Israel Economic Review Vol. 2, No. 1 (2004), 1–27

SOCIOECONOMIC DYNAMICS OF LOCAL AUTHORITIES IN ISRAEL

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This study describes the socioeconomic dynamics of Israel's one hundred largest local authorities between 1983 and 1995, and identifies factors that affected their relative levels of socioeconomic well-being in this period. A direct comparison of their rankings in these two years highlights the relative decline of the southern development towns and of places with large ultra-orthodox populations, and the relative rise of Arab towns and suburban communities in the central and northern regions of the country. Econometric estimates quantify the effect of human capital and the quality of municipal administration, the short-term impact of the mass immigration from the former Soviet Union, and the influence of shifts in national priorities. The results highlight the considerable impact that policy variables can exert on local socioeconomic development. Better schools, good local government and the different policy levers through which national priorities are realized, are the means for extricating local authorities trapped in a steady state of poor socioeconomic development, and reclaiming the rights of their residents to a fair chance at attaining a reasonable level of material welfare.

1. INTRODUCTION

In this paper we track the socioeconomic rankings of Israel's one hundred largest cities and towns between its last two census years, 1983 and 1995, and analyze the sources of changes in these rankings.

We begin with a theoretical model that motivates and informs our empirical analysis, which we use to simulate the development of a hypothetical economy with two cities. It shows, in the spirit of the new economic geography (Krugman, 1991), how multiple equilibria can emerge from different initial conditions as centrifugal forces increase the gap between success and failure in municipal development, and how a central government can affect the choice of equilibrium through policy intervention. These forces act mainly through the supply of local public goods, broadly defined—especially the quality of local public schooling—and through residential location. When an exogenous negative shock causes a fall in local household income, this reduces local purchasing power and erodes the local tax base, adversely affecting the diversity and quality of locally available goods and services.[1] This drives away stronger elements of the local population, while weaker elements are trapped by prohibitive relocation

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[1] While the existence in Israel of a national education system ensures that all schoolchildren are assured a basic level of services, the quality of local education is nevertheless strongly affected by direct parental inputs and by the ability of the local authority to supplement the central education budget.

costs. The quality of schooling deteriorates through negative peer-group effects, there is further loss of local purchasing power, further erosion of the local tax base and deterioration of local services, and so on. These effects are offset to some extent by countervailing forces that average out differences in socioeconomic levels between localities: local congestion effects; the randomness of innate ability; the economic and psychological costs of relocation; and the random quality of local leadership. But the possibility of multiple equilibria remains, and with it the possibility that initial conditions determine whether socioeconomic conditions in the two cities converge or diverge. This implies that there is scope for national government to intervene and change the course of development—by improving the quality of local schools, investing in productive infrastructure, and using targeted taxes and subsidies.

This general approach follows Papageorgio and Pines' (1999, Ch. 12) call for an integrative approach to formulating regional development policies in an environment characterized by non-convexities. Its interpretation draws on Gabriel, Justman and Levy's (1987a) estimation of an integrated regional model of internal migration, investment and unemployment in Israel. In its specific details it builds on work by Borjas *et al.* (1992) and Justman and Thisse (2000) on the migration of human capital; Durlauf (1996) on intergenerational mobility; Epple and Romano (1998) on peer-group effects in education; Rauch (1993) and Black and Henderson (1999) on the effect of skilled manpower on local development; and Berglas (1976), Wildasin (1986) and Hochman *et al.* (1995) on the supply of local public goods.[2]

Section 3 of the paper measures relative changes in local socioeconomic indicators, using an index constructed by the Central Bureau of Statistics (1999) for 1995 census data, which we have adapted to the data available from the 1983 census.[3] Previous rankings using 1983 census data were constructed by Ben-Tuvia (1987) and Ben-Tuvia *et al.* (1988). The special feature of the present study is its ability to compare local authorities across two points in time. This highlights several important trends in Israel's regional and sectoral development during this period: a sharp decline of the southern development towns; a strong rise of most Arab towns in Israel's northern and central regions; a decline in the rankings of local communities with disproportionately large ultra-orthodox populations; and a rise in the rankings of suburban local authorities in the Tel Aviv, Haifa and Jerusalem metropolitan areas.

The fourth section of the paper focuses on Israel's local public finances, analyzing the audited budgets of the one hundred local authorities in our sample between 1984/5 and 1995. Comparing sources of revenue and expenditure, we find that the share of general and administrative expenditure in total expenditure is positively correlated with the share of the central government grant in total revenue and negatively correlated with the share of local tax revenue in total revenue, suggesting that grant money was used less effectively than local tax revenue: local authorities were more economical with their overheads when their revenue came from local residents. We use the inverse of the share of general and administrative expenditure in total expenditure as our measure of the quality of local government in the subsequent empirical analysis.

The fifth part applies regression analysis to examine the sources of the changes in socioeconomic rankings between 1983 and 1995, as a function of initial conditions in 1983

[2] These rankings are used by the Ministry of the Interior to allocate funds to local authorities (Suari, 1993). The Ministry of Education uses a different socioeconomic ranking for its budgetary purposes (Nesher, 1996).

[3] $w_0 = r\,[(1 - r) / r\,]^{(1-r)/r}$.

(the socioeconomic index for that year, the stock of human capital, and the size of the local population); the quality of local government; the share of new immigrants in the local population; and dummy variables for development towns, Arab localities, and each of the six major administrative districts that divide the country, capturing variation in physical conditions and the effect of targeted regional and sectoral policies. Our results highlight the large impact of local human capital on urban development, emphasizing the importance of a good school system, and the effect of good local government.

2. A THEORETICAL MODEL OF DIFFERENTIAL URBAN DEVELOPMENT

We begin by describing a general-equilibrium model of an economy with two cities and a heterogeneous population, which through simulation demonstrates the possibility of multiple equilibria, and motivates the subsequent empirical analyses. Each city has its own industrial base, local infrastructure, school system and housing market. The industrial base is financed by private capital, which in the model is taken to be completely mobile. Human capital accumulates stochastically in accordance with the quality of local education, and is imperfectly mobile, gradually migrating in response to differences in education, wages, housing prices, local infrastructure and natural conditions. Spending on local amenities is financed by a locally levied property tax and possibly a grant from the central government. In addition, central government finances education and the general infrastructure for production, all of which is financed by a possibly differential income tax. The distribution of population, skills and income between the two cities then follows a stochastic process shaped by endogenous patterns of investment, education, and migration; by policy variables that affect the quality of education and infrastructure; and by the exogenous quality of local government, the housing stock and the quality of the natural environment.

a. Definition of the model

Consider an economy with a single productive sector producing a uniform numeraire good, denoted by Y. It has a population of measure 1 divided between two cities indexed by $j = a,b$. All factor and commodity markets are perfectly competitive, and all physical capital—both productive capital and housing stock—is owned by external agents who rent it out locally.

Production, investment, labor. Production in both cities uses the same technology, but the cities differ in their infrastructure and natural environment. Production in city j equals

$$(1) \qquad Y_j = G_j L_j^{\rho} K_j^{1-\rho} ,$$

where $0 < \rho < 1$ is given, K_j denotes the stock of physical productive capital in city j, L_j denotes local human capital (measured as units of effective labor), and G_j denotes local production conditions, which are a function of natural environmental conditions P_j and of public infrastructure (e.g. transportation, communication) financed by the national government, I_j.

To clarify, let

(2) $G_j = I_j^{\nu} P_j^{1-\nu}$,

where $0 < \nu < 1$ is an exogenous parameter.
There are two types of worker in the economy, unskilled and skilled, denoted by $k = 1,2$. The human capital of an unskilled worker is $\lambda_1 = 1$, and of a skilled worker, $\lambda_2 = \kappa$, where $\kappa > 1$. The number of unskilled workers in city j is N_{1j}, the number of skilled workers is N_{2j} and the city's total (adult) population is $N_j = N_{1j} + N_{2j}$. We denote the share of unskilled workers in city j as $\theta_j = N_{1j} / N_j$. Hence, total human capital, or effective labor, in city j is $L_j = N_{1j} + \kappa N_{2j}$, and average human capital is $z_j = (N_{1j} + \kappa N_{2j}) / N_j = \theta_j + (1 - \theta_j)\kappa$.
We assume that labor is imperfectly mobile, in a way that will be made specific below, while physical capital is fully mobile and earns an exogenously determined rate of return r. Hence the marginal product of physical capital in both towns equals r: $\partial Y_j / \partial K = r$ for $j = a,b$. As the labor market is competitive, the wage earned by a worker of type k in town j equals the value of her marginal product, $w_{kj} = \lambda_k \partial Y_j / \partial L$, and after substitution we have

(3) $w_{kj} = w_0 \lambda_k G_j^{1/\rho}$,

where w_0 is a constant.[4] Thus for both types of worker, the level of wages is higher in the town with the better production environment. A better production environment implies a higher return on mobile tangible capital, which implies a higher ratio of physical capital to effective labor, K_j / L_j, and hence a higher wage per unit of effective labor. The average wage in town j is thus a function of both the average level of human capital and the quality of the production environment:

(4) $w_j = \theta_j w_{1j} + (1 - \theta_j) w_{2j} = w_0 G_j^{1/\rho} z_j$.

Preferences and consumption. We assume that all individuals have identical tastes represented by a stochastic logarithmic utility function such that the utility of an individual of type k residing in town j is

(5) $U_{jk} = \alpha \ln C_{jk} + (1-\alpha) \ln H_{jk} + \beta \ln e_j + \ln B_j + \gamma \ln A_j + \varepsilon$,

where C_{jk} denotes private consumption of the numeraire good, H_{jk} denotes consumption of housing services, e_j denotes the quality of local education services, B_j denotes local public services for consumption (a cultural center, public parks, etc.), A_j denotes the town's natural consumption amenities, such as a mild climate or proximity to a seashore, and ε_j is a random variable with a double exponential distribution, with zero mean and variance $\pi / (6\sigma_j^2)$. While consumption and housing are private goods, education and local public services are available without payment, as are natural amenities: the level of their consumption is determined by one's place of residence. Disposable (after income-tax) income is thus divided between consumption and housing in the proportion of α to $(1-\alpha)$.

[4] $w_0 = r\,[(1 - r) / r\,]^{(1-r)/r}$.

Housing. Denote the rental price of housing in town j by P_{Hj}, and assume it is determined in a competitive market. A worker of type k residing in town j earns disposable income $y_{jk} = (1 - T_j)w_{jk}$, where T_j is the proportional income tax rate that obtains in town j. Maximizing utility yields demand for housing services of $HD_{jk} = (1 - \alpha)\, y_{jk} / P_{Hj}$, so that aggregate housing demand in city j is

$$(6) \qquad HD_j = (1-\alpha)\,\Sigma_k N_{jk} y_{jk} / P_{Hj} = (1-\alpha)\,(1-T_j)\,w_0\, G_j^{1/\rho}\, z_j N_j / P_{Hj}\,.$$

Assuming that the supply of housing in each town, HS_j, is inelastic, competitive and externally owned, the equilibrium price of housing in town j is given by

$$(7) \qquad P_{Hj} = (1-\alpha)\,(1-T_j)\,w_0\, G_j^{1/\rho} z_j N_j / HS_j\,,$$

which is an increasing function of population, average human capital and the production environment in town j, and a decreasing function of the size of the housing stock. An individual of type k living in town j purchases housing services equal to

$$(8) \qquad H_{jk} = (1-\alpha)\,(1-T_j)\,w_{jk} / P_{Hj} = (\lambda_k / z_j)\;(HS_j / N_j).$$

Public services. Local public services for consumption, excluding education, are financed from local property taxes, and possibly subsidized by the central government.[5] Aggregate spending on house rentals in city j is $P_{Hj} HS_j = (1-\alpha)\,(1-T)\,w_j N_j$, and we denote by τ_j the fraction of this sum levied as a local property tax. This is supplemented by a grant of B_{0j} from the central government. Letting η_j denote the efficiency of local government in city j, the amount of local public services available in city j is given by

$$(9) \qquad B_j = \eta_j\,[\,B_{0j} + \tau\,(1-\alpha)\,(1-T_j)\,w_j N_j\,]\,.$$

The quality of education in city j is a function of expenditure per student s_j, financed by the central government, and on peer effects, which we take to be proportional to the average level of human capital in the city, z_j.[6] To clarify, we set

$$(10) \qquad e_j = s_j^{\zeta} z_j^{1-\zeta}\,.$$

The central government's expenditure on education, infrastructure and municipal grants in the two cities is financed by income taxes, which may be set differently for each city. Denoting the income tax rate in city j by T_j we require a balanced budget:

$$(11) \qquad \Sigma_j T_j N_j w_j = \Sigma_j s_j N_j + \Sigma_j I_j + \Sigma_j B_{0j}\,.$$

[5] As the supply of housing is inelastic the full incidence of the tax falls on the external owners of the housing stock.

[6] Cf. Epple and Romano (1998).

Changes in the composition of the population. Over time, migration between the two cities and inter-generational mobility change the size and the composition of the population in the two cities. In describing the stochastic process of migration we follow McFaddden's (1974) binomial choice model in which the probability of moving from one city to the other is a function of the difference between the benefits of moving and of staying. We assume that a proportion $0 < \varphi < 1$ of local residents are candidates for migration in a given year,[7] and denote by p_{ijk} the (endogenous) probability that a candidate of type k will move from i to j,[8] and by $p_{iik} = 1 - p_{ijk}$ the probability that she will remain in i. Then $\varphi p_{ijk} N_{ik}$ workers of type k move from i to j, and $\varphi p_{jik} N_{jk}$ move from j to i.

Inter-generational mobility follows a stochastic process governed by the quality of local education and the human capital of one's parents. We assume zero population growth, and denote by $0 < \psi < 1$ the proportion of annual turnover in the labor force, and by $q_{jk1} = \xi_{k\_} \exp(-\phi_k e_j)$ the probability that a child of a parent of type k educated in town j will become an unskilled worker,[9] and by $q_{jk2} = 1 - q_{jk1}$ the probability that he will become a skilled worker. The total change in the number of workers of type k in town j is then:

$$(12) \quad \Delta N_{jk} = \varphi[p_{ijk} N_{ik} - p_{jik} N_{jk}] + \psi[q_{j1k} N_{j1} + q_{j2k} N_{j2}] .$$

b. Simulations

We solve the model numerically, demonstrating through simulation that multiple steady states can arise from different initial conditions, and that the economy can be steered from one equilibrium to another by means of government intervention.[10] In the benchmark case (Figure 1) the two towns are initially identical: both have populations of the same size, $N_1 = N_2 = 0.5$; the same proportion of poor people, $\theta_a = \theta_b = 0.5$; and the same infrastructure, housing supply, production environment, and local amenities. Consequently, the quality of education is the same in both cities, as is the level of wages. Emigration is therefore symmetric, the composition of the population remains unchanged, and the economy is in a dynamic symmetric equilibrium. In Figure 2 we start out with a larger proportion of poor people in town *a*, creating a poverty trap. Peer-effects cause the quality of the education system in *a* to be inferior, spurring emigration; and as it is easier for skilled workers to justify fixed costs of migration a higher proportion of them emigrate. As a result, city *a* becomes even poorer, until eventually there

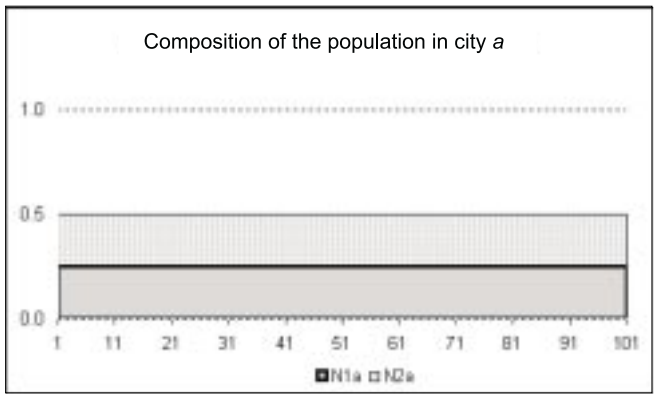
[7] This reflects the empirical observation that the propensity to migrate is strongly affected by age; Gabriel, Justman and Levy (1987b) find that in Israel it drops significantly after age 30.

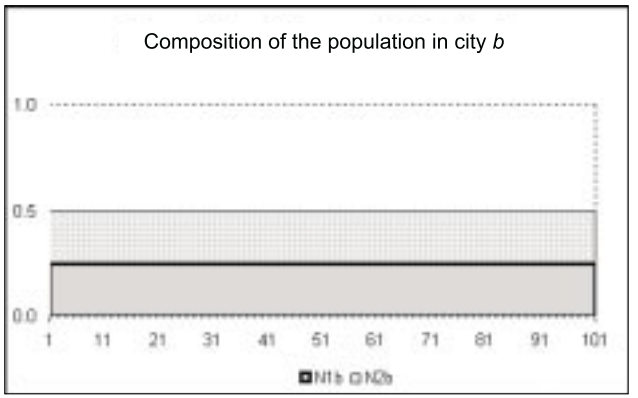
[8] For a person of type k in city i the utility of staying is
$U_{iik} = a_0 + \ln[(1 - T_i)w_{ik}] + (1 - a)\ln[HS_i/(w_i N_i)] + b\ln(s_i^z z_i^{1-z}) + \ln A_i + g\ln B_i$,
where a_0 is a constant. Letting M denote the fixed cost of moving, the utility of moving is
$U_{iijk} = a_0 + \ln[(1 - T_j)w_{jk} - M] + (1 - a)\ln[HS_j/(w_j N_j)] + b\ln(s_j^z z_j^{1-z}) + \ln A_j + g\ln B_j$.
Denoting $D_{ijk} = (U_{ijk} - U_{iik})/s_i^2$, the probability of an individual of type k migrating from i to j is
$p_{ijk} = D_{ijk} / (1 + D_{ijk})$.

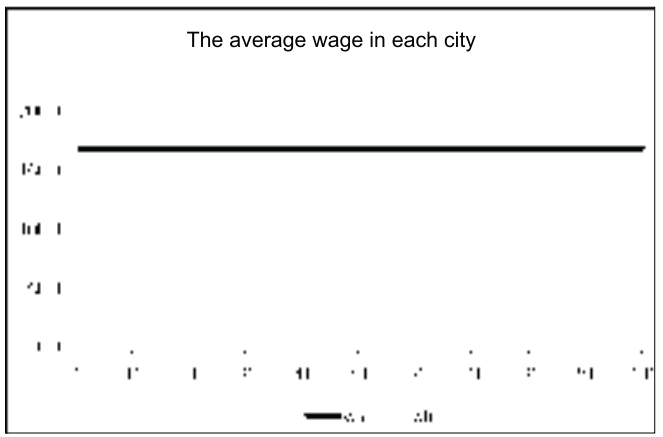
[9] We posit $x_1 > x_2$ and $f_1 < f_2$ so that the probability of a child of an unskilled worker becoming skilled is less than that of a child of a skilled worker residing in the same town and attending the same school system.

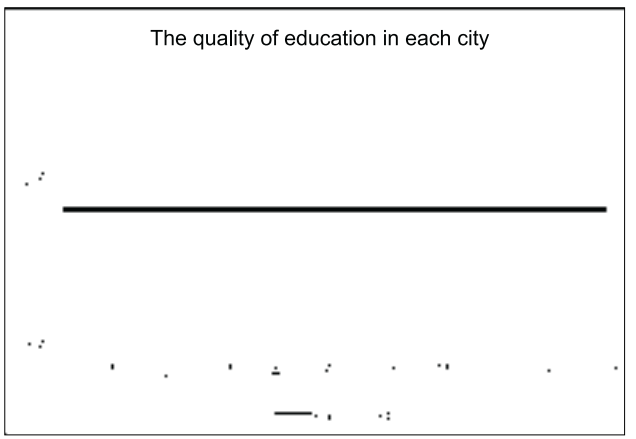
[10] We emphasize that the model is not calibrated to actual parameter values, and so the simulations should be viewed only as qualitative illustrations of our conclusions. Moreover, because the composition of the population is changing over time, it is conceptually difficult to draw welfare conclusions from such an analysis (Mansoorian and Myers, 1997).

Figure 1
Symmetric development



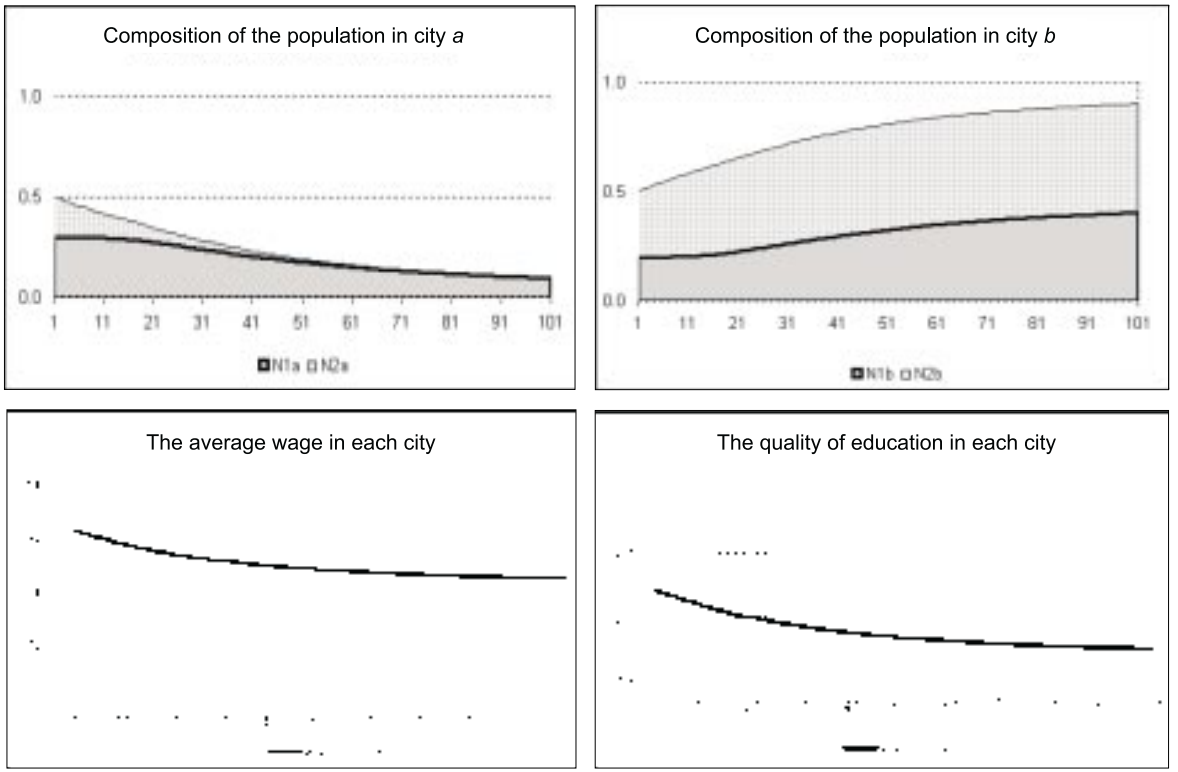






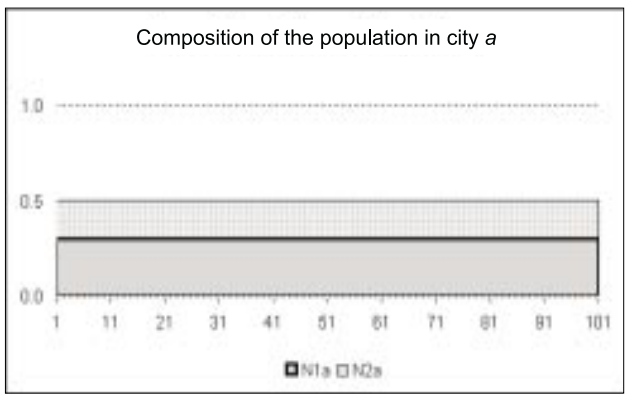
ρ	ν
0.70	**0.50**
Pa	*Pb*
1.00	**1.00**
η	ζ
2.00	**0.30**
Aa	*Ab*
1.00	**1.00**
α	β
0.75	**4.00**
Ia	*Ib*
1.00	**1.00**
γ	*r*
1.00	**0.10**
Sa/Sb	*N1/N*
1.00	**0.50**
σ*a*	σ*b*
0.10	**0.10**
Ta	*Tb*
0.05	**0.05**
ψ	φ
0.05	**0.05**
B0a	*B0b*
0.00	**0.00**
ξ1	ξ2
1.00	**0.00**
M	τ
75.00	**0.10**
ϕ1	ϕ2
0.00	**1.00**
θ*a0*	θ*b0*
0.50	**0.50**
HSa	*HSb*
1.00	**1.00**

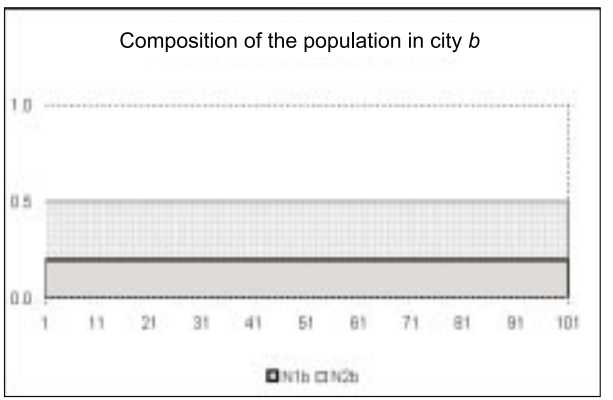
Figure 2
A poverty trap

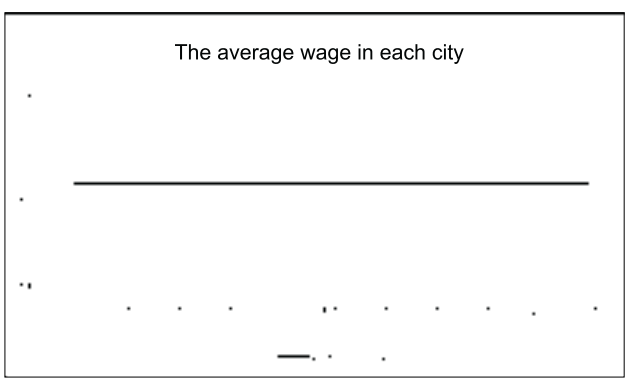


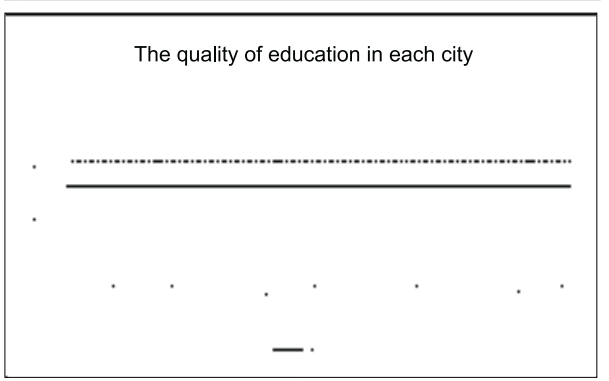
ρ	ν
0.70	**0.50**
Pa	*Pb*
1.00	**1.00**
η	ζ
2.00	**0.30**
Aa	*Ab*
1.00	**1.00**
α	β
0.75	**4.00**
Ia	*Ib*
1.00	**1.00**
γ	*r*
1.00	**0.10**
Sa/Sb	*N1/N*
1.00	**0.50**
σ*a*	σ*b*
0.10	**0.10**
Ta	*Tb*
0.05	**0.05**
ψ	φ
0.05	**0.05**
B0a	*B0b*
0.00	**0.00**
ξ1	ξ2
1.00	**0.00**
M	τ
75.00	**0.10**
ϕ1	ϕ2
0.00	**1.00**
θ*a0*	θ*b0*
0.60	**0.40**
HSa	*HSb*
1.00	**1.00**

Figure 3
Investment subsidies arrest the immiseration of city *a*









ρ	ν
0.70	**0.50**
Pa	*Pb*
1.00	**1.00**

η	ζ
2.00	**0.30**
Aa	*Ab*
1.00	**1.00**

α	β
0.75	**4.00**
Ia	*Ib*
1.00	**1.00**

γ	*r*
1.00	**0.10**
Sa/Sb	*N1/N*
1.00	**0.50**

σ*a*	σ*b*
0.10	**0.10**
Ta	*Tb*
0.05	**0.05**

ψ	φ
0.05	**0.05**
B0a	*B0b*
0.00	**0.00**

ξ1	ξ2
1.00	**0.00**
M	τ
75.00	**0.10**

ϕ1	ϕ2
0.00	**1.00**
θ*a0*	θ*b0*
0.60	**0.40**

HSa	*HSb*
1.00	**1.00**

are only poor people in it, and the population becomes smaller than that in *b*: the initial asymmetry in the distribution of human capital is exacerbated over time by the accelerated departure of skilled workers and the deterioration of the local school system. Figure 3 shows the situation when the central government partly reverses the situation by strengthening the infrastructure in city *a*. In this example, the added investment in the infrastructure exactly balances the weakness of local schooling, so that the composition of the labor force is maintained over time. Alternatively, the central government could apply its funds directly to strengthening the weaker education system, or set differential tax rates to attract a stronger population to the weaker city, or provide it with preferential municipal grants to finance improvements in local amenities, or it could apply any combination of these policies in varying force and varying proportions over time.[11]

3. A SOCIOECONOMIC INDEX OF LOCAL AUTHORITIES IN ISRAEL

We measure socioeconomic mobility among Israel's one hundred largest local authorities between 1983 and 1995—the one hundred localities that had over 5,000 residents in both census years—using a multivariate index which the Israel Central Bureau of Statistics (Central Bureau of Statistics, 1999) developed and applied to the 1995 census data. It uses data on consumption, demography and education in addition to data on annual income, to approximate permanent income more closely. The index comprises sixteen separate indicators, which we group under four headings:

Demography
- Dependency ratio (the ratio of persons aged 0-19 and over 65 to persons aged 20-64);
- Median age of the population;
- Persons per household.

Standard of living
- Housing density (rooms per person);
- Percentage of households owning a computer;
- Cars per household;
- Income per capita.

Education
- Percentage of households with at least one university graduate;
- Average number of years of formal education among those aged 26-50;
- Percentage holding a matriculation certificate among those aged 17-20.

Employment
- Unemployment rate;
- Percentage of women aged 20-60 not in the civilian labor force;
- Percentage of the local population receiving unemployment benefits;
- Percentage of the total population receiving an income-maintenance allowance;
- Percentage of workers in prestigious occupations;[12]
- Percentage of salaried employees earning no more than the minimum wage.

[11] Results of other simulations demonstrating the effect of alternative forms of central intervention are available from the authors on request.

[12] As classified by the Central Bureau of Statistics.

Table 1
Components of the Socioeconomic Index

1983			1995		
Variable	sign	weight		sign	weight
Dependency ratio	–	0.056	Dependency ratio	–	0.056
Median age	+	0.054	Median age	+	0.054
Persons per household	–	0.047	Persons per household	–	0.047
Demography subtotal		0.157	*Demography subtotal*		0.157
Average rooms per person	+	0.066	Housing density	+	0.066
% of households with telephone	+	0.068	% of households with computer	+	0.068
Number of cars per household	+	0.086	Number of cars per household	+	0.086
Income per standardized person	+	0.084	Income per capita	+	0.084
Standard of living subtotal		0.304	*Standard of living subtotal*		0.304
% of graduates in population	+	0.058	% of households with at least one graduate	+	0.058
Average years of education in the population	+	0.060	Average years of education of persons aged 26–52	+	0.060
% with matriculation in the population	+	–0.061	% aged 17–20 with matriculation	+	0.061
Education subtotal		0.179	*Education subtotal*		0.179
% unemployment among women	–	0.111	% unemployed	–	0.063
% in prestigious occupations	+	0.126	% of women aged 20–60 not in the labor force	–	0.057
% head of household not working	–	0.124	% Workers in prestigious occupations	–	0.064
			% earning minimum wage	–	0.075
			% on unemployment benefits	–	0.041
			% receiving income maintenance	–	0.060
Employment subtotal		0.360	*Employment subtotal*		0.360

Local authority scores were standardized for each component by subtracting the average component score from individual scores and dividing the difference by its standard deviation. The standardized scores were then signed and weighted, using the signs and weights tabulated in the right-hand column of Table 1, to yield a composite index. The value of this composite index in 1995 for each of the 100 localities in our study and their respective rankings are presented in Table 2.

In constructing an index for 1983, we were able to include six of the sixteen component variables without a change of definition: dependency ratio, median age, persons per household, rooms per person, cars per household, and the percentage of workers in prestigious occupations. Another five variables were replaced by closely related measures: the income variable was calculated by dividing household labor income by the number of standard adults in the

Table 2
Index values and rankings, 1983 and 1995

	1983		1995		Difference
Locality	Value	Rank	Value	Rank	in value
Abu Sinan	–1.24	22	–0.80	20	0.448
Afula	0.60	68	–0.10	56	–0.700
Akko	0.04	49	–0.62	29	–0.660
Ar'ara	–1.34	17	–0.61	31	0.729
Arad	1.20	84	0.08	65	–1.110
Arrabe	–1.84	2	–0.99	10	0.854
Ashdod	0.37	61	–0.08	57	–0.447
Ashqelon	0.22	56	–0.35	49	–0.576
Azor	0.90	77	0.43	74	–0.470
Baqa Al-Gharbiyye	–1.14	24	–0.56	36	0.582
Bat Yam	0.86	75	0.26	71	–0.603
Be'er Sheva	0.87	76	–0.12	55	–0.987
Bet Jann	–1.56	11	–0.97	11	0.594
Bet She'an	–0.20	42	–0.52	39	–0.322
Bet Shemesh	0.21	55	–0.07	59	–0.289
Bnei Beraq	0.18	53	–0.66	27	–0.841
Daliyat Al-Karmel	–1.02	27	–0.45	42	0.578
Dimona	–0.22	40	–0.66	26	–0.448
Ein Mahel	–1.33	18	–0.58	33	0.749
Elat	1.49	91	0.64	79	–0.852
Fureidis	–1.28	21	–1.17	5	0.114
Ganne Tiqwa	1.08	79	1.26	94	0.176
Gedera	0.26	58	–0.01	63	–0.271
Giv'at Shamuel	1.94	97	1.20	92	–0.738
Giv'ataim	1.85	95	1.40	99	–0.449
Hadera	0.52	65	0.16	68	–0.364
Haifa	1.45	88	0.69	83	–0.755
Hazor HaGelilit	–0.09	46	–0.53	38	–0.445
Herzeliyya	1.88	96	1.25	93	–0.629
Hod HaSharon	1.06	78	0.91	89	–0.152
Holon	1.14	81	0.61	76	–0.527
I'billin	–1.62	8	–0.82	18	0.808
Iksal	–1.37	16	–0.50	40	0.873
Isifya	–0.91	29	–0.60	32	0.310
Jerusalem	0.86	74	–0.05	60	–0.909
Jisr Az-Zarqa	–1.73	5	–1.70	2	0.023
Kafar Kanna	–1.50	13	–1.20	4	0.298
Kafar Manda	–1.78	4	–1.38	3	0.406
Kafar Qara'	–0.80	31	–0.43	4.	0.375
Kafar Qasem	–1.48	14	–0.62	30	0.862
Kafar Yasif	–0.51	35	–0.20	53	0.303
Karmiel	1.40	87	0.33	72	–1.065
Kefar Sava	1.33	85	0.95	90	–0.382
Lod	–0.16	44	–0.23	52	–0.069

Table 2 (continued)

Locality	1983		1995		Difference
	Value	Rank	Value	Rank	in value
Ma'alot-Tarshiha	0.34	59	–0.08	58	–0.419
Majd Al-Kurum	–1.65	7	–1.07	9	0.582
Mevasseret Ziyyon	1.13	80	1.29	96	0.155
Migdal Ha'Emeq	0.03	48	–0.36	47	–0.391
Mughar	–1.58	10	–1.10	7	0.477
Nahariyya	0.66	71	0.37	73	–0.284
Nazareth	–0.86	30	–0.55	37	0.309
Nazerat Illit	0.38	62	–0.01	62	–0.392
Nes Ziyyona	0.84	73	0.70	85	–0.139
Nesher	0.54	66	0.68	82	0.138
Netanya	0.62	69	0.11	67	–0.509
Netivot	–0.29	37	–0.86	16	–0.573
Ofaqim	–0.17	43	–1.09	8	–0.922
Or Aqiva	–0.57	34	–0.70	25	–0.129
Or Yehuda	–0.39	36	–0.36	48	0.035
Pardes Hanna-Karkur	0.12	50	0.11	33	–0.010
Petah Tiqwa	1.16	82	0.58	75	–0.580
Qalansawe	–1.31	20	–0.88	14	0.429
Qiryat Atta	0.26	57	–0.00	64	–0.263
Qiryat Bialik	1.46	89	0.63	77	–0.831
Qiryat Gat	0.19	54	–0.64	28	–0.829
Qiryat Mal'akhi	–0.13	45	–0.94	12	–0.813
Qiryat Motzkin	1.36	86	0.67	81	–0.692
Qiryat Ono	1.94	98	1.26	95	–0.683
Qiryat Shemona	0.34	60	–0.15	54	–0.500
Qiryat Tiv'on	1.65	93	1.30	97	–0.348
Qiryat Yam	0.56	67	–0.04	61	–0.594
Ra'anana	2.13	99	1.37	98	–0.758
Rahat	–2.61	1	–2.16	1	0.445
Ramat Gan	1.50	92	1.10	91	–0.399
Ramat HaSharon	2.62	100	1.71	100	–0.913
Rame	–0.77	32	–0.27	51	0.506
Ramla	–0.23	39	–0.40	45	–0.162
Rehovot	1.74	94	0.70	86	–1.038
Reine	–1.31	19	–0.73	22	0.575
Rishon LeZiyyon	1.48	90	0.81	87	–0.670
Rosh Ha'Ayin	–0.70	33	0.65	80	1.351
Sakhnin	–1.81	3	–0.94	13	0.867
Sederot	0.03	47	–0.75	21	–0.782
Shefar'am	–0.92	28	–0.71	24	0.212
Tamra	–1.39	15	–1.11	6	0.279
Tayibe	–1.12	25	–0.58	34	0.542
Tel Aviv-Yafo	1.16	83	0.88	88	–0.281

Table 2 (continued)

Locality	1983 Value	1983 Rank	1995 Value	1995 Rank	Difference in value
Tiberias	0.13	51	–0.38	46	–0.509
Tirat Karmel	–0.22	41	–0.46	41	–0.242
Tire	–1.11	23	–0.43	44	0.679
Tur'an	–1.72	6	–0.80	19	0.916
Umm Al-Fahm	–1.60	9	–0.87	15	0.735
Yafi	–1.15	23	–0.57	35	0.588
Yavne	0.18	52	0.22	69	0.043
Yehud	0.63	70	0.69	84	0.062
Yeroham	–0.26	38	–0.85	17	–0.591
Yirka	–1.53	12	–0.72	23	0.810
Yoqne'am Illit	0.46	63	0.23	70	–0.235
Zefat	0.70	72	–0.31	50	–1.002
Zikhron Ya'aqov	0.48	64	0.64	78	0.155

household;[13] the proportion of households with at least one graduate was replaced by the proportion of graduates in the population; the average number of years of formal education among those aged 26–50 was replaced by the average number of years of education in the general population; the proportion of those aged 17–20 successfully matriculating from high school was replaced by the proportion of persons with a matriculation certificate in the population at large; and the ratio of households owning a computer was replaced by the ratio of households owning a telephone. The remaining five variables, measuring various dimensions of employment, were replaced by two: the percentage of households in which the head of the household does not work, and the percentage of unemployed women.

As in the original index, we standardized each of these variables by subtracting its average value from the individual values and dividing the difference by its standard deviation, and then obtained a composite index by signing and weighting each component as set out in the left-hand column of Table 1. We retained the same summary weights for each of the four categories of variable as in the original index, and in the three categories in which close matches were found for individual variables—demography, standard of living and education—we retained the same individual weightings, too; however this was not possible in the employment category, where only the summary weight was preserved.[14] Index values and rankings for 1983 and the change in the value of the index between 1983 and 1995 are presented in Table 2, alongside the 1995 values.

[13] The National Insurance Institute equates a one-person household to 1.25 standard adults, a two-person household to 2.00 standard adults, three persons to 2.65, four to 3.20, five to 3.75, six to 4.25, seven to 4.75, eight to 5.20, and each additional person to an additional 0.40 (National Insurance Institute, 1997). The underlying assumption is that there are economies of scale in household consumption.

[14] Other weightings for this category produced very similar results. The 1995 index was originally standardized to all the localities for which it was calculated. After we reduced the sample to a hundred localities with over 5,000 residents in both census years, the 1995 index in our sample had an average of 0.126 and a standard deviation of 0.772. The 1983 index, which we constructed as the weighted average of variables standardized to the 100 localities in the sample, has a standard deviation of 1.02.

We use the change in the value of the local socioeconomic index between 1983 and 1995—our measure of the relative socioeconomic mobility of Israel's 100 largest local authorities—to construct a mobility matrix, by deciles, which is presented in Table 3. It highlights the principal changes that occurred in this period: a relative decline in the South and in localities with large ultra-orthodox populations, and relative progress in most northern and central Arab localities and in suburban communities around the largest metropolitan areas.[15]

Table 3
Mobility matrix, by deciles

		1995									
		1	2	3	4	5	6	7	8	9	10
1983	1	Kafar Manda Majd el-Kurum Arrabe Rahat Jisr Az-Zarqa	Umm Al-Fahm Ibillin Turan Saknin								
	2	Tamre Kafar Kana		Bet Jann Qalanswe	Yirka Kafar Kassem Reine	Iksal Ein Mahel Arara					
	3	Fureidis	Abu Sinan	Shefaram	Baqa Al-Gharbiyya Nazareth Taibe Yafi Isifya	Daliat el-Carmel Tira					
	4		Yeroham Netivot	Or Aqiva Dimona		Or Yehuda Kafar Kara Ramle	Kafar Yasif Rame	Rosh Ha'Ayin			
	5	Ofakim	Kiryat Malakhi	Acre Sderot	Bet Sean Hatzor Haglilit	Migdal Ha'emek Tirat Carmel	Lod	Pardes Hanna-Karkur			

[15] We also constructed a mobility matrix by clusters, dividing the population into ten groups so as to minimize the ratio between the variance within groups and the variance between groups, which yielded similar results; and a mobility matrix based on one component of the index, income per household, which also showed similar trends, except that towns with a large ultra-orthodox or Arab population rank lower when income is the sole basis for comparison than when a more general socioeconomic index is used. Further details are available from the authors on request.

Table 3 (continued)

	1995									
	1	2	3	4	5	6	7	8	9	10
1983	6		Bnei Brak Kiryat Gat		Ashqelon Tiberias	Bet Shemesh Ma'alot-Tarshiha Kiryat Shemona	Gedera Yavne KIryat Ata			
	7					Ashdod Afula	Nazareth Ilite Hadera Yokneam Ilite Netanya Kiryat Yam	Zikhron Ya'akov	Yehud Nesher	
	8				Safed	Beer Sheva Jerusalem		Azur Bat Yam Nahariya	Hod Hasharon Nes Ziona	Ganei Tikva Mevasseret Zion
	9						Arad	Holon Karmiel Petah Tikva Kiryat Bialik	Haifa Kiryat Motzkin Tel Aviv-Jaffa Rishon Lezion Kfar Sava	
	10							Eilat	Rehovot	Givat Shemuel Givataim Herzliya Kiryat Ono Kiryat Tivon Ramat Gan Ramat Hasharon Ra'anana

Tables 2 and 3 show that in 1983 there were no Jewish towns in the three lower deciles of local authorities, only Arab towns, with the southern Bedouin town Rahat closing out the list. Six of the southern development towns—Yeruham, Dimona, Netivot, Ofakim, Kiryat Malakhi and Sderot—appear in the fourth and fifth deciles alongside the less affluent Jewish and mixed localities of the northern and central regions: Rosh Ha'ayin, Or Akiva, Or Yehuda, Ramle, Bet

Shean, Tirat Hacarmel, Lod, Hatzor Haglilit and Migdal Ha'emek. The other southern towns rank higher: Kiryat Gat in the sixth decile; Beer Sheva, the 'capital of the Negev,' in the eighth decile; and the socially engineered community of Arad in the ninth decile.

By 1995 much of this had changed. All the southern towns regressed markedly— appearing below the main diagonal of Table 3.[16] The six southern development towns in the fourth and fifth deciles dropped to the bottom three deciles, as did Kiryat Gat, which fell three deciles; and Arad and Beer Sheva dropped two deciles. These changes are fully consistent with the general picture that emerges from regional studies of the South conducted during this period: higher than average unemployment rates, frequent budgetary crises in the local authorities of the region, and poor performance in matriculation examinations.[17]

The decline of the South mirrors the general rise in the rankings of most Arab localities, placed above the main diagonal of Table 3. This is evidence of some convergence between the Arab and Jewish sectors stemming from partial removal of the barriers between them.[18] However, the relative status of the Arab towns, though improving, remains low, with only two localities, Rama and Kfar Yasif, ranked above the median in 1995.

Among the Jewish localities, Rosh Ha'ayin, Yehud, Ganei Tikva and Yavne were able to exploit their proximity to the greater Tel Aviv area, much as Nesher, Pardes Hana and Zikhron Ya'akov benefited from their proximity to Haifa, and Mevasseret Zion enjoyed accelerated development through its proximity to Jerusalem. Beer Sheva did not have a similar effect on its smaller neighbors, as it also declined sharply in the rankings. But geographical distance from the center is not the whole story: it had hardly any adverse effect on Kiryat Shemona in the far North, and Bet She'an rose in the rankings despite its peripheral location. The relative decline of cities and towns with large ultra-orthodox populations, notably Jerusalem and Bnei Brak, may be attributed to the demographic changes that the ultra-orthodox sector underwent in this period.[19] Local development is likely to have been affected also by the regional development policies of the national government and by the quality of local government. In the following sections we explore the sources of change in socioeconomic ranking.

4. LOCAL PUBLIC FINANCE

The quality of local government figures prominently in our explanation of the socioeconomic dynamics of local authorities in Israel. Collecting local taxes effectively and using them efficiently allows a local authority to offer better public services and thus attract a stronger population, which further increases its tax base, enabling it to offer yet improved services, and so on. In poorly run localities, the opposite happens, with inferior local services causing stronger

[16] The localities on the main diagonal are those that were classified in the same decile in 1983 and 1995; local authorities above the diagonal improved their ranking in this period while those below the diagonal fell in the rankings.

[17] See Justman, Levinson and Spivak (1998) for a detailed discussion of the dimensions of poverty in the south of Israel.

[18] The economic progress of Israel's Arab population is also reflected in aggregate data. For example, the median number of years of education among the working-age Arab population rose from 7.5 in 1980 to 10.0 in 1998 (Gera and Cohen, 2001, Table 3).

[19] In Jerusalem, this was also accompanied by the departure of stronger populations to less congested suburbs, to which the rise of Mevasseret Zion can be attributed.

elements of the population to leave, which erodes the local tax base, leading to further deterioration of public services. While the central government possesses fiscal tools aimed at aiding weaker localities and offsetting their disadvantages, actual implementation of its regional policy may not necessarily conform with its declared intentions.[20] There are several possible reasons for this: more affluent local authorities often have greater political power, which facilitates access to budgetary sources; some central government allocations are contingent on matching participation by local government; public scrutiny is often more effective in more affluent local authorities, spurring greater efficiency and discouraging cronyism and other misuses of municipal power; and peripheral localities are generally neglected by the media.

To quantify the quality of local government in the local authorities in our study we turn to their audited balance sheet data (Central Bureau of Statistics, various years). Table 4 presents summary statistics on the composition of revenue for the one hundred local authorities in our sample between 1984/5 and 1995.[21] A local authority's revenue can be viewed as deriving from two sources: *own revenue,* comprising local taxes, revenue from local services and revenue from enterprises; and *government participation* comprising general grants and revenue for national services. While local governments have wide discretion in using their tax revenue and general grants, their other sources of revenue are earmarked for specific uses. The revenue from local services includes money received from residents for sanitation services, urban planning, maintenance of public property, and so on; other revenue obtained from the residents is designated for specific enterprises, such as maintaining waterworks. Revenue designated for national services is obtained from the government to finance education, culture, health, welfare and religious services. The funds received from the national government have been gradually regimented over the last decade, and are now largely determined by formulas that gauge local needs. However, in our study the various sources of national support were for the most part subject to a large element of discretion, which was probably affected by various political considerations as well as objective needs.

Table 4
Revenue Shares in Local Authorities' Current Budgets

	Taxes	General grant	Local services	National services	Enterprises
Mean	29.6%	21.3%	2.1%	32.5%	10.3%
Standard deviation	1.4%	1.5%	0.3%	0.9%	0.5%
Minimum	11.5%	0.0%	0.8%	9.1%	2.0%
Maximum	60.6%	59.7%	15.7%	54.9%	47.7%
Range	49.1%	59.7%	14.9%	45.8%	45.7%

[20] The State Comptroller's Report 50B (2000) devotes extensive attention to the poor performance of all Israeli governments in implementing their declared policy of aiding the southern development towns and raising their standard of living. See Razin (1998) for further discussion of local authority budgets, and a comparison of own revenue shares, per capita own revenue, per capita expenditure and central grant per capita at five points in time.

[21] In 1991 the fiscal year for local public finance was changed to coincide with the calendar year.

Table 4 shows large differences between the local authorities in the composition of their revenue, largely reflecting their respective abilities to meet their needs. While the average share of local tax revenue—almost entirely deriving from local property taxes— amounted to about 30 percent of local revenue from all sources, the minimum rate was as low as 11 percent, in Sakhnin, and the maximum rate was as high as 61 percent, in Kiryat Tiv'on. The general grant is intended to compensate for the shortfall in tax revenue. The largest grant share, 60 percent, was received by Yeroham, which suffers from a combination of low socioeconomic status, remoteness from the center of the county and diseconomies of scale. The strongest localities did not receive any grant at all.

Table 5 reveals similarly large differences in the composition of expenditure. Administrative and general expenses account for about one sixth of total expenditure on average, but range from 6.4 percent in Ra'anana to 33.6 percent in Bet She'an. National services account on average for a higher share of expenditure than of revenue—48.3 percent compared to 32.5 percent—and so other sources of revenue are needed to make up the shortfall. The more affluent local authorities are able to finance substantial additional spending from their own tax revenue; poorer local authorities must seek external sources.

Table 5
Expenditure Shares in Local Authorities' Current Budgets

	Administrative and general	Local services	National services	Spending on enterprises
Mean	16.8%	10.9%	48.3%	8.8%
Standard deviation	0.6%	0.6%	0.9%	0.4%
Minimum	6.4%	8.9%	22.1%	2.1%
Maximum	33.6%	46.3%	61.9%	33.4%
Range	27.1%	37.3%	39.8%	31.3%

Table 6 presents statistical correlations of eleven-year average revenue and expenditure shares across the one hundred local authorities in our study. The very large negative correlation between the share of the general grant and that of local tax revenue shows that the general grant did indeed serve to provide assistance to authorities that were unable to collect sufficient taxes. The share of general and administrative expenditure in total expenditure showed a large positive correlation with the share of the general grant in total revenue and a large negative correlation with the share of the general grant in local tax revenue. As large overheads leave fewer resources for direct improvement of local services, we interpret this as indicating that discretionary funds from external sources were used less effectively than local tax revenue.

To further analyze the allocation of national funds to local authorities, we also estimated a regression, using the full 1,100 annual observations in our data, in which the left-hand variable is the local authority's per capita revenue excluding taxes, at 1995 prices, denoted by *Y-TX*, and the right-hand variables are a dummy variable for Arab authorities (excluding mixed authorities), denoted by *ARAB*; the socioeconomic index value for 1983, *INDEX83*; per capita taxes collected by the local authority, at 1995 prices, *TX*; and dummy variables for each of the sample years, D_i. The equation obtained from the estimation (with *t*-statistics in parentheses) is:

Table 6
Correlation Coefficients Between Principal Revenue and Expenditure Items in Local Authorities' Current Budgets

	Revenue from					Expenditure on		
	Taxes	General grant	Local services	National services	Enterprises	General & admin.	Local services	National services
Revenue from								
General grant	–0.90							
Local services	0.66	–0.65						
National services	–0.48	0.18	–0.50					
Enterprises	0.22	–0.32	0.30	–0.46				
Expenditure on								
General and admin.	–0.56	0.62	–0.56	0.16	–0.24			
Local services	0.64	–0.54	0.68	–0.60	0.34	–0.50		
National services	–0.09	–0.09	–0.24	0.67	–0.33	–0.04	–0.32	
Enterprises	0.07	–0.15	0.10	–0.33	0.78	–0.06	0.21	–0.38

$$Y - TX = \underset{(-14.2)}{-1{,}131 * ARAB} \; \underset{(-14.5)}{-\; 554 * INDEX83} \; \underset{(17.5)}{+\; 0.79 * TX} \; + \sum_{i=1984/5}^{1995} b_i D_i b_i D_I \, .$$

All the variables are highly significant, and the regression has an R^2 value of 0.42. It shows that the central government's good intentions were only partly successful. Localities with a lower socioeconomic score did indeed receive incremental revenue, but so did the more affluent localities that were able to raise more per capita tax revenue: for every shekel a local authority collected in taxes it obtained an additional 0.79 shekel on average from other sources. This reflects the range of factors mentioned above that give these authorities an edge in raising external resources: they have more political clout, are better able to raise matching funds, are managed more effectively, and so on.

The advantage of the stronger local authorities is also evident from an analysis of the magnitude of these coefficients, and their consequent budgetary impact. Recall that *INDEX83* has an average value of 0 and a standard deviation of 1.02, and note that the average per capita revenue from taxes in 1995 was NIS 1,084. Comparing a weaker local authority with a socioeconomic index value of one standard deviation below the average, and able to raise one half the average per capita revenue from taxes, to a stronger local authority with an average socioeconomic score (of 0) and able to raise per capita tax revenue 50 percent above the average, we find from the equation that the stronger community is able to obtain NIS 291 per capita more in supplemental funds than the weaker community.[22] For most local authorities, the effect of own tax collection on incremental resources was greater than the impact of their socioeconomic status.

[22] The weaker community obtains 554*1.02 – 0.79*0.5*1,084 = 137 more than an average community, while the stronger community obtains 0.79*0.5*1,084 = 428 more than an average community.

The equation also describes the disadvantage of Arab localities in obtaining incremental resources from the government during the period studied. The regression equation indicates an average difference of NIS 1,131 per capita between Arab and Jewish localities. The socioeconomic index of the locality with the lowest rating, the Arab town Rahat in the Negev, amounted to –2.16 in 1983, indicating incremental budgetary support of NIS 1,197 per capita, an amount only slightly larger than the average difference, in the equation, between Arab and Jewish localities.

5. SOURCES OF CHANGE IN THE SOCIOECONOMIC INDEX

Our analysis of urban development in the preceding sections, which emphasizes the possibility of multiple equilibria, leads us to expect changes in the value of the socioeconomic index to be affected by initial conditions, by the quality of local government, and by regionally differentiated national policies. Accordingly, we estimate a regression equation in which the left-hand variable is the change in the locality's socioeconomic index, and the right-hand explanatory variables are grouped under three headings:

Initial conditions
- The local community's socioeconomic index in 1983;
- The local share of persons holding matriculation certificates in 1983 (one of the components of the socioeconomic index) as a measure of initial human capital;
- The size of the local population in 1983.

The quality of local government
- The share of administrative and general expenses in local government spending, averaged over eleven years;
- Municipal taxes per capita collected by the local authority in 1984/5.

National policies.
- The ratio of immigrants from the former Soviet Union who chose the locality as their first place of residence in Israel;[23]
- A dummy variable for development towns eligible for differential investment subsidies under the Encouragement of Capital Investments Law;
- A dummy variable for exclusively Arab towns, measuring a possible shift in the government's policies vis-à-vis the country's Arab population.

In addition, we included dummy variables for each of Israel's six administrative districts among the right-hand variables, possibly capturing regional orientations of national policy.

Table 7 presents basic descriptive statistics on all the variables in the regression equations. Table 8 presents correlation coefficients, which show:

[23] While certain localities chose to limit their intake of new immigrants from the former Soviet Union in the early 1990s, others absorbed large numbers. This presumably had an adverse affect on the 1995 rankings of the latter group, as the new immigrants were only then beginning their new life in Israel, many had not yet found permanent employment, and consequently their income was below its permanent level. Hence, for localities with a large immigrant population in 1995, index values may have a downward bias, reflecting a temporary situation that could change for the better in coming years.

- Strong positive correlations between the different indicators of initial conditions;
- A negative correlation between the share of administrative and general expenses in the local authority budget and both the initial socioeconomic level and the dummy variable for Arab towns, suggesting that weaker communities, and among them the Arab towns, suffer from poor local government on the whole;
- A positive correlation between the share of new immigrants in the local population and the dummy variables for development towns and the southern district, indicating that new immigrants were absorbed in disproportionately large numbers in the weak southern development towns.

Table 7
Descriptive Statistics of the Regression Variables

	Average	Median	Standard deviation	Minimum	Maximum
Change in index	0.13	0.27	0.59	1.11	1.35
1983 index value	0	0.12	1.16	2.61	2.62
Matriculation holders in 1983 population (percent)	0.36	0.37	0.16	0.03	0.64
1983 population, '000s	35	13	6	5	429
Taxes per capita 84/5	467	412	374	53	2,119
General and admin. expenditure (percent)	0.17	0.17	0.06	0.06	0.34
Share of new immigrants	0.15	0.11	0.16	0	0.69

Table 8
Correlation Coefficients between Pairs of Regression Variables

	Change in index	1983 index	Matric. in 1983 population	1983 population, '000s	Taxes per capita 84/5	Gen. & admin. (percent)	New immigrants (percent)
Change in index	1.00						
1983 index	–0.79	1.00					
Matriculation in 1983	–0.77	0.98	1.00				
1983 population, '000s	–0.35	0.36	0.37	1.00			
Local taxes per capita 1984/5	–0.54	0.73	0.72	0.51	1.00		
Gen. & admin. expenditures (percent)	0.34	–0.54	–0.56	–0.34	–0.50	1.00	
New immigrants (percent)	–0.65	0.52	0.54	0.20	0.39	–0.29	1.00
Development town	–0.46	0.13	0.12	–0.16	0.03	0.12	0.44
Arab locality	0.80	–0.83	–0.84	–0.29	–0.64	0.39	–0.65
Jerusalem district	–0.07	0.11	0.11	0.33	–0.02	–0.06	0.12
Northern district	0.33	–0.42	–0.43	–0.24	–0.32	0.34	–0.07
Haifa district	0.09	–0.054	–0.04	–0.07	–0.00	–0.08	–0.05
Central district	0.05	0.18	0.18	0.00	0.10	–0.06	–0.09
Southern district	–0.35	0.02	0.04	–0.05	–0.01	0.01	0.20

Table 9 presents the results of the regression estimation.[24] The coefficient estimates are generally significant and with the expected signs, and the equation as a whole explains 84 percent of the variation in the dependent variable. Despite the high degree of correlation between the three variables representing different dimensions of initial socioeconomic status—the value of the composite index in 1983, the proportion holding matriculation certificates in 1983, and per capita city taxes in 1984/5—each has a distinct significant effect. The regression results support the hypothesis that human capital and the quality of the local government are key factors in local development. The negative effect of the initial value of the composite index, after controlling for initial human capital and quality of local government, indicates conditional convergence of the local index values.[25]

The significant negative coefficient associated with initial local population suggests that the disadvantages of congestion outweigh economies of scale in the supply of local services. The negative effect of the proportion of immigrants on a change in the index reflects their incomplete absorption until 1995.[26] The significant negative effect estimated for the development town variable presumably reflects a relative decline in their status during the period in question vis-à-vis other national priorities. The dummy variable for an Arab town is positive though less than significant, possibly indicating a relative improvement in the government's position on Arab development (compared to the previous period), after controlling

Table 9
Regression Results

Dependent Variable:
The Change in the Socioeconomic Index Value between 1983 and 1995

	Coefficient	*t* statistic
Constant	–0.448	–1.39
1983 index	–0.529	–5.51
Matriculation holders in 1983 population	1.356	1.83
1983 population, '000s	–0.002	–4.61
Local taxes per capita 1984/5	0.0003	2.92
Share of general and admin. expenditures	–0.813	–1.49
New immigrants (percent)	–0.524	–2.40
Development town	–0.300	–3.24
Arab locality	0.159	1.28
Jerusalem district	0.459	2.72
Northern district	0.049	0.43
Haifa district	–0.050	–0.50
Central district	0.117	1.25
Southern district	–0.291	–2.37
R^2 = .86	*Adjusted* R^2 = .84	

[24] We also ran regressions omitting first the dummy variable for Arab towns, and then the dummy variable for development towns. The results were very similar.

[25] The 1995 index has an average value of 0.126 in the 100 localities in our study, and a standard deviation of 0.772, while the 1983 index has an average value of 0 and a standard deviation of 1.02. Without any change in dispersal, this discrepancy implies a slope of –0.23 in a regression of the change in the index on its initial value. The actual coefficient value, –0.529, is significantly larger in magnitude, which indicates conditional convergence of the index values to the mean.

[26] We used this estimate to recompute a composite index from which this presumably temporary absorption effect is removed by subtracting from the original index the product of our coefficient estimate, 0.524, multiplied by the local immigration share. The correlation between the original and revised indices was over .99, and most changes in ranking were small. The municipalities that gained most were Kiryat Gat (14 places), Sderot (13) and Or Akiva (12). Hadera (8 places) and Rosh Ha'ayin (6) declined the largest number of places in the rankings, with most Arab towns falling four or five places.

for the narrowing of the education gap between Arabs and Jews, and the poor performance of local government in the Arab sector.[27]

Two districts show significant regional effects (relative to the Tel Aviv district): a positive effect for the Jerusalem district and a negative effect for the southern district—after controlling for initial conditions, education, local government, immigrant absorption, development towns, and Arab towns. This, too, can be interpreted as reflecting changes in national priorities, from which Jerusalem has benefited and the South has suffered, as well as the effect of changes in the economic structure of the country—notably the high-tech revolution—which have raised the price that the South pays for its remoteness from the center.[28]

Table 10 describes the magnitude of these effects. The effect of a change of one standard deviation in each of the right-hand non-dummy variables is calculated by multiplying the

Table 10
Magnitudes of the Effects of the Right-Hand Variables

	Regression coefficient	Standard deviation (sd) of the variable	Effect of a change of one sd in the variable	Effect of a change of one sd as a percentage of one sd of the dependent variable
1983 index	–0.529	1.16	–0.61	–104%
1983 matriculation	1.356	0.16	0.21	36%
1983 population	–0.002	62	–0.15	–25%
Taxes per capita 84/5	0.0003	374	0.12	20%
Gen. & admin. expenditures (percent)	–0.813	0.06	–0.05	–8%
New immigrants (percent)	–0.524	0.16	–0.08	–14%

Dummy Variables

	Regression coefficient	Coefficient as a percentage of one standard deviation of the dependent variable
Development town	–0.529	1.16
Arab locality	1.356	0.16
Jerusalem district	–0.002	62
Northern district	0.0003	374
Haifa district	–0.813	0.06
Central district	–0.524	0.16
Southern district	–0.524	0.16

[27] The regression explains *the change* in the index. Although the Arab local authorities were neglected during the study period (as we saw above), our findings suggest that they may have been more neglected in previous years. When the development town dummy variable is omitted from the regression, the Arab town dummy variable has a significant positive effect.

[28] While the Northern district is also distant from Tel Aviv, it is close to Haifa, a center of technological activity in its own right. Attempts to refine the analysis by introducing other locational variables such as proximity to the Mediterranean coast or the northern border did not yield significant results.

variable's estimated coefficient by its standard deviation, and then dividing their product by the standard deviation of the right-hand variable; for the dummy variables, we divided the regression coefficient by the standard deviation of the explained variable. The results indicate that the largest effects can be attributed to the initial stock of local human capital, the specific disadvantages of the development towns and the southern district, the specific advantage of the Jerusalem district, and the general process of conditional convergence.

6. CONCLUDING REMARKS

This study describes the socioeconomic dynamics of Israel's one hundred largest local authorities between 1983 and 1995, and identifies factors that affected their relative levels of socioeconomic well-being in this period. A direct comparison of their rankings in these two years highlights the relative decline of the southern development towns and of places with large ultra-orthodox populations, and the relative rise of Arab towns and suburban communities in the central and northern regions of the country. Econometric estimates quantify the effect of human capital and the quality of municipal administration, the short-term impact of the mass immigration from the Former Soviet Union, and the influence of shifts in national priorities.

The fundamental theorem of welfare economics—the efficiency of the invisible hand—is regularly invoked as a basis for Israel's accelerated transition from government intervention to market economics (Ben-Bassat, 2002). However, the conditions on which its validity rest do not generally apply to urban development, which is generally characterized by agglomeration effects, local public goods and externalities. Consequently, the geographical distribution of poverty and affluence is inherently beset by market failures that undermine its economic efficiency, often leading to unnecessary waste: under-utilized resources in some parts of the country and harmful congestion in others. Underdeveloped cities and towns are trapped in a vicious cycle that thwarts the exploitation of their human potential, and perpetuates their poverty from one generation to the next.

This study highlights the considerable impact that policy variables can exert on local socioeconomic development. Better schools, good local government and the different policy levers through which national priorities are realized, are the means for extricating local authorities trapped in a steady state of poor socioeconomic development, and reclaiming the rights of their residents to a fair chance at attaining a reasonable level of material welfare.

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