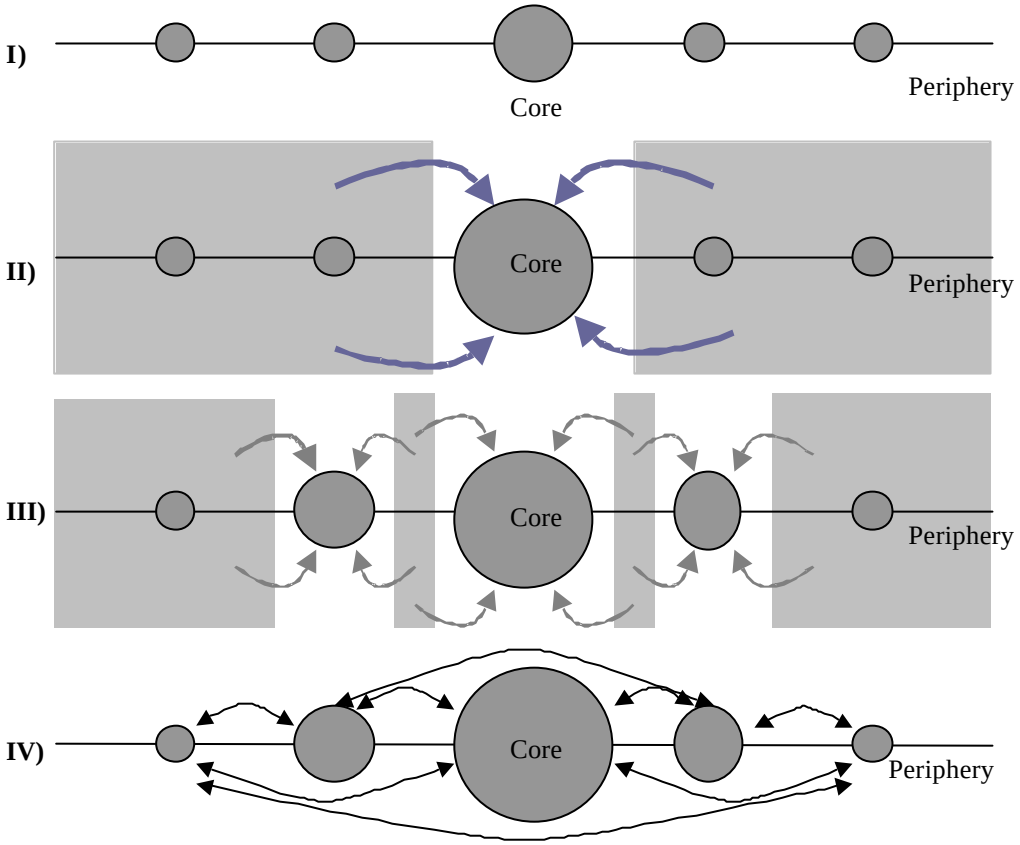

Figure 1. Friedmann's (1966) Core-Periphery Model.

III) **Economic growth spreads across the country** and causes other growth centres to appear. The main reasons for deconcentration are the lack of labour force and rocketing prices in the core area. A similar effect has been described in the 1950`s by Perroux (1955) – "growth poles", Myrdal (1957) – "spread" effect and by Hirshmann (1958) – "trickle down" effect. These theories have influenced European regional policy in the 1960s and 1970s. Furthermore, the deconcentration of economic units and population (living estates) took also place within the metropolitan areas: intensity of people's personal daily mobility and distances between workplace and home increase. However, the growth of the metropolitan region proceeds and the remote periphery continues to decline.

IV) **The spatial integration** of the economy and achievement of equilibrium. Friedmann (ibid.) believed that the allocation of economical activities should attain optimum, balance and stability. That does not mean that trade and the mobility of the population should decrease. Quite the contrary! As far as different areas specialise in certain functions, there will be division of labour between regions. An integrated model foresees a cyclical movement of the population caused mostly by age: the youth study in big cities, families settle in suburbs, elderly people look for cheap and peaceful rural environment. Friedmann, along with Miller, also published in 1965 the urban field concept in which the recreative hinterland of cities was limited with ca three hours of drive.

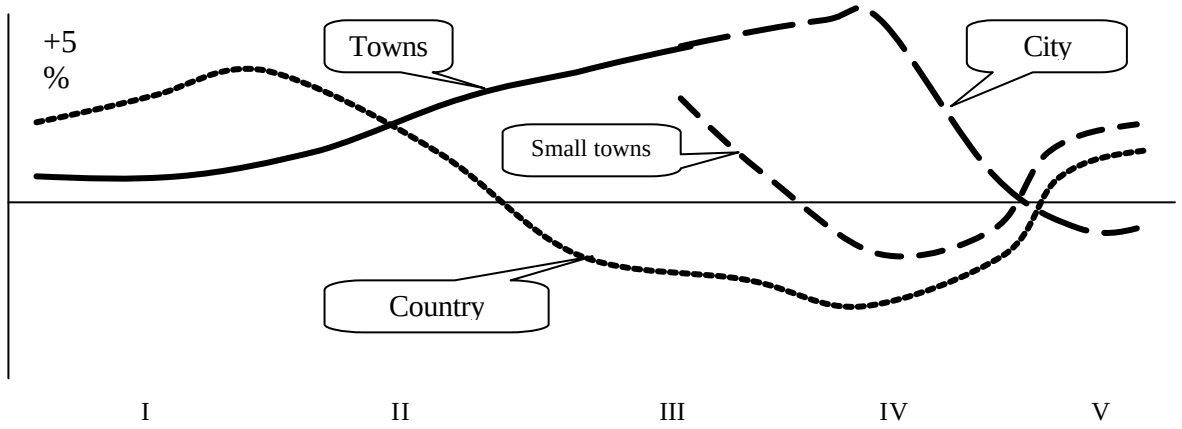

Figure 2. Gibbs' (1963) model of settlement development.

In 1966, Gibbs presented his five-stage model for changes in the concentration of the population in cities, small towns and country areas:

I) Towns are born, but the population of the surrounding country-areas grows faster or as fast as in the cities.

II) The cities begin to grow faster than the country-areas.

III) Country-areas begin to decline in absolute terms.

IV) The population of small towns decreases.

V) The movement between different parts of the settlement balances, big centres loose population.

Finland, for example, reached the third stage in which urbanization was very intense and the population of country-areas started to decrease, only in the late 1960s. In the 1980s, the communities surrounding major cities started to grow – city regions (*seutu-alue*) were formed and the big cities themselves started to decline (Kultalahti 1990, 94).

Lauri Hautamäki (1982, 152; cited by Kultalahti 1990, 61) presented Finland's five-stage model as the following:

I) Settlement is forming, towns are small, peripheries grow;
II) Settlement is spreading, urbanization begins;
III) The population grows only in centres;
IV) Growth in centres stops and the population spreads to the city regions;
V) Similar to the first stage, the growth of peripheries is more rapid due counter-urbanization.

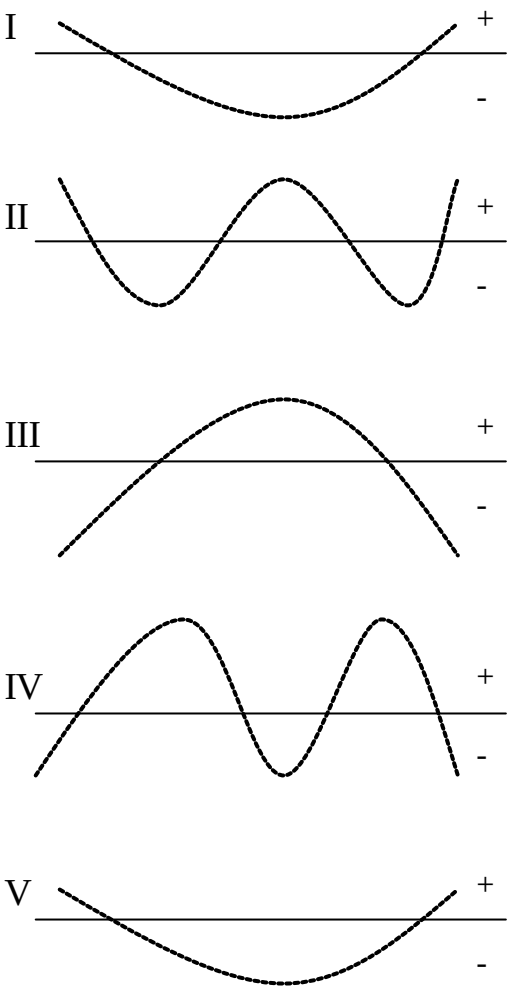

Figure 3. Hautamäki (1982) Finnish centre periphery model.

The final stage was more like wishful thinking because Finland has never reached the de-urbanization stage yet. The areas of Helsinki and other major cities have been growing continuously (Kultalahti 1990, 94-95).

In summary of what we have learned, we can design a complex centre-periphery model. The model divides the settlement into four groups:

1) A big centre,
2) Regional centres,
3) Towns and
4) Rural areas.

The semi-bold line characterizes the change of the population in country-areas – the migratory movement. A five-stage model forms.

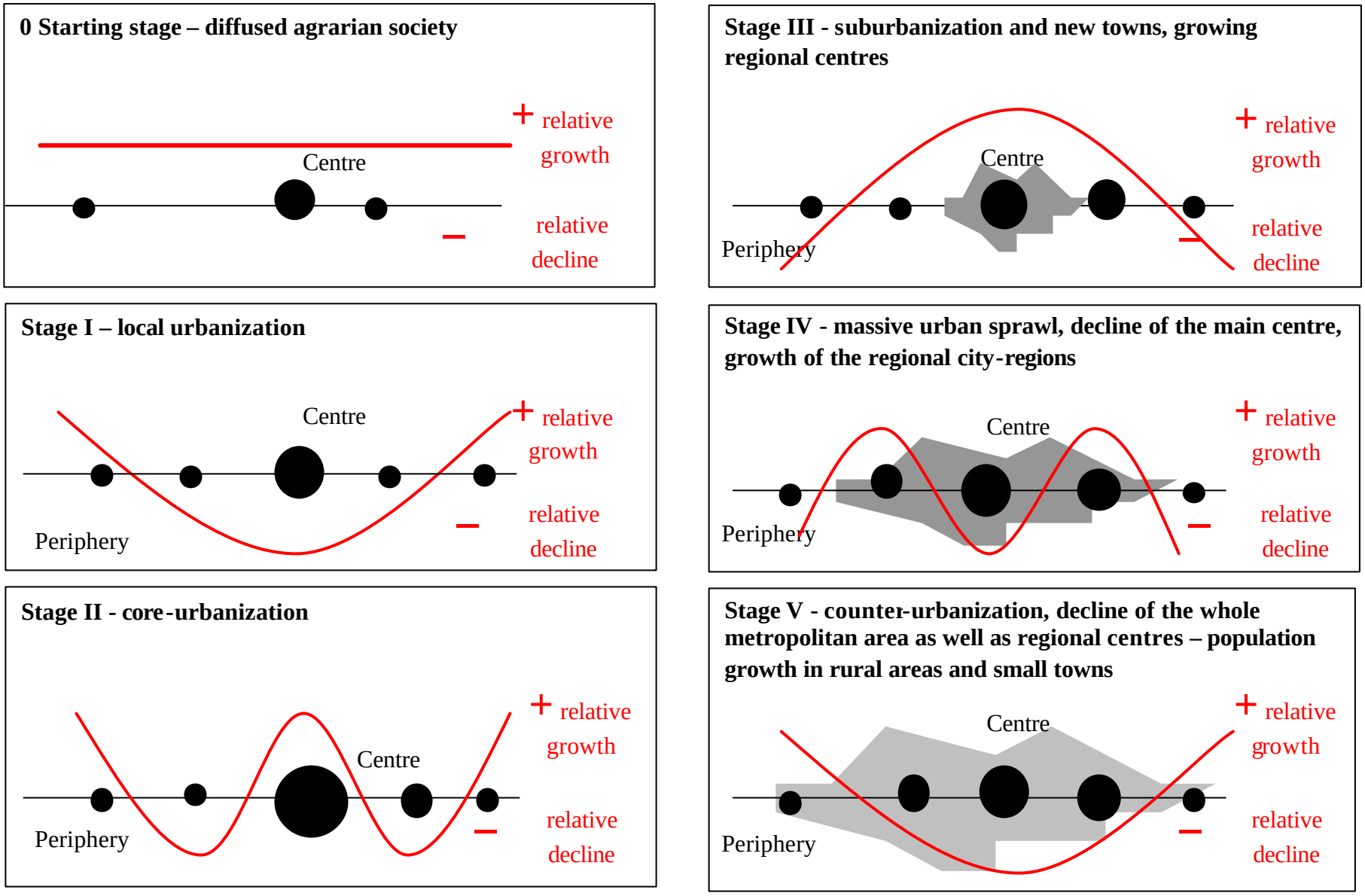

Figure 4. Synthesised centre-periphery model by (Gibbs (1963), Friedmann (1966) and Hautamäki (1982, cf. Kultalahti 1990)).

0 The starting period. There is no significant polarization in the economy and people's mobility. The population grows steadily, towns are small.

I First stage. Local urbanization begins with capitalism and industry developed. The economic power and the significance of the capital city grows modestly. Centres grow on the account of nearby population and capital. The population of peripheries grows continually because of taking new lands into use. The growth of country-areas on the whole continues. Cities and other settlements are compact and the mobility of people remains low: the barracks for workers are built right next to mines and factories. The industrialization began in England in the 18th century but in the Baltic countries about 100 years later.

II Core-urbanization. The main centre grows rapidly during the second stage. People move from the country to the city – the hinterland for the core-city is formed. Core-urbanization in concept accentuates the rapid growth of a metropolitan. Spreading of agricultural settlements in the peripheries still continues (colonization and melioration) because agriculture remains the main economic branch and employer.

III. Sub-urbanization and new towns. The nearby areas of the centre – suburbs grow, spreading across the borders of the city. Thanks to the growing mobility of people (railways, later cars) urban sprawl begins as well as planning of new suburbs and towns which are connected to the city core with public transportation. After the central city, the regional service and industrial centres start to grow.

IV Urban sprawl is accompanied by the massive use of cars, which allows the thickening of the agglomeration space. Extensive territories near the cities form densely built-in residential areas, cities in their turn merge with each other, forming megalopolises. At the same time, the cores are jammed with cars. The core-city declines due to agglomeration problems (high cost of living, traffic jams, pollution and high crime rates).

V Counter-urbanization. In the final stage, the cities and entire central city regions stop growing. Several far-away rural locations recover from previous decline – urban people and enterprises move out from the jammed urban areas and apply urban lifestyle

in a scenic environment. New production, service and residential areas grow near airports and highways. Such complex-planned edge-cities that provided superb environment and good services, including security, grew in the US in the 1980s -1990s (Hall, 1998, 162).

The counter-urbanization in the 1980s was caused by four factors:

1) The aging of the population (older citizens left their careers and moved to a more peaceful environment);
2) Unemployment, social problems and high crime rates as a result of de-industrialization (Hall 1998, 31-34);
3) High real estate prices of metropolitan areas (price of land was less expensive in the remote country-areas) and the development of highways and other high-speed transportation (high-speed trains) made distant locations easy to access easily accessible.
4) Unpleasant physical environment in (Anglo-American) city centres: poorly planned, ugly, unfriendly for pedestrians and bad and expensive services because of the dominant bureaus and extremely high real estate prices. The city centres turned into wastelands after "calling it a night" (Hall, 1998). The city politicians of the 1980s began to improve the situation by using new architecture, art and by helping culture life. Thanks to them, many city centres reached new growth in the 1990s (Jauhiainen 1995, Hall 1998, 65-74).

3. Critics about the centre-periphery model and new input

Friedman's, Gibbs's and Hautamäki's models became stuck in industrial society's economic models and environmental static: they presumed that the economical structure stabilizes and that the environmental problems of the rapidly growing cities would be continually insurmountable. Also, the CPM originated from rational arguments and the interests of production. They ignored people's personal needs and cultural factors

Friedmann's (1966) CPM was criticized ever since it was created. Brenner (1977) claimed that the centralization of power cannot cause the centralization of economy. He also said that the given approach would not sufficiently describe interregional division of labour, distribution of wealth and goods.

Storper and Walker (1989, 183) point out the importance of historic legacy and layers of investment, which create a specific milieu for a region. Because of that, many development paths are excluded and a path-dependency is formed: the development of a region is rather evolutionary, based on the social networks and cultural values.

Even if some forms of enterprise are diffusing in the space, it does not mean that the same goes for applies to power. If a community of entrepreneurs (the economic power) who normally have the political power as well has settled in a region (created structures), they will probably not leave the region. This means that although the form changes, the concentration of economy still remains the same. For example, previous manufacturing industries can be replaced with business services, which rather centralises the power.

However, new investments can alter the power balances significantly. Doreen Massey (1984) compared the local economic structure with a pie that has layers. Over the years the pie acquires new layers and thus changes the character and size of the local economy. Depending on the activities of the regional enterprises, investments intensify or reduce expand or contract. Investments, e.g. into an old industry, may often result in an obstruction for new developments. Peter Hall (1988) has said: "the new industry will not go into the industrial areas of yesterday". The problem lies not in the old industrial buildings but in the polluted environment, in the social and labour force problems.

So, the economy is changing and the people of the information society are influenced by rather different factors. The economic and political factors of the information society have helped the centre regions to grow again. This is particularly visible in the global financial centres which are going through undergoing a new growth stage.

3.1. Economic and political factors

The formation of a settlement structure on a centre-periphery line is influenced by several new factors which emerged during the informational era.

Tertiarization and globalisation, especially the growth of the business services and media lead on to the centralization of economic power in the international cores and the

decrease of manufacturing and the primary sector employment in peripheral areas of the developed countries.

Innovative production which runs entirely new economies and also supplies traditional industries and services with inventions is centred in the big metropolitan areas, "superbrains". Short life cycles of the high-tech products create the necessity for geographical closeness – lack of time and tense competition are reasons why companies cannot leave the path dependency to a new location because they would lose their ability to compete. The high-tech production left the city-centre earlier. They who? moved to areas near the city, to the clusters that formed around universities like Silicon Valley (Stanford, San Francisco) and Route 128 (MIT, Boston) in the USA or Cambridge and Oxford Universities close to London (Castells 1996).

On the other hand, cultural and recreational economies, the world's most rapidly growing branches in general prefer areas that are not damaged by former agricultural or industrial legacy. The number of population and jobs has grown in the Western European and American (US?) inviolate scenic areas.

Agglomeration problems such as traffic jams, high crime rates and rise in prices are still burning issues for metropolitan areas. The production continues to move into the better accessible areas near highways, airports, harbours, for example along the M4 highway corridor West of London (Temple 1994, 145), sometimes pretty far away from centre-cities like the so-called Trans-plant Corridor in Tennessee, US (Dicken 1998). The metropolitan space expands (Issermann 2001, 41-45) and densifies (Hall 1998, 102-3).

On the other hand, active intervention of city authorities in the 1980s – 1990s: renovation of city centres, bringing back services and improving the environment (Jauhiainen 1995, 46-53) has improved the image of inner cities and caused, combined with new *city*-service-workshops and new *yuppie*-cultural re-urbanization, gentrification.

3.2. Technology

According to Kondratieff's (Kondratieff 1935) theory, the capitalistic society has an integrated engine generating new development by short- and long-term crises. The basis

for Kondratieff's long-term waves are changes in technology, the so-called super-innovations, rearranging the whole development of society (Shumpeter 1934). Different forms of production dominate in different countries and regions at different times. For example, in Great Britain, the areas of Lancashire, Shropshire and Black Country grew during the first cycle, South-Wales and North-East during the second cycle, Midlands and Greater London during the third and the fourth cycle.

However, big centres have managed to maintain their positions in technological development. They are not only industrial, but first of all political, financial, commercial, educational, and cultural centres where most of the new technologies and innovations are born. IT technologies make it easy to control production from centres, even increase the formation of branch plant economies Temple 1994).

On the other hand, growing mobility and information technology (IT) appliances make the dispersion and mobility of many workplaces possible. In new terms, many distant areas have the possibility to develop, thanks to their value as residential environment.

3.3. Cultural-lifestyle factors

Cultural-lifestyle factors alter centre-periphery relations also in two ways. First, the human genome has formed in nature. Homo sapiens, feeling the connection with nature, desires back to his natural environment. This factor has obviously created the demand for recreational economy outside centres and artificial environments.

Secondly, the cultural legacy. Soja (1996) sets Los Angeles as an example of the post-modern metropolis with active ongoing segregation, based on cultural identities (nationality, language, race). Every identity group in this global metropolis is trying to create their own environment. When the urban culture has formed, people's tolerance towards artificial environment is also higher and that may benefit urban growth development, especially if there is a similar cultural environment.

A cultural factor by itself is also fashion, group madness, preferring certain particular lifestyle types, depending on the behaviour of the elite. That alters the taste of the major part of the population. For example, the American lifestyle "standard" includes a private house which continuously spreads the US metropolitan population.

3.4. Synthesis

The previous attempt to analyse new factors influencing concentration-deconcentration processes of the informational society on the centre-periphery axis did not give us a clear-cut answer about the futures. There are factors both fostering and retarding concentration and their combinations with each other and historical developments will make the model even more complicated than in the 1950s when the CPM was developed. Still, a number of messages can be found in this discussion.

Firstly, every new technological breakthrough benefits concentration because of high risk in the field of new economic activities and demand for high capital available only in the core areas. After a while, new technologies and economies will spread all over the space looking for cheaper input factors and most favourable locations. Thus, these relatively short cyclical changes in economic concentration can also be foreseen expected in the future. These cycles evidently fit Kondratieff's long waves theory. However, new branches will probably benefit rather different fringe areas.

Secondly, new technologies increasing labour productivity with automation are changing the basis of the society. The physical and especially virtual mobility of people and goods will be increasing. There will be less physical work to do than now, the rate of symbol analysts having mental (technological information) jobs and also people employed in art industry, as well as all service sector will have increased. This means on the one hand even higher concentration of economy, but on the other, highly qualified workers who will choose more precisely their living environment, may live rather far from their workplace and that way promote more remote areas.

Thirdly, cultural factors also seem to have much higher importance in informational society settlement structure development. The key word is diversity which increases as a result of immigration of different nationalities, but also because of massive creation of new identity and lifestyles due to the "brainwash" in the media. Changing national composition of different regions will produce hardly predictable patterns. Therefore, national and professional composition should be considered as important factors in predicting spatial behaviour of the population.

Consequently, different forms of production and relevant spatial structures dominate in different countries and regions at different times. The problem of the classical CPM stems from the continuous and accelerating changes in economy: new leading branches choose new areas to expand and the equilibrium will never be achieved. Empirical studies to be carried out in the Western countries and particularly in the US will show rather soon whether the informational society continues to concentrate to the urban cores or turns to a new cycle of deconcentration. The CPM can be used after the modification as a descriptive tool.

Table 1. The conclusion of new informational society factors influencing concentration-deconcentration processes on the centre-periphery axis.

	Concentration + / Deconcentration -	**New/old factor**
Economic and political factors		
tertiarisation and globalisation	+	new
innovative production	+	new
renovation of city centres	-	new
agglomeration problems	- -	old
rise of recreational economies	-	new
Technology		
easy to control production remotely	+	new
growing mobility of people	-	new (ICT & high-speed trains) / old (car)
IT and web-based jobs	-	new
Cultural-lifestyle factors		
demand for recreation	- -	new
spreading city culture	+	old
fashion	+/-	old

On the other hand, the CPM can be used to forecast new spatial development patterns in the Eastern European countries, whose economic and consequently spatial development is lagging behind. The presumable "after-development" of the Estonian economic and settlement structure is therefore an object of this study. Well, we must definitely be aware of the considerably smaller number of Estonian and its capital city population,

which make only about one tenth of the European largest metropolitan areas, and lower densities.

4. Estonian development in the framework of the CPM

The chapter analyses the development of Estonian settlements in the framework of the CPM.

4.1. Earlier applications of the CPM in Estonia

One can say that Estonia has not been analysed in the framework of the CPM so far. Walter Christallers (1933) central place theory has been applied quite intensively, focusing on the studies of the hierarchy of settlement structure and the relations between settlements themselves (Kant 1935, Nõmmik 1979; Nõmmik and Mereste 1984, 200-211, 219-226).

The pioneer of research Estonia's centre-periphery relations is without a question professor Edgar Kant, who did that exhaustively in his doctoral research (Kant 1933) and its German language monograph published in 1935 (Kant 1935).

Later, the school of professor Salme Nõmmik focussed on the so-called "social-economic space systems" (*sotsiaalmajanduslik ruumsüstem*) and studied mainly the location of industries and spatial disproportions between the existing settlement structure and new economic development (Nõmmik 1981, 89-91). They pointed out the necessity to locate production equally on the territory in order to make better use of local resources (Tarmisto 1960, 192; Tarmisto 1975, 276), importance to develop small towns (Ehrlich 1977, 208-13) and diverse planning of production and residential areas (Tarmisto 1978, 122-7). They also pointed out differences between service quality in cities and country areas (Mäeltsemees 1981, 138-140).

The statement of the school leader: "…villages lacking economic functions will decline inevitably" (Nõmmik 1976, 151-2) based on the empirical proof of the industrial era seems to be incorrect today when the growing mobility of people increases distances between working and living places and when people are highly selective choosing their living environment.

4.2. Early industrialization

The development of Estonia as an agrarian society had no special regional differences. There were no big cities. The county centres – the network of fortress cities developed in the 10th - 11th century and was fixed in the 14th – 15th century by building cities of stone.

CPM stages I and II: The first industrial revolution from 1860 to 1915

Stages I and II of the CPM appeared almost simultaneously at the beginning of the industrial revolution in the 19th century. The abolition of serfdom in Baltic Provinces at the beginning of the 19th century caused the biggest change. Wealthy farms created the demand for local town services and industrial enterprisers. Small towns appeared and grew explosively in Upper Estonia in the last decade of the 19th century.

Textile, engineering, shipbuilding and other industries were also developing fast due to the trade with Russia and favourable ice-free ports in the middle of the 19th century. Core-urbanization began in Tallinn and other industrial cities in Northern Estonia. The population of Tallinn for instance doubled from 58000 to 116000 during 1897-1913.

CPM I: The period of agrarian development from 1918 to 1933

In the 1920s, Estonia returned to the first stage of the CPM. Mostly the local centres of Upper Estonia were expanding: small towns and boroughs whose development based on supplying the agricultural producers of close hinterland with goods and machinery and processing the agricultural products for export.

The growth was slow when compared to the growth at the turn of the century. However, the citizens of boroughs who used to work in agriculture specialised in service-industry (Raagmaa et al. 2002). The population grew also thanks to the land reform and colonization in the most remote peripheries.

CPM II, III: The new industrial growth and the first appearance of sub-urbanization 1934-1940

In the middle of the 1930s the development of capital-intensive industries in North Estonia began on the basis of oil shale, timber and phosphorites and in Tallinn port industry. The resort towns in Western Estonia restored their position.

A phenomenon in itself was the building of Nõmme garden city in the middle of 1920s near Tallinn (now a part of the city), which was a sign of western type sub-urbanization. Two-thirds of the citizens of Nõmme worked in Tallinn in 1930s.

4.3. Socialist fordism – an industrialization based on external resources

The Soviet industrial policy was without a doubt the most important player in the history of Estonian regional development. There was no industrial society in Estonia before 1940s. The Soviet Union started using Estonia's natural resources and labour force after World War II and practised a mass production model, which can easily be called "the socialist fordism" (see Amin, 1994)

Another important factor for regional development was direct administrative interference. Investments were made centrally under the control of the communist party headquarters and particular ministries. Administrative reforms influenced tremendously the development of settlements: abolished self-governments and changed first and second tier administrative borders several times.

CPM I, II: The period of small districts – the 1950s.

In the 1950s urbanization was caused by collectivisation and bad living conditions of the rural population. But at the beginning the urbanization was local. The 39 districts, formed in 1950, importantly strengthened small centres – local urbanization continued as before the war. After a number of small districts merged by 1960s, these centres start to decline. The development of the rural areas (e.g. supply with services) depended on the activity of the county (*rajoon*) communist party leaders and on the activity of collective farms (*kolhoos*). At the same time, large cities were growing too, a number of large factories were (re)established.

CPM II, IIIb: The concentration, the rapid growth of North Estonia in the 1960s and 1970s, Soviet style sub-urbanization: planned micro districts and datchas.

Several large industrial towns grew fast during the 1960s and 1970s. The industrial growth in turn caused immigration from the East that raised the population of Estonia to 1.4 million. The favoured (industrial) development areas were in Northern Estonia and Tallinn in particular.

Rural areas and small centres (the district centres of the 1950s) decreased, their factories were subordinated to larger units and later closed down. Hardly accessible villages and individual farms were abandoned and population concentrated in the collective farm centres. However, the number of country population stabilised by the end of the 1960s, since urbanization was bred by immigration.

The massive industrial building of residential housing assured the fast growth. The building of the first so-called micro district of blockhouses in Mustamäe Tallinn was started in 1961. The building of detached houses was very modest. The recreative needs were compensated with cooperative summer house massives, built around the cities and near railroad lines that led out of the city. Instead of daily commuting inside the metropolitan which was typical in the West, we commuted weekly or seasonally. People used summer houses or the so-called datchas[2].

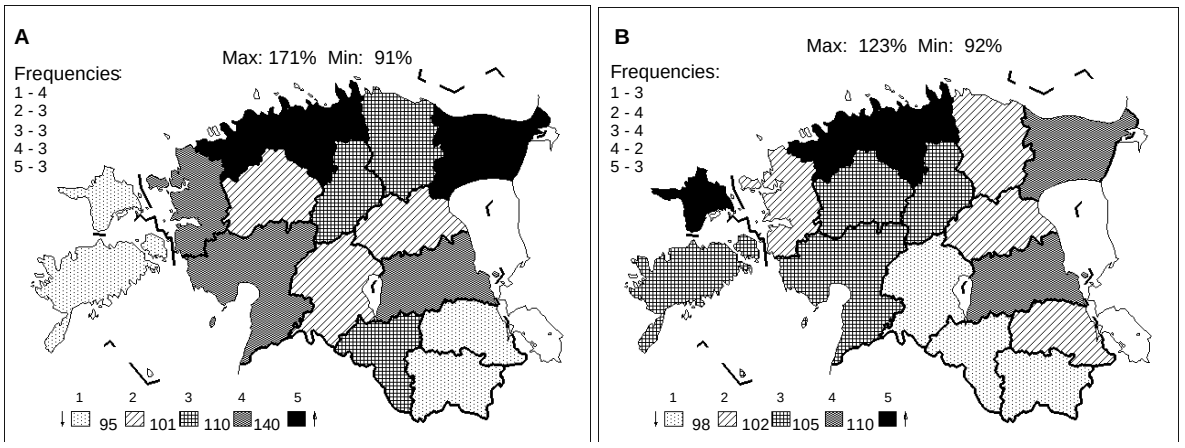

Figure 5. Population change (%) according to census data in Estonian counties (*rajoons*) 1959-1979 (a) (CPM II) and 1979-1989 (b) (CPM III).

Source: Statistical Office of Estonia

[2] "Datcha" means in Russian a small garden house or summer house. This term is used in the meaning of a little garden house built by immigrants in Estonia

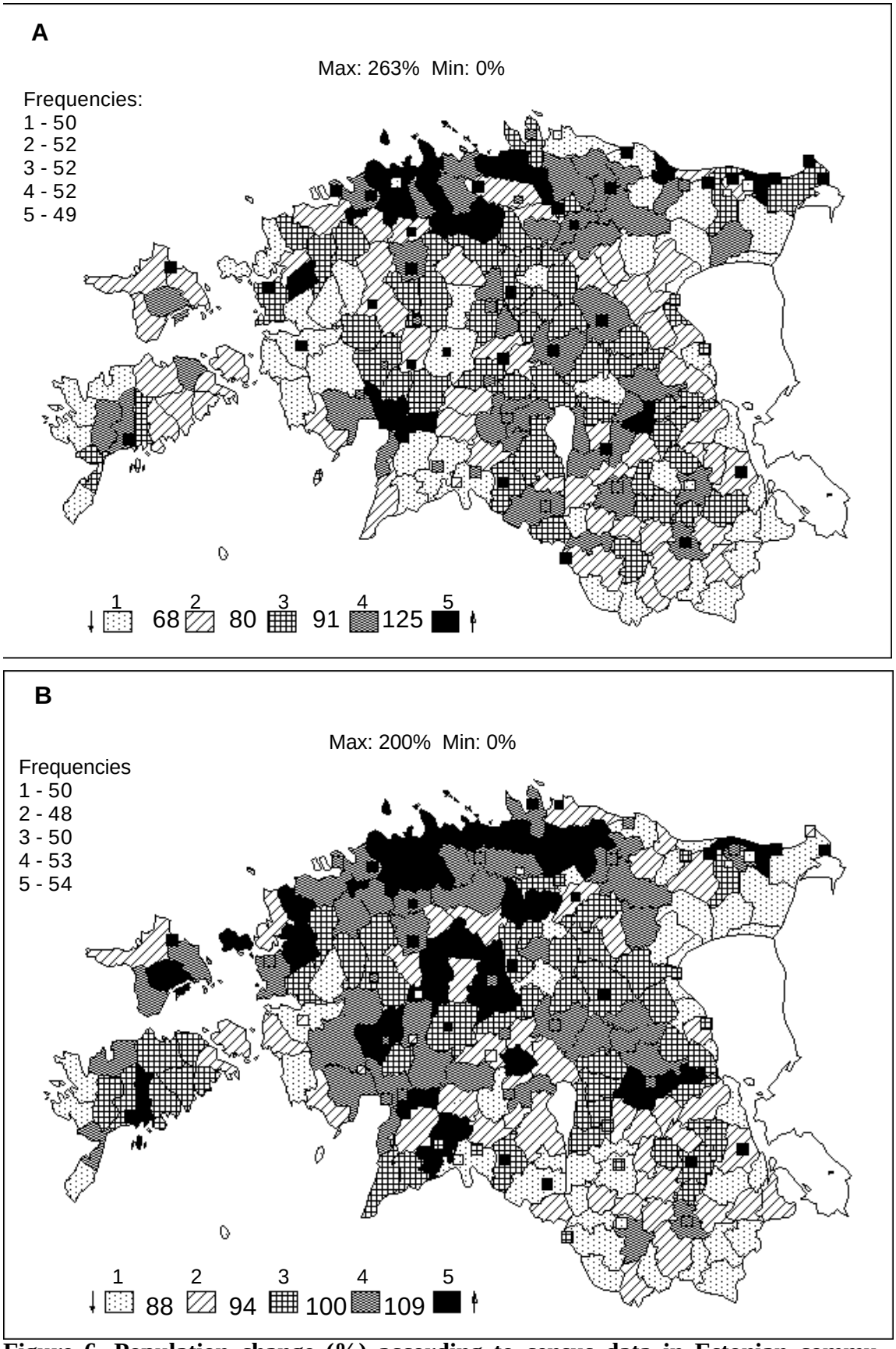

Figure 6. Population change (%) according to census data in Estonian communities (village soviets) 1959-1979 (a) (CPM II) and 1979-1989 (b) (CPM III).

Source: Statistical Office of Estonia

We have to point out a difference between the Western and the Eastern sub-urbanization (CPM IIIa and CPM IIIb). The first one included the planning of family housing and new cities away from centres. The idea (Howard) was to create better living environment for the population. The planning of housing in the Soviet Union republics preferred the needs of the industry: new city districts were often created next to industrial buildings or farms.

Economic growth finally began in rural areas as well which was caused mainly by Estonia's specialisation in the supply of animal products to the big cities of the USSR. The main investments were directed to the central settlements of the collective farms, resulting in the decline of villages deemed to have no useful contribution to make.

KPM IV: Relative concentration in the countryside in the 1980s

By the 1980s, 70% of the population lived in cities. The size of Tallinn had tripled and was over half a million. North-East Estonia had grown four times and had become a new industrial area with 230000 inhabitants, out of them 80% were Russian-speaking immigrants. Tartu and "old" county centres had grown moderately (about twice). Country population concentrated in the collective farm centres, closer to jobs, and peripheries continued to sparse.

The number of rural population began to increase from 1983 (Katus 1989). Due to the growth in agriculture, new jobs and higher wages were spread all over Estonia with the exception of southern Estonia and some other remote areas (Marksoo 1992). The Estonian agricultural-industrial cluster attracted city people with higher salaries. Domestic economy and semi-illegal, the so-called secondary sector made also possible to get significant extra income (Raagmaa, 1997). The rising income in the countryside and the fall of living standards in the cities made Estonians move back to the rural areas, particularly near cities, first and foremost to Western and Central Estonia.

4.4. Changes during the transition period: capitalistic spatial development again

At the beginning of the 1990s, Estonia re-entered the Western economic space. That caused changes in economic structure, a drastic fall in agricultural and industrial employment. As a result of transition period Estonia lost about 195 610 people (12.5 %

of the population) between the censuses of 1989 and 2000, thanks to the negative birth rate and emigration. The population decreased mostly in cities (15%, 167 647); the decrease of the population in small towns is also remarkable. The biggest decrease hit the peripheral communities (Figure 8).

CPM II: Running after jobs: rapid core-urbanization again – 1993-1997

After becoming opened to the West, capital region (Tallinn-Harjumaa) became the most attractive location for economic activities where ca 75% of all foreign direct investments were made. At the same time Estonia lost about 80% of its employment in agriculture (Eamets 1999). The intensity of migration in 1990s was even more intensive than in 1890-1900s and 1950s, but this time significantly on a national level.

Tammaru and Sjöberg (1999) studied the internal migration in 1997. Out of 1001 questioned persons 319 had changed their place of living from 1989 to 1996 468 times (ibid, 243). 26.5% migrants (Sjöberg and Tammaru (1999, 833)) or about 125 thousand[3] persons moved to Tallinn. 16.6% of the interviewed persons left Tallinn (balance + 10%) (ibid.). So Tallinn gained from internal migration app. 50000 new citizens from 1989 to 1996.

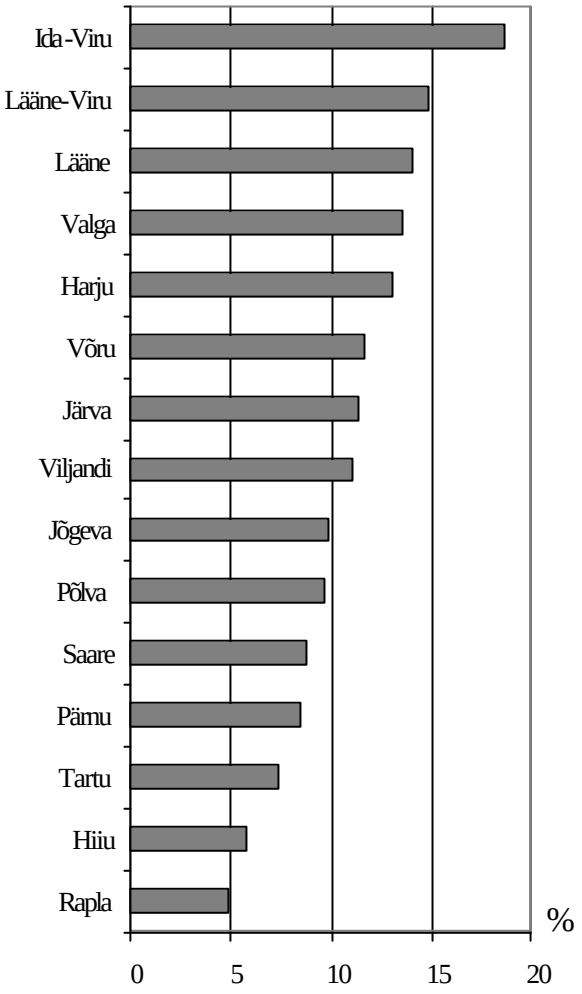

Figure 7. The decrease of population in Estonian counties 1989-2000.

Source: Statistical Office of Estonia

[3] By using a simplified method: 1.5M (total population) * 0.32 (total migration) * 0.265 (migration to Tallinn of the total migration).

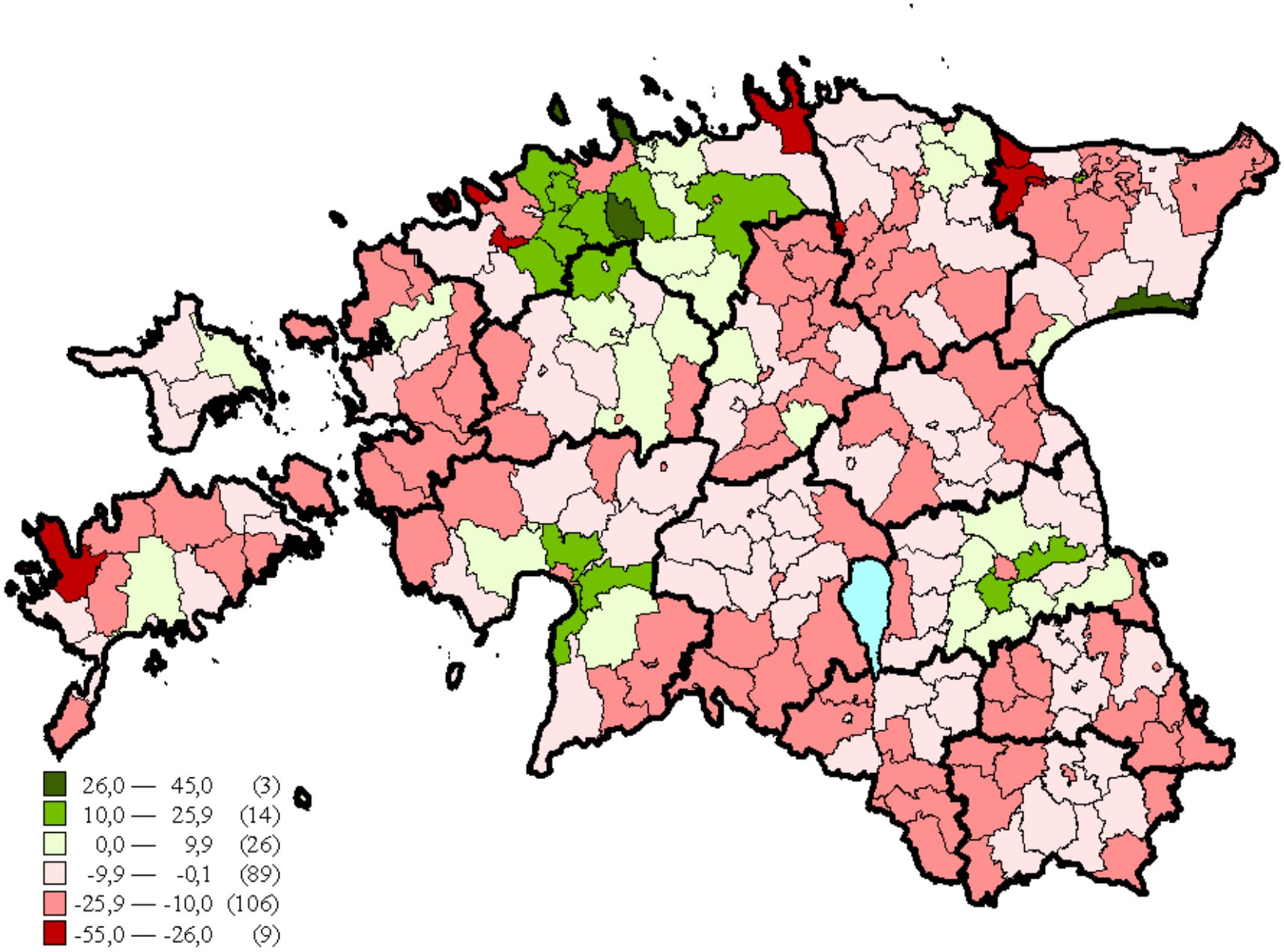

Figure 8. Population change (%) according to census data in Estonian communities 1989-2000, 1989=100%

Countryside and small towns lost about 70'000 citizens at the same time (balance – 15.2% (ibid)). A controversial process happened in the (former) collective farm centres: when educated and younger people moved to the big cities, then older agricultural specialists, who had bound themselves with the local life, moved away from their flats to farmhouses, often to flee high central heating bills or cold flats. That is why tens of blocks of flats in Estonian collective farm centres in mining and industrial settlements in North East Estonia are abandoned.

CPM III: Sub-urbanization and the growth of regional centres – 1998-2002

The main process of the second half of the 1990s has been building new residential housing near Tallinn, Tartu and Pärnu. True, in the mid-1990s, sub-urbanization was based on rebuilding summer houses located behind the city borders. The summer houses were extended and they were inhabited around the year. Therefore, it the movement of the poor unemployed datcha-dwellers into a new cheaper location was probably more intensive than the building of new houses for wealthier people (there are no studies). Old flats were sold or rented. The building of private houses and the inhabitation of summer houses led to a rapid population growth in a number of Harju county communities: Viimsi grew 52,1%, Kiili 40,0%, Saku 25,3% and Kernu 24,6% during 1989-2000.

The economic growth and real-estate development has approached bigger county centres with above 10 thousand inhabitants and sufficient hinterland since the second half of 1990s. This change is based on demand created by services, new industries like plastic industry and electronic assembly and restructured effective old branches like farming, food and wood processing.

CPM IV: First signs of urban sprawl since 2001

The "real" real estate boom started in 2001 because low-interest loans were made available. This will probably lead to the accelerating sub-urbanization. At the same time the prices of these houses are still not affordable for the majority of the population and thus the commuter belts are continuously expanding from the city borders.

4.5. The future of Estonia's regional growth: will it ever reach counter-urbanization?

In the 1990s the economy and population concentrated into the city regions in Estonia. This process is still continuing. Major changes occur in the countryside: the service and production functions of the former collective farm centres have already been weakened, the rationalization of service networks (bank and post offices, schools, etc.) and the possible reform of the administrative structure will further reduce them.

However, according to the CPM the concentration will stop. The probable future development is shown in Figure 2 modelling processes analogous in the western city regions in the 1980s: the decline of the inner city, segregation, sub-urbanization. The intensity and the distance of the wider deconcentration remains unclear because many variables are still unpredictable. The factors for successful regional development in the peripheral areas are the following:

(1) ability to change the industrial profile (replacing agricultural jobs with manufacturing and services) – new jobs,
(2) the existence, the re-production or the creation of a good social and cultural milieu – good living environment,
(3) the administrative structure, the ability and the willingness of local people and key figures to innovate (Raagmaa, 2001) – proactive local governance.

When and whether Estonia reaches the fifth stage of the CPM remains unanswered for now. Counter-*urbanization* took place in Western Europe and in the US in the 1980s, but did not occur in sparsely inhabited Nordic countries. The re-urbanization started as a result of growth of the information technology sector in Western Europe and Northern America in the 1990s.

The Nordic countries went through the new urbanization wave as a result of cutting back the public sector expenditure and the decrease of regional policy support schemes since the beginning of 1990s. The 1.2 million region of Helsinki, capital of Finland, world leader of informational society, acquired 150000 new citizens in the 1990s and made Helsinki one of the fastest growing city regions in Europe (Jauhiainen 2002).
On the other hand, it is a fact that a number of the US metropolitan areas are continuously spreading (Issermann 2001), the same happens in several European countries too.

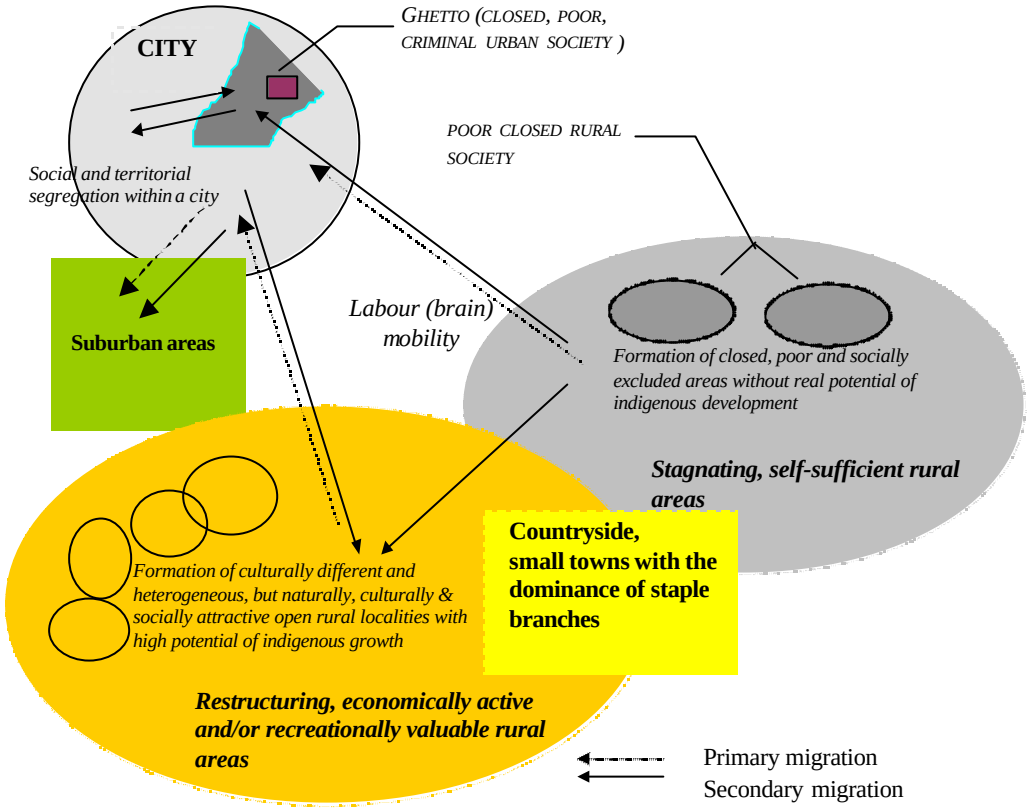

Figure 9. Principal transformation model for the CEEC spatial development.

There has not been massive counter-urbanization in Estonia. 90% of people live in apartments in Tallinn. This figure is under 50% in Belgium and 35% in the USA. 73% of Estonian residents lived in flats in the mid-1990s, but 91% (96% of Estonians) of them would like to live in a private house (UNDP 1996). It is important to know that the milieu in Estonian blocks of flats is far from the milieu in similar western districts which is another reason to leave the flats. These facts clearly indicate the continuing spread of the settlement.

5. Synthesis and conclusion

This article used the centre-periphery model analysing the Estonian regional development. The argumentation basically confirmed the hypothetical external (political) influences on Estonian settlement systems.

The industrialization and urbanization began about 100 years later than in the capitalistic flagship of the Western world - England (Figure 10). The main changes in the settlement system took place in both countries at the end of 19th century and in the

1960s, but the developments were in different stages. For example, in the 1960s Tallinn was in the CPM Stage III and built Mustamäe residential district - a Soviet style new town. At the same time London had already reached urban sprawl – the population was spreading over the agglomeration. The development of Finnish settlement system has been much more stable than in Estonia, but fluctuating considerably more than the British one.

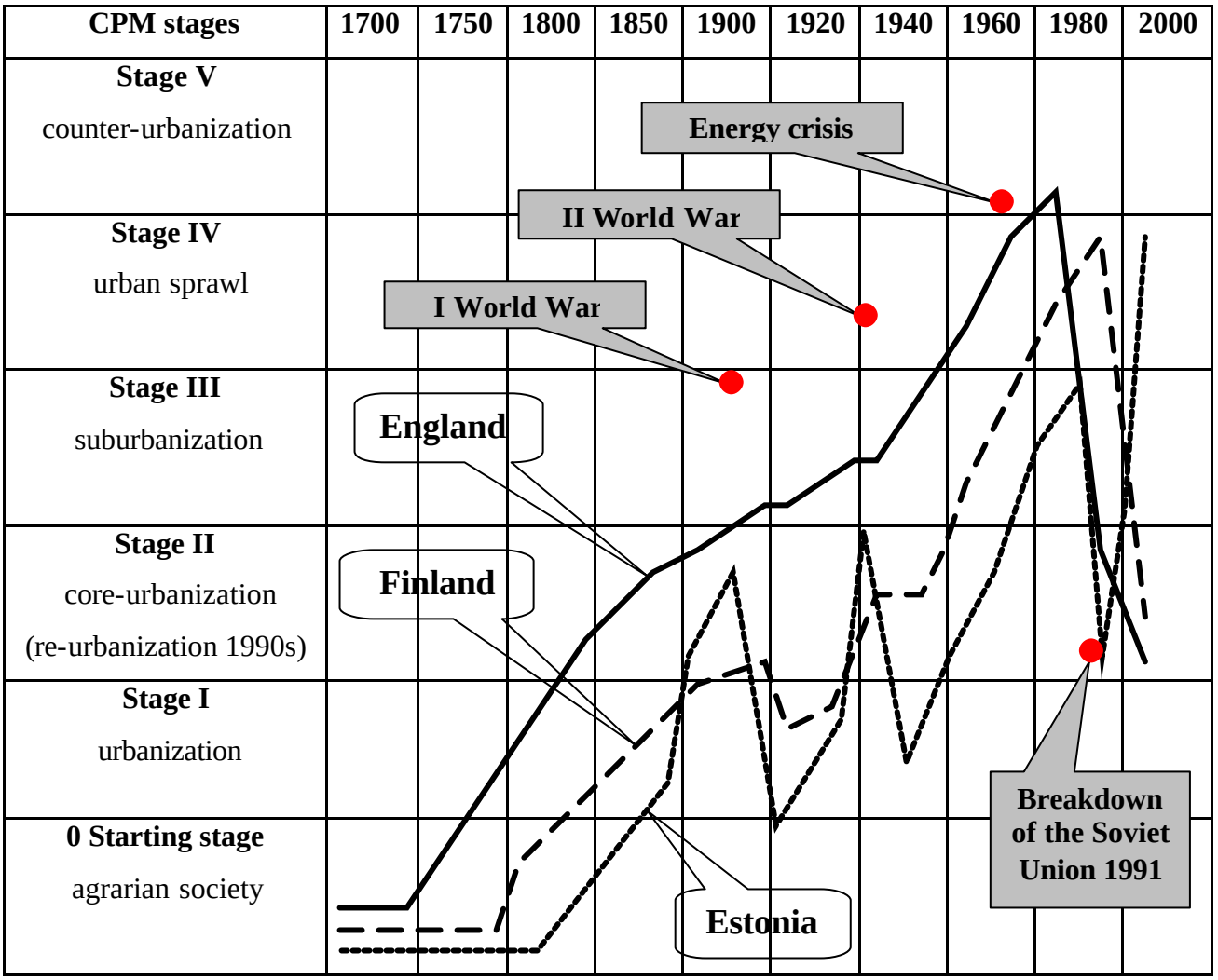

Figure 10. The schematic path of the development of settlements in England, Finland and Estonia.

First, we can agree with Tim Hall (1998, 105) who argued that the development of settlement depends on the wealth of the society and the ability to invest capital in construction.

Secondly, we should consider major political events that have altered Estonian development more than in the more stable countries located in the economic core areas.

The industrial growth before the World War I speeded up Estonian urbanization. After the war, the urbanization was much slower, thanks to the lack of capital. The politics influenced the settlement system in a very direct way in the 1950s when the number of district centres multiplied increased fourfold. Another wave of rapid urbanization was caused by political reasons at the beginning of 1990s.

STAGES	**ECONOMIC-POLITICAL**				
CPM	***Russian Empire***	***Republic of Estonia I***	***Soviet Union***	***Republic of Estonia II***	***Estonia under EU***
Stage V counter-urbanization			1983-1992		**??**
Stage IV urban sprawl				2001 →	? 2004
Stage III suburbanization		1926-1940[a]	**1975-1992**[b]	**1997**[a] →	? 2004
Stage II core-urbanization	**1880-1915***	**1933-1940**	**1960-1975**	**1992-1996**	
Stage I local urbanization	**1860-1915**	**1920-1933**	1949-1960		
0 Starting stage agrarian society	Before 1850				

Figure 11. The influence of economical-political factors to the development of Estonia.

** **Underlined** are shown the dominant sub-stages of the CPM, In **Bold** other important sub-stages.*

[a] *Western (Howard) style of sub- and neo-urbanization: suburbs with dominance of private houses, and new cities planned behind a green belt.*

[b] *Eastern type of sub- and neo-urbanization: microdistricts that border with the core-city and the datšas.*

There have been three major setbacks in the development of Estonian settlement and they all occurred after changes in the political order (Table 1):

1) 1920-1933, falling from the CPM Stage II to Stage I was caused by the lack of capital and the protectionism of European trade in the 1920s and 1930s.
2) 1950s, drop from the CPM Stage IV to Stage I was caused by the war and new political order.
3) The setback of the 1990s from CPM Stage IV to Stage II was again caused by political and social changes in the economy: the growing unemployment in rural areas at the beginning of the 1990s gave a push to rapid urbanization.

Consequently, the CPM can be used fairly well to describe and analyse the history of the settlement development. The CPM applies also as a forecast tool to analyse countries that are lagging in their settlement development in comparison with western core economies.

Further plans are to establish the stages of the CPM more precisely by using more detailed population and enterprise development data.

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