

A. General

1. The “Socio-Economic Level” Concept and its Meanings in the Study

The concept of **socio-economic level** of the population reflects a combination of basic characteristics of a specific geographical unit investigated (for example, the population of a local authority). The concept is intuitively understood in regard to its extreme manifestations: poverty at one end of the spectrum and wealth at the other end. While financial resources are a central feature of the socio-economic level, they are not the only ones. The socio-economic level comprises other elements that are correlated to some extent with a given financial situation (and sometimes express a future financial potential), but they are not identical to it.

The central aspects that comprise the socio-economic level of inhabitants of a geographical unit are:

- Financial resources of the residents (from work, benefits, and other).
- Housing - density, quality, and other components of this aspect.
- Home appliances, e.g., air conditioners, personal computers, and VCR's.
- Motorization level - quantitative and qualitative.
- Schooling and education.
- Employment and unemployment profile.
- Various types of socio-economic distress.
- Demographic characteristics.

There may be additional aspects of socio-economic content, and it may be impossible to create a uniform, formal list of them. Similar indices are constructed by various agencies in the world; following are several examples. The Office of National Statistics of **Great Britain** devises the socio-economic index for areas within local authorities, by means of principal component analysis, based on population censuses. The **Australian** Bureau of Statistics produces five socio-economic indices that measure various socio-economic aspects of geographical areas, based on the population census. Current surveys are used for updating the index in the periods between population censuses. In **New Zealand** similar indices are devised, as well as a socio-economic index based on occupational status. **The World Data Bank** constructs three types of development indices for comparison between different countries.

The units studied here fall into two categories: (a) local councils and municipalities; (b) regional councils. Therefore, each aggregate measure (e.g., an average or proportion of a total) statistically expresses a central value of the research population. The socio-economic index for the localities within the regional councils (a third category of the units studied) is calculated as well. Most of the localities within the regional councils are too small to facilitate reliable estimates of the socio-economic profile for each locality separately. Therefore, due to low accuracy of some of the data, as well as considerations of statistical confidentiality, only dispersion measures that describe the differences between the localities within the regional councils are presented here, rather than the values of the index for each locality.

The study presented hereby was performed in three main stages:

1. Selection of relevant variables for profiling a local authority's socio-economic status. This study is based on the same variables that served to derive the previous socio-economic indices which reflected the 1999, the 2001 and the 2003 data. The variables for the year 1999 were selected so as to express the largest possible number of socio-economic aspects mentioned above, for the units studied. Variables based on reliable data for all local authorities were included. In the 1999 year study, efforts were made to evaluate a large number of variables and choose a partial group of them for index calculation. The present study is based on the same definitions and the same data sources as for the years 1999, 2001 and 2003. The variables refer to the year 2006, and are described in detail in Chapter B.
2. Building a data file to include the different variables for each one of the local authorities.
3. Statistical processing of the data. The processing was based on the "Factor Analysis" method, a reliable and accepted statistical technique for combining the values of a number of variables into one quantitative scale - the index. The statistical analysis was conducted for all the geographical units of the various sectors (Jewish, Arab, and Druze), resulting in a common index for all. Cluster analysis was performed for classification of the geographical units into clusters as homogeneous as possible with respect to the socio-economic index.

2. Previous Studies on the Subject

The following is a brief list of previous studies on the socio-economic characterization of local authorities at different points in time¹:

1. *Characterization and Classification of Geographical Units by the Socio-Economic Level of the Population*, conducted by S. Ben-Tuvia, 1987. This research, based on data from the 1983 Census of Population and Housing, makes a unique contribution by relating to statistical areas within localities as well as to the locality as a whole.
2. *Characterization of Local Authorities by the Socio-Economic Level of the Population*, conducted by S. Ben-Tuvia, Y. Daichev and I. Dor, 1988, commissioned by the Ministry of the Interior and performed by the Central Bureau of Statistics. The research is based on data from the 1983 Census of Population and Housing, the National Insurance Institute, and the Ministry of Health. The study included all municipalities and local councils except for local councils that had populations under 1,000 in 1983. The research results elicited separate socio-economic indices for the Jewish and Arab-Druze sectors.
3. *Characterization and Ranking of Local Authorities by the Socio-Economic Level of the Population in 1992*, conducted by I. Dor and S. Heimberg (Shitrit), August 1993. This study, a joint project of the Ministry of the Interior and the Ministry of Construction and Housing, updates the two previous studies based on the 1983 Census. The data on local authorities' population in 1991-1992 were obtained from many ministries and institutions. This research also produced separate indices for each of the sectors - Jewish and Arab-Druze.

¹ See Bibliography (Chap. H.).

4. *Characterization and Ranking of Regional Councils in Israel by the Socio-Economic Level of the Population*, conducted by L. Applebaum, I. Dor and S. Heimberg, 1996. For the first time, this study - a joint project of the Jewish Agency and the Center for Developmental Studies in Rehovot - presents a ranking of regional councils by the population's socio-economic level. The research is based on data from 1992-1994 obtained from many ministries and institutions.
5. *Characterization and Ranking of Local Authorities according to the Socio-Economic Level of the Population in 1995*, conducted by L. Burck and Y. Kababia, 1996, commissioned by the Ministry of the Interior and performed by the Central Bureau of Statistics. The data on local authority population for 1993-1994 were obtained from numerous ministries and institutions. For the first time, the results were used to generate a uniform socio-economic index for all local councils and municipalities in both sectors (Jewish and Arab-Druze).
6. *Characterization and Ranking of Local Authorities according to the Socio-Economic Level of the Population in 1999, Based on the 1995 Census of Population and Housing*, conducted by L. Burck and Y. Kababia, 1999, commissioned by the Ministry of the Interior and performed by the Central Bureau of Statistics. The project is the first part of the next study and focuses only on local councils and municipalities.
7. *Characterization and Classification of Geographical Units by the Socio-Economic Level of the Population*, based on the 1995 Census of Population and Housing, conducted by L. Burck and Y. Feinstein, 2000, commissioned by the Ministry of the Interior and performed by the Central Bureau of Statistics. The study includes the previous project as well as some additional components as follows: a) an index for local councils and municipalities, b) an index for regional councils, c) an index for statistical areas. This study has a unique contribution by relating to statistical areas, which are similar in size to neighborhoods, within localities as well as to the locality as a whole.
8. *Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 1999*, conducted by L. Burck and N. Tsibel, 2003; commissioned by the Ministry of the Interior; and performed by the Central Bureau of Statistics. The project includes: a) a socio-economic index for local councils and municipalities, b) a socio-economic index for regional councils, c) a conversion table to link the clusters of regional councils to the clusters of local councils and municipalities, d) dispersion indices for regional councils.
9. *Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 2001*, conducted by L. Burck and N. Tsibel, 2004; commissioned by the Ministry of the Interior; and performed by the Central Bureau of Statistics. The project includes: a) a socio-economic index for local councils and municipalities, b) a socio-economic index for regional councils, c) a conversion table to link the clusters of regional councils to the clusters of local councils and municipalities, d) dispersion indices for regional councils, e) an examination of the influence of the union of local authorities which became effective during 2003.
10. *Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 2003*, conducted by L. Burck and N. Tsibel, 2006; commissioned by the Ministry of the Interior; and performed by the Central Bureau of Statistics. The project includes: a) a socio-economic index for local councils and municipalities, b) a socio-economic index for regional councils, c) a conversion table to link the clusters of regional councils to the clusters of local councils and municipalities, d) dispersion indices for regional councils.

3. Goals and Applications of the Socio-Economic Index

Over the years, socio-economic indices have helped to implement the differential policies of the central government relating to local authorities. In the past decade Israel has undergone changes that require an updated socio-economic index, which can contribute to the design of current policies of various ministries and other central government agencies, including various procedures of resource allocation to local authorities. The current publication includes two indices; one for local councils and municipalities and the other for regional councils. Furthermore, dispersion measurements (measurements of variability) of the socio-economic index within the regional councils are presented. Each index and the dispersion measurements made important contributions, which will be described later. The main applications of the products of this study are:

- **Applications by the Ministry of the Interior**

Of all government ministries, the Ministry of the Interior is the most important one for local authorities, because it is responsible for a lengthy series of matters – e.g., regular budgets, development budgets, personnel in local authorities, areas of jurisdiction, municipal-owned enterprises, organizational development and physical planning. In each of these areas, there is a need to consider the socio-economic characteristics of the local authority, including the regional council. In addition, it is important to consider the variance of the socio-economic index within the authority. Of course, it is also important to adapt the manner and extent of this consideration to the matter at hand.

The subject of regular budgets includes a formula through which local authorities have been given “balancing grants”. During the 90’s, this formula was discussed at two separate committees appointed by the Ministers of the Interior at the time – at first at the committee chaired by Prof. Yitzhak Soari (the Soari Committee Report¹) and later at the committee chaired by Mr. Yaacov Gadish¹. In their reports, both of the committees advised to use the socio-economic index as one of the components in the formula for the allocation of the regular grant to the local authorities. As of the 2004 budget year, the Ministry of the Interior has been allocating the balancing grant according to criteria determined by the Gadish Committee Report, applying the updated socio-economic indices presented here.

- **Additional Applications**

- (1) Other ministries dealing with socio-economic issues, such as the Ministry of Education, the Ministry of Construction and Housing, the Ministry of Social Affairs and Social Services, use the indices both at the level of local authority and at a more detailed level for various purposes related to budget allocation (e.g., for the neighborhood rehabilitation and renewal project).
- (2) The local authorities may use the socio-economic index in their ongoing activities.
- (3) The socio-economic indices may be used by Israel’s academic and research system (universities, colleges, research institutes, etc.), as a basis for further studies on different municipal issues.

¹ See items 10 and 13 in the Bibliography (Chap. H.).

B. Geographical Basis and Variables

1. General Definitions and Explanations

- **Locality** - a permanently inhabited place that meets the following criteria:
 - a. It is usually inhabited by 40 or more adult residents (until 1997 the definition was 20 permanent residents or more).
 - b. It has an independent administration.
 - c. It is not within the municipal boundaries of another locality.
 - d. Its establishment was authorized by planning institutions.

Changes in the localities - changes occur in the list of localities of the Bureau every year due to several reasons (in addition to establishment of new localities):

- a. Merging of a number of small localities into one locality. For example, the localities Bu'eine and Nujeidat merged into one locality, Bu'eine-Nujeidat.
- b. Linkage of one or more small localities with a large locality. For example, Nahalat Yehuda was linked with Rishon LeZiyyon and Moza Tahtit was linked with Jerusalem.
- c. Splitting of localities. For example, Ilut was split from Nazareth after many years that these two localities existed as one locality.

These changes result from decisions approved by the Minister of the Interior.

- **Type of locality** - Type of the locality is determined, as far as possible, by the actual situation and according to the definitions below. **This determination has no implications to the legal status of the locality.**

Localities are divided into two main categories: urban and rural. The distinction between urban and rural localities is based on size.

- a. **Urban localities** have 2,000 inhabitants and above. They are subdivided according to the size of the locality.
- b. **Rural localities** have fewer than 2,000 inhabitants and are classified by type of locality, as follows:

Moshav (including collective rural localities) - a rural locality organized as a cooperative association, which has the right to farm land (as defined by the Israel Land Administration). These localities consist of family units, each of which is an independent economic entity. Part of the production and economic administration is handled by the cooperative association, and the degree of cooperation is determined by the residents.

Collective moshav - a collective rural locality where production and marketing are cooperative but consumption is managed privately.

Kibbutz - a collective rural locality where production, marketing and consumption are cooperative.

Institutional locality - an institution that has the characteristics of a locality, and is not within the municipal boundaries of another locality.

Communal locality - a rural locality organized as a cooperative association, which has no right to farm land, and where the extent of cooperative activities (concerning production, consumption, municipal and social activities) is determined by its residents. Before the 1995 Census this type of locality was included in "Other Rural Locality" (see below). As of the 1995 Census, communal localities are classified as a separate group.

Other rural locality - a locality numbering less than 2,000 residents, which is not included in any of the other categories described above.

Living outside localities - small population groups living outside the boundaries of a recognized locality, in an area that does not have the characteristics of a locality (as defined above). The population living outside localities includes also those living in **places** (see definition below), **Bedouin tribes**, **singles** living outside locality boundaries, etc.

Place - an area that was once a locality but was removed from the list of localities; or a new area that has just begun to be inhabited, but does not yet meet the criteria of definition as a locality. "Places" also include mobile home sites established in 1991-1992 outside localities, and are presently in various stages of being shut down. They have numeric codes and are listed in the *File of Localities, their Population and Codes 2006*¹.

Bedouin tribe – includes also Bedouin tribes which are recognized by the Ministry of the Interior as "independent tribes" that at least part of their inhabitants dwell outside of the boundaries of recognized localities. The population of Bedouin tribes living within the locality boundaries is not included in the List of Bedouin Tribes and in the number of their inhabitants. This population is enumerated in the locality they inhabit. In the 1995 Census the population of the Bedouin tribes was enumerated in the area which they inhabited and not according to tribes; therefore, it is impossible to divide the Bedouin population according to their tribal membership.

- **Municipal status of localities** - in accordance with legislative and administrative regulations, there are three types of local authorities:
 - a. **Municipality** - a local authority of one locality only, which has been authorized as having the status of a municipality.
 - b. **Local Council** - a local authority of one locality only, which has not received the status of a municipality.
 - c. **Regional Council** - includes a number of rural localities, but sometimes urban localities are also included, i.e., Qesaryya (included in regional council Hof HaKarmel), Kefar Habad (included in regional council Emek Lod). Later on, some of these localities are granted the status of local council.
Included in regional councils are localities which have a representative in the council; as well as localities that are within the municipal jurisdiction of the council, but are not represented in it.

¹ See: *File of Localities, their Population and Codes 2006*, The site of the Central Bureau of Statistics, http://www.cbs.gov.il/ishuvim/ishuvim_main.htm (Heb)

In addition to the three types of authorities, there are **localities with no municipal status**, i.e. located in an area, which does not belong to any municipal authority.

The municipal status of localities may change over the years. A local council may receive the status of a municipality; a locality within a regional council may receive the status of a local council; and it is even possible for a locality to transfer from one regional council to another.

Changes in the list of municipal councils over the years may occur due to the following reasons:

- a. **Merging of regional councils:** for example, the regional council Lev HaSharon merged the former regional councils Hadar HaSharon and HaSharon HaTzefoni.
- b. **Elimination of regional councils:** for example, the regional council Merkaz HaGalil was eliminated in 1990. All of the localities in that regional council were granted the status of local councils.
- c. **Splitting of regional councils:** for example, the regional council Nof HaGalil was split in 2000 into two regional councils: Al-Batof and Bustan El-Marj.
- d. **Creation of new regional councils:** new regional councils were usually established in areas that had no municipal status. In some cases, localities within existing regional councils were transferred to the new regional councils. For example, Jewish localities in the Golan Heights, and Judea and Samaria had no municipal status in the past. Afterwards, they were ascribed to the new regional councils established in those regions.

2. Geographical Basis

The data basis that this study is based upon is at the level of **local authority: local councils and municipalities and regional councils**, according to their municipal status at the **end of 2006**. As in the previous studies, it was decided to conduct a separate analysis for regional councils, due to their special nature, stemming from the fact - among others - that they include localities of different types: kibbutz, moshav, collective moshav, communal localities, and other rural localities. In addition, the separate analysis did not include some variables such as recipients of allowances from the National Insurance Institute, because of discrepancies in those fields in kibbutzim (see the details in Section 3).

The following is a description of the geographical basis for every stage of the study:

Municipalities and Local Councils: The basic unit of analysis is a municipality or a local council. The study includes the **197** municipalities and local councils.

The data used in the analysis are aggregative, and refer to the whole population of the local authority by means of proportions or averages. Consequently, the index based on the original data reflects the socio-economic level of the local authority as a whole, and does not show the variance within the authority.

Regional Councils: The basic unit of analysis is a regional council. The study includes the **54** regional councils, which include about 1,000 localities. Institutional localities in the regional councils are excluded from the statistical analysis presented in this study, whereas all of the inhabitants residing in "places" are included in the population of the regional council within

which they reside. For regional councils where at least 10% of the population reside outside localities (not including “places”), a comprehensive analysis was conducted in order to determine whether those residents should be included in the total number of residents. Similar to the previous study, residents living outside localities are included in the regional councils: Brenner, Misgav and Hevel Elot, but are not included in the regional councils: Bene Shim'on, Ramat Negev and Tamar.

The data used in the analysis are aggregative, and refer to the whole population of the regional council (according to the population defined above) by means of proportions or averages. Consequently, the index reflects the socio-economic level of the regional council as a whole, and does not show the variance within the council.

Localities within Regional Councils: Most of the localities within the regional councils are too small to allow for reliable estimates of socio-economic characteristics for each locality (about 52% of the localities count less than 500 inhabitants and about 86% of the localities number less than 1,000 inhabitants). Due to low accuracy of some of the data and statistical confidentiality considerations, it was decided not to publish an index for each of these localities, but to compute dispersion measures to demonstrate the differences between the localities within the regional councils.

3. Variables Included in Calculation of the Index

It should be mentioned again, that the present study is based on the same variables that were used to construct the socio-economic indices which reflected the 1999, the 2001 and the 2003 data. **Selection of variables** was carried out in two stages. The first stage included preliminary sorting of a large number of variables relevant to the subject under study. The second stage included elimination of variables based on various statistical criteria.

- **Preliminary Sorting**

Preliminary sorting of the relevant variables was carried out in accordance with the following considerations:

- a. **Relevance to the population's socio-economic content.**
- b. **Availability of reliable data for all the geographical units** mentioned above – availability of data for **all** units is important for maintaining consistency between the various geographical units.
- c. **Consistency with previous studies** – it is important to include the maximum variables which were included in previous studies, to facilitate comparisons over the years.

At this stage, consultations were held with officials at the Central Bureau of Statistics and outside the Bureau, to examine variables and data from diverse fields such as demography, education, transport, income, and various kinds of economic distress.

- **Descriptive Analysis**

Descriptive analysis that was carried out for the original list of variables (a large number of variables) included statistics used to examine the distribution of each variable separately, from the following perspectives: (a) parameters of location; (b) parameters of variability; (c) symmetry of distribution; (d) evaluation of extreme cases. In addition, the correlations between each of the two variables were calculated. All of this was done in

order to reduce the number of variables, and to avoid including variables that have too great an influence or those that are strongly correlated with each other. When Pearson's correlation between two variables exceeded 0.8, the possibility of not including one of the variables in the calculation of the index was considered. Variables reflecting different socio-economic phenomena were included in the calculations, even if they were strongly correlated with each other. When two variables reflected the same social phenomenon, preference was given to variables with a symmetric distribution, high variance (i.e., considerable differences between localities), and a smaller correlation with the other variables related to that phenomenon. In addition, variables were eliminated according to the **Kaiser's Measure** of Sampling Adequacy calculated both for the entire set of variables and for each variable separately. This measure is of multiple use. On one hand, it facilitates examining whether the variables belong to the same content sphere. On the other hand, it facilitates an examination of the contribution of a single variable to the group in which it is included. With regard to each group of experimental variables, the measure was always greater than 0.5, which indicates that the entire set of variables belongs to the same content sphere (index values range from 0 to 1). Regarding each separate variable, an attempt was made to include those with measure values greater than 0.5. The final decision was based on the extent to which the variable contributes toward explaining the overall variance in the factor analysis, as well as on how the factors for other variables will be affected if that variable is not included.

The following is an example of this kind of analysis. The correlation coefficient between the "proportion of individuals aged 0-15 to the total population of the local authority" and the "median age of the population residing in the local authority" (two demographic variables related to the same phenomenon) is 0.95. According to the descriptive analysis of the two variables, the variable "median age of the population residing in the local authority" would be preferable, because of the symmetric distribution and the lack of extreme values. This variable was selected because of its relatively large contribution toward explaining the general variance in the factor analysis.

- **Guidelines for Selection of Variables**

After the stages of sorting and elimination described above, the considerations that led to the final choice of this set of variables were as follows:

- a. **Balanced coverage** of the characteristics related to the aspects that determine the socio-economic level of the population.
- b. **Degree of adequacy of the variables for factor analysis.** Inclusion of variables **highly correlated** with each other may artificially inflate the variance and influence or even change the relative weights of the variables. However, the variables should be **sufficiently correlated** with each other, in terms of belonging to the same content sphere.
- c. A small number of factors must **account for a substantial amount of the variance** of the socio-economic variables for greater distinction between local authorities. The greater the amount of variance explained by the factors, the greater the distinction between the local authorities.

A partial list of the variables that were eliminated is provided in **Appendix A**.

After all the stages of selection detailed above, a list was formed of variables which were used in computing the socio-economic index for the local councils and municipalities (**14 variables**); and a condensed list (**9 variables**) for regional councils. The variables reflect the aspects related to the socio-economic level of the population in different localities for **2006**. However, it should be mentioned that the main goal was to attain an integration of the variables, and not to draw far-reaching conclusions related to the sphere of only one specific variable.

The variable “percent of work seekers” and the variables from the National Insurance Institute: “percent of recipients of unemployment compensation”, “percent of recipients of income-support benefits” and “percent of recipients of income supplement to old-age pension” were not included in the calculation of the socio-economic index for regional councils because these variables are different in kibbutz localities. According to the law, these allowances are not paid to kibbutz members, which means that in regional councils consisting of kibbutz localities, these variables will automatically receive values close to zero. Such values of these variables do not necessarily reflect the population characteristics in these regional councils. Therefore, it was decided not to include them in the analysis for all the regional councils, that consist of localities of different types (kibbutz and not a kibbutz). The variable “percent of families with 4 or more children” was not included in the analysis for the regional councils by statistical considerations: in the set of variables for regional councils (which is different from the set of variables for municipalities and local councils for the reasons mentioned above) this variable does not contribute to the characterization of the population of regional councils.

- **List of Variables:**

Demography

1. Dependency ratio - the ratio between persons aged 0-19 (young population) and 65+ (mature population), to those aged 20-64 (working-age population) in the year 2006. To obtain the final variable, the quotient was multiplied by 100.

Source of data: The Central Bureau of Statistics.

2. Median age - the median age of the local-authority population, computed on the basis of individual ages in the year 2006.

Source of data: The Central Bureau of Statistics.

3. Percent of “families” with 4 or more children - the number of families with 4 or more children as a share of the total number of families receiving child allowances in 2006.

Source of data: The National Insurance Institute.

[†] Not included in the computation of socio-economic index for regional councils.

Schooling and Education

- 4. Percent of students attending universities or colleges for an academic degree (undergraduate degree or higher)** as a share of the total aged 20-29 in the local authority in 2005/2006.

Source of data: The Central Bureau of Statistics.

- 5. Percent of persons entitled to matriculation certificate** – as a share of the relevant age-group (average of aged 17 and 18). The data refer to the average of two school years, 2005/2006 and 2006/2007¹.

Source of data: The Central Bureau of Statistics.

Standard of Living

- 6. Rate of motorization** - total number of private cars and private trucks up to 4 tons, divided by total number of residents in the local authority in 2006. To obtain the final variable, the quotient was multiplied by 100.

Source of data: The Central Bureau of Statistics.

- 7. Percent of new motor vehicles** - total number of private cars and private trucks up to 4 tons whose year of production is 2002 or above divided by total number of private cars and private trucks up to 4 tons in the local authority in 2006.

Source of data: The Central Bureau of Statistics.

- 8. Average income per capita** – first, total income for the locality was computed by summing up the gross wages paid to employees during the year, total income of the self-employed residing in the locality and total benefits paid by the National Insurance Institute and the Ministry of Religious Affairs in 2006. Later, this total income was divided by 12 and by total number of residents in the local authority.

Let us denote:

a - average monthly wage per employee residing in the local authority, expressed in annual terms, for 2006;

b - number of employees residing in the local authority;

c - income of the self-employed: average on the basis of tax collection per year for the local authority, divided by 12 - for 2006;

d - number of self-employed residing in the local authority;

g - total income from all the benefits paid by the National Insurance Institute and the Ministry of Religious Affairs in 2006 divided by 12;

P - total population of the local authority.

¹ As in the studies for the years 1999, 2001 and 2003, the datum for Jerusalem includes imputation (extrapolation) for East Jerusalem, based on the 1995 Census data and the trends since then.

Then, the variable value is determined by: $(ab+cd+g)/P$.

Source of data: The National Insurance Institute and The Ministry of Religious Affairs.

Labour Force Characteristics

- **9. Percent of work seekers** with 6 or more days of unemployment, as a share of total aged 15 and over residing in the local authority in the year 2006.

Source of data: The Employment Service.

- 10. Percent of sub-minimum wage earners** - the percent of employees and self-employed earning up to minimum wage relevant in the year 2006, as a share of total employees and self-employed in the local authority. The minimum wage for 2006: NIS 3,501 per month.

Source of data: The National Insurance Institute.

- 11. Percent of earners more than twice the average wage** - the percent of employees earning more than twice the average wage relevant in the year 2006, as a share of total employees in the local authority. The average wage for 2006: NIS 7,607 per month.

Source of data: The National Insurance Institute.

Benefits

- **12. Percent of recipients of unemployment compensation**, as a share of total population of the local authority for 2006.

Source of data: The National Insurance Institute.

- **13. Percent of recipients of income-support benefits** from the National Insurance Institute and the Ministry of Religious Affairs, as a share of total population of the local authority for 2006.

Source of data: The National Insurance Institute and the Ministry of Religious Affairs.

- **14. Percent of recipients of income supplement to old-age pension**, as a share of total recipients of old-age pension in the local authority for 2006.

Source of data: The National Insurance Institute.

• Not included in the computation of socio-economic index for regional councils.

C. Statistical Methodology

The computation of the index was carried out separately for each of the three types of geographical units described above, although a similar methodology was used. The statistical technique used to calculate the socio-economic index was **factor analysis**. After obtaining the indices, the geographical units were allocated to homogeneous groups through **cluster analysis**. The following is a review of these techniques, together with a description of the way they were applied.

1. Factor Analysis

Factor analysis¹ is a group of statistical techniques, aimed at expressing a large number of variables on the basis of a smaller number of factors, and thus to characterize the units of analysis in a synthesized way that can be conveniently used (in our case, one of the three types of units: local council and municipality, regional council, and locality within regional council).

Factors are essentially new variables, calculated as a linear combination (weighted average) of the original, standardized variables (i.e., each variable has a mean of 0 and a variance of 1). The need to standardize variables stems from the differences in the measuring units, since the value of a variable can be expressed as a number, quotient, or percent. It can be measured by NIS or by years of schooling. Standardization makes it possible to convert the variables into a uniform scale (in Table 1, standardized variable), and furthermore to combine them into one synthetic score. The weights of the original standardized variables are determined mathematically so as to maximize the differences in the scores between the geographical units, subject to some normalization restrictions. For p variables, there exist p factors that can explain all of the variance of these variables. Since the variables are standardized, the total variance of the original variables is equal to the number of variables.

The factors are determined sequentially one after another, so that the first factor is the linear combination that accounts for a maximum amount of the variance of the variables. Hence, the first factor has a maximum power of discrimination between the geographical units. The second factor accounts for a maximum amount of the variance not accounted for by the first factor, etc. The next step is to find the minimal number of factors that explain a considerable amount of the variance. The optimal number of factors is determined by statistical testing that examines the amount of information added by a factor versus increasing the number of factors. The addition of an extra factor, beyond the optimal number, increases the dimension that the index is based on, while its contribution to explaining the variance is negligible.

As described above, these factors define an orthogonal set of axes in the multidimensional variable space (since each factor is a linear combination of the original variables, and the factors are orthogonal). This type of factor analysis is called **principal component analysis**.

In the study and interpretation of the derived factors, an important concept is that of **factor loadings**. These are the correlation coefficients between the original variables and the factor. Their size is a measure of the relative importance of each variable in differentiating between

¹ See item 13 in the Bibliography (Chap. H.).

the local authorities. In particular, if a variable has a low loading on all factors, this is an indication that it may be removed. It should be mentioned that for the sake of convenience, some of the original variables were multiplied by (-1), in order to obtain positive correlation coefficients, so that a higher standardized value would signify a higher socio-economic level (see note in Tables 1 and 6).

Various options are available in factor analysis, including a rotation of axes (factors), with the aim of strengthening the relationship between the variable and only one factor, while weakening the relationship between the same variable and the rest of the factors that are obtained. In that way, it is often possible to reach a situation where each factor is significantly associated with a well defined set of variables that only belong to one domain, such as education level or standard of living. It is also important to bear in mind that in the attempt to interpret the meaning of the different variables, that specific interpretation is one of many possible explanations that may be obtained in another rotation.

After rotation, the first factor is no longer the linear combination having a maximum variance. Moreover, in a non-orthogonal rotation the overall variance explained by the variables is reduced. In the present study, we used the orthogonal rotation (the same total amount of variance explained as before the rotation), which may cause some loss in the explanatory power of the first factor.

The **index**, which expresses the socio-economic level of the geographical unit, was calculated as a weighted average of the factors, where weighting was carried on the basis of the percent of variance explained by each factor.

2. Cluster Analysis

Cluster analysis is a technique for allocating items (geographical units) to groups or clusters that are as homogeneous as possible with respect to a set of variables. For a given number of clusters, the variance within clusters is minimized and the variance between clusters is maximized, i.e. two items belonging to the same cluster are similar to each other, and two items belonging to different clusters are different from each other. Allocation is based on a measure of distance (similarity) between clusters. The current analysis used only one variable, i.e., the socio-economic index, and the distance between two clusters was calculated on the basis of Ward's distance.

Since the present study updates the previous index (of 2003) according to the new data (of 2006), based on the same variables and the same methodology, a great effort was made to reduce discrepancies between the 2003 and the 2006 clusters. For this purpose, the cumulative distributions of the index values were examined for the two years, and the boundaries of the 2006 clusters were shifted, so as to avoid a situation where a whole 2003 cluster or a considerable part of it changes its number. This shifting was carried out on the basis of the leaps in the distribution function of the index values for 2006.

Nationwide cluster analysis was carried out separately for each geographical unit, according to the socio-economic index for that geographical unit. **197 municipalities and local councils** were allocated to **10 clusters**, and **54 regional councils** were also allocated to **10 clusters**. In addition, the clusters for the regional councils were adjusted to those of municipalities and local councils, based on distances (similarity) between the socio-economic variables included in both sets.

D. Findings for Local Councils and Municipalities

1. Results of Factor Analysis

In the process of factor analysis, three factors were obtained. The three factors used to calculate the index explain about 86% of all of the information contained in the original set of variables. This amount (total variance) is equal to the number of variables, i.e., to 14. The first factor accounts for about 39.5% of the variance, and this percent of variance explained was reduced as a result of rotation (about 65% before the rotation). **Table A** presents the variance, the percent of variance and the cumulative percent of variance explained by each of the factors.

Table A.- Variance and Percent of Variance Explained by the First Three Factors in the Model of the Socio-Economic Index

Factor	Variance Explained	Percent of Variance Explained	Cumulative Percent of Variance Explained
1	5.53	39.49	39.49
2	3.56	25.45	64.93
3	2.94	20.98	85.91
Total	12.03	85.91	

Table B presents the correlation coefficients between the factors and the variables included in the model of the socio-economic index. The variables are arranged according to the size of their correlation coefficient with each one of the factors, so that the first set of variables (7 variables) has the highest correlation (loadings) with the first factor, the second set (4 variables) has the highest correlation with the second factor, and the last 3 variables have the highest correlation with the third factor. Seven variables had correlations (loadings) higher than 0.74 with the first factor. This group of variables cannot be clearly allocated to a specific area. It is comprised of variables that indicate income level, education level, and standard of living. The variables “percent of earners more than twice the average wage” and “average income per capita” have the highest correlation with the first factor (with loadings of 0.88 and 0.87 respectively). The three variables that reflect the locality’s demographic situation are correlated strongly with the second factor (0.78 - 0.83). Three variables, which are related to socio-economic distress, are correlated with the third factor (0.79 - 0.85).

The last column in Table B presents the final communality estimates for the variables used in the model of the socio-economic index. These estimates reflect the correlation between the variable and the index calculated. It should be mentioned that the sum of the communality estimates is equal to the total variance accounted for by the factors, as presented in Table A. The variables included in the model have final communality estimates over 0.73. The communality of “average income per capita” is the highest (0.96).

Table B.- Correlations between Factors and Variables, and Final Communality Estimates in the Model of the Socio-Economic Index

Variable	Factor 1	Factor 2	Factor 3	Final Communality Estimates
Percent of earners more than twice the average wage	0.88	0.07	0.38	0.93
Average income per capita	0.87	0.32	0.31	0.96
Percent of students	0.85	0.27	0.31	0.90
Percent of new motor vehicles	0.83	0.30	0.28	0.85
Percent of sub-minimum wage earners	0.79	0.30	0.30	0.81
Percent of persons entitled to matriculation certificate	0.74	0.40	0.16	0.73
Rate of motorization	0.74	0.35	0.41	0.84
Dependency ratio	0.31	0.83	0.32	0.89
Percent of families with 4 or more children	0.42	0.82	0.28	0.93
Median age	0.51	0.78	0.13	0.89
Percent of recipients of unemployment compensation	-0.10	-0.89	0.14	0.83
Percent of recipients of income - support benefit	0.37	0.21	0.85	0.90
Percent of work seekers with 6 or more days of	0.31	0.29	0.81	0.85
Percent of recipients of income supplement to old-age	0.29	-0.12	0.79	0.73

Note: Shaded in grey are loadings greater than 0.5.

It should be noted again, that the socio-economic index was calculated as the weighted mean of all three factors, where weighting was carried out according to the percent of variance explained by each factor. Afterwards, every local authority was allocated to one of 10 clusters, based on the value of its socio-economic index.

Regarding practical application of the findings, the cluster allocation should be used rather than the value of the index or rank, due to the limited accuracy of the index values.

Table 1 presents the ranking and allocation to clusters, as well as the values, the standardized values and ranking, of the 14 original variables for the 197 local councils and municipalities, except for those with less than 2,000 residents.

Table 2 presents the ranking of local councils and municipalities, by socio-economic index, on a scale ranging from 1 (the lowest level) to 197 (the highest level), including allocation to clusters. The five largest cities in Israel are in the middle to high clusters: Jerusalem is in cluster 4, Tel Aviv-Yafo is in cluster 8, Haifa and Rishon LeZiyyon are in cluster 7, Ashdod is in cluster 5.

Diagrams 1 and 2 present the distribution of the population and number of municipalities and local councils by cluster. Cluster 3 consists of the highest number of localities (36). Clusters 4 and 6 are the largest in terms of population size (1,258,228 and 1,269,351 residents respectively).

Table 3 presents the means of the 14 original variables in every cluster, and two overall averages for the municipalities and local councils – simple average where every locality is given an equal weight, and weighted average where every locality is given the weight relative to its population size. This table reveals the changes in the means of the variables across the clusters. It should be mentioned that for most of the variables that correlate strongly with the first factor, the change in means across clusters is significant and highly consistent with the socio-economic index. For example, the mean of the variable “average income per capita” increases from 3,545 in cluster 7 to 4,192 in cluster 8, and further to 4,810 in cluster 9.

The distribution of municipalities and local councils by socio-economic level of the population and by population size is illustrated in the attached **map**.

2. Distribution of Local Authorities, by Cluster Allocation and Population Size Category

It is interesting to examine the relationship between cluster allocation and other characteristics of a local authority. The first characteristic examined is the size of population in the local councils and municipalities.

Table 4 presents the distribution of municipalities and local councils, by cluster allocation and six population size categories.

The following is a summary of the main findings in the table:

- ❖ About 6% of all the municipalities and local councils are in the two high clusters (9 and 10). Most of these local authorities (about 67%) are characterized by the population size below 10,000.
- ❖ About 18% of all the municipalities local councils are in the two low clusters (1 and 2). Most of these local authorities (about 75%) are characterized by the population size below 20,000.
- ❖ Local authorities with 5,000 to 40,000 residents are mainly concentrated in the low to middle clusters (2 to 5).
- ❖ Local authorities with over 40,000 residents are mainly concentrated in the middle to high clusters (4 to 8).

3. Distribution of Local Authorities, by Cluster Allocation, District and Area

Table 5 presents the distribution of municipalities and local councils, by cluster allocation and by district and area.

The following are the main findings in the table:

- ❖ About 85% of the municipalities and local councils (64 out of 76) in the Northern District are in the low to middle clusters (2 to 5). Notice that the Northern District includes numerous Arab and Druze authorities (53 out of 76). All the Arab and Druze authorities are in the low to middle clusters (2 to 5), except for Mi'elya that appears in cluster 6.
- ❖ In the Southern District, most of the authorities are in the low to middle clusters (1 to 5), except for three suburbs of Be'er-Sheva: Metar, Lehavim and Omer.
- ❖ In the Haifa District, which consists of 9 Arab and Druze authorities and 15 Jewish authorities (including mixed authorities), all the Arab and Druze authorities are in the low to middle clusters (2 to 4), whereas most of the Jewish authorities are in the middle to high clusters (5 to 9), with the exception of Rekhasim that appears in cluster 2.
- ❖ In the Central District, 67.5% of the municipalities and local councils (27 out of 40) are in the middle to high clusters (6 to 10), while the distribution among the clusters is not uniform.
- ❖ In the Tel Aviv District, clearly evident is the absence of authorities in clusters 1 to 5 (with the exception of Bene Beraq and Or Yehuda).
- ❖ In Judea and Samaria Area, most of the authorities are in the middle to high clusters (5 and above), with the exception of five localities: Betar Illit, Modi'in Illit, Immanu'el, Kiryat Arba and Bet El, which are placed in the low to middle clusters.

E. Findings for Regional Councils

1. Results of Factor Analysis

In the process of factor analysis, three factors were obtained. The three factors used to calculate the index account for more than 86% of all of the information contained in the original set of variables – the total is equivalent to the number of variables, i.e., to 9. The first factor explains about 34% of the variance, and this percent was substantially reduced as a result of rotation (about 63% before the rotation). **Table C** presents the variance, the percent of variance, and the cumulative percent of variance explained by each of the factors.

Table C.- Variance and Percent of Variance Explained by the First Three Factors in the Model of the Socio-Economic Index

Factor	Variance Explained	Percent of Variance Explained	Cumulative Percent of Variance Explained
1	3.08	34.18	34.18
2	2.56	28.44	62.62
3	2.13	23.70	86.32
Total	7.77	86.32	

Table D presents the correlation coefficients between the factors and the variables included in the model of the socio-economic index. The variables are sorted according to the size of their correlation coefficient with each of the factors, in a way that the first set of variables (4 variables) has the highest correlation, above 0.56, with the first factor, the second set (3 variables) has the highest correlation, above 0.68, with the second factor, and the last set (2 variables) has the highest correlation, above 0.63, with the third factor. There is one variable from the first set, and one variable from the third set, that are correlated also with the second factor (0.51). Likewise, there is one variable from the second set, which is correlated also with the first factor (0.51). The set of variables, which have the highest correlation with the first factor, is comprised of variables that indicate income level and standard of living. The variable “percent of earners more than twice the average wage” is correlated strongly (0.93) with the first factor. The variables, which have the highest correlation with the second factor, reflect the demographic situation and the education level of a regional council. The variables “percent of sub-minimum wage earners” and “percent of students” are correlated with the third factor only.

The last column in Table D presents the final communality estimates for the variables used in the model of the socio-economic index. These estimates reflect the correlation between the variable and the index calculated. It should be mentioned that the sum of the communality estimates is equal to the total variance explained by the factors, as presented in Table C. The variables included in the model have final communality estimates over 0.77. The communalities of “percent of sub-minimum wage earners” and “rate of motorization” are the highest (0.96 and 0.95).

Table D.- Correlations between Factors and Variables, and Final Communality Estimates in the Model of the Socio-Economic Index

Variable	Factor 1	Factor 2	Factor 3	Final Communality Estimates
Percent of earners more than twice the average wage	0.93	-0.06	0.20	0.90
Rate of motorization	0.81	0.51	-0.17	0.95
Average income per capita	0.76	0.45	0.39	0.93
Percent of new motor vehicles	0.66	0.42	0.40	0.77
Percent of persons entitled to matriculation certificate	0.19	0.87	0.17	0.82
Dependency ratio	0.16	0.82	0.39	0.84
Median age	0.51	0.56	0.51	0.83
Percent of sub-minimum wage earners	0.08	0.20	0.96	0.96
Percent of students	0.47	0.39	0.63	0.77

Note: Shaded in grey are loadings greater than 0.5.

It should be noted, again, that the socio-economic index was calculated as the weighted mean of all three factors, where weighting was carried out according to the percent of variance explained by each factor. Afterwards, every regional council was allocated to one of 10 clusters, based on the value of its socio-economic index.

It is also important to mention that regarding practical application of the findings, the cluster allocation should be used rather than the value of the index or rank, due to the limited accuracy of the index values.

Table 6 presents the ranking and allocation to clusters, as well as the values, standardized values and ranking of the 9 original variables for regional councils – except for those with less than 2,000 inhabitants.

In order to combine the clusters of the regional councils with the clusters of the local councils and municipalities on the basis of the 9 variables common to both rankings, distances were calculated in different ways, between the means of the variables by the clusters of the local councils and municipalities and the means of the variables by the clusters of the regional councils. Based on the analysis of the results¹, the conversion from the clusters of the regional councils to the clusters of the local councils and municipalities was obtained, based on Euclidian distance. The conversion is presented in **Table 7**.

¹ An additional consideration that was accounted for here is as follows: when moving from the cluster of the regional councils to the combined cluster with the municipalities and local councils by means of the conversion, a maximum change of one cluster should be allowed. This consideration contributes to the applicability of the socio-economic index, and it was accounted for by the indices calculated for the previous years as well.

Table 8 presents the ranking of regional councils according to the socio-economic index, on a scale ranging from 1 (the lowest level) to 54 (the highest level), with an allocation to 10 clusters.

Diagrams 3 and 4 present the distribution of the population and number of regional councils by cluster. Cluster 6 contains the highest number of councils (10). This clusters is also the largest in terms of population size (141,480 residents).

Table 9 presents the means of the 9 original variables in every cluster, and two overall averages for the regional councils – simple average where every regional council is given an equal weight, and weighted average where every regional council is given the weight relative to its population size. This table reveals the changes in the means of the variables across the clusters. It should be mentioned that for most of the variables that are correlated strongly with the first factor, the change in means across clusters is significant and highly consistent with the socio-economic index. For example, the mean of the variable “average income per capita” increases monotonically from one cluster to the next.

The distribution of regional councils by socio-economic level of the population and by population size is illustrated in the attached **map**.

2. Distribution of Regional Councils, by Cluster Allocation, District and Area

Table 10 presents the distribution of regional councils, by cluster allocation and by district and area.

The following are the main findings in the table:

- ❖ The regional councils in the highest clusters (8 to 10) are located primarily in the Central District.
- ❖ In the Southern District, most of the regional councils are in the middle to high clusters (4 to 7).
- ❖ In the Northern District, most of the regional councils are in the middle to high clusters (5 to 7).
- ❖ In the Haifa District, all the regional councils are in the middle to high clusters (4 to 8).
- ❖ In Judea and Samaria Areas, all the regional councils are in the low to middle clusters (2 to 6), except for the regional council Megillot Dead Sea, which is allocated to cluster 7.

F. Findings for Localities within the Regional Councils

The characterization of localities within the regional councils was based on the same 9 variables that were used in the derivation of the socio-economic index for the regional councils. A sub-committee that was set up by the steering committee decided not to publish the results at the locality level as most of the localities within the regional councils are too small to allow for reliable estimates (about 52% of the localities count less than 500 residents, and about 86% of the localities count less than 1,000 residents). Most of the revealed problems concerned the data for kibbutz localities, especially the calculation of income in a kibbutz. Despite this, it was decided to publish dispersion measures for the regional councils, based on the socio-economic index of the localities.

Table 11 presents two dispersion measures for each regional council: a) the standard deviation of the indices of the localities weighted by population size; b) the interquartile range of the indices of the localities weighted by population size. It should be noted that the first measure is not a robust estimate of the dispersion as it is sensitive to extreme observations. The second measure is defined as the distance between the first and the third quartile and is not affected by the extreme values. Therefore it is a more robust estimate. To enable a comparison between the two measures, an adjusted interquartile range is computed. The **adjusted interquartile range** is the interquartile range that would be obtained if the distribution were normal with the given variance. Notice that for the standard normal distribution the interquartile range is between -0.68 and 0.68, i.e. it is equal to 1.36, while the standard deviation is equal to 1. Therefore, to obtain the adjusted interquartile range, the standard deviation should be multiplied by 1.36. For example, for the regional council Gush Ezyon, the weighted standard deviation appears equal to 0.79 and the weighted interquartile range appears equal to 0.51. The adjusted interquartile range is then equal to 1.07, more than two times greater than the weighted interquartile range. When the adjusted interquartile range appears significantly greater than the weighted interquartile range, this means that a large proportion of the observations are located at the ends of the distribution.

Diagram 5 presents the weighted interquartile range and the number of localities in the regional councils. The regional councils are ordered by the value of the weighted median.

Diagram 6 presents a comparison between the rankings by the two dispersion measures, namely ranking by the weighted standard deviation and ranking by the weighted interquartile range. Note that the adjusted interquartile range retains the ranking by the weighted standard deviation. There are regional councils, like Merhavim, that are highly ranked by the weighted standard deviation but are lowly ranked by the weighted interquartile range. On the contrary, there are regional councils, like Nahal Soreq, that are relatively low ranked by the weighted standard deviation but are highly ranked by the weighted interquartile range.

G. Evaluation of the Socio-Economic Index

The key question addressed here is whether the socio-economic index derived in this study accurately reflects the current socio-economic situation of the population in a geographical unit in 2006.

First, let us mention the limitations of the present study:

- a. The data sources are numerous: the Central Bureau of Statistics, the National Insurance Institute, the Ministry of Labour and Social Affairs, and the Ministry of Religious Affairs. Any coordination or accord do not necessarily exist among these data sources. As a result, the quality and the accuracy of the data and, of course, of the analysis presented here are subject to these limitations. There is no such disadvantage when the data source is common and comprehensive as the Census of Population and Housing.
- b. When constructing the data file, we were limited to those variables for which the data are available for all of the local authorities and are as updated as possible. No reliable and updated data is available in a number of areas such as housing, ownership of durable goods, and education and labour in a wider sense (in the areas of education and labour there is a lack of such variables as years of schooling of aged 26 and more, percent of households with high-educated persons, percent of unemployed persons, percent of women unemployed, percent of workers of academic professions). In addition, data at a household level are almost non-existent. This is mentioned in comparison to the Census of Population and Housing providing a basis for reliable data referring to the same time point on demographic, social, and economic characteristics of **persons and households**.

In addition, the present analysis is subject to the basic restrictions inherent in any attempt to reduce a vast set of multidimensional data on socio-economic phenomena relating to a heterogeneous population of geographical units to a one-dimensional ranking or classification.

Notwithstanding the above-mentioned limitations, several advantages of the current analysis are noteworthy:

1. The present study is based on the same variables that served to derive the socio-economic indices that reflected the 1999, the 2001 and the 2003 data. Retention of the same definitions, sources and types of data analysis makes it possible to conduct a complete comparison to the previous studies. Therefore, it is possible to observe in the time dimension: a) changes in each one of the variables for all local authorities, b) changes in the weights (factor loadings) of the variables in each one of the factors, c) changes in the ranking and cluster allocation of the local authorities.
2. The National Insurance Institute provides data on the income of employees and self-employed persons, as well as on recipients of all allowances. All of the individual benefits from the National Insurance Institute and the income-support benefits from the Ministry of Religious Affairs are included. This considerably improves the estimates related to income from employment and individual benefits, that reflect economic distress such as reliance on income-support benefits and unemployment compensation.
3. In the definitions of the variables “rate of motorization” and “percent of new motor vehicles”, private trucks weighing up to 4 tons are included together with the private cars. Furthermore, all vehicles that are not privately owned are excluded.

4. Students registered in colleges that grant an academic degree are included together with the students registered in the universities. The variable “percent of persons entitled to matriculation certificate of aged 17-18” is stabilized by taking a two year average.
5. In this study, the clusters for the regional councils are linked to the clusters for the local councils and municipalities on the basis of nine variables common to both rankings. This linkage provides those interested with a uniform clustering for all of the local authorities.
6. The database used for the study was obtained at the level of locality. This made it possible to calculate ranking for the localities within the regional councils on the basis of the same variables. Though the ranking itself is not published here, dispersion measures are presented, to reflect the variance within the regional councils.

The variables used in the current and the previous study (for the year 2003) belong to the same content sphere, and are measured and calculated in the same way. Comparisons between the coefficients of the variables from both rankings for municipalities and local councils and for regional councils are presented in **Table E** and **Table F** respectively. Note, that for municipalities and local councils, the factors derived for the years 2003 and 2006 are very similar, both with respect to the composition of variables and to their coefficients. For regional councils, the composition of variables has changed, as well as their coefficients.

Appendix B presents a comparison between the ranking and cluster membership of local councils and municipalities based on the 2003 data, and the ranking and cluster membership based on the 2006 data.

Diagram B attached to Appendix B, displays the local councils and municipalities that changed their clusters in comparison to the previous cluster membership (2003).

Appendix C.1 presents a comparison between the ranking and cluster membership of regional councils based on the 2003 data, and the ranking and cluster membership based on the 2006 data.

Appendix C.2 presents a comparison between the combined cluster membership of regional councils based on the 2003 data, and the combined cluster membership based on the 2006 data.

Diagrams C.1 and C.2 attached to Appendices C.1 and C.2, display the regional councils that changed their clusters and their combined clusters respectively, in comparison to the previous allocation.

**Table E.- Comparison between the Variables Coefficients used in both Rankings for
Local Councils and Municipalities**

Variable	Current ranking based on 2006 data			Previous ranking based on 2003 data		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Percent of earners more than twice the average wage	0.88	0.07	0.38	0.88	0.11	0.40
Percent of students	0.85	0.27	0.31	0.87	0.25	0.28
Average income per capita	0.87	0.32	0.31	0.96	0.39	0.32
Percent of new motor vehicles	0.83	0.30	0.28	0.83	0.38	0.21
Percent of sub-minimum wage earners	0.79	0.30	0.30	0.78	0.39	0.26
Rate of motorization	0.74	0.35	0.41	0.69	0.41	0.45
Percent of persons entitled to matriculation certificate	0.74	0.40	0.16	0.65	0.43	0.23
Dependency ratio	0.31	0.83	0.32	0.28	0.86	0.31
Percent of families with 4 or more children	0.42	0.82	0.28	0.40	0.85	0.25
Median age	0.51	0.78	0.13	0.47	0.80	0.12
Percent of recipients of unemployment compensation	-0.10	-0.89	0.14	-0.16	-0.86	0.26
Percent of recipients of income - support benefit	0.37	0.21	0.85	0.36	0.09	0.84
Percent of recipients of income supplement to old-age pension	0.29	-0.12	0.97	0.21	-0.05	0.82
Percent of work seekers with 6 or more days of unemployment	0.31	0.29	0.81	0.34	0.24	0.77

Note: Shaded in grey are loadings greater than 0.5.

Table F.- Comparison between the Variables Coefficients used in both Rankings for Regional Councils

Variable	Current ranking based on 2006 data			Previous ranking based on 2003 data		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Percent of sub-minimum wage earners	0.08	0.20	0.96	0.94	0.04	0.15
Percent of earners more than twice the average wage	0.93	-0.06	0.20	0.84	0.41	-0.09
Rate of motorization	0.81	0.51	-0.17	0.83	0.14	0.41
Average income per capita	0.76	0.45	0.39	0.66	0.60	0.39
Percent of students	0.47	0.39	0.63	0.09	0.89	0.25
Percent of new motor vehicles	0.66	0.42	0.40	0.38	0.68	0.36
Percent of persons entitled to matriculation	0.19	0.87	0.17	0.19	0.15	0.79
Dependency ratio	0.16	0.82	0.39	0.06	0.41	0.79
Median age	0.51	0.56	0.51	0.25	0.62	0.64

Note: Shaded in grey are loadings greater than 0.5.

It should be remembered that the cluster in which an authority is included is not an absolute element, but is relative to other authorities; and that the allocation of the authorities to clusters may change as well.

The socio-economic index or cluster allocation can be considered as summary indices that attempt to reduce the wide array of population characteristics to one dimension. However, the following point must be taken into account in the process of applying these indices: the indices were based on the entire population of geographical units, hence they are appropriate for general comparisons between those units. In addition, local authorities with a similar socio-economic index may differ in terms of the size of the discrepancies between their sub-populations (e.g., neighborhoods) belonging to the authority. These discrepancies may have additional implications for the entire local authority.

The socio-economic index was calculated on the basis of statistical methods that are accepted throughout the world. The overall contribution of the index for planning and implementation of policies is significant despite the practical limitations listed above.

H. Bibliography¹

1. Applebaum L., Dor I., Heimberg S., *Characterization and Ranking of Regional Councils in Israel by the Socio-Economic Level of the Population*, The Jewish Agency and the Center for Development Studies, Rehovot, 1996 (Hebrew).
2. Ben-Tuvia S., *Characterization and Classification of Geographical Units by the Socio-Economic Level of the Population*, No. 15 in the 1983 Census of Population and Housing Publications Series, Central Bureau of Statistics, Jerusalem, 1987.
3. Ben-Tuvia S., Daichev Y., Dor I., *Characterization of Local Authorities by the Socio-Economic Level of the Population*, Central Bureau of Statistics and the Ministry of the Interior, Jerusalem, 1988 (Hebrew).
4. Burck L., Kababia Y., *Characterization and Ranking of Local Authorities according to the Socio-Economic Level of the Population in 1995*, Special Publication 1039, Central Bureau of Statistics, Jerusalem, 1996 (Hebrew).
5. Burck L., Kababia Y., *Characterization and Ranking of Local Authorities according to the Socio-Economic Level of the Population in 1999, Based on the 1995 Census of Population and Housing*, Special Publication 1118, Central Bureau of Statistics, Jerusalem, 1999 (Hebrew).
6. Burck, L., Feinstein, Y., *Characterization and Classification of Geographical Units by the Socio-Economic Level of the Population*, No. 13 in The 1995 Census of Population and Housing Publications Series, Central Bureau of Statistics, Jerusalem, 2000.
7. Burck, L., Tsibel, N., *Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 1999*, Special Publication 1197, Central Bureau of Statistics, Jerusalem, 2003.
8. Burck, L., Tsibel, N., *Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 2001*, Special Publication 1222, Central Bureau of Statistics, Jerusalem, 2004.
9. Burck, L., Tsibel, N., *Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 2003*, Special Publication 1281, Central Bureau of Statistics, Jerusalem, 2006.
10. *The Gadish Committee Report, Examination of Criteria for Allocation of the "Balance Allowance" to the Local Authorities*, presented to the Minister of the Interior, September 2001 (Hebrew).
11. Morrison, D. F., *Multivariate Statistical Methods*, McGraw-Hill, New York, 1967.
12. Shitrit S., Dor I., *Characterization and Ranking of Local Authorities by the Socio-Economic Level of the Population in 1992*, Ministry of Construction and Housing and the Ministry of the Interior, Jerusalem, 1993 (Hebrew).
13. *The Soari Committee Report, The Committee's Recommendations for Establishing Criteria for Allocation of the "Balance Allowance" to the Local Authorities*, presented to the Minister of the Interior, August 1993 (Hebrew).

¹ The list of sources for each variable that was included in the calculation of the socio-economic index, appears in Chapter B, Section 3.