

INTRODUCTION

Contents

A. General	8
1. The Concept of “Socio-Economic Level”	8
2. Previous Studies on the Subject	9
3. Goals and Applications of the Socio-Economic Index.....	11
B. Geographical Basis and Variables	12
1. General Definitions and Explanations.....	12
2. Geographical Basis of the Study	15
2.1. Local Authorities	15
2.2. Localities Within Regional Councils.....	16
3. Variables Included in the Calculation of the Index	17
3.1. Selection of Variables	17
3.2. List of Variables	19
C. Statistical Methodology	21
1. Factor Analysis	22
2. Cluster Analysis.....	23
D. Findings for Local Authorities: Municipalities, Local Councils, and Regional Councils	24
1. Results of Factor Analysis	24
2. Description of Tables, Diagrams and Maps	26
E. Findings for Localities Within Regional Councils	29
1. Method of Calculating the Index for Localities	29
2. Description of Tables and Diagrams.....	29
F. Evaluation of the Socio-Economic Index	30
G. Bibliography	36

A. General

1. The Concept of “Socio-Economic Level”

The concept of **socio-economic level** of the population of a geographical unit 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 attribute of the socio-economic level, they are not the only one. 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 are not identical to it.

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

- Financial resources of the residents (from work, benefits, etc.)
- Housing – density, quality, and other components of this aspect
- Home appliances, e.g., air conditioner, dishwasher, personal computer
- Motorization level – quantitative and qualitative
- Education
- Employment and unemployment characteristics
- Various types of socio-economic distress
- Demographic characteristics

There may be additional aspects from the socio-economic sphere, and it may be impossible to create a uniform, formal list of them. Similar indices are constructed by various agencies in the world. The 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 Central Bureau of Statistics produces socio-economic indices for various types of geographical units. The purpose of each index is to characterize and rank these units relative to other geographical units of the same type for a specific time period. For example, the socio-economic index for local authorities, as presented in this publication, characterizes each local authority by the socio-economic level of the population consisting of its residents relative to the socio-economic level of the populations in all other local authorities in 2013.

The units studied here fall into two categories: (a) **local authorities:** municipalities, local councils and regional councils; and (b) **localities within regional councils.** 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, in the previous publications, only dispersion measures that describe the

differences between the localities within the regional councils were presented, rather than the values of the index for each locality. Due to growing user demand and government requirements, this publication also presents the socio-economic index values for localities within regional councils. This index was constructed based on the socio-economic index of the local authorities, which reduces the influence of inaccuracy of the data on the index value of a single locality (see details below, in Chapter E).

The study presented here was performed in **three main stages**:

1. Selection of relevant variables for profiling a geographical unit's socio-economic status. The variables were selected such that the index reflects the largest possible number of the socio-economic aspects for all the units studied. Efforts were made to include reliable variables for all the local authorities, while the reliability was considered also at the level of localities within regional councils. This was done in order to base all the rankings, either among the local authorities or within the local authorities, on the same variables. The variables used in the computation of the index refer to 2013 and are described in detail in Chapter B, Section 3.
2. Building the data file including the various variables for each of the geographical units.
3. Statistical processing of the data. The processing was based on factor analysis, 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 of the sectors. Cluster analysis was used to classify the geographical units into clusters as homogeneous as possible with respect to the socio-economic index. The statistical methods are described in Chapter C.

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, made 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 was based to a large extent 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 population under 1,000 in 1983. The research results elicited separate socio-economic indices for the Jewish and Arab-Druze sectors.

¹ See Bibliography (Chapter G).

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, updated 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.
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 – presented a ranking of regional councils by socio-economic level of the population. The research was 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 authorities' 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 was the first part of the next study and focused 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 included 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, and (c) an index for statistical areas. This study has a unique contribution by relating to statistical areas, which are similar in size to neighbourhoods, 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 included: (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, and (d) dispersion measures 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 included: (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 measures for regional councils, and (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 included: (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, and (d) dispersion measures for regional councils.
11. **Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 2006**, conducted by L. Burck and N. Tsibel, 2009, commissioned by the Ministry of the Interior, and performed by the Central Bureau of Statistics. The project included: (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, and (d) dispersion measures for regional councils.
12. **Characterization and Classification of Local Authorities by the Socio-Economic Level of the Population 2008**, conducted by L. Burck and N. Tsibel, 2013, commissioned by the Ministry of the Interior, and performed by the Central Bureau of Statistics. The research was based on data from the 2008 Population Census. The project included: (a) a socio-economic index for local authorities: municipalities, local councils and regional councils; (b) a socio-economic index for statistical areas within municipalities and local councils; and (c) dispersion measures for regional councils.

3. Goals and Applications of the Socio-Economic Index

Over the years, the use of socio-economic indices has contributed to the implementation of 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 that 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 authorities (municipalities, local councils and regional councils) and the other for localities within the regional councils. The significant contributions of each index are described below.

The main applications of the products of this study are:

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

Of all the government ministries, the Ministry of the Interior is the most important one for local authorities, because it is responsible for many 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, the socio-economic characteristics of the population of the local authority, as well as the variability of the socio-economic index within the local authority, must be considered. 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 1990s, this formula was discussed by two separate committees appointed by the Ministers of the Interior at the time: first at the committee chaired by Prof. Yitzhak Soari (the Soari Committee Report) and later at the committee chaired by Mr. Yaacov Gadish.² In their reports, both of the committees advised using 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 local authority level and at a lower level for various purposes related to budget allocation (e.g., for the neighbourhood rehabilitation and renewal project).
- (2) The local authorities may use the socio-economic index in their ongoing activities.
- (3) The socio-economic indices are used by the Israeli academic and research system (universities, colleges, research institutes, etc.), as a basis for further studies on different municipal issues.
- (4) Individuals and private entities are interested in the characteristics of the population within localities and various neighbourhoods, in order to estimate the attractiveness of the area in terms of residential environment and potential for investment.

B. Geographical Basis and Variables

1. General Definitions and Explanations

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

Locality code – the locality coding system (a 4-digit code assigned to each locality) was devised in the 1950s by the Ministry of Interior and is maintained today by the Population and Immigration Authority, mainly to assist the computerized operations within the Population Registry system and the recording of addresses of the residents in Israel. The system is dynamic and is updated in coordination with the Central Bureau of Statistics.

² See Items 11 and 12 in the Bibliography (Chapter G).

Changes in the localities – changes occur in the list of localities of the Bureau every year due to a number of 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, Moza Tahtit was linked with Jerusalem and Zur Yiga'l was linked with Kokhav Ya'ir.
- c. Splitting of localities. For example, Ilut was split from Nazareth; Isifya was split from Daliyat Al-Karmel; Majd Al-Kurum, Deir Al-Asad and Bi'ne were split from Shaghor.
- d. Elimination of localities; localities that do not meet the definition of locality; or localities that were eliminated according to government decisions. For example, in 2005 Israeli localities that were located in Gaza and four more localities that were located in Northern Samaria are no longer included in the list of localities due to the evacuation of those localities under the implementation of the Disengagement Law, 2005.

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

Type of locality: The type of locality is determined, as far as possible, according to the actual situation and according to the following definitions. The localities are divided into two major groups: **urban** localities and **rural** localities. The distinction between them is based on the size of the locality.

- a. **Urban localities** include all localities with 2,000 or more residents, and are classified by size.
- b. **Rural localities** include all localities with fewer than 2,000 residents, and are sub-divided as follows:

Moshav: A rural locality organized as a cooperative society, which has the right to agricultural 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 carried out by the cooperative association, the degree of cooperation being determined by the members.

Collective moshav: A rural collective locality where production and marketing are collective and consumption is private.

Kibbutz: A collective rural locality where production, marketing and consumption are collective.

Institutional locality: An institution that has the characteristics of a locality and is not within the municipal boundaries of another locality.

Communal locality: A locality organized as a cooperative society, which has no right to farm land, and where the extent of cooperative activities (production, consumption, municipal and social activities) are determined by the members.

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: Population groups living outside the boundaries of the recognized localities. In the places inhabited by this population, all the definitions that characterize a locality (presented above) do not apply. Populations living outside localities also includes the populations of places (see definition below), of Bedouin tribes, and the populations of prisons located outside the municipal area of the locality.

Place: A new area that has begun to be populated, but still does not meet the criteria for being defined as a locality, or an area that was once a locality but was removed from the list of localities. For places, “place” is listed in the variable Type of Locality.

Bedouin tribes : The Bedouin tribes are not included in the count of localities, although they are listed in the File of Localities published by the CBS each year. The Bedouin tribe population is included in the summary tables of the population of living outside localities.

- **Municipal status of localities** – in accordance with legislative and administrative regulations, local authorities are divided into three types:
 - a. **Municipality:** Refers to one local authority only, which has received 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 several rural localities. Sometimes, urban localities are also included, e.g., Qesaryya (included in the regional council Hof HaKarmel), Kefar Habad (included in the regional council Emek Lod). Some of these urban localities are later granted the status of a local council. Included in regional councils are localities which have a representative on the council, as well as localities that are within the municipal jurisdiction of the council but are not represented on it.

In addition to the above, there are **localities with no municipal status**, i.e., located in an area that does not belong to any municipal authority.

The municipal status of a locality 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 regional 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. In 2008 the regional council Ef'al was eliminated; all of the localities in that regional council were annexed to nearby localities.

- c. **Splitting of regional councils:** for example, the regional council Nof HaGalil was split in 2000 into two regional councils: Bustan El-Marj and Al-Batof.
- d. **Creation of new regional councils:** New regional councils are usually established in areas that had no municipal status. In some cases, localities within existing regional councils are transferred to the new regional councils. For example, Jewish localities in the Golan Heights and the Judea and Samaria Area had no municipal status in the past. Later, they were ascribed to the new regional councils established in those regions.

2. Geographical Basis of the Study

The study includes **2 separate analyses: (a)** for the local authorities overall: municipalities, local councils and regional councils, and **(b)** for localities within regional councils.

The following is a description of the geographical units (geographical basis) for all stages of the study.

2.1. Local Authorities

The basic units of analysis are municipalities, local councils, and regional councils.

The list of local authorities is according to their municipal status at the end of 2013, and includes 255 local authorities, of which 201 are municipalities and local councils, and 54 are regional councils.

Changes in the **population and in the municipal map** compared to the population and the municipal map used as the basis for calculating the 2008 index are as follows:

- **Inclusion of residents of most of the institutions in the index population**

The calculation of the current index includes most of the residents of the institutions. Excluded are nursing care institutions, jails, etc. The 2008 index did not include geographic units in which the residents of the institutions constituted more than half of the population.

- **Addition of localities that were not included in the calculation of the index in 2008**

- a) Ghajar – was not enumerated in 2008.
- b) Tuba-Zangariyye – the 2008 census data were not reliable.
- c) Localities within regional councils that were not enumerated in 2008 or in which the sample was too small. For example: Zur Yizhaq in Derom Hasharon (2,693 residents), Nizzan B in Hof Ashqelon (1,664 residents), Arab Al Naim in Misgav (713 residents).
- d) Addition of institutional localities. For example: Bet Rabban (1,021 residents) and Kerem Yavne (518 residents) in Hevel Yavne.

- **Splitting of authorities**

- a) The regional council Abu Basma was split into two regional councils: Neve Midbar and Al-Kasum.

- b) The local council Qazir-Harish was disbanded: Harish (1,001 residents) was defined as a separate local authority and Qazir (2,548 residents) joined the regional council Menashe.

We emphasize that 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 calculated index reflects the socio-economic level of the local authority as a whole, and does not reveal the variance within the authority.

2.2. 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 (38% of the localities number less than 500 residents and 77% of the localities number less than 1,000 residents, see **Table A**). Due to the low accuracy of some of the data and statistical confidentiality considerations, only dispersion measures indicating the differences between the localities within the regional council were published in the previous publications and not the index for each locality.

In the current study, **the index derived for 970 (of 998) localities within 54 regional councils** is based on the model used to compute the index for the local authorities (see detailed explanation in Chapter E), in such a way that the index value for each locality does not depend on the total of localities or on the data accuracy of individual localities within regional councils. In addition, the index is not calculated for localities with less than 120 residents, for places out of localities, and/or for localities with some data missing.

Table A. Distribution of Localities within Regional Councils by Population Size

Number of residents	Number of localities
Up to 300	158
300–499	224
500–999	387
1,000 or more	229
Total	998

3. Variables Included in the Calculation of the Index

3.1. Selection of Variables

The selection of variables included in the calculation of the index was carried out in two stages. The first stage included preliminary sorting of a large number of variables relevant to the subject under study, based on the **database accessible from the administrative sources for 2013**. 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 area.**
- b. **Availability of reliable data for all the geographical units** mentioned above. Availability of data for **all** the units is important for maintaining consistency between the various geographical units.
- c. **Consistency with previous studies.** It is important to include the maximum number of variables which were used in previous studies, to enable comparisons over the years.

At this stage, consultations were held with officials at the Central Bureau of Statistics and outside the Bureau, and data were investigated from diverse fields such as demography, schooling and education, employment and benefits, and standard of living (financial income, motorization level, etc.).

- **Descriptive Analysis (Elimination of Variables)**

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 dispersion; (c) symmetry of distribution; (d) evaluation of extreme cases. In addition, the correlation between each pair of variables was calculated. All this was done in order to reduce the number of variables, and to avoid including variables that had too much influence or those that were strongly correlated with each other. When the Pearson 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 several variables reflected the same social phenomenon, preference was given to variables with symmetric distribution, high variance (i.e., considerable differences between the units under study), and 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 enables examining whether the variables belong to the same content area. On the other hand, it enables an examination of the contribution of a single variable to the group in which it is included. Regarding each group of experimental variables, the measure was always greater than 0.5, which indicates that the entire set of variables belong to the same content area (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 contributed toward explaining the overall variance in the factor analysis, as well as on how the factors for other variables would be affected if that variable was not included.

The following is an example of this kind of analysis. The correlation coefficient between the "percentage of persons aged 0–17 in the total population of the local authority" and the "median age of the population of the local authority" (two demographic variables related to the same phenomenon) was 0.94. According to the descriptive analysis of the two variables, the variable "median age of the population of the local authority" would be preferable, because of the symmetric distribution and the lack of extreme values. This variable was selected due to its relatively large contribution to explaining the general variance in the factor analysis.

The considerations that led to the final choice of the set of variables were as follows:

- a. **Balanced coverage** of the characteristics related to the aspects that comprise 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 area.
- c. A small number of factors must **account for a substantial amount of the variance** of the socio-economic variables for greater distinction between the units under study. The greater the amount of variance explained by the factors, the greater the distinction between the geographical units.

After all the stages of selection given in detail above, a list of **14 variables used in computation of the socio-economic index for each geographical unit** was formed. Some of the variables are direct alternatives to the variables from the 2008 Population Census that were included in the calculation of the 2008 index. Others are new variables that best reflect the socio-economic sphere of the population in 2013. The data sources are: the Central Bureau of Statistics, the National Insurance Institution, the Ministry of Finance, the Ministry of Education, the Ministry of Transportation and Road Safety, and the Population and Immigration Authority. 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 content area of one specific variable.

3.2. List of Variables

Demography

1. **Median age** – the value that one-half of the population of the geographical unit is aged above, and one-half is aged below, computed on the basis of individual ages.
Source of data: The Central Bureau of Statistics – population data 2013.
2. **Dependency ratio** – the ratio between persons aged 0–19 (young population) and 65+ (mature population), to those aged 20–64 (working-age population), multiplied by 100.
Source of data: The Central Bureau of Statistics – population data 2013.
- 3.* **Percent of families with 4 children or more** – percentage of families with 4 children or more as a share of the total number of families receiving child allowances.
Source of data: The National Insurance Institute.

Schooling and Education

- 4.** **Average years of schooling, of aged 25–54** – total years of schooling of persons aged 25–54, divided by the total population aged 25–54 (prime working-age group). The calculation includes years of study in schools and higher education institutions in Israel and abroad, and does not include school years in higher yeshiva.
Source of data: The Central Bureau of Statistics – Education Registry 2013.
- 5.** **Percent of academic degree holders, of aged 25–54** – percentage of persons aged 25–54 holding a first, second or third academic degree, from the population aged 25–54 (prime working-age group).
Source of data: The Central Bureau of Statistics – Education Registry 2013.

Employment and Benefits

6. **Percent of wage and income earners, out of persons aged 15 and over** – percentage of earners of wages and income, from work as an employee and/or self-employed work in 2013, in the population aged 15 and over.
Source of data: The Ministry of Finance –Tax Authority data.
- 7.* **Percent of women aged 25–54 with no income from work** – percentage of women aged 25–54 with no income from work as an employee and/or self-employed work in 2013, as a share of all women aged 25–54.
Source of data: The Ministry of Finance –Tax Authority data.

- 8. Percent of wage and income earners – above twice the average wage –** percentage of earners of more than twice the average wage, from work as an employee and/or self-employed work in 2013, as a share of total wage and income earners. The average wage for 2013: 8,247 NIS per month.³
Source of data: The Ministry of Finance –Tax Authority data.
- 9. Percent of sub-minimum wage earners –** percentage of earners from work as an employee and/or self-employed work up to minimum wage in 2013, (for 2013: 4,300 NIS per month of work) as a share of total wage and income earners.³
Source of data: The Ministry of Finance –Tax Authority data.
- 10. Percent of recipients of income support and income supplement to old-age pension –** percentage of recipients of an income support benefit from the National Insurance Institute and from the Ministry of Religious Services (transferred by the Ministry of Education), including an income supplement to the old-age pension, as a share of total population in 2013.
Sources of data: The National Insurance Institute and the Ministry of Education.

Standard of Living

- 11.** Average monthly income per capita –** total yearly income from work as an employee and/or self-employed work in 2013 (based on Tax Authority data), total benefits from the National Insurance Institute, and income-support benefit from the Ministry of Religious Services (transferred by the Ministry of Education), divided by 12 and by the number of residents in the geographical unit.
Sources of data: The Ministry of Finance, The National Insurance Institute, and The Ministry of Education.
- 12.** Rate of motorization –** total number of private vehicles and trucks up to 3.5 tons⁴ in private ownership, and total imputed number of vehicles in use (based on Tax Authority data), divided by the number of residents in the geographical unit in 2013.
Sources of data: The Ministry of Finance and the Ministry of Transportation and Road Safety.
- 13.** Average vehicle licence fee (vehicle valuation) –** total fee paid for private vehicles and trucks up to 3.5 tons⁴ in private ownership of the residents of the geographical unit in 2013, and the imputed fee paid for vehicles in use (based on Tax Authority data), divided by the number of vehicles.
Sources of data: The Ministry of Finance, The Ministry of Transportation and Road Safety, and regulations of The Ministry of Justice.

³ See National Insurance Institute. (2015). Wage and Income by Settlement and by Various Economic Variables 2013. Periodical Surveys 272. Jerusalem: Author.

⁴ See definitions in Central Bureau of Statistics. (2014). Motor Vehicles 2013. Pub. No. 1570. Jerusalem: Author

14.* Average number of days abroad – total number of days spent abroad by persons aged 2 or over in 2013, divided by the number of residents aged 2 or over in the geographical unit. The count of days abroad includes departures via air and/or sea for a period of 3 days to 3 months.

Source of data: The Population and Immigration Authority.

* Variable not included in the computation of the 2008 index.

** Changes in the definition of the variable and/or method of calculation compared to 2008.

C. Statistical Methodology

- The statistical technique used to calculate the socio-economic index for **local authorities** was **factor analysis**. The value of the index is calculated as a continuous value computed as a weighting of the standardized values of the selected variables. The value of the index is also standardized, so that the average value of the index for all the local authorities is zero, and the value of the index for each local authority is the distance from the national average in units of standard deviation.

According to their index values, the local authorities were allocated to 10 homogeneous groups (clusters) which were not equal in size, using **cluster analysis**.

- The value of the socio-economic index for **localities within the regional councils** was calculated by using the weights obtained for the local authorities. These weights were multiplied by the standardized values of the variables for the localities, where the standardization was carried out by using the mean and the standard deviation of the variables for the local authorities. As a result, the index values computed for localities within regional councils are comparable to the index values derived for local authorities. Moreover, the index value computed for each locality within a regional council does not depend on other localities in the regional councils included in this analysis.

According to their index values, the localities within regional councils were allocated to 10 clusters by applying the cluster boundaries of the local authorities.

The following is a detailed review of factor analysis and cluster analysis methods, together with a description of the way they were applied.

1. Factor Analysis

Factor Analysis⁵ is a group of statistical techniques aimed to express a large number of variables on the basis of a smaller number of factors and thus to characterize the units of analysis (in our case, local authority) in a synthesized way that can be conveniently used.

Factors are essentially new variables, calculated as linear combinations (weighted averages) 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: the value of a variable can be expressed as a number, quotient or percent, and can be measured for example, by NIS or by years of schooling. Standardization makes it possible to convert the variables into a uniform scale ("standardized value" in Table 1) and furthermore to combine them into one synthetic score. The weights of the original standardized variables are determined mathematically so as to attain maximum distinction 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.

The factors described above 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 components 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 the geographical units. In particular, if a variable has a low loading on all factors, this is an indication that it can be removed from the analysis. 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 to Table 1).

Various options are available in factor analysis, including a rotation of axes (factors) with the aim of strengthening the relationship between each variable and one factor only, while weakening the relationship between the same variable and the rest of the

⁵ See Item 12 in the Bibliography (Chapter G).

factors. 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 belong to a specific domain, such as level of education or standard of living. It is important to bear in mind, in the attempt to interpret the meaning of the different factors, that specific interpretation is one of many possible explanations that may be obtained in another rotation.

After the 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, the orthogonal rotation was used (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 value**, which expresses the socio-economic level of the local authority, was calculated as a weighted average of the factors, where the weighting was based on the percent of variance explained by each factor.

2. Cluster Analysis

Cluster analysis is a technique for allocating items (such as the local authorities) 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, the socio-economic index value, and the distance between two clusters was calculated on the basis of Ward's distance.

**D. Findings for Local Authorities:
Municipalities, Local Councils, and Regional Councils**

1. Results of Factor Analysis

The factor analysis yielded three factors. The three factors used to calculate the index explained about 87% 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., 14. The first factor accounted for about 36% of the variance, and this percent of the explained variance decreased as a result of rotation (it was more than 64% before the rotation). **Table B** presents the variance, the percent of variance, and the cumulative percent of variance explained by each of the factors.

Table B.- Variance and Percent of Variance Explained by the First Three Factors in the Model of the Socio-Economic Index for Local Authorities

Factor	Variance Explained	Percent of Variance Explained	Cumulative Percent of Variance Explained
1	5.01	35.81	35.81
2	3.67	26.25	62.05
3	3.53	25.20	87.25
Total	12.22	87.25	

Table C 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 (8 variables) has the highest correlation with the first factor, the second set (3 variables) has the highest correlation with the second factor, and the last set (3 variables) has the highest correlation with the third factor. The variables in the first set have correlation coefficients higher than 0.58 with the first factor. This group is comprised of variables that indicate income level, education level, and standard of living. The variables "average vehicle licence fee" and "average number of days abroad" have the highest correlations (0.92 and 0.84, respectively) with the first factor. The set of variables strongly correlated with the second factor (0.74–0.87) is comprised of variables that reflect the aspects of education and employment. The variables strongly correlated with the third factor (0.87–0.91) reflect the demographic situation.

The last column in **Table C** 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 B**. The variables included in the model have final communality estimates over 0.62. The communality estimate of the variable "average monthly income per capita" is the highest (0.96).

It should be noted again that the socio-economic index value of each local authority was calculated as the weighted mean of the three factors described above, where the weighting was carried out according to the percent of variance explained by each factor.

Table C.- Correlation Coefficients between Variables and Factors, and Final Communality Estimates of Variables in the Model of the Socio-Economic Index for Local Authorities

Variable	Factor 1	Factor 2	Factor 3	Final Communality Estimate
Average vehicle licence fee	0.92	-0.07	0.15	0.87
Average number of days abroad	0.84	0.30	0.31	0.88
Percent of wage and income earners – above twice the average wage	0.81	0.48	0.22	0.94
Average monthly income per capita	0.73	0.50	0.42	0.96
Percent of academic degree holders, of aged 25–54	0.72	0.58	0.15	0.89
Rate of motorization	0.71	0.30	0.51	0.86
Percent of recipients of income support and income supplement to old-age pension	0.60	0.41	-0.30	0.62
Percent of sub-minimum wage earners	0.58	0.55	0.42	0.82
Percent of women aged 25–54 with no income from work	0.17	0.87	0.33	0.89
Percent of wage and income earners, of aged 15 and over	0.18	0.87	0.34	0.89
Average years of schooling, of aged 25–54	0.57	0.74	0.11	0.89
Percent of families with 4 or more children	0.22	0.21	0.91	0.92
Dependency ratio	0.04	0.21	0.91	0.87
Median age	0.32	0.24	0.87	0.91

Note: Loadings greater than 0.5 are shaded in grey.

Table D presents the weights of the variables obtained from the model of socio-economic index for local authorities for 2013 data.

Table D.- Weights of Variables in the Model of the Socio-Economic Index for Local Authorities

Variable	Weight
Average monthly income per capita	9.03
Rate of motorization	8.99
Average number of days abroad	8.86
Percent of wage and income earners – above twice the average wage	8.54
Percent of sub-minimum wage earners	8.00
Average vehicle licence fee	7.92
Median age	7.80
Percent of academic degree holders, of aged 25–54	7.66
Percent of families with 4 or more children	7.19
Average years of schooling, of aged 25–54	6.58
Dependency ratio	5.72
Percent of wage and income earners, of aged 15 and over	4.96
Percent of women aged 25–54 with no income from work	4.85
Percent of recipients of income support and income supplement to old-age pension	3.89
Total	100.00

Based on its socio-economic index value, **each local authority was allocated to one of 10 clusters**, where cluster 1 signifies the lowest socio-economic level, and cluster 10 signifies the highest socio-economic level.

2. Description of Tables, Diagrams and Maps

Table 1 presents the index values, ranks, and clusters of the 255 local authorities included in the index calculation, as well as the values of the 14 original variables, their standardized values and ranks, in alphabetical order of the Hebrew names of the local authorities (for authorities with less than 2,000 residents, the variable values, standardized values and ranks are not presented). Two additional values, calculated for the local authorities overall, are presented for each variable: a simple average in which each local authority is given the same weight, and a nationwide value calculated for the total population of the local authorities.

Table 2 presents the local authorities in ascending order of the socio-economic index, with ranking (from 1, the lowest rank, to 255, the highest) and allocation to clusters (from 1 to 10). The largest cities, with over 200,000 residents, are in the middle to high clusters: Jerusalem is in cluster 3, Tel Aviv-Yafo in cluster 8, Haifa, Rishon LeZiyyon, and Petah Tiqwa in cluster 7, and Ashdod in cluster 5.

In addition, **Table 2** presents the changes in cluster allocation compared to the allocation in 2008. The changes in ranking and allocation to clusters from 2008 to 2013 stem from:

- (a) the database used in the index calculation differs both in the source of data and in the set of variables and their definitions;
- (b) changes in the definition of the index population – inclusion of most of the institution residents in the population;
- (c) changes in the municipal map (splitting of local authorities, linkage of localities to regional councils, inclusion of localities with missing 2008 Population Census data);
- (d) the socio-economic situation of all local authorities updated to the year 2013.

Table 3 presents the means of the 14 original variables in every cluster, and the variable values calculated for the local authorities overall: a mean value in which each local authority is given the same weight, and a nationwide value calculated for the total population of the local authorities. This table reveals the changes in the means of the variables across the clusters, as well as the gaps between the low and high clusters. The local authorities in cluster 10 (the highest socio-economic level) are characterized by a high level of average income per capita (the mean value is 8 times greater than the mean value in cluster 1), by a high median age (a mean value of 39.5 compared to a mean value 14.45 in cluster 1), by a low dependency ratio (a mean value of 92.6 compared to a mean value of 170.6 in cluster 1) and by a high rate of motorization (the mean value is more than 5 times greater than the mean value in cluster 1).

Table 4 presents the minimum and the maximum index values, as well as the standard deviation of the index values in each cluster. These data reflect the variability of the socio-economic index values of local authorities within each cluster.

Table 5 presents the distribution of local authorities by clusters and by 6 population size categories. The main findings in the table are:

- 4% of all the local authorities are allocated to the two highest clusters, 9 and 10. Almost all of these local authorities (9 out of 11) are characterized by a population size below 10,000.
- 20% of all the local authorities are allocated to the two lowest clusters, 1 and 2. Most of these local authorities (38 out of 51) are characterized by a population size below 20,000.
- Most of the local authorities with over 90,000 residents (13 out of 16) are classified in the middle to high clusters, 5 to 8.

Table 6 presents the distribution of local authorities by cluster and district. The main findings in the table are:

- In the Northern District, most of the local authorities (72 out of 93) are allocated to the low to middle clusters, 2 to 5. Note that the Northern District includes

numerous Arab and Druze local authorities (57 out of 93). All the Arab and Druze authorities are allocated to the low to middle clusters, 2 to 6.

- The Haifa District consists of 11 Arab and Druze local authorities and 19 Jewish local authorities (including mixed populations). All the Arab and Druze authorities are allocated to the low to middle clusters, 2 to 4, whereas most of the Jewish authorities (16 out of 19) are allocated to the middle to high clusters, 5 to 8.
- The Central District consists of 7 Arab and Druze local authorities and 45 Jewish local authorities (including mixed populations). All the Arab and Druze authorities (6 out of 7) are allocated to the low clusters, 2 and 3, whereas most of the Jewish authorities (30 out of 45) are allocated to the high clusters, 7 and 8.
- In the Tel Aviv District, the absence of local authorities in clusters 1 to 4 is noteworthy (with the exception of Bene Beraq).
- The Southern District consists of 8 Arab and Druze local authorities and 30 Jewish local authorities. All the Arab and Druze authorities are classified in cluster 1, whereas all the Jewish authorities are classified in the low to middle clusters, 3 to 7, with the exception of three suburbs of Be'er Sheva – Metar, Lehavim and Omer – that are classified in cluster 9.
- In the Judea and Samaria Area, 12 out of 23 local authorities are allocated to the middle clusters, 4 to 6.

The **attached map** illustrates the distribution of local authorities by socio-economic cluster of the population. Combining of the 10 clusters into 5 groups with each group consisting of 2 clusters, was done due to technical constraints only, and does not indicate a similarity within the groups.

Diagram 1 presents the distribution of population of the local authorities by cluster. Cluster 8 is the largest in terms of population size, and includes 1,526,689 residents (about 19% of the total population in the local authorities). Clusters 3, 7, and 5 include 17%, 17%, and 13% of the total population respectively.

Diagram 2 presents the distribution of the number of local authorities by cluster. Clusters 2, 8, and 3 include the highest number of local authorities, 40, 38, and 36 respectively.

Diagram 3 displays the local authorities whose cluster changed, compared to the 2008 classification. Out of the 250 local authorities that were included in the computation of the socio-economic index in both periods, 148 (59%) remained in the same cluster, 69 moved up one cluster, 4 moved up two clusters, 25 moved down one cluster, 3 moved down two clusters, and one local authority moved down three clusters. Note that when comparing between the two allocations, one should pay attention to the differences in the calculation of the index (see the explanation to Table 2).

E. Findings for Localities Within Regional Councils

1. Method of Calculating the Index for Localities

For the first time, this publication presents a socio-economic index for the population residing in localities within regional councils. The socio-economic index of these localities is based on the same data from administrative sources that were used to derive the socio-economic index for the population of local authorities.

The analysis was carried out for 970 localities within 54 regional councils. Of 1,015 localities within the regional councils, localities with less than 120 residents were not included in the analysis. Nor were places outside of localities and/or localities with some data missing included.

For each locality, a **continuous index value was calculated and an allocation to a cluster was made, both of which were comparable to those derived for local authorities.** The index values for the localities were computed **using the weights that were obtained from the model for local authorities** (see Table D). The weights were multiplied by the values of the variables for the localities, which were standardized using the mean and standard deviation of the variables for the local authorities. As a result, the index values of the localities in the regional councils are comparable to those of the local authorities. Notably, the index value of a locality within a regional council does not depend on the other localities in regional councils included in this analysis.

The classification of the localities into the 10 clusters of the local authorities was carried out on the basis of the index value of each locality and according to the range of the index values of the local authorities in each cluster.

2. Description of Tables and Diagrams

Table 7 presents the index values, ranks, and clusters for 970 localities within the regional councils included in the index calculation, in alphabetical order of the Hebrew names of the localities.

Table 8 presents the index values, ranks, and clusters for the 970 localities within the regional councils included in the index calculation, by ascending index values.

Table 9 presents the index values, ranks, and clusters for the 970 localities within the regional councils included in the index calculation, in alphabetical order of the Hebrew names of the regional councils, and within each regional council by ascending index values.

Table 10 presents a list of 45 localities within the regional councils for which the index was not calculated. These localities either have less than 120 residents, or they are located outside any locality (with special coding), or some of their data are missing.

Diagrams 4 and 5 present the distribution of the population and the distribution of the number of localities within the regional councils by cluster, respectively. The shapes of the distributions in these two diagrams are very similar, because localities

are much more homogeneous than local authorities in terms of the size of their population (compare with Diagrams 1 and 2). Clusters 7 and 8 contain the largest number of localities (217 and 201, respectively), and include 189,242 and 133,714 residents respectively (together, these clusters include approximately 41% of the total population of localities within the regional councils).

Table 11 presents two dispersion measures for each regional council: **(a) the standard deviation** of the index values of the localities weighted by the size of population; and **(b) the interquartile range** of the index values of the localities weighted by the size of the population. The first measure is not a robust estimate of the dispersion, because it is sensitive to extreme observations. The second measure is defined as the distance between the first and third quartile, and it 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 was computed. The **adjusted interquartile range** is the interquartile range that would have been obtained if the distribution were normal with the given variance. Note that for the standard normal distribution, the interquartile range is between -0.674 and 0.674, i.e., it is equal to 1.35, whereas the standard deviation is equal to 1. Thus, in order to obtain the interquartile range adjusted to the normal distribution, the standard deviation should be multiplied by 1.35.

Diagram 6 presents a comparison between the rankings of regional councils 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 such as Gan Rave, which were ranked relatively high by the weighted standard deviation but were ranked low by the weighted interquartile range. In contrast, there are regional councils such as Ramat Negev, that were ranked low by the weighted standard deviation but were ranked relatively high by the weighted interquartile range. The regional councils with the highest dispersion of the socio-economic index values by both measures are Zevulun and Misgav.

Diagram 7 presents the weighted interquartile range and the number of localities within each regional council in ascending order of the weighted median.

F. Evaluation of the Socio-Economic Index

The key question addressed here is whether the socio-economic index derived in this study reflects the true and updated socio-economic level of the population in a geographical unit in 2013.

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

- a. There are multiple data sources: The Central Bureau of Statistics, The National Insurance Institute, The Ministry of Finance, The Ministry of Education, The Ministry of Transportation and Road Safety, and The Population and Immigration Authority. These administrative databases serve the needs and purposes of the institutions that maintain the data, and but do not necessarily serve statistical needs. As a result, the quality and accuracy of these data as well as the quality of the analyses presented here are subject to certain limitations that do not exist

when using a single, comprehensive, and reliable source of data such as the population census.

- b. In several areas, no reliable data were available. This includes data on real estate value and living conditions, as well as data on the combination of education with employment (e.g., the percent of academic professionals or managers). Moreover, data at the household level were not available – as opposed to a broad range of updated Population Census data on demographic, and socio-economic characteristics of individuals and households at a given point in time.

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

Notwithstanding the above-mentioned limitations, it is worthwhile to highlight **the advantages of the current analysis and the improvements made, compared with previous studies:**

1. The present study was based on the variables from the same socio-economic content area, and employed the same statistical methodology used to derive the previous socio-economic indices that reflected the 1995, 1999, 2001, 2003, 2006, and 2008 data. Retention of the same content area of variables and the same types of data analysis enables, **to some extent**, a comparison with previous studies. Therefore, it is possible to observe the following changes over time: (a) changes in the values of variables for the geographical units; (b) changes in the correlation coefficients between the variables and the factors; and (c) changes in the ranking and clusters of the geographical units. It is important to emphasize that a **change in the rank and/or cluster reflects the relative change in a given geographical unit compared to all of the geographical units in the country, and not necessarily the change in the socio-economic data of the geographical unit itself.**
2. There are advantages to using an administrative database as opposed to using Population Census data:
 - a. The data relate to all residents of the country, so that there is no need for a census sample and data collection from the field. This prevents sampling errors (variance and nonresponse), as well as non-sampling errors (respondent errors and mistakes in filling out the questionnaires).
 - b. The data are available each year with a delay of two years, whereas the census data are available only once in a decade.
 - c. Some data are difficult to collect directly from the population such as income, unemployment and other sensitive data.
3. The Ministry of Finance provided data on the income of employees and self-employed persons. The National Insurance Institute provided data on recipients of benefits. In addition, the Ministry of Education provided data on recipients of the income support benefit for *Avrechim* (full-time yeshiva students). Therefore, the income estimates include income from work as well as income from benefits, and reflect aspects of economic distress such as reliance on income support benefits and unemployment compensation.

4. In the computation of the motorization rate in previous indexes based on the administrative databases, the total number of private vehicles and privately owned light trucks were counted. In the current index, for each geographic unit the number of vehicles in use was imputed according to the Tax Authority data as well, in order to reflect the usage of vehicles that are not privately owned.
5. In order to evaluate the market value of the vehicles, the average vehicle licence fee was computed – the total fee paid for private vehicles and privately owned trucks up to 3.5 tons plus the imputed fees paid for vehicles in use (according to the Tax Authority data), divided by the number of vehicles. This assessment is based on the regulations of the Ministry of Justice⁶, in which the license fee for vehicles is determined by the value of the vehicle at the time of registration (fee category) and the year of production or year of registration. Imputation of the licence fee for vehicles in use was based on the distribution of leasing vehicles, by fee category and by the fee for vehicles manufactured or registered less than three years previously.
6. In order to best reflect the standard of living of the population in the modern world, a new variable was calculated – the average number of days abroad. The number of days abroad was calculated for persons aged 2 and over who departed via air and/or sea for a period of three days to three months.
7. The variables relating education and employment ("average years of schooling", "percent of academic degree holders", and "percent of women with no income from work") were calculated for persons aged 25-54. This age range was defined by the Labour and Wages Unit as the main employment age group.
8. For the first time, a socio-economic index was published for localities within regional councils. The index values of the localities were calculated using the weights obtained from the model for the local authorities. As a result the index values, ranks, and clusters of localities within regional councils are comparable to the index values, ranks, and clusters of the local authorities. In addition, the index value of each locality does not depend on the accuracy of the data for other localities in the regional councils.

The variables used in the current and the previous (2008) study belong to the same content area, and some of the variables were measured and calculated in the same way. Therefore it is possible to compare the models used to derive the socio-economic index based on data from different time periods. **Table E** presents the correlation coefficients between the variables and the factors obtained from the two models of the socio-economic index for local authorities: the model based on administrative data for 2013, and the model based on the 2008 Population Census data.

⁶ See: Regulation file no. 7227, 26.2.2013
<http://www.justice.gov.il/units/reshomot/publications/pages/regulations.aspx>

**Table E.- Correlation Coefficients between Variables and Factors
in the Models of the Socio-Economic Index for Local Authorities,
Based on the 2013 Administrative Database and on 2008 Census Data**

Variable (2013)	Factor 1 (2013)	Factor 2 (2013)	Factor 3 (2013)	Factor 1 (2008)	Factor 2 (2008)	Factor 3 (2008)	Variable (2008)
Average vehicle license fee	0.92	-0.07	0.15	-	-	-	-
Average number of days abroad	0.84	0.30	0.31	-	-	-	-
Percent of wage and income earners - above twice the average wage	0.81	0.48	0.22	0.89	0.28	0.25	Percent of wage and income earners - above twice the average wage
Average monthly income per capita	0.73	0.50	0.42	0.85	0.35	0.21	Average monthly income per standard person
Percent of academic degree holders aged 25-54	0.72	0.58	0.15	0.83	0.26	0.36	Percent of academic degree holders, of aged 25-54
Rate of motorization	0.71	0.30	0.51	0.78	0.20	0.43	Average number of vehicles at household disposal per aged 18+
Percent of recipients of income support and income supplement to old-age pension	0.60	0.41	-0.30	0.59	-0.15	0.60	Percent of recipients of income support and income supplement to old-age pension
Percent of sub-minimum wage earners	0.58	0.55	0.42	0.71	0.40	0.32	Percent of sub-minimum wage earners

Note: Loadings greater than 0.5 are shaded in grey.

**Table E.- Correlation Coefficients between Variables and Factors
in the Models of the Socio-Economic Index for Local Authorities,
Based on the 2013 Administrative Database and on 2008 Census Data
(Cont'd)**

Variable (2013)	Factor 1 (2013)	Factor 2 (2013)	Factor 3 (2013)	Factor 1 (2008)	Factor 2 (2008)	Factor 3 (2008)	Variable (2008)
Percent of women aged 25-54 with no income from work	0.17	0.87	0.33	0.37	0.55	0.60	Percent of women aged 25-54 not in the annual civilian labour force
Percent of wage and income earners, of aged 15 and over	0.18	0.87	0.34	0.43	0.36	0.73	Percent of wage and income earners, of aged 15 and over
Average years of schooling, of aged 25-54	0.57	0.74	0.11	0.60	0.35	0.61	Average years of schooling, of aged 25-54
Percent of families with 4 or more children	0.22	0.21	0.91	0.14	0.92	0.11	Average number of persons per household
Dependency ratio	0.04	0.21	0.91	0.07	0.70	0.58	Dependency ratio
Median age	0.32	0.24	0.87	0.26	0.86	0.27	Median age
-	-	-	-	0.91	0.14	0.25	Percent of academic professionals or managers occupations
-	-	-	-	0.68	0.61	0.19	Average number of bathrooms per person in household
-	-	-	-	0.54	0.74	0.06	Average number of rooms per person in household
-	-	-	-	0.57	0.47	0.61	Percent of households with PC and Internet access

Note: Loadings greater than 0.5 are shaded in grey.

The following points should be considered when comparing between the models for different periods:

- The set of variables and the definitions of some variables in the present study are different from those in the previous study.
- The municipal map and the population structure that served the basis for calculating the index in the compared periods are different (see Chapter B, Section 2).

Table 2 presents the changes in the classification of the local authorities into clusters according to the present index values as opposed to the values of the 2008 index.

Diagram 3 displays the local authorities whose cluster changed in comparison with the 2008 cluster (see Chapter D, Section 2 for the comments to the table and the diagram). Note that the classification of a local authority into a cluster is not absolute. Rather, it is relative to the other local authorities. Moreover, the distribution of the local authorities between clusters varies.

In conclusion, the socio-economic index value and the cluster allocation should be considered as summary measures that attempt to reduce the variety of characteristics of the geographical unit's population to one dimension. The following points need to be taken into account when applying these measures: (a) The socio-economic index was derived on the basis of the entire population of each geographical unit, hence it is appropriate to use for a general comparison among those units. (b) Local authorities with similar socio-economic index values may differ in terms of the size of discrepancies between their sub-populations (e.g., neighbourhoods); and these discrepancies may have additional implications for the entire local authority.

The index calculated in the present study is based on statistical methods that are accepted throughout the world. The overall contribution of the index to planning and implementation of policies is substantial, despite the practical limitations listed above.

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⁷ The list of sources for each variable that was included in the calculation of the socio-economic index appears in Chapter B, Section 3.

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