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The "Melting Pot": A Success Story?

"כור ההיתוך": סיפור הצלחה?

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Abstract

The "melting pot" policy intends to create a new generation of migrants that will assimilate with the native population. The instruments used by the policy makers are fiscal and educational policies, which are intended to eliminate disparities between the migrants and the native population. The aim of this paper is to examine the success of this policy among second generation Israelis. In other words, the question of interest is whether the second generation is more similar to the natives, or to their own parents. The methodology used is ANoGI – ANalysis of Gini - which is similar to ANOVA except that it offers an additional parameter – stratification between groups. We compared two classifications: in the first, the second-generation Israelis were classified as Israelis, while in the second they were classified as belonging to the country of origin (of their parents). We find that the latter classification is more stratified than the former. This means that the melting pot policy did not achieve its declared targets.

Key Words: Gini, Migration, Classification, Stratification

1. Introduction

Societies with large immigration tend to be sensitive to the assimilation of the immigrants into the society. Instead of a fragmented society, divided by ethnic rifts, the preference is for a society where origin ceases to be an identifying characteristic.

To describe the meaning of the ideal melting pot, we can't find a better description than the one presented in Zangwill (1914, p-33), as quoted by Hirschman (1983, p-397). "America is God's Crucible, the Great Melting Pot where all races of Europe are melting and re-forming! Here you stand, good folk, think I, when I see them at Ellis Island, here you stand in your fifty groups, your fifty languages, and histories, and your fifty blood hatreds and rivalries. But you won't be long like that, brothers, for these are the fires of God you've come to – these are fires of God. A fig for your feuds and vendettas! Germans and Frenchmen, Irishmen and Englishmen, Jews and Russians – into the Crucible with you all! God is making the American."

Social integration includes many dimensions: cultural, language, common history, equal opportunities, to list a few. Also, it is not agreed by all that the melting pot policy, which destroys the diversity of cultural heritage, is really something that a society should aim for.¹ What seems to be non-controversial is that society should not be stratified by ethnic grouping when restricting the attention to economic well-being. Unlike other dimensions of the melting pot policy – integration of ethnic groups into the society along the dimension of economic well-being is relatively easy to quantify and to agree upon.² It seems that it is agreed by all that a successful melting pot policy should abolish stratification of economic well-being according to ethnic groups.

The aim of this paper is to apply a newly developed methodology which enables one to see whether a society is stratified according to ethnic groups. By comparing the change in the index of stratification over time we can evaluate the success of a melting pot policy according to this economic dimension. In other words – it enables us to see whether the background of origin plays an important role in stratification of a society according to ethnic groups and by tracing it over time, we can learn about the achievements of a melting pot policy.

¹ Glazer (1993) considers the decline in the positive attitude toward assimilation as an ideal for migrants in the U. S.

² Among the other aspects of assimilation that are not dealt within this paper it is worth mentioning the acquisition of native language skills. See among others Chiswick, (1978, 1998, 1999); Beenstock, (1996) and the literature therein. Easterly and Levine (1997) relate ethnic diversity as impediment to growth.

Israel is one example of a country where the melting pot policy was an officially declared policy (Lissak, 1999). We apply our suggested methodology to Israeli data in order to examine the success of the declared melting pot policy. Specifically we compare the stratification index under two alternative definitions of ethnic groups. According to one definition – **definition W** (wide) - second generation Israelis, i.e., those who were born in Israel are defined as one group while the other classification – **definition N** (Narrow) - is to classify second-generation Israelis according to the ethnic group of the father.³ A successful melting pot policy – should have resulted in classification W revealing a more stratified society than classification N. The intuitive explanation of this kind of conclusion is that a successful melting pot policy should have resulted in a formation of a "new" group – second generation Israelis where (original) ethnic differences do not show up. On the other hand, if stratification is higher when one uses the N definition, i.e., when the second generation Israelis are classified according to the original (i.e. father's) ethnic group – then we conclude that the melting pot policy failed to create a new generation for which the (original) ethnic grouping ceases to be a stratification variable. There are several reasons to suspect that definition W will be a better classifier than definition N, and they are detailed in section 3 below.

The empirical results show that we get a sharper stratification of economic well-being according to ethnic grouping when the N definition is used, that is, when the second generation is classified according to the origin of the father. This leads us to conclude that the melting pot policy did not achieve the target of creating a new generation in which the origin is not a factor that stratifies the society.

It is worth emphasizing that the purpose of the paper is descriptive. We are not trying to find out what causes success or failure of the melting pot policy nor whether there are other variables that may distinguish between the groups better than economic well-being. Therefore, we do not use regression methods that can relate the difference in economic well-being to other attributes. Instead, we introduce a relatively new descriptive measure, the overlapping measure.

The structure of the paper is as follows: Section 2 presents (very briefly) the methodology being used, Section 3 presents the definitions of the classifications and describes the data. The empirical results are presented in Section 4, and Section 5 concludes

³ The classification of the ethnic group by the origin of the father is dictated by the available data.

2. A brief review of the methodology

The method by which the success of the "melting pot" policy is examined is called – ANOGI – ANalysis Of GIni, which is based on decomposing the Gini coefficient of economic well-being according to population sub-groups in a way which is similar to ANOVA – ANalysis Of VAriance (See Appendix 3 and Frick et. al., 2006 for a full description of the methodology, the derivation and the properties of the parameters and estimators involved).⁴ In this section we give a very brief review of the decomposition of the Gini of the entire population, and explain how the decomposition enables us to answer the research question.

The Gini coefficient is the most popular measure of inequality. Naturally, one would wish to decompose the Gini of a population into the contributions of the sub populations. It turns out that the Gini is not additively decomposable by population sub-groups. As a result, many economists argue that it is not meaningful to decompose it (Shorrocks, 1984, Cowell, 1980). However, as shown in several papers (Frick et al. (2006), Lambert and Aronson, 1993; Lambert and Decoster, 2005; Milanovic and Yitzhaki, 2002; Yitzhaki and Lerman, 1991, Yitzhaki 1994) the decomposition of the Gini reveals more information about the distribution than the decomposition of alternative measures of inequality. In particular, it enables one to evaluate the quality of the classification by sub-groups (Heller and Yitzhaki, 2006), a property that will be dealt with in depth following the description of the properties of the decomposition. As demonstrated by Frick et. al (2006), the Gini decomposition according to population sub-groups offers a method which is on one hand similar to ANOVA but on the other hand is superior to it because it can indicate whether the groups are stratified. The decomposition and the statistical properties of the estimators, together with the description of a computer program that can perform the decomposition of the Gini according to sub-populations and perform statistical tests of the components is described in Frick et. al. (2006). Therefore, this section will only describe the main properties of the decomposition referred to as ANalysis Of GIni (ANOGI).

Let the population income distribution Y_u be composed of the income distributions Y_i , $i=1, \dots, n$, of the n subpopulations. The Gini of the entire population, denoted by G_u , can be decomposed into three components: a "within" component (intra), a "between" component

⁴ An alternative methodology to analyze the melting-pot policy is to compare the earnings of second generation of immigrants with the earnings of first generation, (or the earnings of the natives) while controlling for other effects. (Borjas (2006) and the reference therein). However, this methodology requires longitudinal data and other characteristics of the population, while the methodology presented here can be applied to cross-sections. The price paid for the use of our methodology is that we end up with descriptive statistics, while regression based methodologies offer a detailed analysis and the possibility to find causal relationship. For a regression-type analysis of discrimination and second generation analysis of the Israeli labor market see, among others, Semyonov and Cohen (1990) and Cohen and Haberfeld (1998).

(inter) and a component that is a function of the amount of overlapping among the subpopulations.

The overlapping coefficient was introduced by Yitzhaki and Lerman (1991) and modified in Yitzhaki (1994). Intuitively, it measures to what extent one group is overlapped by the other. The extreme lower bound occurs when there is a complete stratification, i.e., when each group occupies a given range and the ranges do not intersect (no overlapping, perfect stratification). The extreme upper bound for group A occurs when group B is concentrated inside the range of A, around the mean of group A, with no member of group A lying inside the range of group B. In this case, group A cannot be considered as a group because the members of group B separate the members of A that are below the average of A from those that are above it. Obviously, most cases are in between these two extremes. The measure is based on ranking the members of one group according to the ranking of the other. Its values range from 0 to 2, where 1 means that the distributions of the two groups are similar.

The overlapping coefficient can tell us how much the distributions are intertwined, or, in other words, tell us about the degree of assimilation. When estimating the "between" component, there are two terms involved: G_b and G_{bp} . G_b is based on the covariance between the mean value of each sub-group and the average rank of its members in the overall all distribution. On the other hand, G_{bp} (Pyatt, 1976) is based on the covariance between the mean value of each sub-group, and the ranking of the mean value in the distribution of mean-values. By construction, $G_b \leq G_{bp}$.

The decomposition is best understood in comparison to ANOVA, as shown in Appendices 1 and 2. In particular, ANOGI offers an additional parameter to ANOVA – the parameter of overlapping, which can be interpreted as the inverse of stratification. Other parameters being equal, the higher the overlapping, the higher the intra-group component and the lower the between-group component. We refer the reader to Appendix 3 for more details about the methodology.

The interpretation of the decomposition used in this paper follows the one presented in Heller and Yitzhaki (2006) which deals with classification of snails, and the one presented by Frick and Goebel (2005) on the decomposition of well-being in Germany according to regions.

Assume we are given two alternative classifications of the same entire population, into several sub-groups. For example, the two alternative classifications can be according to gender or to whether one is black or not. The variable we are interested in is income. Denote

those ways of classification into sub-groups by A, B,... The question we want to answer is which way of grouping is more stratified. Perfect stratification is defined as having the incomes of members of each subgroup confined to a given range, and no member of the other subgroup is located in this range. To see the meaning of perfect stratification consider the property being black. If all blacks are poor⁵ (rich) and all the poor are black (white) then we will say that we have perfect stratification and the quality of the classification (i.e., grouping) is perfect. The more whites (blacks) are poor (rich) – the lower the quality of the stratification. Consider now two classifications: one according to gender and the other according to being black or not. We will say that gender is a better classifier of the society if the inequality among women and men is lower than the inequality among blacks and others (i.e. similar to each other) and overlapping between women and men is lower than overlapping between blacks and others (i.e., different from the other group). In other words, we will define one classification as better than the other if the members of each subgroup are similar to each other (low intra-group inequality) and different from members of other subgroups (low overlapping, high between-group inequality). As can be seen, the higher the overlapping the lower the between-group inequality and the higher the intra-group component. It is argued that given several classifications into subgroups of the same entire population, the grouping with the lowest overlapping (highest stratification) will be defined as the best grouping.⁶

3. Definitions and Data Description

3.1 Definitions

The variable of interest for classification is economic well-being, which is defined as after-tax income per equivalent adult, according to the official scale used in Israel.⁷ To avoid the effect of different fertility rates we limit our population to adults only – age thirty and above. That is, although the sample is a sample of dwellings, our observations are adults of age 30+. We start by dividing the population according to the following distinctive groups that compose the entire population in Israel:

1. Jews born in Europe or America.
2. Jews born in Asia or Africa.

⁵ By poor (rich) it is meant that the income is below (above) a certain level.

⁶ An additional concept that is used extensively in the literature is polarization. See, for example, Duclos, Esteban and Ray (2003) and the references there. However, we do not know the relationship between stratification and polarization.

⁷ The equivalence scale used for comparison of economic well-being of households of different sizes is: one-person – 1.25, two – 2.0; three – 2.65; four – 3.2; five – 3.75; six – 4.25; seven – 4.75, eight – 5.2 and 0.4 for each additional person. For additional explanations, see Statistical Abstract of Israel, 2004, No. 55, p-46.

3. Jews born in Israel.
4. Immigrants – those who migrated to Israel less than ten years prior to the survey.
5. Others – non-Jewish population.

To examine the success of the melting pot policy we compare two alternative definitions of the group "Jews born in Israel". **Definition W** (wide) "Jews born in Israel" are defined as those who were born in Israel. The alternative **definition N** (narrow) "Jews born in Israel" are only those whose father was also born in Israel.⁸ The difference between the two alternative definitions is how the group of "Jews born in Israel but the father was born abroad" is classified. According to definition N this group is classified according to the place of birth of the father, while under definition W this group is classified as Israeli born. We apply this distinction only to those who were in the country for at least ten years prior to the survey and are Jewish. We do not ignore the rest of the population and they are grouped as "immigrants" (those who migrated to Israel less than ten years before the survey) and "others" (the non-Jewish population). The main point is that the definitions of those groups remain intact between the two alternative definitions.⁹

The comparison between the quality of the decomposition one gets under definition N to the quality of decomposition under W is used to examine the success of the melting pot policy. If classification W shows higher stratification (lower overlapping) we will conclude that the melting pot policy was successful in creating a new group – those who were born in Israel are "similar among themselves and different from the other groups", where "other groups" include their parents. On the other hand, if classification N shows greater stratification, we conclude that the melting pot policy was not successful because the offsprings of the immigrants are similar to their parents.

Naturally, we would expect that the broader definition of Israelis (definition W) will make a separate group, because:

- a. They are expected to be younger and therefore they should be different from their parents.
- b. Although they are of mixed origins, they were raised in Israel. That is, they were educated in Israel so they should be different from their parents.

⁸ Data limitations do not allow us to refer to the place of birth of the mother.

⁹ Note, however, the difference between "others" and "immigrants". Immigrants in an early survey may be defined in a later period as foreign-born.

- c. Definition N suffers from misclassification and therefore the groups tend to be blurred over time because of mixed marriages of the parents of Israeli born and because we are classifying the groups according to the place of birth of the father.

Therefore, we would expect that the overlapping index for grouping N will be larger than the overlapping index for grouping W.

3.2 Data description

The data consist of three Household expenditure surveys conducted in the years 79/80, 1992, 2002 in Israel by the Central Bureau of Statistics and they are described in the publications of those surveys. There are several differences among the surveys that are important for the analysis carried out in this paper:

1. Coverage of the population: The survey in 1979/80 includes only settlements with over 10,000 individuals, while the survey of 2002 includes settlements with population over 2,000. Since a large part of the Arab population live in rural areas, and since the population in many settlements have increased over time, the share of the Arab population that is covered has increased in a way that makes the comparison over the years seriously biased. Hence, we included the Arab population for completeness but one has to be careful in reaching conclusions because of sample selection bias.
2. The accounting period has changed over time. In 1979/80 the accounting period is twelve months. That is, the income reported is the income earned in the twelve months prior to the visit of the surveyors. However, in 1992 and 2002 the accounting period is composed of three months. The shorter the accounting period, the higher the inequality. Finkel, Artzev and Yitzhaki (2006) estimated the bias to be of a magnitude of about 20 percent in the Gini of after-tax income of equivalent adult.

Having these limitations in mind – we can concentrate on the decomposition of the Gini according to ethnic groups.

To avoid the influence of different fertility rates, only adults of age 30 and above are considered in the analysis.

4. Results

We analyze the data for the two alternative definitions in parallel. We present two tables of decompositions. Table 4.1 presents the decomposition of Gini index of adult-equivalent after tax income among prime-age Israelis according to ethnic groups. In the rows denoted by N,

Israeli is defined as a person whose father is also born in Israel. Israeli born whose father is born abroad is defined as belonging to the original group (of the father). In the rows denoted by W, Israeli is defined as a person born in Israel. It can be seen that in both definitions, inequality has increased significantly between 1992 and 2002 from 0.321 to 0.365. As can be seen, the Gini's between groups (G_B as well as G_{BP}) are bigger in definition N for the years 1992 and 2002. This means that when we classify second generation Israelis as belonging to the country of origin (of the father), we get a better stratified society. This conclusion is also supported by the overlapping term (column 2), where it is smaller by definition N than by definition W.

Table 4. 1 : The decomposition of the Gini index of income among ages 30-65 according to ethnic groups*:

Year	Definition	Overall Gini	S*G*O	G_B	G_{BP}	G_B/G_{BP}
		(1)	(2)	(3)	(4)	(5)
1979/80	N	0.318	0.256	0.062	0.125	0.496
S. Error		(0.007)		(0.007)	(0.010)	
	W	0.318	0.257	0.061	0.1230	0.495
S. Error		(0.007)		(0.007)	(0.010)	
1992/3	N	0.321	0.256	0.065	0.138	0.471
S. Error		(0.003)		(0.003)	(0.004)	
	W	0.321	0.270	0.051	0.120	0.427
S. Error		(0.003)		(0.003)	(0.004)	
2002	N	0.365	0.293	0.072	0.151	0.477
S. Error		(0.004)		(0.003)	(0.004)	
	W	0.365	0.305	0.060	0.122	0.495
S. Error		(0.004)		(0.003)	(0.004)	

Definition N: Israeli born defined according to father's origin.

Definition W: Israeli born defined as a separate group.

Table 4.2 presents the contributions of the components to the intra ethnic-group inequality, for different years.

The ethnic groups used for **definition N** are as follows:

Eu/Am = born in Europe-America, or born in Israel and father born in Europe-America.

As/Af = born in Asia-Africa, or born in Israel and father born in Asia-Africa.

Israel = born in Israel and father born in Israel (or father's origin is unknown).

Imig = new immigrants, less than 10 years in Israel (>70, >82, >92 accordingly).

Others = Non-Jewish or unknown origin.

The ethnic groups used for **definition W** are as follows :

Eu/Am = born in Europe-America.

As/Af = born in Asia-Africa.

Israel = born in Israel.

Imig = new immigrants, less than 10 years in Israel (>70, >82, >92 accordingly).

Others = Non-Jewish or unknown origin.

**Table 4.2: The contribution of the components to the intra ethnic-group inequality
for different years, for definitions N and W**

Category	Population Share	Relative Mean Income	Average Rank	Income Share, S	Gini, G (SE)	Overlapping, O, (SE)	SGO
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1979/80							
Eu/Am N	0.429	1.243	0.629	0.533	0.282 (0.006)	0.868 (0.009)	0.131
W	0.324	1.232	0.615	0.399	0.296 (0.006)	0.910 (0.010)	0.108
As/Af N	0.362	0.786	0.400	0.285	0.266 (0.006)	0.899 (0.010)	0.068
W	0.332	0.771	0.390	0.256	0.265 (0.006)	0.893 (0.011)	0.061
Israel N	0.037	1.059	0.578	0.039	0.227 (0.093)	0.829 (0.136)	0.007
W	0.172	1.176	0.624	0.202	0.242 (0.006)	0.798 (0.011)	0.039
Imig N,W	0.079	1.049	0.552	0.083	0.279 (0.009)	0.971 (0.011)	0.022
Others N,W	0.093	0.645	0.217	0.060	0.394 (0.093)	1.160 (0.136)	0.027
N- SGO							0.255
W- SGO							0.257
1992/3							
Eu/Am N	0.316	1.319	0.656	0.417	0.283 (0.004)	0.841 (0.006)	0.099
W	0.173	1.265	0.632	0.219	0.290 (0.003)	0.891 (0.006)	0.057
As/Af N	0.389	0.932	0.480	0.362	0.286 (0.004)	0.933 (0.005)	0.097
W	0.225	0.939	0.481	0.212	0.294 (0.005)	0.951 (0.006)	0.059
Israel N	0.048	1.152	0.577	0.056	0.310 (0.004)	0.951 (0.008)	0.016
W	0.355	1.140	0.576	0.405	0.298 (0.006)	0.913 (0.004)	0.110
Imig N,W	0.135	0.716	0.347	0.097	0.289 (0.003)	0.935 (0.006)	0.026
Others N,W	0.111	0.610	0.278	0.068	0.294 (0.004)	0.882 (0.008)	0.018
N- SGO							0.256
W-SGO							0.270

2002								
Eu/Am	N	0.319	1.298	0.626	0.414	0.336 (0.006)	0.874 (0.006)	0.122
	W	0.186	1.191	0.591	0.222	0.332 (0.004)	0.903 (0.006)	0.067
As/Af	N	0.343	0.943	0.501	0.324	0.324 (0.005)	0.931 (0.004)	0.097
	W	0.133	0.955	0.506	0.127	0.347 (0.008)	0.953 (0.005)	0.042
Israel	N	0.087	1.244	0.589	0.109	0.368 (0.003)	0.939 (0.005)	0.038
	W	0.430	1.156	0.571	0.498	0.346 (0.005)	0.928 (0.005)	0.160
Imig	N,W	0.105	0.788	0.418	0.083	0.284 (0.011)	0.870 (0.016)	0.020
Others	N,W	0.145	0.486	0.228	0.070	0.307 (0.003)	0.749 (0.005)	0.016
N- SGO								0.293
W- SGO								0.305

As can be seen, the share of the Israelis is much bigger for definition W. (And obviously, the shares of Eu/Am and As/Af are declining). The overlapping index of the Israeli group is smaller in 1979 and gets larger and closer to 1 in 1992 and 2002. The two definitions show similar trends in the overlapping index. However, the overlapping of Israelis by definition N is bigger than by definition W in 1992, and the gap is much smaller in 2002. Also, the Gini index of Israelis in 2002 is smaller by definition W than by definition N. (The two Ginis are similar in 1992). The sum of the products SGO for Israelis is smaller for definition N than for definition W for the three years under study. This means that the intra-group inequality and overlapping between groups explain a greater portion of inequality leading us to conclude that definition N provides a more distinctive grouping of the society than definition W.

The decomposition of the Gini of the entire population by ANOGI provides additional information, given by the ranking of each group in terms of the others, and by the overlapping of each group in terms of the others. These measures are not reported here, since they do not contribute to our discussion. However, we report them, for completeness, in Appendix 1. In addition, we have performed ANOVA on the two different groupings. The results confirm the conclusions of this paper that definition N is a better stratifier, and are reported in Appendix 2.

5. Concluding remarks

The objective of the study was to evaluate the success of the melting pot policy in Israel. We concentrated on one aspect only – the melting-pot in terms of economic well-being. We introduced a relatively new tool – the decomposition of the Gini of the entire population into the contributions of the individual Ginis of sub-populations (intra-group component), the between-group inequality (inter-group component) and additional terms, defined as overlapping indices. The basic idea was to divide the entire population into sub-populations in two different ways (called here N and W), and check which one will stratify the population better. The conclusion from this study is that based on between-group Gini's, definition N stratifies better. That is, we can say that the melting pot did not succeed. The persons born in Israel are more similar to their parents than to the rest of the population.

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Appendix 1

Tables A.1 (N) and A.1 (W) present the ranking of each group in terms of the other, for the 3 years, for the two alternative definitions of Israeli group.

Each entry in the tables present the average rank of the members of the group that is indicated in the row would they have been ranked according to the ranking of the group in the column. Looking at Table A.1(N) we see that the average rank of Jews born in Asia/Africa, would they have been ranked according to Jews from Europe/America is 0.26 in 1979, 0.31 in 1992 and 0.37 in 2002. This is an indication that over time the relative status of Jews from Asia/Africa has improved. Looking at the column of Israeli born, the ranking in terms of Europe/America has slightly declined from 0.43 in 1979, to 0.42 in 1992, but has increased to 0.47 in 2002. On the other hand, the average ranking of the Arab population in terms of European/American born ranking has increased from 0.12 in 1979, to 0.15 in 1992 but declined later to 0.13.¹⁰ Tables A.2 (N) and A.2 (W) present overlapping index (and standard error) of each group in terms of the other, for the 3 years, for the two alternative definitions of Israeli group. Each column represents the reference group (represented by the index j in the decomposition of O_{ji}) while the row represent i . Multiplying the elements of each row by the share in the population of the group and summing up yields the overlapping of the group with the entire population. That is each row represents the overlapping of the group with other groups. The first line says that Europe/America is a stratified group with respect to Asia/Africa (0.79) but it is less than a group when the reference group is Israeli born. It is definitely a group with respect to the "Others" group. In 1979 the group "others" included several rich people so that it became a non-group with respect to all other groups.¹¹ However, in 1992 the "Others" became a distinct group relative to all others except immigrants, while in 2002 they were left behind by almost all other groups. Over time the groups Asia/Africa and Europe/America became less distinct from each other with the overlapping indices increasing from (0.79 ; 0.85) in 1979 to 0.92 ; 0.94) in 2002.

¹⁰The disclaimer that the coverage of this population has changed over-time, which may bias the results should be added.

¹¹ We do not have a good explanation to this result. It may be caused by the members of the Christian-Arab population who were with relatively high income and emigrated from the country.

Table A.1 (N): The ranking of each group in terms of the other, for the 3 years

	Eu/Am	As/Af	Israel	Imig	OTHER
1979/80					
Eu/Am	0.5	0.74	0.57	0.58	0.88
As/Af	0.26	0.5	0.30	0.34	0.73
Israel	0.43	0.70	0.5	0.51	0.87
Imig	0.42	0.66	0.49	0.5	0.82
OTHER	0.12	0.27	0.13	0.18	0.5
1992/3					
Eu/Am	0.5	0.69	0.58	0.80	0.85
As/Af	0.31	0.5	0.40	0.65	0.72
Israel	0.42	0.60	0.5	0.73	0.78
Imig	0.20	0.35	0.27	0.5	0.59
OTHER	0.15	0.28	0.22	0.41	0.5
2002					
Eu/Am	0.5	0.63	0.53	0.72	0.87
As/Af	0.37	0.5	0.40	0.59	0.79
Israel	0.47	0.60	0.5	0.68	0.83
Imig	0.28	0.41	0.32	0.5	0.75
OTHER	0.13	0.21	0.17	0.25	0.5

Table A.1 (W): The ranking of each group in terms of the other, for the 3 years

	Eu/Am	As/Af	Israel	Imig	OTHER
1979/80					
Eu/Am	0.5	0.73	0.50	0.57	0.86
As/Af	0.27	0.5	0.25	0.33	0.72
Israel	0.50	0.75	0.5	0.57	0.89
Imig	0.43	0.67	0.43	0.5	0.82
Others	0.14	0.28	0.11	0.18	0.5
1992/3					
Eu/Am	0.5	0.66	0.56	0.77	0.83
As/Af	0.34	0.5	0.40	0.65	0.72
Israel	0.44	0.60	0.5	0.73	0.79
Imig	0.23	0.35	0.27	0.5	0.59
Others	0.17	0.28	0.21	0.41	0.5
2002					
Eu/Am	0.5	0.59	0.52	0.69	0.85
As/Af	0.41	0.5	0.43	0.59	0.79
Israel	0.48	0.57	0.5	0.67	0.83
Imig	0.31	0.41	0.33	0.5	0.75
Others	0.15	0.21	0.17	0.25	0.5

Table A.2 (N): The overlapping Index (and SE) of one group in terms of the other

	Eu/Am	As/Af	Israel	Imig	Others
1979/80					
Eu/Am	1	0.79	1.06	0.95	0.43
		<i>0.02</i>	<i>0.03</i>	<i>0.03</i>	<i>0.02</i>
As/Af	0.85	1	0.97	0.87	0.75
	<i>0.03</i>		<i>0.04</i>	<i>0.03</i>	<i>0.03</i>
Israel	0.88	0.84	1	0.85	0.48
	<i>0.04</i>	<i>0.05</i>		<i>0.02</i>	<i>0.02</i>
Imig	1.00	0.99	1.14	1	0.66
	<i>0.02</i>	<i>0.03</i>	<i>0.01</i>		<i>0.03</i>
Others	1.17	1.19	1.20	1.15	1
	<i>0.28</i>	<i>0.09</i>	<i>0.18</i>	<i>0.16</i>	
1992/3					
Eu/Am	1	0.86	0.92	0.65	0.54
		<i>0.02</i>	<i>0.01</i>	<i>0.01</i>	<i>0.01</i>
As/Af	0.94	1	0.94	0.87	0.75
	<i>0.02</i>		<i>0.02</i>	<i>0.01</i>	<i>0.02</i>
Israel	1.05	0.99	1	0.81	0.70
	<i>0.02</i>	<i>0.02</i>		<i>0.02</i>	<i>0.02</i>
Imig	0.82	1.02	0.88	1	0.91
	<i>0.01</i>	<i>0.03</i>	<i>0.02</i>		<i>0.01</i>
Others	0.69	0.96	0.78	1.05	1
	<i>0.03</i>	<i>0.02</i>	<i>0.02</i>	<i>0.01</i>	
2002					
Eu/Am	1	0.92	0.95	0.82	0.47
		<i>0.01</i>	<i>0.01</i>	<i>0.01</i>	<i>0.01</i>
As/Af	0.94	1	0.93	1.01	0.68
	<i>0.01</i>		<i>0.01</i>	<i>0.01</i>	<i>0.02</i>

Israel	1.04	0.98	1	0.91	0.59
	<i>0.01</i>	<i>0.01</i>		<i>0.01</i>	<i>0.02</i>
Imig	0.86	0.94	0.84	1	0.66
	<i>0.03</i>	<i>0.02</i>	<i>0.03</i>		<i>0.01</i>
Others	0.57	0.78	0.59	0.98	1
	<i>0.02</i>	<i>0.02</i>	<i>0.01</i>	<i>0.01</i>	

Table A.2 (W): The Overlapping Index (and SE) of one group in terms of the Other

	Eu/Am	As/Af	Israel	Imig	Others
1979/80					
Eu/Am	1	0.82	1.11	0.99	0.47
		<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>
As/Af	0.82	1	0.90	0.86	0.77
	<i>0.03</i>		<i>0.03</i>	<i>0.03</i>	<i>0.03</i>
Israel	0.88	0.72	1	0.87	0.37
	<i>0.02</i>	<i>0.02</i>		<i>0.02</i>	<i>0.03</i>
Imig	0.97	0.98	1.11	1	0.66
	<i>0.02</i>	<i>0.03</i>	<i>0.02</i>		<i>0.03</i>
Others	1.17	1.19	1.19	1.15	1
	<i>0.27</i>	<i>0.09</i>	<i>0.20</i>	<i>0.16</i>	
1992/3					
Eu/Am	1	0.91	0.99	0.72	0.60
		<i>0.01</i>	<i>0.01</i>	<i>0.02</i>	<i>0.01</i>
As/Af	0.96	1	1.00	0.88	0.77
	<i>0.02</i>		<i>0.01</i>	<i>0.01</i>	<i>0.01</i>
Israel	1.00	0.94	1	0.76	0.64
	<i>0.01</i>	<i>0.01</i>		<i>0.01</i>	<i>0.02</i>
Imig	0.84	1.00	0.92	1	0.91
	<i>0.03</i>	<i>0.02</i>	<i>0.03</i>		<i>0.01</i>
Others	0.72	0.95	0.82	1.05	1
	<i>0.02</i>	<i>0.02</i>	<i>0.03</i>	<i>0.01</i>	
2002					
Eu/Am	1	0.95	0.98	0.88	0.52
		<i>0.01</i>	<i>0.01</i>	<i>0.01</i>	<i>0.01</i>
As/Af	0.99	1	0.99	1.03	0.71
	<i>0.01</i>		<i>0.01</i>	<i>0.01</i>	<i>0.02</i>
Israel	1.02	0.97	1	0.92	0.57

	<i>0.01</i>	<i>0.01</i>		<i>0.01</i>	<i>0.02</i>
Imig	0.89	0.91	0.89	1	0.66
	<i>0.03</i>	<i>0.02</i>	<i>0.03</i>		<i>0.01</i>
Others	0.64	0.77	0.65	0.98	1
	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.01</i>	

Appendix 2. ANOVA

In addition to the decomposition of Gini, a decomposition of the variance was obtained by ANOVA. Note that there are only two components: between (intra) and within (inter). The results are given in Table A-2. We note that the question asked by ANOVA is different – it is meant to compare the means of the subpopulations. As can be seen from the last column (the F ratio), the between MS is (relatively) larger for definition N for the three years under study, strengthening our conclusion that definition N is a better stratifier.

Table A2: ANOVA for Definition N and W

	SS- Within(df)	SS- Between(df)	Total (df)	MS- Within	MS- Between	F= MSB/MSW
N-1979	337543 (2868)	40524 (4)	378067 (2872)	118	10131	86
W-1979	338961 (2868)	39106 (4)	378067 (2872)	118	9776	83
N-1992	916094 (7039)	171763 (4)	1087857 (7043)	130	42941	330
W-1992	957762 (7039)	130095 (4)	1087857 (7043)	136	32524	239
N-2002	7897294 (8149)	1074649 (4)	8971943 (8153)	969	268662	277
W-2002	8132176 (8149)	839767 (4)	8971943 (8153)	998	209942	210

Appendix 3. The ANOGI methodology – a brief review

The method by which the success of the "melting pot" policy is examined is called – ANOGI – ANalysis Of GIni, which is based on decomposing the Gini coefficient of economic well-being according to population sub-groups in a way which is similar to ANOVA – ANalysis Of VAriance (See Frick et. al., 2006 for a full description of the methodology, the derivation and the properties of the parameters and estimators involved).¹² In the first part of this section we detail the decomposition of the Gini of the entire population, and in the second part we elaborate on how the decomposition enables us to answer the research question.

1. Decomposition of Gini by population sub-groups

The Gini coefficient is the most popular measure of inequality. Naturally, one would wish to decompose the Gini of a population into the contributions of the sub populations. It turns out that the Gini is not additively decomposable by population sub-groups. As a result, many economists argue that it is not meaningful to decompose it (Shorrocks, 1984, Cowell, 1980). However, as shown in several papers (Frick et al. (2006), Lambert and Aronson, 1993; Lambert and Decoster, 2005; Milanovic and Yitzhaki, 2002; Yitzhaki and Lerman, 1991, Yitzhaki 1994) the decomposition of the Gini reveals more information about the distribution than the decomposition of alternative measures of inequality. In particular, it enables one to evaluate the quality of the classification by sub-groups (Heller and Yitzhaki, 2006), a property that will be dealt with in depth following the description of the properties of the decomposition. As demonstrated by Frick et. al (2006), the Gini decomposition according to population sub-groups offers a method which is on one hand similar to ANOVA but on the other hand is superior to it because it can indicate whether the groups are stratified. The decomposition and the statistical properties of the estimators, together with the description of a computer program that can perform the decomposition of the Gini according to sub-populations and perform statistical tests of the components is described in Frick et. al. (2006). Therefore, this section will only describe the main properties of the decomposition referred to as ANalysis Of GIni (ANOGI).

¹² An alternative methodology to analyze the melting-pot policy is to compare the earnings of second generation of immigrants with the earnings of first generation, (or the earnings of the natives) while controlling for other effects. (Borjas, 2006 and the reference therein). However, this methodology requires longitudinal data and other characteristics of the population, while the methodology presented here can be applied to cross-sections. The price paid for the use of our methodology is that we end up with descriptive statistics, while regression based methodologies offer a detailed analysis and the possibility to find causal relationship. For a regression-type analysis of discrimination and second generation analysis of the Israeli labor market see, among others, Semyonov, and Cohen (1990) and Cohen and Haberfeld (1998).

Let

$$Y_u = Y_1 \cup Y_2 \cup \dots \cup Y_n$$

where Y_u is the income of the entire population and Y_i is the income of sub population i . ($i=1, \dots, n$).

The Gini of the entire population, denoted by G_u , can be presented as

$$G_u = \sum_{i=1}^n s_i G_i O_i + G_b = \sum_{i=1}^n s_i G_i + \sum_{i=1}^n s_i G_i (O_i - 1) + G_{bp} + (G_b - G_{bp}) \quad (1)$$

where s_i denotes the share of group i in the overall income, O_i is the overlapping index of subpopulation i with the entire population (explained below), G_b measures the between-group inequality and G_{bp} is Pyatt's between-group Gini (Pyatt, 1976).

The overlapping coefficient was introduced by Yitzhaki and Lerman (1991) and modified in Yitzhaki (1994). Intuitively, it measures to what extent one group is overlapped by the other. The extreme lower bound occurs when there is a complete stratification, i.e., when each group occupies a given range and the ranges do not intersect (no overlapping, perfect stratification). The extreme upper bound for group A occurs when group B is concentrated inside the range of A, around the mean of group A, with no member of group A lying inside the range of group B. In this case, group A cannot be considered as a group because the members of group B separate the members of A that are below the average of A from those that are above it. Obviously, most cases are in between these two extremes. The measure is based on ranking the members of one group according to the ranking of the other. Its values range from 0 to 2, where 1 means that the distributions of the two groups are similar.

Formally, overlapping of the overall population by sub-population i is defined as:

$$O_i = O_{ui} = \frac{\text{cov}_i(y, F_u(y))}{\text{cov}_i(y, F_i(y))} .$$

The denominator is (one-fourth) of Gini's mean difference of group i , while the numerator is the covariance between the same observations and their rankings in the overall distribution.

The overlapping coefficient can tell us how much the distributions are intertwined, or, in other words, tell us about the degree of assimilation.

The other components of Equation (1) that require an interpretation are G_b and G_{bp} . G_b is based on the covariance between the mean value of each sub-group and the average rank of its members in the overall all distribution. On the other hand, G_{bp} is based on the covariance

between the mean value of each sub-group, and the ranking of the mean value in the distribution of mean-values. By construction, $G_b \leq G_{bp}$. The role of the overlapping in Equation (1) can be seen from the second and fourth terms on the right side of the equation. The terms G_u , G_i ($i=1, \dots, n$) and G_{bp} are not affected by the degree of overlapping. Therefore the higher the degree of overlapping between the sub-groups the higher the second term on the right hand side of (1) (intra-group component) and the lower the fourth term (between-group component). The decomposition is best understood in comparison to ANOVA, as shown in the following table:

Table 1.1 : Comparing ANOGI and ANOVA

Components Parallel to ANOVA	Formula	Range
Intra-Group	$IG = \sum_{i=1}^n s_i G_i$	$0 \leq IG \leq G_u$
Between-Groups-Pyatt	$BG_p = G_{bp}$	$0 \leq BG_p \leq G_u$
Additional Information provided by ANOGI		
Overlapping Effect on Intra-Group	$IGO = \sum_{i=1}^n s_i G_i (O_i - 1)$	
Overlapping Effect on Between-Groups	$BGO = G_b - G_{bp}$	$-BG_p - IGO - IG \leq BGO \leq 0$

As can be seen from Table 1.1, ANOGI offers an additional parameter to ANOVA – the parameter of overlapping, which can be interpreted as the inverse of stratification. Other parameters being equal, the higher the overlapping, the higher the intra-group component and the lower the between-group component.

A further decomposition of two parameters that are involved in the decomposition enables one to elaborate on which groups are contributing to the quality of the decomposition, as portrayed by the overlapping index.

The first component of this additional decomposition is the comparison of the mean income of each group with the mean ranking of members of each group in the overall population. Formally, the following relationships hold:

$$\mu_0 = \sum_{i=1}^n p_i \mu_i$$

$$0.5 = \sum_{i=1}^n p_i \bar{F}_i$$

$$O_i = \sum_{j=1}^n p_j O_{ji}$$

where \bar{F}_i is the average rank of the members of group i in the population. μ_i, \bar{F}_i are the two components that represent group i in the between-group component and O_{ji} is the degree by which members of group j are included in the range of group i . In a perfectly stratified society, the ranking of μ and \bar{F}_i are identical and all O_i and O_{ji} are equal to zero. If they are not, we get an indication about the groups that deteriorate the quality of the stratification.

תקציר:

מדיניות "כור ההיתוך" מיועדת לגרום לכך שקבוצות הבאות מרקע ותרבות שונים יתמוגו ויהוו קבוצה הומוגנית אחת. המטרה של יצירת חברה הומוגנית היתה המדיניות המוצהרת של ממשלות ישראל החל מהקמת המדינה. בעבודה זו בדקנו פן אחד של הצלחת מדיניות כור ההיתוך והוא תחום רמת החיים הכלכלית שהוגדרה כהכנסה נקייה לנפש מתוקנת. הבדיקה נעשתה בדרך הבאה: הגדרנו את ילידי הארץ, בני שלשים ומעלה, שהוריהם נולדו בחו"ל בשתי דרכים אלטרנטיביות. בדרך האחת שייכנו את ילידי הארץ לפי ארץ המוצא של אבותיהם. בדרך השנייה הגדרנו אותם כ"צברים" – כלומר הגדרנו אותם כישראלים, ללא קשר לארץ מוצא האב. שאלנו את עצמנו את השאלה הבאה: תחת איזו הגדרה אנחנו מבחינים בקבוצות הומוגניות יותר בין חברי הקבוצה ושונות מחברי הקבוצות האחרות. הממצא שקיבלנו הוא ששיוך ילידי הארץ בני שלשים ומעלה ליבשת המוצא של אבותיהם יוצר קבוצות הומוגניות יותר בתוכן ושונות מהקבוצות האחרות יותר מאשר אם משייכים אותם לקבוצת ה"צברים". המשמעות המתקבלת היא שלא נוצרה קבוצה הומוגנית של "צברים". מכאן שמדיניות כור ההיתוך לא הצליחה לייצר קבוצה הומוגנית של "צברים" וידיעת מוצא האב בין ילידי הארץ מהווה גורם המנבא את רמת חייו הכלכלית של הצבר.

מילות מפתח: גייני, עדות, כור-היתוך, ריבוד.

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