Economic Convergence and Geographic Divergence: the case of Israel

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Abstract

This paper explores the complex spatial dynamics of regional development by examining the simultaneous occurrence of two distinct processes: economic convergence and geographic divergence. Utilizing a unified empirical framework, this study assesses jointly economic convergence or divergence, measured by the change in socio-economic rank of localities conditional on their initial positions, alongside spatial convergence or divergence, defined by the relationship between socio-economic rank and proximity to the economic center. Using a longitudinal dataset covering 90 localities in Israel over nearly six decades (1961–2019), the empirical results reveal a distinct structural break around 1990. During the first two decades (1961–1983), we do not observe forces of either regional convergence or divergence; distance from the economic center (measured by physical distance from the Tel Aviv District) was an insignificant factor, while disadvantaged localities exhibited a notable catching-up effect. However, in the post-1990 period, the economic landscape shifted toward geographic divergence as the importance of proximity intensified significantly, with distance from the core emerging as a key determinant of a locality's socio-economic success.

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Introduction

In the last century, the cost of distance was dramatically reduced. Both transportation and telecommunications infrastructure contributed to the rapid movement of people, goods, and information, making distances easier to overcome. The technological advancements led many to herald the "death of distance" (Cairncross, 1997), suggesting that the cost of geographic isolation had been nullified and that proximity to economic centers was becoming increasingly irrelevant. Under this hypothesis, reduced communication and transport costs were expected to act as a catalyst for spatial economic convergence, allowing peripheral regions to access the same information, markets, and capital as the core, thereby leveling the economic playing field.

However, an alternative perspective, rooted in New Economic Geography (NEG) and endogenous growth theories, suggests a more complex spatial reality. While the costs of physical movement have fallen, the value of geographic proximity has simultaneously intensified. This proximity paradox suggests that lower transport costs can actually widen the reach of a core metropolitan area, allowing it to outcompete local peripheral industries through economies of scale and to drain specialized talent from farther distances (Myrdal, 1957; Hirschman, 1958).

The primary contribution of this paper is to move beyond the binary debate of whether regions are converging or diverging. Instead, we demonstrate the co-occurrence of two distinct and competing processes: economic convergence and geographic divergence. On the one hand, economic convergence suggests a catching-up mechanism in which poorer localities grow faster than wealthier ones due to diminishing returns to capital and technological diffusion (Barro & Sala-i-Martin, 1992). This process implies a degree of absolute mobility for laggard regions. On the other hand, geographic divergence describes a structural stratification in which the rank and growth potential of a locality are increasingly determined by its spatial position relative to the primary economic core. While regions may grow in absolute terms, the "agglomeration shadow" of the center creates a deepening spatial hierarchy where distance becomes a more potent predictor of relative success.

This research tests these competing forces by analyzing the Israeli case over six decades, between 1961 and 2019. We employ a longitudinal analysis of the locality's socioeconomic rank and its distance from Tel-Aviv districts (the economic core of

Israel) to examine the extent to which the locality's initial economic condition determined its socioeconomic rank over the tested period. Furthermore, we examine how the relationship between distance from the core and economic performance has evolved. Our main findings reveal a significant structural break occurring around 1990. We find that, despite the proliferation of ICT and improved infrastructure, the importance of proximity to the metropolitan center has increased significantly in the post-1990 era. The distance from the core has shifted from a secondary factor to a primary determinant of growth, indicating that the forces of geographic divergence have begun to dominate the neoclassical forces of economic convergence.

The remainder of this paper is structured as follows: The second section provides a comprehensive review of the literature on regional convergence and divergence, contrasting neoclassical models with endogenous growth and distribution dynamics. The third section describes the data sources and the empirical methodology used to measure spatial growth patterns. The fourth section presents our results, highlighting the temporal shift in the influence of distance. The fifth section discusses these findings.

Background

The economic model

The literature on regional economic development presents a long-standing debate between the forces of convergence, which suggest that poorer regions naturally catch up to wealthier ones, and the forces of divergence, which emphasize the persistent or increasing dominance of core economic centers. According to the neoclassical growth model, regions tend to converge because of diminishing returns to capital. When a region's capital stock is small, each additional unit of capital generates a larger increase in output than in a rich region with a high capital stock. Early theorists like Solow (1956) and later Barro & Sala-i-Martin (1992) argued that regions would naturally converge. They posited that capital flows to where it is scarce (the periphery) because the returns are higher, while labor flows to the core, where wages are higher. Eventually, this leads to a steady state where regional disparities disappear.

Scholars identified two types of economic convergence (Young et al., 2008; Sala-i-Martin, 1996b). First, β convergence measures whether poor regions grow faster than

rich ones, and it is tested using cross-sectional regressions; a negative β indicates that poor regions grow faster than rich ones on average. Second, σ convergence measures whether the actual dispersion of income (inequality) between regions is shrinking, as indicated by a decline in the standard deviation of the logarithm of per capita income over time. He argues that β-convergence is a necessary but not sufficient condition for σ-convergence, as random shocks can increase σ (dispersion) even if the underlying convergence force remains active. Empirical research has found a universal pace of convergence, around a yearly 2 percent convergence rate, in the United States (Barro et al., 1991), Europe, and Japan (Sala-i-Martin, 1996a), confirming that both types of convergence occurred simultaneously for much of the 20th century. Nevertheless, the convergence slowed down since the 1980'.

Quah (1993, 1996) challenged the Sala-i-Martin and Barro framework, arguing that the β-convergence coefficient provides a misleading picture of regional mobility. He argued that "regression to the mean" does not necessarily imply that the distribution is shrinking or that regions are catching up in a meaningful way, because it provides no information about the relative positioning of regions within a region or the extent to which a region's rank changes over time. Instead of regressions, distribution dynamics were introduced, treating the income of all regions as a single evolving distribution. It tracks the probability that a region at the bottom of the income will move to the top. His analysis suggests that regions do not automatically catch up. Instead, they belong to "Convergence Clubs." If a region is "close" to the core (in terms of trade, technology, or geographic distance), it is more likely to transition into a high-income cluster, benefiting from knowledge spillovers and market integration. In contrast, regions that lack these connections or are situated beyond the functional reach of the core tend to remain stagnant in a low-income cluster.

Potential divergence patterns are further elucidated by endogenous growth theories (Romer, 1994), suggesting that investment in innovation and human capital generates increasing returns to scale. Because new ideas and technological advancements are non-rivalrous, they can be reused at low marginal cost, allowing regions with a high initial stock of knowledge to grow at an accelerating rate compared to those at the periphery (Grossman and Helpman, 1994). A critical component of this divergence is the localized nature of knowledge spillovers. While information can be transmitted

digitally, the "tacit" knowledge required for high-level innovation, such as skills, intuition, and complex problem-solving, often requires physical proximity to be effectively shared. Consequently, firms and high-skilled workers cluster in core metropolitan areas to benefit from these human capital externalities, creating a "virtuous cycle" of growth in the center that leaves peripheral regions increasingly isolated from the technological frontier.

This economic concentration is reinforced by the spatial mechanism of cumulative causation (Myrdal, 1957; Hirschman, 1958). It is claimed that regional development is not a self-correcting but a self-reinforcing process, creating a "backwash effect" (Myrdal, 1957) in which the core acts as a powerful vacuum, sucking essential resources (e.g., talented labor, investment capital, and entrepreneurial spirit) away from the periphery. In this framework, the market forces that the neoclassical model assumes will lead to convergence (like labor moving to high-wage areas) actually strip the periphery of its productive capacity, further widening the developmental gap. Thus, although spread effects exist, they are often insufficient to overcome initial polarization (Hirschman, 1958).

Krugman (1991) formalized this in the New Economic Geography (NEG), showing that Increasing Returns to scale mean that once a center gains a head start, it becomes more efficient at an exponential rate, making it nearly impossible for the periphery to compete. Specifically, it is argued that an improved transportation system is not a deterministic policy for reducing gaps, since while it allows a peripheral town to ship goods to the city, it also allows massive city-based firms to flood the peripheral market with cheaper goods (Krugman & Venables, 1995).

Moreover, a main mechanism for divergence is through the labor market. Proximity to the economic center raises income, but Rice, Venables, and Pattachini (2006) found that most income gains are within 40 minutes' driving time and have little or no effect beyond approximately 80 minutes.

A third mechanism for divergence is the cultural market. Since the beginning of the 21st century, proximity to cultural centers has attracted more attention, as cities are seen not only as economic centers and production machines, but also as entertainment machines (Lloyd and Clark, 2001) and consumer centers (Glaeser et al., 2001). Also in

that respect, proximity matters and has a decreasing impact beyond a certain distance (Burger et al., 2017).

All three mechanisms: production, labor, and culture markets are effective through geographic proximity, and the advantages of proximity to the metropolitan core are reflected in the borrowed size concept (Alonzo, 1973). It refers to localities within a larger megapolitan complex that perform better because they have access to the agglomeration benefits of neighbouring cities through infrastructure without incurring the high costs (Meijers and Burger, 2017). However, the effect of proximity varies over time. Beltrán Tapia and others (2021) found that although proximity to an urban center had a negative effect on a locality's growth, starting in the mid twentieth century, proximity began to have a positive effect on growth.

Transportation, ICTs, and the importance of proximity

Both transportation and ICT improvements have the potential to reduce the cost of distance, thereby reducing the importance of proximity. From a policy perspective, much of the efforts to reduce economic gaps between the core and periphery focused on transport infrastructure investments (Tomaney and Marquse 2013; Rodríguez-Pose and Fratesi, 2004).

An example of the positive effect of transportation is the American Interstate Highway System. Connecting nonmetropolitan counties to the American interstate highways led to a 6–8% increase in earnings when examining the period between 1969 to 1993(Chandra and Thompson, 2000) and a small increase in the wages of skilled workers relative to those of unskilled workers (Michaels, 2008). On the other hand, a more recent case of Chinese initiative to connect all provincial capitals and cities with an urban registered population above 500,000 on a single expressway network (initiated in 1992 and finalized in 2007) had the opposite effect. A study of the Chinese Road network found lower GDP growth in peripheral counties along the route between targeted metropolitan city nodes than in peripheral regions not connected to the route (Faber, 2014). In addition, the connection of cities to the high-speed rail in China had negative effect on counties in between, as connecting the big cities to high-speed rail bypassed peripheral counties and shifted investments from counties in between lines, resulting in decreasing a county's total GDP and GDP per capita by 3–5% on average

(Qin, 2017). The differences between the American and Chinese cases may reflect the differences between infrastructure investment in the 20th and the 21st centuries. The complex impacts of accessibility improvements vary across households, labour, firms, and investment. In many cases, when transport costs decline, investments are attracted to core areas, thereby widening core–periphery gaps (Ding, 2013). Moreover, a Dutch study found that improved transport infrastructure increased employment at the periphery but decreased its population (Meijers et al., 2012).

With a similar logic, ICTs also reduced the cost of distance and were expected to decrease the importance of proximity. The "Death of Distance" hypothesis predicts the irrelevance of proximity and even the "death of the city," as many activities become virtual and agglomeration becomes less relevant (Negroponte, 2015; Toffler, 1980; Cairncross, 2001). Thus, ICTs were predicted as a force for regional convergence, allowing peripheral localities to access the same information and markets as the core, thereby decoupling economic growth from geographic proximity to the center. However, although ICTs were predicted to nullify distance, it is argued that they have largely reinforced the core. The primary theoretical explanation for the persistent importance of distance lies in the distinction between types of knowledge. The importance of Tacit knowledge increases, and since it relies heavily on complex problem-solving, creative intuition, and unwritten professional norms, face-to-face meetings remain important, thereby making such knowledge spatially sticky (Carlino and Kerr 2015; Leamer and Storper 2017). Moreover, virtual activities are not a substitute for face-to-face meetings, but complement them (Gaspar and Glaeser, 1998).

To conclude, the literature suggests both convergence and divergence; however, this process has a temporal aspect. Although a robust regional convergence was found in many countries until the 1980s, it was followed by a sharp slowdown or outright divergence since then. Thus, despite a sharp reduction in the cost of distance, alongside increased growth in the national average, geographical inequalities persist (Chatterjee et al., 2021; Fagerberg and Verspagen, 1996).

The estimated models

In the literature on the economic growth of nations and regions, it is customary to estimate a convergence (or divergence) equation. As will be shown, there is a close link

between the intergenerational mobility literature and the economic growth convergence equation. A standard convergence equation is:

$$(1)\ \log Y_{it} - \log Y_{i0} = \Delta Y_{it} = \propto + \beta \log Y_{i0} + \boldsymbol{\gamma} \mathbf{x}_{it} + e_{it}$$

The common dependent variable is the difference in log income per capita between two points in time, while the explanatory variable is the log income per capita at the starting year, $\log Y_{i0}$. The literature distinguishes between conditional convergence, which accounts for fundamental factors represented by $\mathbf{x}_{it}$ that influence long-term equilibrium income per capita, and absolute convergence, which ignores them. The coefficient β expresses absolute convergence if it is negative and absolute divergence if it is positive.

In the current study, the change in the socioeconomic percentile from 1961 to 2019 is the primary outcome variable. Equation (1) can be rewritten for absolute convergence in terms of socioeconomic percentiles as:

$$(2.1)\ R_{it} - R_{i0} = \Delta R_{it} = a + (b - 1) R_{i0} + e_{it}$$

Where R_{it} denotes the rank of socioeconomic percentile of a locality i in year t and R_{i0}denotes the rank of socioeconomic percentile of a locality in the starting year 0. By moving R_{i0} to the right side of Equation (2.1), we arrive at this equation:

$$(2.1)\ R_{it} = a + b\, R_{\boldsymbol{i0}} + \varepsilon_{it}$$

This formulation shows that the coefficient of economic convergence in terms of rank (percentiles) equals the immobility coefficient minus 1. Measuring the economic immobility of localities in this manner allows comparison with individual-level immobility estimates, which are derived using the same equation. R_{it} represents the children's income percentile in the national distribution and R_{i0} represents the parents' income percentile. Note that if the convergence coefficient b-1 equals zero, the current economic rank is perfectly correlated with the starting point, meaning inequality is replicated over time. Conversely, if the convergence coefficient is -1, the current rank is independent of the starting position (b=0), describing maximum mobility. Equation 2.1 shows directly the extent to which a locality's current economic status is influenced by its starting conditions sixty years ago.

Equation (1) indicates the degree of relative mobility and also measures the strength of regression to the mean. The higher the degree of immobility b, the weaker the regression to the mean. If b = 0, full regression to the mean is expected, meaning a locality's current relative position is independent of its past position. Conversely, if b = 1, no regression to the mean occurs, and the expected relative position remains identical to the past. In short, relative mobility and regression to the mean are two sides of the same coin.

Our focus in the current study is to estimate both the degree of economic convergence (divergence), captured by the coefficient of starting economic conditions, and spatial convergence (divergence), represented by the coefficient of geographic proximity. We diverge from the standard estimation of conditional convergence by using socioeconomic percentiles (in addition to income per capita) and paying central attention to geographic distance:

$$(2.2)\ \mathrm{R_{it}}-\mathrm{R_{i0}} = \Delta R_{it} = \mathrm{a} + (\mathrm{b}-1)\mathrm{R}_{i0} + c\mathrm{P}_{it} + \mathrm{e_{it}}$$

Where P_{it} represents the distance of locality i from the center at time t. The coefficient of P_{it} captures the impact of distance on size, implying geographic convergence if c is positive and geographic divergence if c is negative. That coefficient captures the effect of distance on the current socioeconomic ranking for a given initial condition (i.e., socioeconomic ranking at the beginning of the research period). To study geographic convergence/divergence, we estimated Equation 2.2 across five sub-periods of varying duration.

Research population and data

The research includes 90 localities that existed before 1970. Thus, it does not include 27 localities established after 1970 and an additional 3 localities for which 1961 data are unavailable. Additionally, it does not include regional authorities (54 authorities that mainly cover rural settlements) and 81 Arab localities. Arab localities were excluded primarily due to the lack of comparable data for the first two observation years (1961 and 1972).[1] Moreover, economic activity in Arab localities has a more local

[1] Income data for 1972 is unavailable for most Arab localities and the available socioeconomic index was calculated separately for Jewish and Arab localities.

character and is less economically connected to the country's economic center (the Tel Aviv District) than that in Jewish localities. Whereas there is a negative correlation between socioeconomic ranking and distance from Tel Aviv among Jewish localities, we observe no such correlation for Arab localities. The included localities accounted for 83% of Israel's 2.2 million inhabitants in 1961. These 90 localities cover 70% of the Israeli population in 2019.

The data on socioeconomic rank is taken from the Israeli Central Bureau of Statistics (ICBS). In recent years, the ICBS has published, every two years, the socioeconomic ranking of all localities in Israel based on 14 characteristics, such as income per capita, education, and demographic composition. Until 2008, ICBS calculated socioeconomic rank only for years with census data, which occurred approximately every decade. In 1961, when data on socioeconomic rank is unavailable, we rely on a proxy calculated by Dahan (2026), which is based on median age and education. As shown in Dahan (2026) socioeconomic ranking in all other years covered here (1972, 1983, 1995, 2008 and 2019) are highly correlated with the average ranking by median age and education.

The economic ranking for 1972 is based on a study by Moshe Egozi (1978) that used 15 locality characteristics from the 1972 census, covering economic status (income, occupation, economic branch, motorization rate, housing density), education, and demographics. The population of localities was divided into 10 equal deciles, with each locality receiving a socioeconomic score ranging from 1 to 10. Supplementing the socioeconomic ranking data for the 1961 and 1972 censuses produces six time points spanning 60 years: 1961, 1972, 1983, 1995, 2008, and 2019.

Income per capita (or per standard adult) is included in the socioeconomic index and is therefore available for all years the CBS published the index. Notably, the 1961 census did not collect income data. Per capita income for 1972 was taken from Egozi's (1978) work.

The degree of a locality's peripherality is measured as the shortest distance in kilometers from the center of the locality to the border of the Tel Aviv District via the road network. The latest published index refers to 2020. Since the road network in 2020 is more developed than in previous years, the assumed distance used in our estimations is an

underestimate. In reality, distance was more costly in earlier years in terms of time and money[2].

Table 1

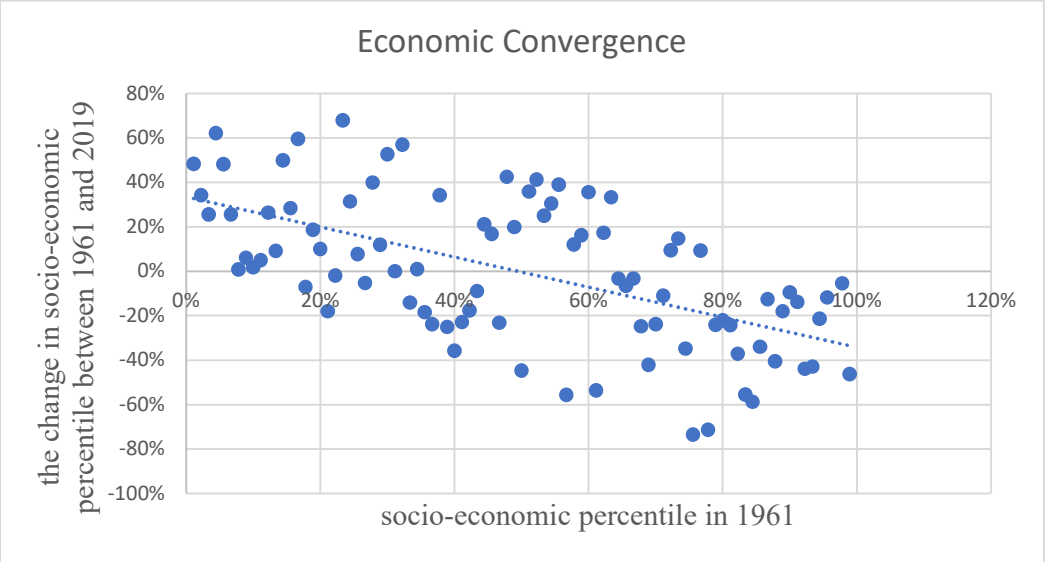
Variable	Indicators Used	Primary Data Sources
Socioeconomic Rank	Multi-dimensional index (income, education, motorization, etc.)	CBS Census (1983, 1995, 2008); CBS Socioeconomic Index (2013-2019); Egozi (1978) for 1972; Calculated proxy for 1961.
Income	Income per capita; Income per standard adult	CBS Socioeconomic Index publications; Egozi (1978). Note: Not available for 1961.
Peripherality	Road distance (km) to Tel Aviv District border	CBS Periphery Index (2004, 2015, 2020).

Results

As shown in Table 2, the estimated coefficient for the initial economic condition is negative, indicating economic absolute convergence (row 1). Localities with a lower socioeconomic ranking in the starting year of the research period (1961) perform better than those that started with a higher ranking. As shown in Figure A, the negative slope indicates that the economic growth of localities with a lower socio-economic starting point is higher. The speed of economic convergence is around 1.1 percentage points a year on average. The estimated coefficient suggests even larger economic convergence after conditioning on the distance from the Tel-Aviv district (conditional economic convergence). The coefficient for distance from the center is negative, implying that localities closer to Tel-Aviv perform better in the current socioeconomic ranking (row 2). The estimated coefficient on distance implies that a locality located 10 kilometers from the Tel-Aviv district has a lower current socioeconomic status by 15 percentage points, given a given initial economic condition.

[2] The total length of paved roads in Israel in 1961 was 6,572 kilometers, compared with 20,245 kilometers in 2020.

Figure A: Economic convergence



To uncover how the cost of being in the periphery varies over time, Table 2 presents the estimated coefficient of distance from the center for five sub-periods. The coefficient of initial socioeconomic ranking is mechanically expected to decline as the examined period becomes shorter, assuming a constant speed of yearly economic convergence. Table 2 shows that, indeed, the cumulative size of economic convergence is smaller for a shorter period.

However, the distance coefficient could be higher or lower as the examined period becomes shorter, as it captures the "cost" of the periphery in terms of the current (i.e., the most recent year of the examined period) socioeconomic ranking. The estimation results show that the coefficient of distance from the Tel-Aviv district is insignificant and relatively small in 1972, but became larger and statistically significant in more recent (final) years. While a peripheral location carried little cost in the past, it has become increasingly costly over time, widening the geographic gap. This finding implies geographic divergence for given initial economic conditions.

Figures B1 to B6 show the socio-economic position of localities at different points in time, according to their distance from Tel-Aviv. In each figure, the regression line and equation are included. Figures B1 and B2, for 1961 and 1972, respectively, show flat lines, indicating that socio-economic position is not correlated with proximity to Tel-Aviv. Since 1983 (figure B3), we have observed a strengthening correlation over time,

indicating the growing importance of proximity to Tel-Aviv. While the coefficient line in 1983 is 0.004, it increases to 0.021 in 2019 (figure B6), indicating a meaningful correlation between proximity to Tel-Aviv and socio-economic rank.

These results of economic convergence and geographic divergence are robust to replacing the initial year 1961 with 1972 (Table 3). The results also remain robust when the dependent variable is replaced with log income per capita (Table 4). The geographic divergence is shown in Figure C, which describes the change in socio-economic percentile between 1961 and 2019 by the locality's proximity to Tel-Aviv.

Table 2: Estimating economic and geographic convergence, starting year 1961

The dependent variable: the change in socio-economic percentile between t and t-x

	1961-2019	1961-2019	1961-2008	1961-1995	1961-1983	1961-1972
Socio-economic percentile, 1961	-0.633*** (0.098)	-0.747*** (0.10)	-0.608*** (0.090)	-0.479*** (0.085)	-0.269*** (0.071)	-0.087* (0.071)
Distance from Tel-Aviv (Log_{10}km)		-0.153*** (0.036)	-0.130*** (0.035)	-0.105*** (0.035)	-0.049 (0.028)	-0.006 (0.015)
Constant	0.320*** (0.057)	0.585*** (0.081)	0.480*** (0.079)	0.378*** (0.073)	0.185** (0.062)	0.038 (0.062)
Number of observations	90	90	90	90	84	90
Adjusted R^2	0.314	0.424	0.343	0.267	0.130	0.033

*, **, *** indicate the level of significance of 5%, 1% and 0.1%.

Figure B1

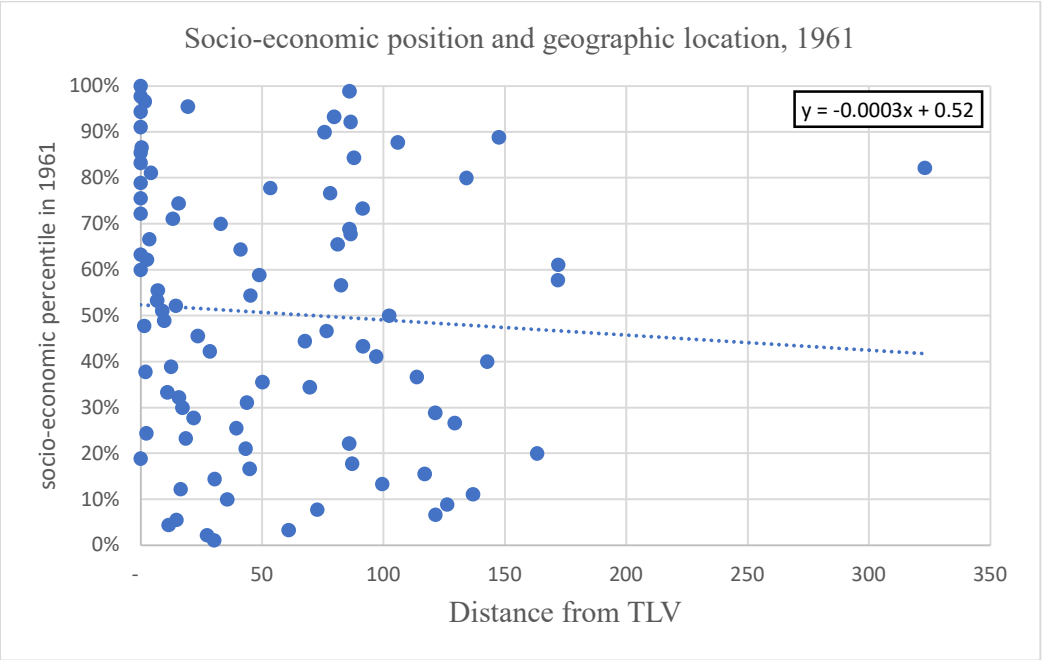


Figure B2

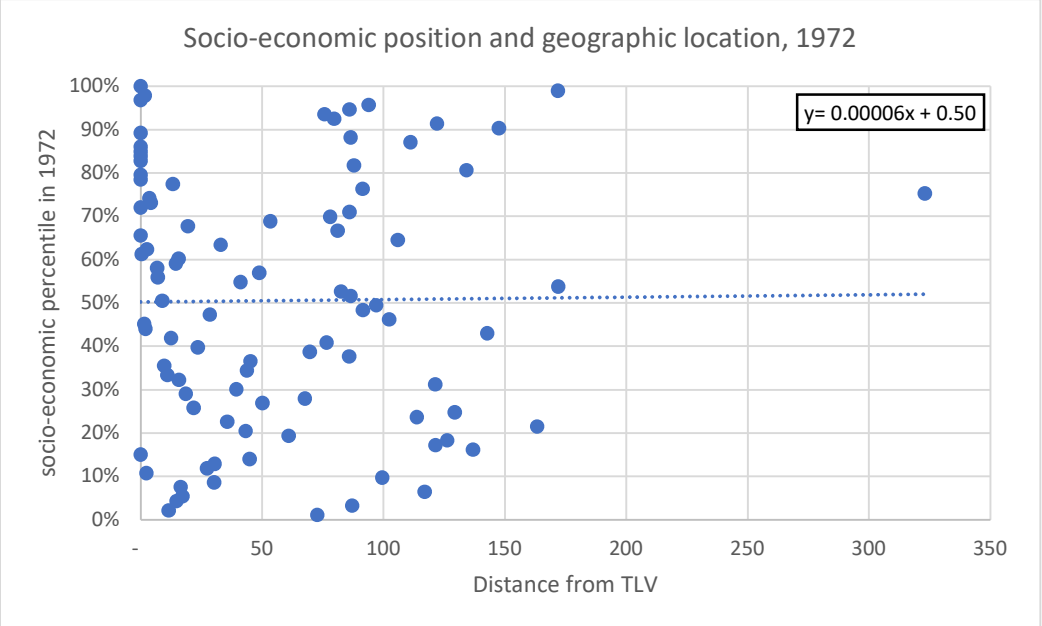


Figure B3

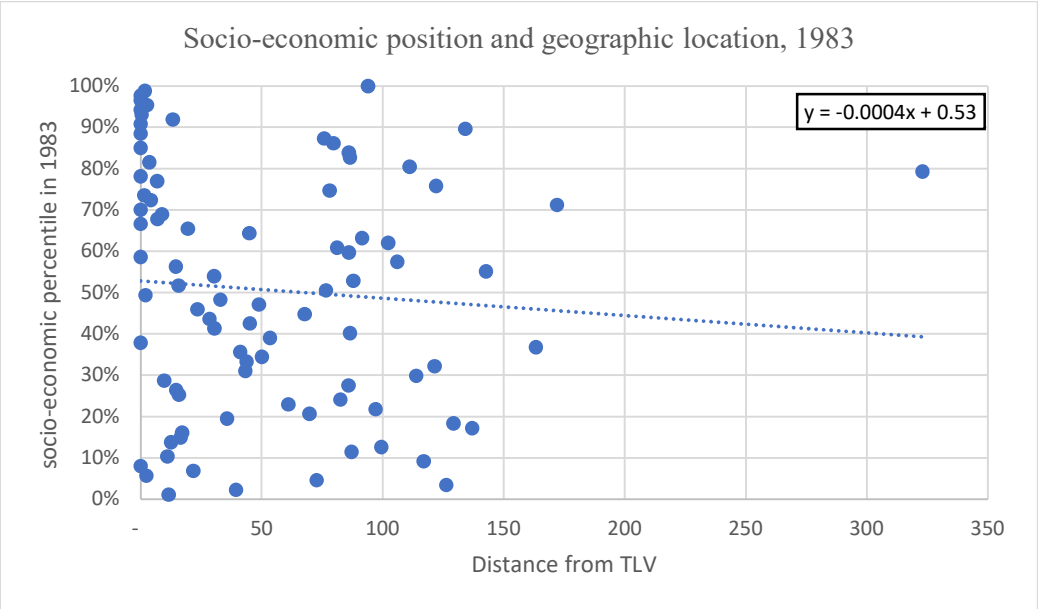


Figure B4

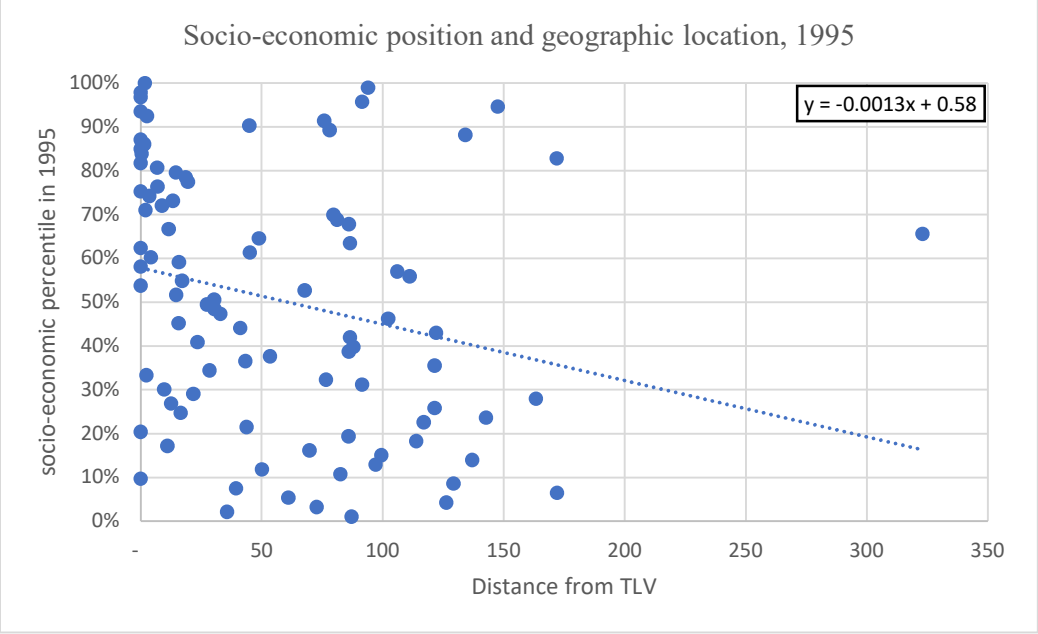


Figure B5

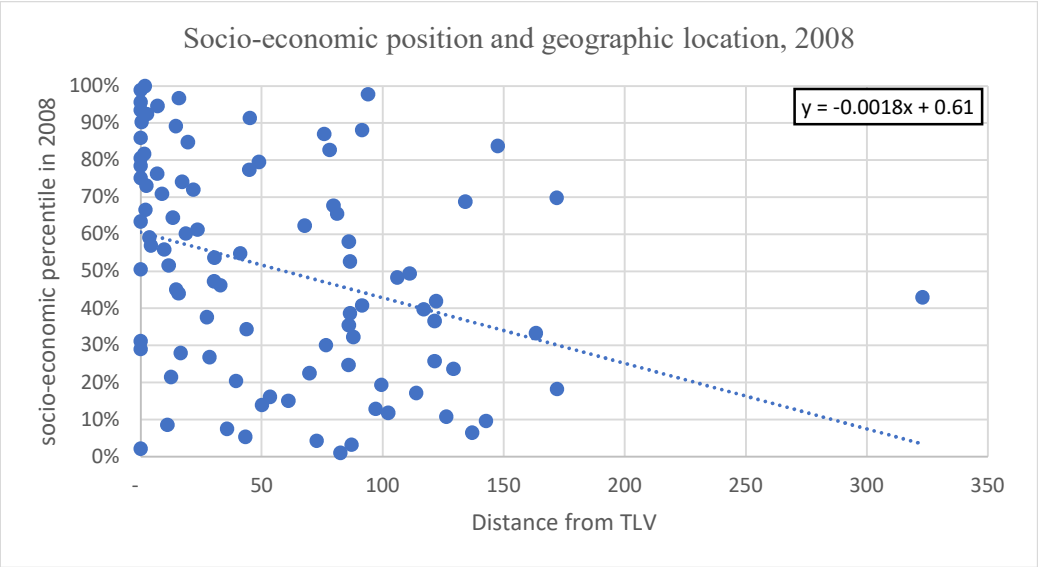


Figure B6

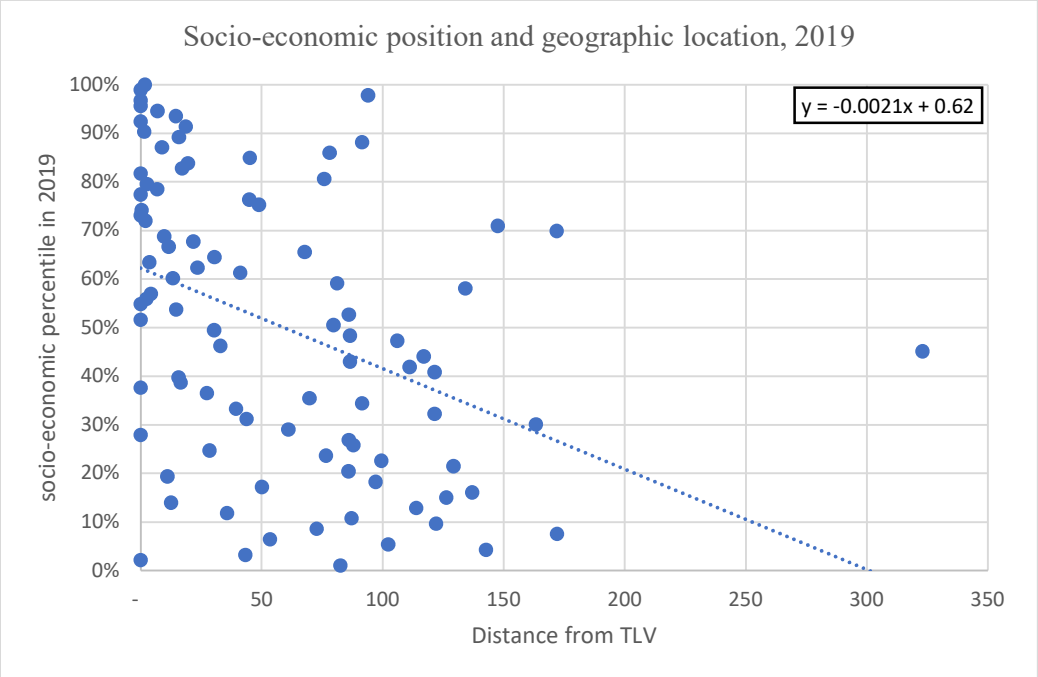


Table 3: Estimating economic and geographic convergence, starting year 1972

The dependent variable: the change in socio-economic percentile between t and t-x

	1972-2019	1972-2019	1972-2008	1972-1995	1972-1983
Socio-economic percentile, 1972	-0.634*** (0.097)	-0.723*** (0.10)	-0.600*** (0.092)	-0.426*** (0.083)	-0.180** (0.067)
Distance from Tel-Aviv (Log_{10}km)		-0.152*** (0.036)	-0.131*** (0.035)	-0.101** (0.032)	-0.033 (0.028)
Constant	0.321*** (0.057)	0.574*** (0.080)	0.481*** (0.078)	0.354*** (0.070)	0.137* (0.056)
Number of observations	90	90	90	90	84
Adjusted R^2	0.310	0.405	0.332	0.236	0.061

*, **, *** indicate the level of significance of 5%, 1% and 0.1%

Table 4: Estimating economic and geographic convergence, starting year 1972

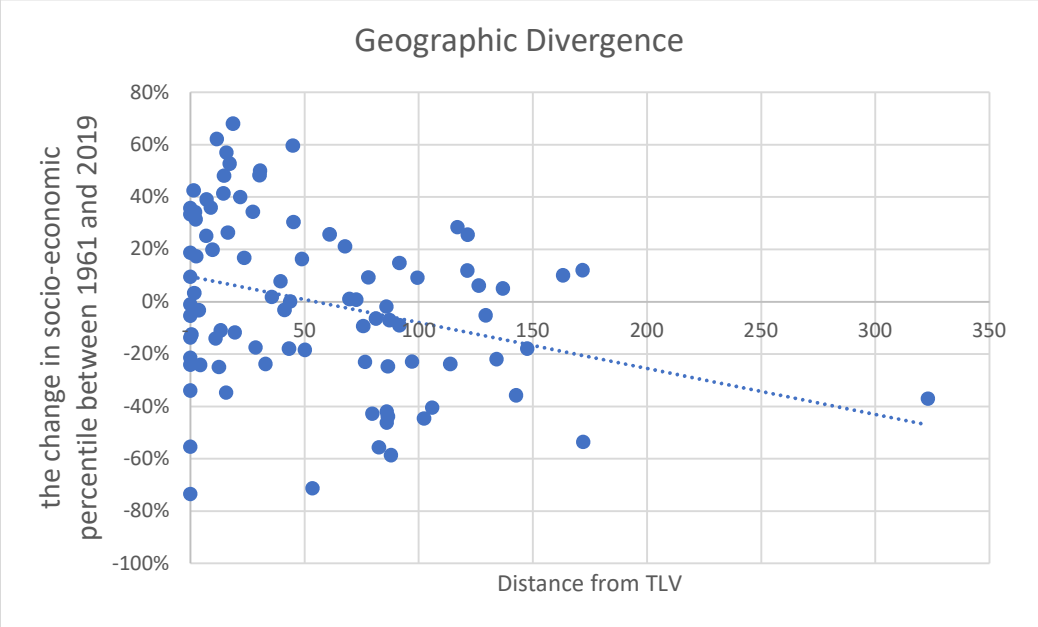
The dependent variable: the change in log income per capita between t and t-x

	1972-2019	1972-2019	1972-2008	1972-1995	1972-1983
Socio-economic percentile, 1972	-0.604*** (0.103)	-0.715*** (0.100)	-0.616*** (0.102)	-0.484*** (0.080)	-0.520** (0.039)
Distance from Tel-Aviv (Log_{10}km)		-0.066*** (0.018)	-0.068*** (0.018)	-0.043** (0.032)	-0.012 (0.028)
Constant	2.438*** (0.361)	2.914*** (0.358)	2.476*** (0.364)	1.526*** (0.286)	0.430** (0.139)
Number of observations	78	78	75	75	74
Adjusted R^2	0.301	0.402	0.342	0.330	0.714

*, **, *** indicate the level of significance of 5%, 1% and 0.1%.

Note: The sample size varies across regressions because income data is unavailable for several small localities. Nevertheless, the majority of the localities remain consistent across all models.

Figure C



Discussion and conclusions

The Israeli case follows patterns that were identified in Europe and North America. Our results reveal a complex spatial reality: while there is evidence of absolute economic convergence, where initially poorer localities grew faster than wealthier ones, there is also a simultaneous and intensifying process of geographic divergence.

The empirical evidence shows that the cost of being in the periphery has evolved significantly: In 1972, the distance from the Tel Aviv District had no statistically significant impact on a locality's socioeconomic ranking. Over time, the coefficient of distance became larger and more statistically significant. By 2019, proximity to the core became a dominant predictor of socioeconomic success, with every 10km of distance from Tel Aviv associated with a 15-percentage-point drop in socioeconomic status, even when controlling for initial conditions. As the city of Tel-Aviv evolved into an information-based economy (Kellerman, 1993; Cohen, 2014), the importance of proximity to Tel-Aviv grew. Since the distance to Tel-Aviv was computed using the 2020 road network, the findings are even more striking. Although the cost of the distance to Tel-Aviv was higher than assumed in the analysis, it had less of an impact

in those years. Not only did the improvement in road infrastructure (and railway infrastructure as well[3]) not decrease the importance of proximity, but its importance increased.

Two main mechanisms may shed some light on the geographic divergence process. First, the labor market attracts skilled labor to the center, thereby creating demand for residences near the center. Commuting (working outside of the residence district) has developed dramatically over the years. Table 5 shows the growth of commuting in Israel, highlighting Tel Aviv and the Central District as Israel's main employment hubs. Until 1983, most workers were employed in their residential districts, and Tel Aviv attracted less than 10% of commuters. Gradually, the share of commuters increased, and Tel Aviv and the central district attract one-third of Israel's workers.

Table 5: commuting trends 1961-2019

year	% Commuters outside residential locality	% Commuters outside the residential district	% Commuters to Tel-Aviv	% Commuters to the central district
1961	23.5	11	4.2	1.5
1972	31.4	16	6.5	2.8
1983	38.2	21.8	9.8	4.4
1995	45.5	28.4	13.1	6.7
2008	52.2	34.1	16.4	9
2019	54.2	36.9	17.8	10.3

Source (CBS census 1961, 1972, 1983, 1995; labor survey 2008, 2019)

Although commuting trips increased substantially, their share of the total trips decreased, and the share of leisure trips increased. While in 1972 and 1984, leisure trips accounted for 10 and 11 percent, respectively, in 1995, 22.9% of the trips were for leisure purposes (National Travel Survey, 1971, 1984, 1995). It means not only that

[3] The total length of the railway line in 1960 was 420 kilometers, compared with 1,486 kilometers in 2020.

more people commuted to Tel-Aviv for work, but also that proximity to Tel-Aviv benefited leisure activities.

These findings align with the New Economic Geography (NEG) hypothesis, which suggests that transportation improvements have actually reinforced the importance of the core. Nevertheless, the core's catchment area expanded, allowing neighboring localities to share in the economic benefits. While localities near Tel-Aviv borrowed some of its advantages, distant localities remained in the shadow.

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