Mechanization, Regulatory Reform and Shakeout in Israel's Bread Industry, 1948-1977

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Abstract: During 1953-1977, the Israeli bread bakery sector experienced a technology-driven shakeout: The number of bakeries declined from 443 to 90. In this paper, the first study of Israel's bread industry, we use archival materials to document the role of regulatory reform in accelerating this shakeout.

Ca. 1952, the government controlled wheat imports, bread and flour prices, flour and bakery subsidies, and credit to bakeries. Almost all bakeries were wholesale bakeries. Large bakeries were mechanized/efficient/profitable; small bakeries were nonmechanized/inefficient/borderline profitable and were hardest hit by rising labor costs. There was massive excess capacity: Bakeries worked one 8-hour shift daily, because consumers demanded hot bread in the morning and night baking was illegal. The industry was ripe for a shakeout, but the shakeout did not happen, due to a special feature of the price-setting mechanism: Large, efficient bakeries and small, inefficient bakeries lobbied the GOI in unison to set official bread prices based on the costs of small bakeries ("cost-plus for primitive bakeries"), and policymakers (concerned about ensuring supply during war and mass immigration) obliged. This ensured the survival of small bakeries and generous profits for large bakeries, and created a perverse incentive for large and small bakeries to coexist, and thus perpetuate inefficiency.

Israel's leading economic policymakers, Levi Eshkol and Pinhas Sapir, decided to end the status quo, for two reasons: a. on the microeconomic level, they believed that the public should not pay high prices to sustain inefficient bakeries; b. on the macroeconomic level, they were determined to fight COLA-induced inflation and the resulting real

exchange rate appreciation. Eshkol and Sapir implemented a series of reforms that accelerated the inevitable shakeout. The reforms and shakeout occurred in three phases:

Phase I (1952-1963): During 1952-1954, Eshkol increased the ratio of flour cost to bread price. During 1955-1960, Sapir declared that prices would be based on medium bakery costs, reduced real bread prices, and abolished small bakery credit while providing credit to large/merged bakeries, conditional on a signed commitment not to request price increases. Thus, Eshkol and Sapir signaled credibly that small bakeries had no future, and eliminated the perverse incentive to coexist. Large bakeries invested to expand capacity and further modernize their operations, expanded output, and competed aggressively to put small bakeries out of business or take them over. Over 1955-1963, 193 small bakeries disappeared. Over 1959-1963, mechanized bakeries' market share rose from 32% to 62%; nonmechanized bakeries' market share declined from 52% to 25%. By the end of Phase I, small bakeries were unprofitable, large bakeries were profitable and bakeries worked one daily shift.

Phase II (1964-1973): Sapir froze bread prices at August 1962 levels for 9.5 years (June 1964-January 1974) and conditioned credit for large bakeries on cooperation with the freeze. Sapir maintained the freeze even though large bakeries were unprofitable by 1964-1965, and global wheat prices had increased by 317% over January 1969-January 1974; this necessitated sharp increases in wheat and bakery subsidies. Sapir lifted the freeze when he realized that the subsidy increases were fiscally unsustainable and misallocated resources. Sapir's price freeze, and his conditioning of credit for large bakeries on their cooperation with the freeze, made it impossible for large bakeries to lobby for price increases (with or without small bakeries). This intensified the large bakeries' incentive to drive out or take over the small bakeries.

Between 1963-64 and 1971, 145 bakeries disappeared from Class D—the smallest revenue class; Class D's revenue share declined from 36% to 12.8%. The revenue share of Classes C + D fell from 61.1% to 29.0%, while the revenue share of Classes A + B rose from 38.9% to 71.0%. During Phase II, both small and large bakeries were unprofitable, and bakeries worked one daily shift.

Phase III (1973-1977): Large bakeries moved illegally to three shifts; a significant factor in this transition was the closure of some large bakeries, and the replacement of their output by illegal night baking at other bakeries, with the bread regulator's approval. By January 1977, just 90 bakeries remained. During Phase III, small and large bakeries were unprofitable—with some large bakeries exiting, and large bakeries transitioned to three daily shifts.

Our account of the Israeli bread bakery shakeout confirms the following general insights: a. Regulatory reforms may influence the speed of shakeouts, by altering firms' incentives and in turn, firms' competitive behavior. b. Macroeconomic factors often have a major influence on industry regulation, especially in a small economy. c. Regulation evolves as regulators learn new information about the regulated industry. d. Policymakers learn from their own mistakes and from the mistakes of their predecessors.

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I. Introduction

During 1953-1977, the Israeli bread bakery sector experienced a technology-driven shakeout: The number of bakeries declined from 443 to 90 (Table 1). In this paper, the first study of Israel's bread industry, we use materials from Israel State Archives,[1] including the reports of nine official committees (Table 2), to document the shakeout and the role of regulatory reforms in accelerating it.

This paper contributes to a small but growing literature on shakeouts in traditional industry, and the influence of regulatory reforms on industry evolution (e.g. US beer brewing, Tremblay, Iwasaki and Tremblay (2005); Canadian mining, Russell, Shapiro and Vining (2010)). It also contributes to the literature on historical Industrial Organization, which is surveyed by Genesove (2016).

Our story, in short, is as follows: The regulatory reforms and shakeout occurred in three phases—Phase I (1952-1963), Phase II (1964-1973) and Phase III (1973-1977). Ca. 1952, the Government of Israel (henceforth GOI) controlled wheat imports, bread and flour prices, flour and bakery subsidies, and credit to bakeries. Israel's bread industry was ripe for a technologically-based shakeout, due to the prevalence of small, inefficient bakeries and the existence of massive excess capacity—bakeries worked only one 8-hour shift daily, because consumers demanded hot bread in the morning and night baking was illegal. However, the shakeout was prevented by a special feature of the price-setting mechanism: Large, efficient bakeries and small, inefficient bakeries lobbied the GOI in unison to set official bread prices based on the costs of small bakeries ("cost-plus for primitive bakeries"), and policymakers obliged. This ensured the survival of small bakeries and generous profits for large bakeries, and created a perverse incentive for large and small bakeries to coexist, and thus perpetuate inefficiency.

Beginning in mid-1952, Levi Eshkol and Pinhas Sapir emerged as Israel's leading economic policymakers. Eshkol and Sapir, who were pro-consumer and anti-inflation, took a tougher line against the bakeries. They implemented a series of policy reforms that disproportionately harmed small bakeries' profitability, and signaled

[1] We cite documents from Israel State Archives by folder number (e.g. 4150-18/Gimmel).

credibly that small bakeries were no longer viable. These reforms eliminated the perverse incentive to coexist and made possible Phase I of the shakeout (1952-1963), in which large bakeries drove out or took over small bakeries. Over 1959-1963, large bakeries' market share rose from 32% to 62%; small bakeries' market share declined from 52% to 25%. In Phase II (1964-1973), Sapir froze bread prices for 9.5 years, and maintained the freeze even though large bakeries were unprofitable by 1964-1965, and global wheat prices had more than quadrupled over 1969-1974. The freeze strengthened large firms' incentive to drive out or take over the small bakeries. Between 1963-64 and 1971, the revenue shares of Classes C + D (the two smallest revenue classes) fell from 61.1% to 29.0%, while the revenue share of Classes A + B rose from 38.9% to 71.0%. In Phase III (1973-1977), even large bakeries began to exit; their output was replaced by means of illegal night baking, with the approval of the bread regulator. Large bakeries transitioned to three daily shifts. By January 1977, just 90 bakeries remained. Our story ends with the "political upset" of May 1977, in which the Likud Party came to power by defeating the Labor Party, which (in its various incarnations) had ruled Israel since its founding in 1948.

II. Initial Political Economy Equilibrium, ca. 1952

Almost all bakeries were wholesale bakeries; direct retail outlets were rare (Beham and Rosenberg 1954).[2] Most bread was sold by small grocery stores. Israel's first supermarket chain, Supersol, opened its first store in 1958;[3] at the time, there were an estimated 7,500 small grocery stores.

[2] In the US, wholesale bakeries had a 78% share of production (1958 data for all perishable bakery products; Storey and Farris 1964).

[3] Supersol expanded to seven branches in 1964 and 41 in 1982.

The leading products were standard and white breads, which accounted for 66% of revenues in 1955 (Table 3); both varieties were price controlled[4] [5] and government-subsidized (via flour subsidies) until July 1954. Standard bread was baked using standard flour, which was 80% wheat, 20% rye (Beham and Rosenberg 1954). White bread was always more expensive than standard bread (Figure 3). Other products were challa for the Jewish Sabbath (sometimes price controlled), rolls and special bread (both of which were not price controlled).[6] Bread was inexpensive compared to the US[7] and Europe[8] and was an inferior good (as in the US, but not Western Europe; Walsh and Evans 1963, 42; Liviatan 1964, 15, 17-18; Mundlak 1964, 95). The price elasticity of bread demand in Israel during the 1950s is unknown; it is reasonable to assume that it was roughly -0.2.[9]

Profitability was positively related to size/mechanization. Large bakeries were mechanized, efficient and profitable; small bakeries, which were mostly family businesses, were nonmechanized, inefficient and at best borderline profitable (Argov 1955). Labor productivity expressed in loaves per man-hour was 50-60 in nonmechanized bakeries, 60-100 in lowly-mechanized to semi-mechanized bakeries, and 100-150 in highly mechanized bakeries (Table 9 of Beham and Rosenberg 1954). Labor costs of highly mechanized bakeries were 50% lower, and total costs were 12% lower, than in

[4] Price controls on bread were introduced in August 1939 by the British Mandatory Government, under the Food and Essential Commodities (Control) Ordinance (Palestine Post, August 28, 1939); for details regarding British austerity policies in Mandatory Palestine, see Seidman (2008). Standard, white and challa breads are still price controlled today; the share of price controlled breads in total bread sales was 8.2% in 2018, vs. 15% in 2012 (Ministry of Economy and Industry 2021).

[5] Bread was never rationed, even during the rationing and austerity period of 1949-1952; this contrasts with the UK, where bread was rationed during 1946-1948 (Zweiniger-Bargielowska 1993).

[6] Pita bakeries, which were regulated separately, are beyond the scope of this article.

[7] In 1950 and 1953, Israel's bread prices were roughly 40% of US prices (Clawson 1953).

[8] In 1951, seven minutes of work were required to purchase 1 Kg. of bread in Israel, vs. 13-35 in six European countries (Rubner 1960, 66). This rose to 13 in 1960, vs. 15-23 in three European countries (Davar, July 7, 1960). In both years, the UK was the least expensive of the European countries that were considered.

[9] The bread price elasticity in the UK in the 1950s was estimated at -0.2 (Maunder 1970). For Israel, the bread and cereals price elasticity in 1996 was estimated at -0.17 (Seale, Regmi and Bernstein 2003).

semi-mechanized bakeries (computed from Table 10 of Beham and Rosenberg (1954)[10]). Thus, labor costs as a percentage of revenue were decreasing in the degree of mechanization (Table 4).[11] [12] In 1951, there were just five mechanized bakeries, increasing to nine in 1955 (N. Liviatan,[13] August 23, 1951, 4126/10-Gimmel and Fein (1964)). Subsidies were uniform—that is, they did not vary according to bakery size.[14] Henceforth, following Argov (1955), we use the terms "large," "mechanized," "modern" and "automatic" interchangeably; likewise, we will use the terms "small," "nonmechanized," and "primitive" interchangeably.

Private vs. labor-managed bakeries: There were 54 labor-managed bakeries in October 1957 (4158/14-Gimmel), accounting for roughly 15% of the 352 bakeries that existed in March 1958 (Table 2). All labor-managed bakeries belonged to the Cooperative Center, a division of the Histadrut—General Federation of Labor. Market share was divided as follows: Private bakeries, 80%; Histadrut bakeries, 20%.[15]

Capacity utilization and distribution: Bakeries worked just one 8-hour shift daily; thus, capacity utilization on a two-shift basis was just 47% (Argov 1955). The distribution system was highly inefficient: Half-empty trucks made multiple deliveries (often of partially-baked bread) to stores each morning, and bakeries agreed to accept

[10] The calculation is based on one daily shift. Mechanized bakeries = bakeries with two 18-tray Peterson automatic ovens; semi-mechanized bakeries = bakeries with a single steam oven and a divider.

[11] Large bakeries had a smaller cost advantage in challa and rolls, whose production was inherently more labor-intensive. Even the most mechanized bakeries were unable to fully mechanize challa and roll production (Gilshon 1969).

[12] Beham and Rosenberg (1954) noted that small bakeries were more common in the US, UK and Germany; their low baking productivity was offset by specialization in higher quality breads and by lower distribution costs due to sales via direct retail outlets. The latter two factors were absent in Israel.

[13] Dr. N. Liviatan, a GOI official, should not be confused with Prof. Nissan Liviatan of the Hebrew University, whose works appear in the references.

[14] A graduated subsidy scheme that would favor small bakeries was never even proposed; such a scheme was implemented in the UK during World War II (see Maunder 1970, 51).

[15] In this respect, the bakeries differed from the general economy, which was characterized by collective ownership in many sectors (Hillman 1988).

returns of unsold bread from retailers (Beham and Rosenberg 1954). The causes of low capacity utilization and inefficient distribution were:

a. Consumers (and retailers) demanded hot bread, in the morning only.[16] Bakeries competed intensely to satisfy this demand.[17] This was the main form of competition in the industry; bakeries did not compete on quality (Argov 1955) or price. The bakers stated that quality competition was impossible as long as the GOI dictated flour quality (e.g. Angel Bakery; Haaretz, April 6, 1960). The lack of price competition even in non-price controlled breads, was most probably due to inelastic demand.
b. The 1951 "Law to Prohibit Night Baking" (henceforth NBL=Night Baking Law) prohibited baking before 6 AM, with the exception of Thursday nights, when challa breads were baked.[18] The NBL was based on an ILO convention (ILO 1925).[19] Small private bakeries routinely violated the NBL, while large private and Histadrut bakeries adhered to it. The Labor Ministry's enforcement was very lax. Both the Economic Advisory Staff (for which Beham and Rosenberg prepared their report)[20] and the Argov Committee recommended repealing the

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[16] However, the military and distant settlements accepted cold bread (Argov 1955).

[17] The GOI attempted to improve distribution efficiency by means of

a. A ban on bread sales before 11 AM in Jerusalem (1952). This measure failed due to rejection by consumers (4150-18/Gimmel) and inherent unenforceability (4151/10-Gimmel). (Beham and Rosenberg (1954) recommended this measure; they were apparently unaware that it had failed in 1952.)
a. Linking each retailer to one baker (March 1952-September 1953), as recommended by the Zvi Yehuda Committee (Zvi Yehuda to Lavon, June 3, 1951, 4609/34-Gimmel). After bread quality declined drastically, the GOI abolished the linkage (Beham and Rosenberg 1954).

[18] The Minister of Labor was authorized to permit night baking if necessary (e.g. before two-day holidays).

[19] In the UK, the Night Baking Act passed in 1954, after a lengthy campaign. "Although the working conditions in bakeries which had prompted the campaign had largely disappeared by the 1950s, the Act led to the introduction of the National Agreements of the Baking Industry between employers and the Bakers' Union, regulating working conditions in the baking industry" (UK Federation of Bakers, https://www.fob.uk.com/about-the-bread-industry/history-of-bread-antiquity/history-bread-20th-century/).

[20] The Economic Advisory Staff was a group of US economists headed by Oscar Gass, which advised the GOI during 1953-1955 at the invitation of Prime Minister David Ben-Gurion (Schiffman and Goldstein 2019).

NBL, but the Histadrut was staunchly opposed, on the grounds that night baking harmed workers' health (Davar, March 28, 1957). In 1957, the Knesset amended the NBL to allow baking to begin at 5 AM.

Flour was the largest item in production costs, accounting for 53% and 65% of revenues for standard and white breads, respectively (January 1954; Beham and Rosenberg 1954). Flour was subsidized and price controlled; in 1953, the official price of standard flour was just 40.1% of the unsubsidized price (annual average, computed from data in Beham and Rosenberg 1954). 23 flour mills operated under GOI contract. Some flour was imported during 1950-1953 (Clawson 1955, 250); thereafter, all flour was milled domestically.[21] The GOI imported 96% of wheat for human consumption (Stanford Research Institute [henceforth SRI] 1955, 136). Imports of grain and flour accounted for 12.7% of all commodity imports in 1953 (SRI 1955, 310) and 40.7% and 41.7% of the GOI foreign currency budget for food in 1953-1954 and 1954-1955, respectively (SRI 1955, 84).

Each bakery was assigned to purchase its flour from a single mill; thus, the mills had no incentive to improve quality. The bakers repeatedly demanded that the GOI abolish the bakery-mill linkage, thus forcing the mills to compete on quality;[22] the bakers' demand was supported by FAO food technologist Max Milner (cited by Beham and Rosenberg 1954) and by two official committees (Beham and Rosenberg 1954, Argov 1955).[23]

Wages were the second largest item in production costs, accounting for 22.6% of standard bread sales revenues in 1953 (Table 4). Wages were bargained collectively

[21] During 1953, all standard flour was milled domestically. For white flour, the import share declined from 17.5% in February 1953 to zero in December 1953 (440/20-Gimmel).

[22] To improve flour quality, the GOI needed to stop importing poor-quality wheat, especially Turkish wheat (SRI 1955, 138-139), which was imported under the Israel-Turkey clearing agreement (Kessler 1965).

[23] Bakeries and flour mills were eventually delinked in early 1960, but this was a partial liberalization that failed to improve flour quality (Al Hamishmar 1960, series of op-eds by H. Weissadler).

between the Histadrut and the bakers' associations. There were 3,522 bakery workers in December 1953, of which over 80% belonged to the Histadrut (Beham and Rosenberg 1954). Employment of nonunion workers and family members or partners was concentrated in small bakeries. Bakery workers were "among the highest paid workers in the labor force" (Beham and Rosenberg 1954). There were four employee ranks, but wage disparities by rank were small. [24] Over April 1949-July 1957, nominal and real bakery wages rose by 243-255% and 26.8-31.4%, respectively (see Figure 1); because small bakeries were the most labor-intensive, they were the hardest hit by wage increases.

The bakeries were well organized, under the umbrella of the National Committee of Bakery Owners' Organizations (henceforth NC). The NC represented private and Histadrut bakeries, of all sizes and degrees of mechanization.[25] As of May 1958, the NC consisted of five private bakery organizations, plus the Histadrut's Cooperative Center. Of the five private organizations, two were affiliated with the General Zionists (GZ), a party of the middle class that staunchly opposed Mapai's economic policies.[26] Thus, Mapai was not politically beholden to the bakers.

Regulation—the institutional setting: The GOI's bread (and flour) regulator was the Minister of Trade and Industry (except March 1949-Ocober 1951; see Table 5). The regulator set bread prices, flour prices and subsidies; allocated GOI credit; and decided whether to approve new bakeries. However, the regulator did not intervene in wage negotiations. The Ministry of Health (henceforth MOH) was responsible for regulating sanitary conditions, bread quality and bread weight, but MOH regulation was lax due to severe understaffing (just one official per region; Argov 1955) and was almost completely uncoordinated with Ministry of Trade and Industry (henceforth MTI)

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[24] Over April 1949-July 1957, the average disparity between the highest and lowest ranked (permanent) employees was 12.7% (weekly basic wage + COLA, excluding family allowances, premiums, overtime and social benefits).

[25] This was unlike the situation in the UK. In the UK, small ("master") and large ("plant") bakeries belonged to two separate trade groups (Maunder 1970).

[26] The NC's constituent organizations were: Bakery Branch of the Merchants' Association (affiliated with the GZ), Bakery Owners' Organization of Tel Aviv (80 members of various sizes), Bakery Owners' Organization Haifa, Histadrut Cooperative Center, General Federation of the Middle Class (affiliated with the GZ), and Organization of Bakery Owners in Jerusalem (6008/9-Gimmel Lamed).

regulation (A. Sofer to Avinoam Halevi and Yaakov Gazit, December 13, 1959, 6038/5-Gimmel Lamed).

Bread regulation was controlled by the ruling Mapai party (=”Workers’ Party of the Land of Israel”) (Table 5). Turnover of bread regulators was frequent: During May 1948-November 1955, the average term was just 1.25 years. While Israel's first Minister of Finance, Eliezer Kaplan, took a hands-off approach to bread regulation, his successor, Levi Eshkol, played an active role. During 1952-1955, Peretz Bernstein of the General Zionists served as bread regulator, but Eshkol continued to make all major economic policy decisions (Amir Goldstein 2006), including decisions concerning bread regulation.

In setting official bread prices, the GOI faced difficult tradeoffs, on both the microeconomic and macroeconomic levels. On the one hand, a price increase would increase industry profitability and thus ensure a steady bread supply. It would also discourage feeding bread to poultry, which consumed an estimated 15% of the national bread supply (Clawson 1954),[27] [28] and the smuggling of bread to neighboring Arab countries (which was widely rumored but hard to quantify), both of which wasted scarce foreign currency reserves.[29]

On the other hand, a price increase would harm consumers (especially the poor), and perpetuate the industry’s inefficiency by keeping small, inefficient bakeries in business. It would also increase wages via the existing COLA mechanism,[30] thus increasing inflation and the GOI wage bill. Under Israel’s fixed exchange rate regime,

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[27] The alternative to increasing bread prices was to reduce the price of animal feed by importing it (Rubner 1960, 266).

[28] The same phenomenon existed in the US and Canada in 1946 (Zweiniger-Bargielowksa 1993) and in Russia in the early 1990s (Joskow, Schmalensee, Tsukanova and Shleifer 1994).

[29] Foreign currency reserves were dangerously low in the early 1950s; the GOI managed to avert disaster by obtaining Holocaust reparations from West Germany, emergency aid from the US government and a consolidation loan from US Jewry (Schiffman and Eli Goldstein 2019).

[30] In 1955, both standard and white breads were included in the CPI. A 20 pruta price increase for both types would have raised the CPI by over 0.5 points and the COLA by 600 prutot (Argov 1955). In 1951, only standard bread was included in the CPI basket (Yehoshua Yaffe, testimony before Zvi Yehuda Committee, May 9, 1951, 4609/34-Gimmel).

higher inflation meant real currency appreciation, which would in turn expand the trade deficit and the foreign currency drain.

The GOI could also offer the NC concessions in lieu of price increases—increased subsidies (often paid indirectly, via discount or rebate on flour), reduced flour prices, or new credit. At the time, most credit to industry was GOI-controlled; a major source was the GOI's Development Budget (henceforth DB), which amounted to 31.3% of GOI expenditures and 9.9% of GNP over 1950-1963. The archival record contains extensive correspondence regarding applications for DB loans to bakeries, based on the implicit assumption that private credit was scarce at best.

The Histadrut also faced a tradeoff regarding bread prices: Higher prices would benefit the cooperative bakeries and the (roughly) 3,000 Histadrut bakery workers (who comprised 1% of total Histadrut membership in December 1953[31]), but would harm Histadrut member households, which accounted for 51.7% of Israel's Jewish population (1955; Sobel 1963). The Histadrut was dominated by Mapai, which received 57.7% of the votes in the 1955 Histadrut election.

Price regulation was characterized by short regulatory lag: Typically, the NC demanded a price increase to compensate for past (and sometimes anticipated) cost increases, and threatened to strike (=shut down the bakeries) if its demands were not met. This led to intensive MTI-NC negotiations. In the course of these negotiations, the MTI evaluated the NC's claims regarding past costs and profits. Much of the MTI's fact-finding was carried out by official bread committees, of which there were three in the 1950s (Table 2). Over August 1948-December 1953, the average annual frequencies of price changes for standard and white breads were 2.4 and 2.1, respectively.

Until August 1951, the GOI did not recognize that large bakeries had lower costs: As late as July 1950, official cost calculations were based on a representative bakery, without distinction between large and small bakeries (7229/8-Gimmel). The Zvi Yehuda Committee report (Yehuda 1951), which was published in August 1951, was the

[31] By linear interpolation of figures from Sobel (1963), total Histadrut membership was 293,692 in 1953. 2994/293,692 = 1.02%.

first official document to recognize that bakery costs differed significantly by size: The Committee declared that its recommendation to raise bread prices applied to nonmechanized bakeries only, and called for a separate study of mechanized bakery costs.[32] That same month, Dr. N. Liviatan, a GOI official, estimated that at the five mechanized bakeries, labor costs per loaf were 6 prutot (1 Israeli Lira = 1000 prutot; pruta is singular, prutot is plural), vs. 13 at nonmechanized bakeries; this was because hourly labor productivity was 100 loaves at mechanized bakeries, vs. 40-44 loaves at nonmechanized bakeries (N. Liviatan, August 23, 1951, 4126/10-Gimmel). Beham and Rosenberg (1954; May) were the first to report itemized cost calculations for both semi-mechanized and mechanized bakeries.

As a united front, the NC sought to base official bread prices on small bakery costs. The NC invariably submitted cost calculations for a fictitious representative bakery; thus, the NC denied the known facts that large bakeries had significantly lower costs, and industrywide wage increases caused greater cost increases at small bakeries.

Many policymakers and observers argued that "representative" was merely a euphemism for "small." By submitting cost calculations for a small bakery, the NC sought to influence the regulator to base official prices on small bakery costs. As long as the regulator was willing to play along, this would keep the small bakeries in business, and ensure that the large bakeries would earn generous profits.[33] As Argov (1955) put it: "It is impossible to base a cost calculation on an average representative bakery, since such a bakery simply does not exist…'average' cost calculations are only useful in a

[32] This implied the possibility that mechanized bakeries should charge a lower price. At the time, multiple official prices were feasible: Two mechanized bakeries, Katz and Berman, agreed with MTI to reduce bread prices by approximately 3.5 prutot/loaf, relative to nonmechanized bakeries. Furthermore, bread prices were lower in Jerusalem vs. Tel Aviv/Haifa, in part because Jerusalem's mechanized bakeries, Angel and Berman, had a 40% share of the local market (N. Liviatan, August 23, 1951, 4126/10-Gimmel).

[33] This claim was explicitly denied by NC representative Baruch Weinstein (who also served as General-Secretary of the Federation of the Middle Class and a senior GZ activist) in April 1956. Weinstein claimed that the NC's cost calculations were based on a medium-sized bakery. He argued that for national security reasons, it is preferable to have many small bakeries serving small population centers throughout the country, than to have a few large bakeries with large distribution radii (implicitly, he conceded that small bakeries in Tel Aviv should close) (Herut and Haaretz, April 12, 1956).

theoretical sense[34]…It is clear that when a cost calculation is done in order to set the [official] price, the deciding [factor] is the majority of bakeries whose output is small, and that is the cause of increasing prices…The mechanized bakeries…do not appear on the front lines of the struggle to increase the price." Argov blamed the NC's united front for this suboptimal situation: "The bakery sector benefits from the advantages of an organized interest group. It has significant political power; the unnatural alliance between modern, mechanized bakeries and primitive bakeries is not beneficial to the public or to the bakery sector itself." Like Beham and Rosenberg (1954), Argov (1955) advocated freezing bread prices because large bakeries were profitable at current prices.

Initially, the regulators cooperated with the NC, and set prices based on small bakery costs: In June 1948-July 1952, the regulators willingly played along with the NC, by increasing standard bread prices and reducing standard flour prices (Table 7); thus, the ratio of flour cost to retail bread price (henceforth "flour cost/price ratio") for standard bread fell from 57% in June 1948 to 31% in July 1952 (Figure 2). The flour cost/price ratio for white bread also decreased over that period.[35] Eshkol would aptly disparage the pre-July 1952 regime as "cost-plus for primitive bakeries" (minutes of Eshkol-Ministry of Finance (henceforth MOF) senior staff meeting, October 2, 1954, 901/7-Peh). The regulators' generosity was presumably motivated by the need to ensure steady bread supply during the 1948 War of Independence and the era of mass immigration (1948-1951), during which the population more than doubled.

The industry was ripe for a shakeout: There were 443 bakeries in December 1953. If the ten largest bakeries had doubled their output by moving to two shifts, they could have replaced 98% of the output of the 241 smallest bakeries (Table 8). Beham and Rosenberg (1954) calculated that with 60 fully mechanized bakeries working two shifts, the official price of standard bread could be reduced by 8.5%, while maintaining the

[34] Nevertheless, the Argov Committee did not prepare its own cost calculations for bakeries of different sizes; presumably, this was due to lack of time and/or resources.

[35] The flour cost/price ratio for white bread was not reported in GOI sources, but we can show that it increased: The price of white bread increased faster than the price of white flour (Table 7). Under the reasonable assumption that the weight of flour per kg. of white bread was unchanged, this implies a decline in the flour cost/price ratio for white bread.

regulator's target profit rate of just under 4%. The Argov Committee (1955) stated bluntly that liquidating the small bakeries was "natural and desirable in many respects." But the shakeout did not happen, because large bakeries had a strong incentive to coexist with small bakeries, and to continue to lobby for higher bread prices as a united front.

III. Regulatory Reforms and Shakeout, Phase I (1952-1963)

The transition to a new policy regime began with the appointment of Levi Eshkol as Minister of Finance in June 1952. Eshkol (Minister of Finance, June 25, 1952-June 26, 1963; Prime Minister, June 26, 1963-February 26, 1969) and his close friend and colleague, Pinhas Sapir (Director-General of the Ministry of Finance, June 1953-November 1955; Minister of Trade and Industry and bread regulator, November 1955-May 1965 and September 1970-March 1972; Minister of Finance, June 1963-August 1968 and December 1969-June 1974) immediately became Israel's chief economic policymakers. Eshkol and Sapir were pragmatic socialists: They believed that certain economic activities should be left to the private sector (as opposed to the government and Histadrut sectors).They were strongly pro-consumer[36] and pro-mechanization.[37]

Eshkol and Sapir were dissatisfied with the status quo in the bakery sector, for two reasons: a. on the microeconomic level, they believed that the public should not be forced to pay high prices in order to sustain inefficient bakeries; b. on the macroeconomic level, they wished to avoid COLA-induced inflation and real exchange rate

[36] "I was embarrassed [to read in the newspaper] how the bakers are exploiting us [by baking non-price controlled "special" breads]. Tell me what measures you are taking to prevent the bakers' enrichment at the expense of the poor consumer" (Sapir to Avinoam Halevi, January 10, 1956, 4543/9-Gimmel). "In setting [MTI] policy...the main concern was [and is] the good of the consumer, especially working, low-income consumers" (Sapir, Davar op-ed, August 28, 1959).

[37] In the late 1950s, Eshkol stated that industrial machinery must be utilized for three daily shifts (Yossi Goldstein 2003, 410). In 1964, Sapir advocated government policy to promote "investments for the purpose of reducing the use of manpower and replacing it with machinery…investments for the purpose of merging small factories in order to reduce costs, make production more efficient and reduce the number of employees" (1965-1966 Budget Speech, 6629/2-Gimmel). In 1965, Sapir told the Manufacturers' Association that a. mechanization was the means to avoid projected labor shortages; b. the existence of many small firms was a major cause of low labor productivity; c. small firms (except craftsmen) would have to merge (with GOI assistance if necessary) or disappear (April 7, 1965, 6627/7-Gimmel). Sapir lauded the shift from small to medium and large industrial plants since 1955 (May 1965, 6627/9-Gimmel).

appreciation.[38] They decided that it was time to end "cost-plus for primitive bakeries." Accordingly, they implemented a series of reforms that disproportionately harmed the profitability of small bakeries.

Regulatory Reforms, Phase I

A. Eshkol Reversed the Decline in the Flour Cost/Price Ratio for Standard Bread

Eshkol's first task as Minister of Finance was to implement the New Economic Policy (NEP) of 1952, which entailed cutting subsidies and increasing the prices of basic goods (Yossi Goldstein 2003, 351). Eshkol increased standard flour prices by 370% over July 1952-October 1954; ended the bakery strike of April 1954 after one day; and, to the bakers' great disappointment, increased both bread and flour prices in July 1954, in proportions that reduced bakery profitability. As a result of Eshkol's actions, the flour cost/price ratio for standard bread increased from 31% in July 1952 to 59% in October 1954 (Figure 2). The flour cost/price ratio for white bread also increased.[39]

B. During 1955-1960, Sapir Declared that Price Setting would be Based on Medium Bakeries' costs, then Reduced Real Bread Prices

By 1954, experts (N. Liviatan, the Economic Advisory Staff—a group of American economists invited by Prime Minister Ben-Gurion) and policymakers (Eshkol, Sapir, Minister of Trade and Industry Peretz Bernstein and his Deputy Minister Zalman Susayeff) had reached a new consensus regarding the following principles:

[38] Sapir and Eshkol understood that anti-inflation measures had a positive effect on the BOP: In a 1954 Finance Ministry document, they stated that anti-inflation policy combined with nominal devaluation had narrowed the trade deficit (6627/3-Gimmel). This statement reflects the views of the 1953 Foreign Currency Committee: "The connection between the internal monetary situation and the BOP constitutes a basic and central fact in this picture [=the success of the 1952 NEP]…inflation must cause a persistent and worsening deterioration in the BOP—disinflation causes its gradual improvement" (5526/2-Gimmel).

[39] Eshkol increased the price of white flour faster than the price of white bread (Table 7). Under the reasonable assumption that the flour weight per kg. of white bread was unchanged, this implies that the flour cost/price ratio for white bread increased.

a. Bread prices should not be based on small (AKA ”representative”) bakery costs. In other words, the public should not be forced to pay high prices in order to sustain inefficient bakeries.

b. If large bakeries are profitable at current prices, bread prices should be frozen (N. Liviatan, August 23, 1951, 4126/10-Gimmel; Beham and Rosenberg (1954); minutes of Eshkol-MOF senior staff meeting, October 2, 1954, 901/7-Peh; Bell and Susayeff 1954).

While Eshkol and Sapir were ready to implement these principles immediately, Bernstein and Susayeff (who, as General Zionists, were politically beholden to the bakeries) advocated gradual implementation, on the grounds that immediate implementation would cause mass failures among small bakeries. To allow small bakeries to exit gradually, Bernstein and Susayeff proposed a 5 prutot price increase on standard bread (vs. the 19 demanded by the NC; Bell and Susayeff 1954). Eshkol rejected the Bernstein-Susayeff proposal. Effective July 18, 1954, Eshkol increased the prices of standard and white flours by 74.0% and 9.1% respectively, by increasing the exchange rate for wheat imports from IL 1/$ (in effect since July 2, 1953; 5526/2-Gimmel)[40] to IL 1.5/$ for standard flour and IL 1.8/$ for white flour[41] (Davar, July 18, 1954). Simultaneously, Eshkol increased the prices of standard and white breads by 40% and 5.6% respectively. The flour cost/price ratio for standard bread jumped from 48.5% to 60.3%. Bernstein and Susayeff accepted Eshkol’s decision and communicated it to the bakers, together with Dr. Yehoshua Yaffe (MTI Supervisor of Prices and Antitrust Controller). Bernstein, Susyeff and Yaffe told the bakers directly that “cost-plus” was finished (Davar, July 18, 1954). On July 27, 1954, Susayeff said at a press conference: “It is a healthy development that the GOI no longer sets bread prices based on [costs of] technologically backward bakeries.” He predicted that henceforth, medium mechanized bakeries would be able to make a fair profit, but small nonmechanized bakeries would have difficulties (Herut, July 28, 1954).

[40] Various newspapers reported exchange rates of IL 0.9-1.2/$ during February-July 1954.

[41] This was part of a general policy of exchange rate unification, abolishing most subsides, and moving the remaining subsidies to the regular GOI budget (“54 Economic Accomplishments in the Year 1954“ and “Economic Accomplishments for the Year 1954,” MOF, 6627/3-Gimmel). On the exchange rate unification of 1953-1954 (which is briefly noted in the Appendix), see Barkai and Liviatan (2007, 56).

Ca. 1958, Sapir began to base prices on the costs of medium bakeries, at a time when medium bakeries' share of output was less than 16%, vs. almost 52% for small bakeries (Table 10). Although direct statements by Sapir are lacking, the following statements by MTI officials demonstrate that Sapir did in fact implement this change. In August 1958, an MTI official explicitly rejected the NC's cost calculations for a representative bakery: "This has no justification and was put forward by the bakers only as a negotiating position."[42] He wrote that some inefficient bakeries manage with difficulty under current prices, but the MTI ignores their needs in setting official prices. He declared that the public should not have to bear the burden of sustaining inefficient bakeries, when mechanized bakeries are capable of meeting the nation's entire demand (Deputy Director of Price Division (unnamed) to Avinoam Halevi, August 3, 1958, 6008/9-Gimmel Lamed). On January 26, 1960, Dr. N. Liviatan stated that "in the past" (he did not specify the years), the official price was set based on the costs of a medium-sized bakery, where "medium" was defined by labor productivity of up to 60 loaves/hour (second meeting of the Gazit Committee, 6121/4-Gimmel Lamed).[43]

Over November 1955-December 1960, Sapir increased nominal standard and white bread prices by 8% and 15.8%, respectively (see Figure 3), while reducing real standard and white bread prices by 11.9% and 5.6%, respectively (see Figure 4).

As we shall see, beginning ca. 1958, Sapir required bakeries that borrowed from the GOI to sign a written commitment not to request price increases.

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[42] Similarly, in 1964, Yaffe wrote the NC's Secretary in 1964: "…Two different committees [Kregman (1963) and Fein (1964)] recently showed that the profitability of efficient bakeries is satisfactory, and the public should not have to bear the burden of the inefficiency that exists in some bakeries. Therefore, it does not seem to me justified that [the NC] will…make general claims [=present cost calculations for a fictitious "representative" bakery]—as was accepted in past years" (Yehoshua Yaffe to Eliezer Landner, cc Eshkol, February 5, 1964, 4645/3-Gimmel Lamed). Despite the MTI's unambiguous rejection of the "representative bakery," the NC often used it as a rhetorical device/negotiating tactic; this continued as late as 1974 (A. Ben Moshe (Director of MTI Food Dept.) to Moshe Mandelbaum, December 31, 1974, 5664/17-Gimmel Lamed). On the other hand, there were times when the NC acknowledged the obvious truth—that labor costs and productivity differed by bakery size (e.g. Landner testimony, Knesset Economics Committee, March 16, 1972; 198/4-Kaf).

[43] In Beham and Rosenberg's (1954) classification, bakeries with labor productivity of 60 loaves/hour were nonmechanized with double brick oven or semimechanized with steam oven (among the three types of semimechanized bakeries, this type had the lowest labor productivity).

C. Sapir Abolished Government Credit for Small Bakeries, while Extending Credit to Large/Merged Bakeries

In 1957, the GOI decided to favor large bakeries and to provide them with DB credit: "It was decided by the GOI, with Histadrut support, that the improvement of the [bread] industry will come [=be achieved] through concentrated baking in the large, modern bakeries. The GOI also encourages setting up regional bakeries instead of single bakeries for each small settlement. In the last year IL 1 million has been allocated for this purpose from the DB" (S. Goren to Migdal Haemek Local Council, June 16, 1957, 6008/9-Gimmel Lamed).

Sapir decided in 1957 or 1958 that henceforth, DB loans would be approved only for large, mechanized bakeries or new medium/large bakeries created via mergers of small bakeries (with the exception of establishing small bakeries in new settlements that lacked alternative sources of supply; Deputy Director of Price Division to Avinoam Halevi, August 3, 1958, 6008/9-Gimmel Lamed). Furthermore, DB loans would be conditional on a signed commitment not to request price increases.[44] [45]

Deputy DG M. Gilboa explained the MTI's bakery credit policy, as follows: (Gilboa to Sapir, On March 24, 1958, 6008/9-Gimmel Lamed): "…We decided to give the most efficient bakeries DB [loans] to ensure [a freeze of] the bread price while [letting] small bakeries close. This process has already begun and a number of inefficient bakeries have closed. This will allow us to prevent a future rise in bread prices…There is no justification for giving credit to primitive bakeries and thus prolonging their artificial existence and burdening the price of bread [=maintaining the status quo in which the NC demands price increases based on small bakery costs]."

[44] Ca. late 1959, large bakeries receiving DB loans (Angel in Jerusalem, Ahdut in Tel Aviv and Katz in Haifa) signed a commitment not to raise their prices, even in the event of price decontrol (which Sapir was seriously considering at the bakers' demand) (M. Gilboa to Sapir, January 25, 1960, 6008/9-Gimmel Lamed).

[45] The MTI also delayed studies of bakery costs, as a means of lengthening regulatory lag: "Lately, we have refrained from doing any examinations or visits to bakeries in connection with [cost] calculations because such actions are likely to encourage the bakery owners in their effort to receive from our ministry bread price increases or decontrol. Contact between Dr. Liviatan and the bakeries today regarding [cost] calculations will, in my opinion, bring about difficulties in our ministry's effort to freeze the bread price situation" (Yehoshua Yaffe, January 29, 1960, 6121/4-Gimmel Lamed).

In 1961, the MTI strictly enforced Sapir's policy of denying DB loans to merged bakeries whose flour consumption was less than 100 tons/month, and refused to make an exception for Histadrut bakeries (Yaakov Gazit to Zvi Lehman, February 28, 1961, 6024/11-Gimmel Lamed; Y. Barzilay-Zvi Lehman correspondence, February 13 and 14, 1961, 6024/11-Gimmel).

During 1956-early 1963, the MTI granted IL 2.6 million in DB loans to finance new equipment for large bakeries and mergers of small bakeries (MTI Spokesman in Davar, March 6, 1963).

D. Sapir Refused to Finance Modest Mechanization of Small Bakeries

On August 2, 1957, Sapir agreed in principle to a finance modest mechanization of small and medium bakeries—that is, to approve DB loans for replacement, renewal, and cost reduction, without expanding output (David Shiffman to Sapir, August 6, 1957, 6008/9-Gimmel Lamed).

On December 1, 1959 Sapir appointed the Gazit committee and tasked it with studying the problems of small bakeries. Its main recommendations were:

- Reject the NC's proposal for modest mechanization. Modest mechanization will not reduce small bakery costs: The resulting labor cost reductions will barely cover the increased depreciation and interest.
- Continue to deny DB loans to small bakeries. Small bakeries should receive loans only for a. mergers, where the merged bakery will consume at least 100 tons of flour per month; b. new bakeries in development areas where there is no alternative source of supply; c. for opening a retail store to sell directly to the public.
- The MTI should not allow the bakery sector to expand capacity, given that capacity utilization is just 58% on a 10 hour per day basis.

Sapir accepted the Gazit Committee's recommendations in early 1960. Thus, he changed his mind regarding modest mechanization, from approval in principle to complete rejection. This signaled the large bakeries that small bakeries had no future, and that large bakeries should compete aggressively and/or seek to take over small bakeries.

Shakeout, Phase I

Following Simons (2007), we define a shakeout as a decline of 20%-80% or more in the number of firms, vs. the peak number of firms. Assuming that the peak number of firms was attained in December 1953,[46] the decline in the number of Israeli bakeries became a shakeout in March 1958 (computed from Table 1).

During 1955-1959, the total number of bakeries declined by 12.7% and the number of nonmechanized bakeries declined by 28.2%. According to a 1958 newspaper report, Haifa's large bakeries expanded capacity and output, and small bakeries complained about unfair competition (Maariv, August 28, 1958). In December 1958, Sapir visited Haifa's Katz Bakery, There, he saw the two largest bread ovens in Israel—each was 30 meters long and had a capacity of 1000 loaves/hour. The ovens, which had become operational in May 1957 and October 1958, cost IL 100,000; to finance them, the MTI had given Katz a DB loan of IL 150,000 (Haboker, December 12, 1958).

After Sapir implemented his new credit policy, the industry's dramatic transformation accelerated somewhat: During 1959-1963, the total number of bakeries declined by 15.8% and the number of nonmechanized bakeries declined by 36.6% (Table 9). Capacity utilization was roughly constant (Table 12). The output share of nonmechanized bakeries declined from 52% to 25%, while the output share of fully mechanized bakeries rose from 32% to 62% (Table 10). Over 1956-early 1963, of the small bakeries that disappeared, roughly one-third merged into large bakeries; the other two-thirds were liquidated.[47]

By the end of Phase I, small bakeries were unprofitable, large bakeries were profitable and bakeries worked one daily shift.

IV. Regulatory Reforms and Shakeout, Phase II (1964-1974)

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[46] This assumption is necessary because we lack earlier data on the number of bakeries.

[47] There were 377 bakeries in 1955 (Table 1). The MTI reported that the total number of bakeries had declined to 284, due to the merger of 30 small bakeries into large bakeries, and the exit of small, inefficient bakeries (MTI Spokesman in Davar, March 6, 1963). 30/(377-284) = 32.3%.

Regulatory Reforms, Phase II

A. Sapir Publicly Applauded the Closure of Small Bakeries in 1964

During a June 1964 visit to four Tel Aviv-Jaffa bakeries (Eilat, Tari, Degania and Achdut), Sapir staunchly opposed price increases, on the grounds that ongoing efficiency improvements would enhance profitability without the need for price increases. He observed that at the mechanized bakery Eilat, labor productivity was 6.5 tons of flour/month, vs. 2.7 at the primitive bakery Tari. He added that small bakeries were closing or merging with larger bakeries, due to closure, mergers or retirements of owners (because young people found careers in baking unattractive, many family bakeries closed when their owners retired), and stated that three large bakeries could supply the entire Tel Aviv-Jaffa market, instead of the current 46 bakeries. He expressed optimism that "mergers and mechanization should bring about a recovery in this industrial sector…I think that the trend must be the merger of the remaining small bakeries, with only a few [surviving and] specializing in special baked goods" (Davar and Haboker, June 4, 1964).

Sapir's remarks were unusually candid for a politician. Two remarks are in order regarding the political context: a. As Minister of Finance and Minister of Trade and Industry under Prime Minister Eshkol, Sapir was at the peak of his political powers. b. By 1964, there was a consensus in Mapai circles that small bakeries could only survive by merging with large bakeries (Mayor of Haifa in Davar, December 02, 1958; Histadrut Cooperative Center in Y. Barzilai to Gazit, February 18, 1960, 6124/4-Gimmel). The small bakeries themselves began to accept this reality: In February 1964, the Fein Committee reported that the small bakeries were initiating mergers themselves, and by December 1964, small bakery representatives would urge the GOI to initiate and finance mergers (Lamerhav, December 23, 1964).

B. Sapir Froze Prices at August 1962 Levels until January 1974

Beginning in 1956, the NC demanded decontrol of bread prices (which the Argov Committee of 1955 had recommended). Sapir agreed in principle but repeatedly delayed implementation. In January 1960, Sapir told the bakers: "I am ready to decontrol bread

prices today if I receive a written commitment that standard and white bread prices will not be raised in 1960." According to Sapir, such a commitment was necessary because: a. The economy had been stable during 1958-1959. To the extent that the bakers had legitimate claims for price increases, those claims had been satisfied in various ways. b. After 21 years of price controls, the industry would need at least one year to transition to healthy free competition (Al Hamishmar, January 28, 1960). Sapir conditioned DB loans to large bakeries on a signed commitment not to raise prices even in the event of decontrol; three large bakeries, Angel (Jerusalem), Ahdut (Tel Aviv) and Katz (Haifa) signed (Gilboa to Sapir, January 25, 1960, 6008/9-Gimmel Lamed).

On February 9, 1962, the GOI devalued the IL by 67% (see Appendix). Following the devaluation, Sapir and Eshkol fought hard to prevent price increases; they understood that a general inflation would cause real appreciation and thus harm Israel's international competitiveness (Greenberg 2011).[48]

After repeated postponements, Sapir finally announced that he was decontrolling prices and abolishing the flour subsidy, effective August 5, 1962. The following day, the bakers raised bread prices by 97.1% (standard) and 54.2% (white). But this was a decontrol in name only, for two reasons:

1. Cartelization—the bakers increased prices in unison on August 6, in defiance of the Antitrust Controller, who had warned on the previous day that he would use his legal authority against any price fixing cartel, with Sapir's backing.[49]
2. Sapir immediately revoked the bakeries' freedom to raise prices—Sapir, apparently regretting his decision to decontrol, pressured the bakeries to partially reverse the price increases of August 6. On August 9, the bakeries cut prices by 16.2% and 5.4%, so that bread prices rose by 65.2% and 45.2% for the month of

[48] Sapir had vehemently opposed the devaluation, in large part because he feared that Eshkol would be too soft on inflation. However, once the GOI decided to devalue, he accepted the decision and joined Eshkol in the fight against inflation (Greenberg 2011).

[49] By law, the Antitrust Controller was independent, but in practice he was "an integral part" of the MTI and "completely subordinate to the Minister" (Shefer 1971); only in 1994 did the GOI establish an independent Antitrust Authority.

August 1962. Thereafter, Sapir insisted that all price increases be coordinated with him in advance.[50]

When the Tel Aviv bakers defied Sapir and raised prices, Sapir reimposed price controls on June 4, 1964, and informed the press: "I…suggest that the bakers sell bread at the same price until January 1, 1966…If some bakers raise the price of bread, we will use the legal means at our disposal" (Haboker, June 4, 1964).

Sapir took the radical step of freezing official prices at August 9, 1962 levels until January 28, 1974 (except for 16 days in August-September 1971)—a period of 9.5 years (!). He conditioned credit to large bakeries on cooperation with the freeze. Over June 1964-December 1973, real bread prices fell by 55.8% (for both standard and white breads)—an annual average decline of 8.2%. Sapir maintained the freeze despite the Mandelbaum Committee's finding that large bakeries had become unprofitable by 1964-1965 (Table 13),[51] sharp bakery wage increases (basic weekly wages rose by 163-203% over January 1964-January 1974, 91%-119% over October 1964-January 1973) and a 317% increase in the global wheat price over January 1969-January 1974 (Historical US Wheat Prices, USDA).

[50] This was not the first time that Sapir had dictated the prices "decontrolled" breads. In October 1958, Sapir forced most bakeries to reverse price increases on challa, rolls and special breads (Maariv, October 14, 1958). In September 1959, Sapir's subordinate, Avinaom Halevi, told the bakers to cancel the recent price increase on challa; if they refused, the MTI would revoke the enlargement of the standard loaf from 900g to 1 kg (a cost-cutting measure that had taken effect on September 10). The bakers capitulated (Davar, September 15, 1959).

[51] The Gilshon Committee (1969) found that in 1967-1968, the 9 largest bakeries were profitable with subsidies, but unprofitable without subsidies (holding prices constant; as the Committee noted, had subsidies been lower, prices would likely have been higher): Profits as a % of Equity (according to replacement value) = 14.6%, Profits as a % of Revenue = 3.9%, Subsidies as % of Revenue = 10% of revenues. Other bakeries (excluding the very smallest bakeries—those with revenues<IL 100,000) lost money: Profits as a % of Equity (according to replacement value) = -13.4%, Profits as a % of Revenue = -4.3%. (Note: According to the Committee, the profitability measures were accurate for large bakeries but biased downward for medium and small bakeries.) This situation continued into 1971; an audit of the four largest bakeries by A. Rozin of MTI showed a 2.3% Profit as % of Equity in 1970-71 (historical equity values; according to market equity values, there was a loss); Rozin concluded that "since the Gilshon report, the [profitability] situation has not improved" (5698/9-Gimmel Lamed).

To shield consumers from the rise in global wheat prices and simultaneously sustain the bakeries, Sapir increased wheat subsidies by 2700% during 1970-1973 (Table 15) and bakery subsidies (which began in 1965, after the Mandelbaum Committee report (Gilshon 1969)) by 669% during 1968/69-1973/74 (Table 16).[52] These subsidy increases were part of a general trend of high and increasing subsidies for basic goods (Arkin 1974). In 1972, Deputy DG of MTI Moshe Mandelbaum testified before the Knesset Economics Committee that the bakery subsidy amounted to 25% of sectoral revenues (March 23, 1972, 493/31-Kaf) (vs. 10% in 1967-68 and 3.1% in 1964-1965, computed by Gilshon (1969)). Mandelbaum revealed that since 1967-68, the MTI's policy was to target a 10% ROE "more or less" for the large and medium-large bakeries, and to adjust subsidies as necessary to meet that target.

By January 1974, the bakery subsidy as a percentage of retail price reached 171% for standard bread and 140% for white bread, vs. 34.2% and 28.6% in 1972 (Table 17). Sapir realized that the subsidy increases were fiscally unsustainable and caused massive resource misallocation: "Is there anyone of sound mind who can say that we can continue in this race?...The subsidy…is self-deception. When the bread subsidy reaches such proportions—and the bread goes to the cowshed or is wasted when we are paying for it with our best dollars—there is no justification for that…It is better to give large families higher [transfer payments] as compensation than to sell bread for a quarter of its [unsubsidized] price" (Speech by Sapir, published by Davar, March 17, 1974). The policy reform that Sapir advocated—cutting basic goods subsidies and raising prices, and compensating the poor via increased transfer payments—had enjoyed broad support within Labor Party circles since the late 1960's; its advocates dubbed it "a subsidy for the needy person, not for the [basic] good."[53]

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[52] Bakery subsidies were based on flour consumption, not output; this created a perverse incentive to waste flour (Gilshon 1969). Furthermore, the subsidy also applied to flour that was used to bake non-price controlled ("special") bread. The Gilshon Committee and State Comptroller recommended basing flour subsidies on output of price controlled breads (standard, white and challa). This recommendation was never implemented; in late 1974, Gilshon Committee member A. Ben Moshe stated that implementation was infeasible (A. Ben Moshe to Moshe Mandelbaum, December 31, 1974, 5665/17-Gimmel Lamed).

[53] This sentence rhymes in the original Hebrew: "Subsidia lanitzrach, lo lamitzrach."

Sapir finally lifted the freeze on January 28, 1974, when he increased standard and white bread prices by 44.7% and 57.1%, respectively. Sapir increased the per-loaf subsidy by 15.4% and 14.2%, so that the subsidy as a percentage of retail price declined to 136% and 108%.

Sapir's 9.5 year price freeze, and his conditioning of DB loans to large bakeries on their cooperation with the freeze, made it impossible for large bakeries to lobby for price increases (with or without small bakeries). This intensified the perception that large bakeries no longer had anything to gain from the existence of small bakeries, and (in turn) strengthened the large bakeries' incentive to drive out or take over the small bakeries.

Shakeout, Phase II

The following amounts were invested in the bakery sector: IL 35 million over 1963/64-1967/68, IL 30 million from 1967/68-1971. "These investments were directed mainly towards renewing old equipment, mechanization and automation." The major technological improvements during 1963-1971 were:

a. Six large bakeries, accounting for 28% of sectoral revenue, began storing their flour loose (without sacks). Five more bakeries were preparing to adopt this innovation.
b. Four large bakeries adopted a new kneading technology.
c. Primitive ovens were replaced by advanced labor- and fuel-saving ovens.
d. Preparation of rolls and bread packaging were automated.

These technological improvements were concentrated in the largest bakeries, which accounted for about 40% of sectoral revenues (A. Rozin of MTI, Ca. May 1972, 5698/9-Gimmel Lamed).[54]

Between 1963/64 and 1967/68, the total number of bakeries fell from 277 to 221. This decline was entirely due to the disappearance of Class D bakeries—the smallest size

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class (annual revenues of up to IL 399,000): of the 76 that disappeared, 56 closed and 20 transitioned to larger size classes. The Gilshon Committee explained these developments: "The decline in the number of bakeries [through 1968] reflects several processes: closure and exit from the sector; the replacement of outdated bakeries by new, large bakeries, constructed by the same owners; and the merger of small bakeries…the motivation for the dynamic developments in the industry structure is undoubtedly the profitability crisis of the small bakeries, which spurred their owners to...improve profitability, either via liquidation or via rationalization of production by increasing its scale…[An estimated] 32% of bakeries in existence in 1968 were constructed since 1960."

Between 1963/64 and 1971, 145 bakeries disappeared from Class D, and Class D's revenue share declined from 36% to 12.8%. Class C's revenue share declined more modestly, from 25.1% to 16.2%. Class A's revenue share rose from 24% to 41.6%, and Class B's revenue share rose from 14.9% to 29.4%. The combined revenue share of Classes C and D declined from 61.1% to 29.0%, while the combined revenue share of Classes A and B rose from 38.9% to 71.0% (Table 14).

V. Regulatory Reforms and Shakeout, Phase III (1973-1977)[55]

Regulatory Reforms, Phase III

Ca. May 1972, the largest bakeries still worked one 8-hour shift (5698/9-Gimmel Lamed). However, the industry was on the cusp of a dramatic transformation that would turn the 8-hour/one shift workday into a relic of the past.

[55] Due to a paucity of archival material, the historical data regarding Phase III are less detailed, compared to the historical data regarding Phases I and II.

In 1973, the NBL was amended a second time by consent of the GOI, the NC and the Histadrut, to permit baking at 4 AM (vs. 5 AM since 1957).[56] This was necessary because late deliveries to retailers had become widespread, due to greater traffic congestion, urban population growth, the decline in the number of bakeries and the relocation of larger bakeries to industrial areas outside the cities (Maariv, May 30, 1973).

The phenomenon of bakery closings spread to large bakeries. The MTI tried to prevent the closure of large bakeries by offering incentives to potential buyers. When the closure of a large bakery became inevitable, the MTI acted to ensure adequate bread supply: It pressured surviving local bakeries to ramp up production, in order to replace the production of the exiting bakery. This was accomplished by means of illegal night baking, with the MTI's approval (Davar, February 24, 1978).[57] The Histadrut protested but to no avail. For example, Haifa's Katz bakery, a large bakery with significant market share in its metropolitan area, closed in 1974 because it could not find a buyer, despite MTI financial incentives. Immediately after Katz closed, some Haifa bakeries baked at night, thus averting a bread shortage the next morning; the Haifa Workers' Council said it would complain to the Ministry of Labor about illegal night baking (Davar, July 15, 1974).

The bread regulator, Minister of Trade and Industry Haim Bar-Lev (Labor Alignment) declared that the NBL was obsolete and must be repealed, due to the dramatic changes that had occurred since its original passage in 1951: a. The Israeli economy was more technologically advanced; b. Bakery workers now wished to earn premia for night work; c. most bakeries were now mechanized/modern; d. distribution radii were now larger (up to hundreds of km.). Bar-Lev announced that until the NBL was repealed, he would freely issue permits for night baking (Maariv, January 12, 1977). However,

[56] The Fein Committee of 1964 had recommended amending the NBL to lengthen the hours of night baking, but the Lev-Kochav Committee disagreed.

[57] Some bakeries were caught and fined by Ministry of Labor inspectors.

Minister of Labor Moshe Baram (Labor Alignment) rejected Bar-Lev's call for repeal (Davar, February 24, 1978).[58]

In November 1974, Sapir's successor as Minister of Finance, Yehoshua Rabinowitz, increased standard and white bread prices by a record 106.1% and 72.7%, respectively. Bakery subsidies continued to increase (Table 16), despite Sapir's declaration in March 1974 that he intended to curb subsidies. The policy reform that was dubbed "a subsidy for the needy person, not for the [basic] good" was never implemented.[59] This was due in large part to the Histadrut's strong opposition to price increases on basic goods: Ca. June 1975, the Histadrut "guaranteed" the price of 14 subsidized basic goods, including bread (Davar, June 9, 1975).

Shakeout, Phase III

The shakeout in the bread industry continued. By January 1977, just 90 bakeries remained (Maariv, January 12, 1977); eight bakeries, illegally working three shifts, accounted for 90% of Jerusalem's bread market (Davar, January 26, 1977). The Histadrut was unable to prevent the transition to three daily shifts.

During Phase III, small and large bakeries were unprofitable —with some large bakeries exiting, and large bakeries transitioned to three daily shifts.

VI. Conclusion

Ca. 1952, the Israeli bread bakery industry was ripe for a technologically-driven shakeout: There were 443 bakeries at the end of 1953, of which 241 were small, primitive and inefficient. Small bakery costs were higher and increased more rapidly, relative to large bakery costs. There was a massive amount of excess capacity because bakeries only worked one 8-hour shift daily—consumers only wanted hot bread in the mornings, and night baking was illegal. If 10 large, modern bakeries would have doubled their output by

[58] The NBL was a dead letter for 25 years, until it was finally repealed in 1998.

[59] Bread subsidies were finally abolished in 1990.

working two shifts, they could have replaced 98% of the output of the 241 small bakeries. But the shakeout did not happen, due to a special feature of the price-setting mechanism: The bakeries lobbied in unison to base official bread prices on small bakery costs ("cost-plus for primitive bakeries"), and policymakers obliged. This ensured the survival of small bakeries and generous profits for large bakeries, and created a perverse incentive for large and small bakeries to coexist, and thus perpetuate inefficiency.

Israel's leading economic policymakers, Levi Eshkol and Pinhas Sapir, decided to end the status quo, which they saw as unfair to consumers, and as a cause of COLA-induced inflation and (in turn) real currency appreciation. They implemented a series of regulatory reforms that favored the large bakeries at the expense of the small bakeries.

During Phase I (1952-1963), Eshkol increased the ratio of flour cost to bread price. Sapir declared that prices would be based on medium bakery costs, reduced real bread prices, and abolished small bakery credit while providing credit to large/merged bakeries, conditional on a signed commitment not to request price increases. These reforms spurred a shakeout: Large bakeries invested to expand capacity and further modernize their operations, expanded output, and competed aggressively to put small bakeries out of business or take them over. Over 1955-1963, 193 small bakeries disappeared. Over 1959-1963, mechanized bakeries' market share rose from 32% to 62%; nonmechanized bakeries' market share declined from 52% to 25%. By the end of Phase I, small bakeries were unprofitable, large bakeries were profitable and bakeries worked one daily shift.

During Phase II (1964-1973), Sapir froze bread prices for 9.5 years and conditioned credit for large bakeries on cooperation with the freeze. Sapir maintained the freeze even though large bakeries were unprofitable by 1964-1965, and global wheat prices had increased sharply; this required dramatic increases in flour and bakery subsidies. Sapir's policies intensified the large bakeries' incentive to drive out or take over small bakeries. The shakeout continued: Between 1963-64 and 1971, 145 bakeries disappeared from Class D—the smallest revenue class; Class D's revenue share declined from 36% to 12.8%. The revenue share of Classes C + D fell from 61.1% to 29.0%, while

the revenue share of Classes A + B rose from 38.9% to 71.0%. During Phase II, both small and large bakeries were unprofitable, and bakeries worked one daily shift.

During Phase III, the phenomenon of bakery closings spread to large bakeries. The output of large bakeries that closed was replaced by means of illegal night baking, with the approval of the bread regulator. By January 1977, just 90 bakeries remained. During Phase III, small and large bakeries were unprofitable—with some large bakeries exiting, and large bakeries transitioned to three daily shifts.

Our account of the Israeli bread bakery shakeout, and the role of policymakers in accelerating it, confirms the following general insights:

a. Regulatory reforms may influence the speed of shakeouts, by altering firms' incentives and in turn, firms' competitive behavior.
b. Macroeconomic factors often have a major influence on industry regulation, especially in a small economy;
c. Regulation evolves as regulators learn new information about the regulated industry.
d. Policymakers learn from their own mistakes and from the mistakes of their predecessors.

We suggest three directions for further research: Extending the paper through 1985, comparing the Israeli and UK bread bakery shakeouts, and examining possible parallels between Israeli bread regulation and utility regulation in industrialized nations.

Extending the paper through 1985: The number of bakeries continued to decline after 1977—there were 73 in 1978, 47 in 1982 and 38 in April 1984 (Maariv, April 16, 1984).[60] What caused this rapid decline? Was the decline of 1977-1984 a continuation of Phase III, or a new phase that was driven by different factors? Did the policies of Likud governments towards the bakeries differ significantly from the policies of Labor governments in Phase III? We hope to locate archival material which can shed light on

[60] Today, the wholesale bakery industry is a three-firm oligopoly (Angel, Berman and Deganit Ein Bar).

this period (to date, we have not succeeded in doing so); it is well known that the period from 1977 until the July 1985 stabilization was characterized by heavy subsidization of basic goods, massive fiscal deficits and rapid inflation.

Comparing the Israeli and UK bread bakery shakeouts: Like the Israeli bakery shakeout, the UK bakery shakeout appears to have been hastened by a policy intervention—the price control and subsidy scheme of 1939-1953, which favored large plant bakers over small master bakers. In the early 1950s, the master bakers lobbied to restore the graduated subsidy system that was in effect during WW II (under which small bakeries were subsidized at a higher rate), but Minister of Food Gwilym Lloyd-George refused. It is important to note that in the UK, unlike in Israel, the master bakers and plant bakers belonged to separate trade organizations (Maunder 1970).

Examining possible parallels between Israeli bread regulation and utility regulation: The GOI treated the bread industry like a utility: It refused to allow any disruption of supply,[61] and sought to implement Rate of Return Regulation (RORR). As is well known, RORR incentivizes inefficiency. In Phase I, Eshkol and Sapir moved from RORR for small bakeries to RORR for medium bakeries. In Phase II, the MTI was committed to RORR for large and medium-large bakeries, but in practice, large bakeries were unprofitable by 1964-1965. What is the connection between the Eshkol/Sapir regulatory regime and the regulatory regimes that have replaced RORR since the 1990s, Price Cap Regulation (PCM; otherwise known as CPI-X, where CPI is the rate of CPI inflation and X is the annual rate of cost reduction that the regulator sets) and Rate Case Moratorium (RCM)? Sappington and Weisman (2010) define the conceptual relationship between PCR and RCM: "RCM might be viewed as a form of PCR in which the X factor is set equal to the economy-wide rate of inflation (so prices cannot change, on average) and the firm has little or no freedom to restructure prices." Based on Sappington and Weisman's definition, should Sapir's price freeze of June 1964-January 1974 (Phase II) be viewed as a special variant of RCM, in which subsidies are used to reduce the effective (after-subsidy) X and thus allow firms to remain profitable? Or should Sapir's price freeze be viewed as something entirely different, considering that Sapir's price

[61] The "responsibility to supply" was an integral feature of Israel's market socialist regime (Hillman 1988).

freeze was maintained via subsidies and lasted 9.5 years (vs. 1-2 years for the typical RCM)?

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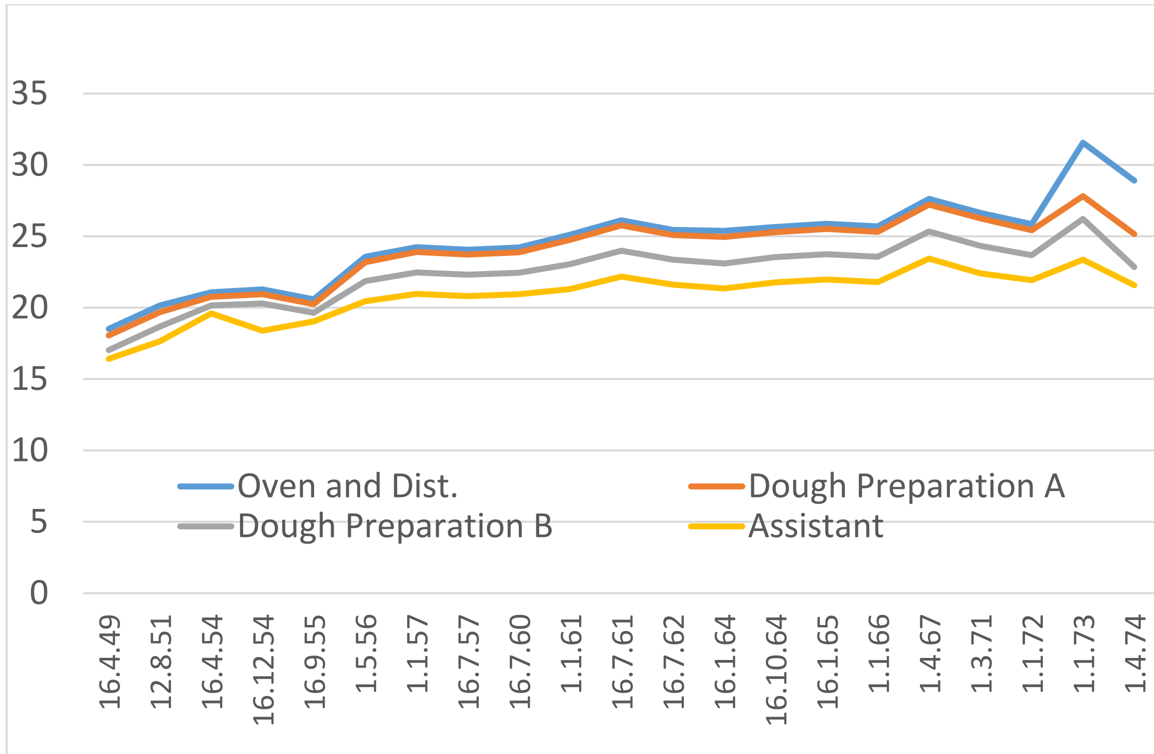
Figure 1—Real Weekly Basic Wage of Permanent Employees by Employee Rank, April 1949-April 1974 (in Sept. 1951 IL)



Source: Calculated from nominal wage data in Lavon Institute Archives, IV-357-5, IV-357-6, IV-357-7, IV-357-8, IV-357-90 IV-357-156.

Figure 2—Flour Cost/Price Ratio for Standard Bread, 1948-1975

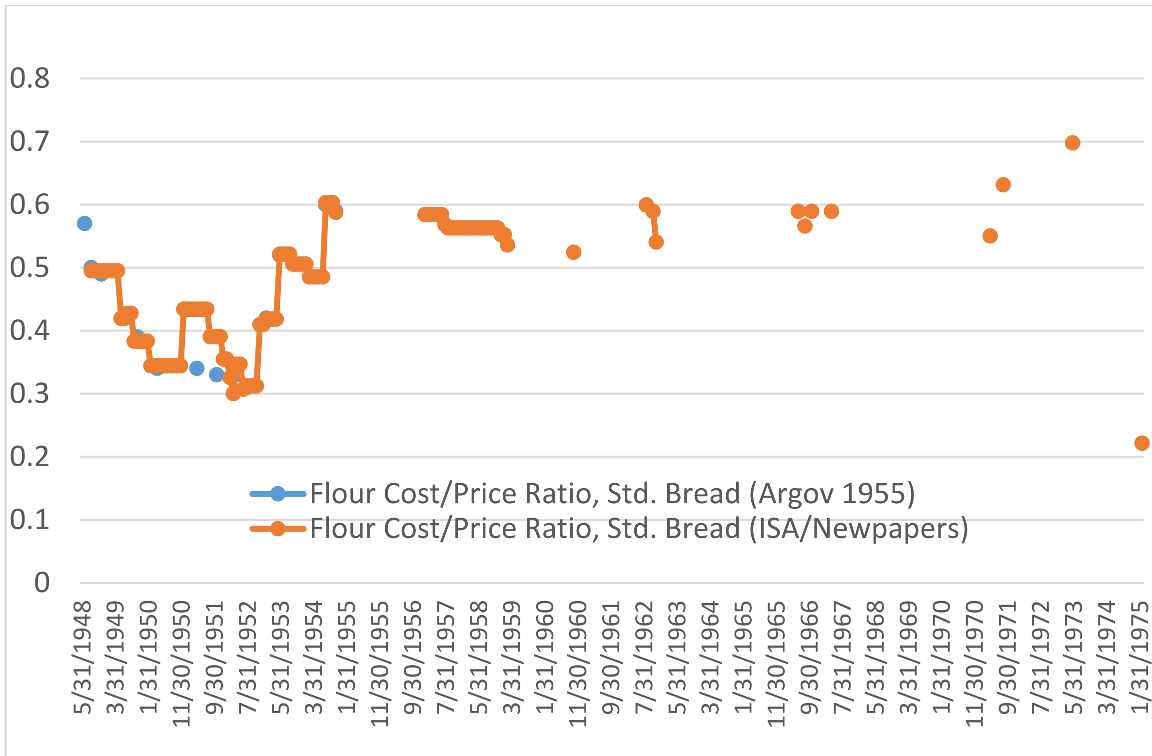


Figure 3—Nominal Bread Prices (IL/Kg.), May 1948-May 1977

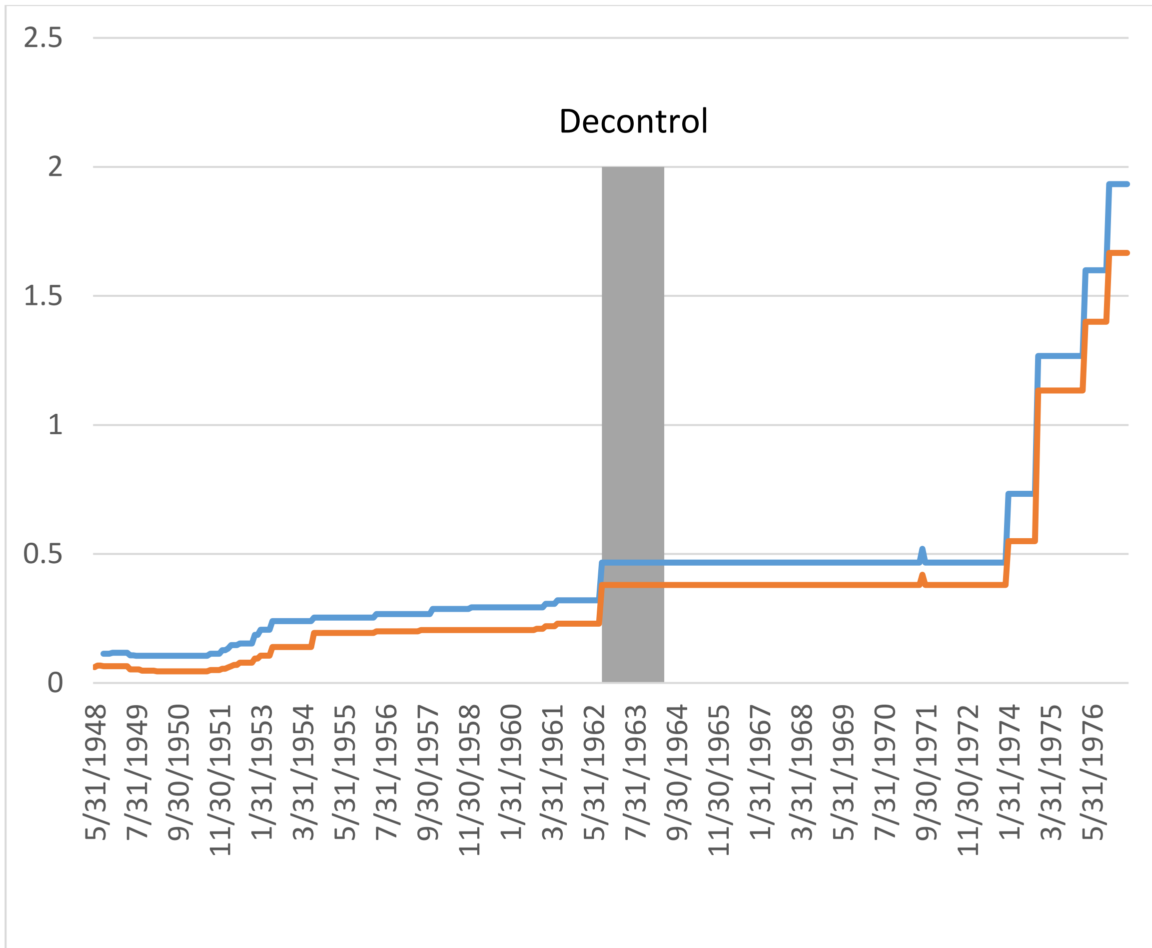


Figure 4—Real Bread Prices, May 1948-May 1977 (IL/Kg., in Sept. 1951 IL)

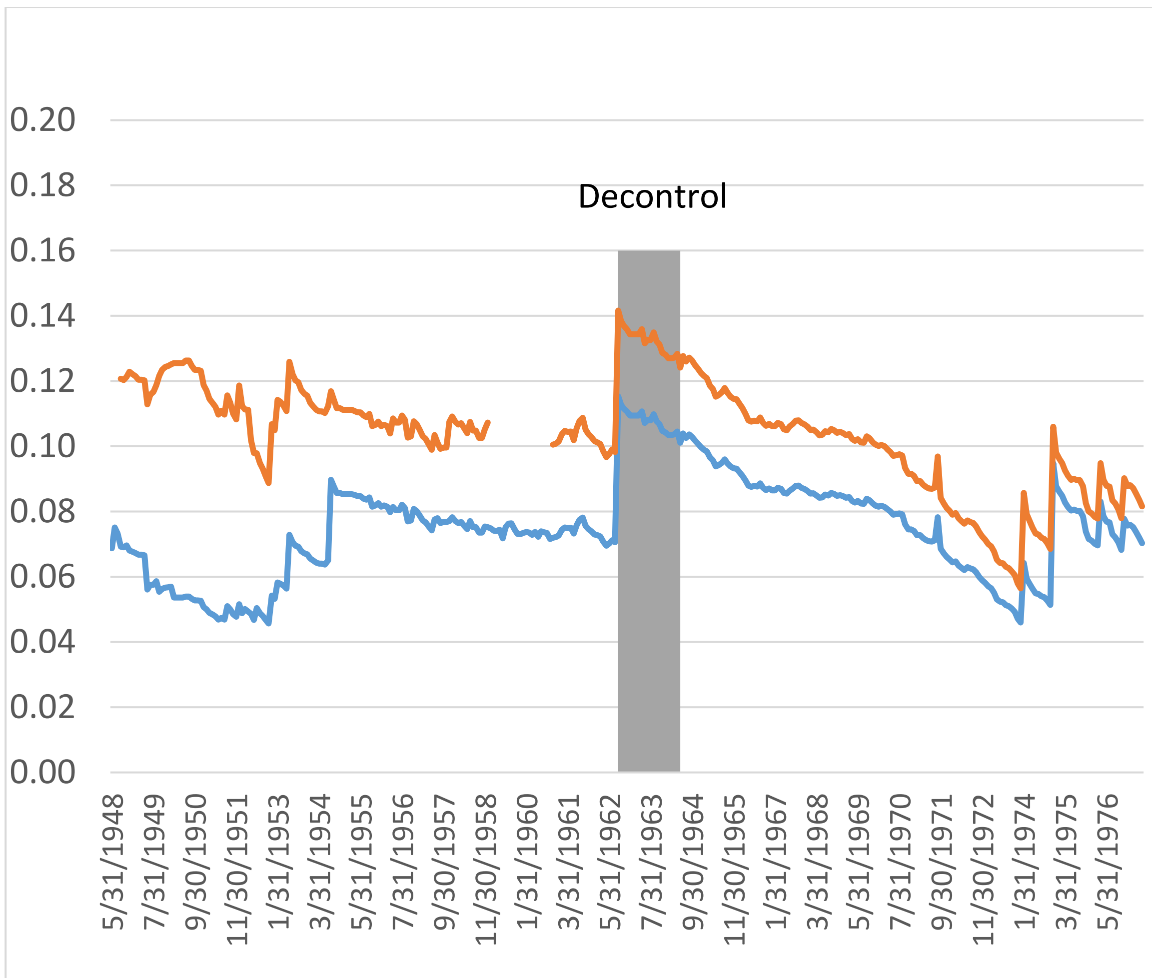


Figure 5—CPI Inflation, 1952-1977

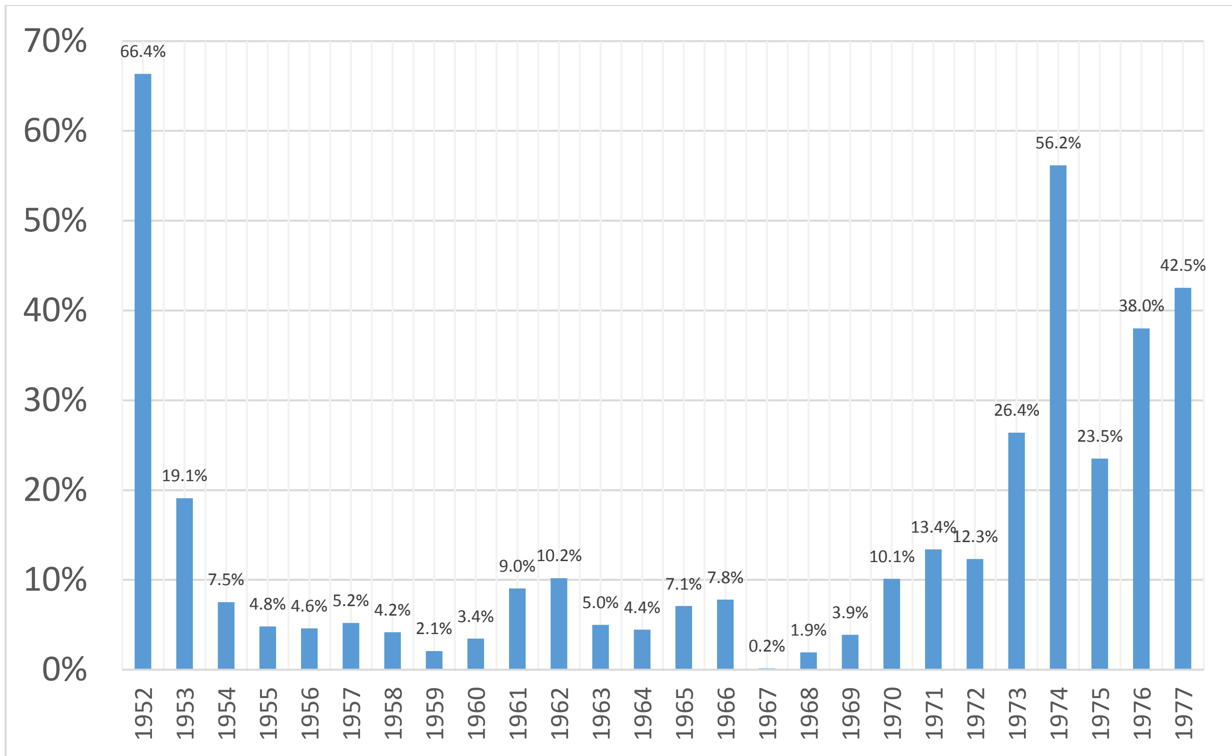


Table 1—Evolution of the Bread Bakery Industry, 1953-1977

Year	Date	Total # of Bakeries	# of Small Bakeries	# of Primitive* Bakeries	Source
1953	Dec.	443	241 Flour processed ≤ 30 tons/month		Beham and Rosenberg (1954), Argov (1955)
1954	Dec. 31	365	277* Capacity≤ 4 tons/day on a two-shift basis		Argov (1955)
1955		377		354	Fein (1964)
1958	Mar. 31	352			MTI (6008/9-Gimmel Lamed)
1959	Mar. 31	342			MTI (6008/9-Gimmel Lamed)
1959		329		254	Fein (1964)
1961		297		209	Fein (1964)
1962		284		173	Fein (1964)
1963	May	277		161	Fein (1964)
1963-64		277	222 Annual revenues ≤ IL 399,000		Gilshon (1969)
1967-68		221	146 Annual revenues ≤ IL 399,000		Gilshon (1969)
1969	Dec.	182			MTI (5698/9-Gimmel Lamed)

1970	Dec.	176			MTI (5698/9-Gimmel Lamed)
1971	Dec. 31	166	77 Annual revenues ≤ IL 399,000		MTI (5698/9-Gimmel Lamed) and Davar, Mar. 20, 1972; updates Gilshon (1969) figures.
1972		167			Moshe Mandelbaum (MTI) testimony in Knesset Economics Committee, March 23, 1972
1972	Dec. 31	153	48 Annual revenues ≤ IL 300,000		MTI (5698/9-Gimmel Lamed)
1974	June	128	45 Annual revenues ≤ IL 399,000		MTI (5664/17-Gimmel Lamed)
1974	Nov.	121			MTI (5664/17-Gimmel Lamed)
1977	Jan.	90**			Maariv, Jan. 12, 1977

*Primitive bakeries are defined as bakeries in which both dough preparation and baking are nonmechanized.

**In Jerusalem, eight bakeries, illegally working three shifts, controlled 90% of the market (Davar, January 26, 1977).

Table 2—Official Bread Committees

Year	Committee Chair	Primary Position of Chair	Focus of Inquiry
1951	Zvi Yehuda	Member of Knesset	General
1954	Yochanan Beham and Leonard Rosenberg	Junior economists at the Economic Advisory Staff (a group of US economists invited by the GOI)	General
1955	Ben Zion Argov	Former Income Tax Commissioner	General
1960	Yaakov Gazit	MTI	Small bakeries
1962-1964	Yisrael Kregman	Member of Knesset	General
1964	A. Fein	MTI	Small bakeries
1964	Hanoch Lev-Kochav*	Deputy Director-General, Ministry of Labor	Night baking
1965	Mandelbaum, Moshe	MTI	General
1969	Aharon Gilshon	Research Dept., Bank of Israel	General

*We are unable to locate the original report. The main recommendations were reproduced in Lamerhav, December 23, 1964.

Table 3—Shares of Standard and White Breads in Total Revenues (%)

Year	Standard	White	Standard + White	Source
1955 (March, Tel Aviv)	36.9	29.3	66.3	Argov (1955)
1963-1964	32.2	39.2	71.4	Mandelbaum (1965)
1967-1968	33.5	37.9	71.4	Gilshon (1969)
1967-1968	40.3	40.1	80.4	MTI 5664/17-Gimmel Lamed
1972-1973	38.4	37.0	75.4	MTI 5664/17-Gimmel Lamed
1973-1974	38.7	36.8	75.5	MTI 5664/17-Gimmel Lamed
1974 (Nov.)	38.0	38.0	76.0	MTI 5664/17-Gimmel Lamed

Table 4—Costs and Profits as a Percentage of Revenue, Standard Bread, 1954

Item	Official May 1953	Steam Oven, One Shift	Steam Oven, Two Shifts	Two Automatic Ovens, One Shift	Two Automatic Ovens, Two Shifts
Labor	22.6%	29.0%	26.5%	14.5%	13.9%
Depreciation	0.2%	2.9%	1.5%	5.5%	2.8%
Fuel	2.6%	2.6%	2.6%	3.5%	3.5%
Power	0.3%	0.3%	0.3%	0.3%	0.3%
Yeast, Salt	1.2%	1.2%	1.2%	1.2%	1.2%
Rent, repairs	1.5%	1.5%	1.5%	0.9%	0.7%
General Expenses	1.5%	1.5%	1.5%	0.9%	0.7%
Flour	55.2%	53.6%	53.6%	53.6%	53.6%
Flour Haulage	1.7%	1.8%	1.8%	1.8%	1.8%
Distribution	8.7%	9.6%	9.6%	9.7%	9.7%
Total Costs	95.5%	103.8%	100.0%	91.9%	88.2%
Profits	4.5%	-3.8%	0.0%	8.1%	11.8%

Source: Computed from Beham and Rosenberg (1954).

Table 5—Bread Regulators, 1948-1977

Term	Bread Regulator	Ministerial Portfolio(s)	Party	Note
May 14, 1948-Mar. 10, 1949	Peretz Bernstein	Trade and Industry	General Zionists	Provisional Government
Mar. 10, 1949-Nov. 1, 1950	Dov Yosef	Supply and Rationing, Agriculture (From March 22, 1949)	Mapai	The Ministry of Supply and Rationing was abolished permanently on November 1, 1950.
Nov. 1, 1950-Oct. 8, 1951	Pinhas Lavon	Agriculture	Mapai	
Oct. 8, 1951 to Dec. 24, 1952	Dov Yosef	Trade and Industry	Mapai	
Dec. 24, 1952-Jun. 29, 1955	Peretz Bernstein	Trade and Industry	General Zionists	Deputy Minister Zalman Susayeff (General Zionists; appointed June 15, 1953) played a central role
Jun. 29, 1955-Nov. 3, 1955	Peretz Naphtali	Trade and Industry	Mapai	Sharett caretaker government after July 26, 1955
Nov. 3, 1955-May 25, 1965	Pinhas Sapir	Trade and Industry	Mapai	
May 25, 1965–Nov. 22, 1966	Haim Zadok	Trade and Industry	Labor Alignment	Zadok resigned due to differences with Minister of Finance Pinhas Sapir. Deputy Minister: Arie Lova Eliav (Labor Alignment) Oct. 17, 1966-Jun. 26, 1967
Nov. 22, 1966-Dec. 15, 1969	Zeev Sherf	Trade and Industry	Labor Alignment	Deputy Minister: Arie Lova Eliav (Labor Alignment) Oct. 17, 1966-Jun. 26, 1967

Dec. 15, 1969-Aug. 6, 1970	Yosef Sapir	Trade and Industry	Herut-Liberal Bloc	
Sept. 1, 1970-Mar. 5, 1972	Pinhas Sapir	Trade and Industry	Labor Alignment	Moshe Sanbar was acting minister (official title: "Special Aide to the Minister"|) during Sept. 1, 1970-Nov. 1, 1971
Mar. 5, 1972-Jun. 20, 1977	Haim Bar-Lev	Trade and Industry	Labor Alignment	Because Bar Lev (Chief of Staff of the Israel Defense Forces, 1968-1972) began his term without any civilian experience, his early policies must have been strongly influenced by Sapir.

Table 6—Ministers of Finance, 1948-1977

Term	Minister of Finance*
May 14, 1948-Jun. 25, 1952	Eliezer Kaplan
Jun. 25, 1952-Jun. 26, 1963	Levi Eshkol
Jun. 26, 1963-Aug. 5, 1968	Pinhas Sapir
Aug. 5, 1968-Dec. 15, 1969	Zeev Sherf**
Dec. 15, 1969-Jun. 3, 1974	Pinhas Sapir
Jun. 3, 1974-Jun. 20, 1977	Yehoshua Rabinowitz

*All Ministers of Finance were members of Mapai/Labor Alignment.
**Sherf filled in for Sapir, who resigned upon his election as Mapai's Secretary-General.

Table 7—Percentage Changes in Bread and Flour Prices by Subperiod, 1948-1954

Subperiod/Minister of Finance	% Change in Std. Bread Price	% Change in Std. Flour Price	% Change in White Bread Price	% Change in White Flour Price
Aug. 1948-July 1952/ Eliezer Kaplan	21.5%	-23.4%	35.3%	29.7%
July 1952-end Oct. 1954/ Levi Eshkol	146.3%	363.6%	65.2%	108.5%

Table 8—Industry Structure, December 1953

Size Class	Size Subclass by Flour Consumption (tons/month)	# of Bakeries	% of Bakeries	Flour Consumption	% of Total Flour Consumption	Employment	% of Total Employment
Small	0-10	76	17	445	3	209	6
Small	11-30	165	37	3486	22	954	27
Medium	31-40	69	15	2399	15	534	15
Medium	41-50	43	10	1962	13	402	12
Medium	50-100	80	18	5365	35	1052	30
Large	>100	10	3	1931	12	371	10
Total		**443**	**100**	**15588**	**100**	**3522**	**100**

Source: Argov (1955)

By 1964, employment had declined to 2000 (Y. Yaffe in Davar, June 4, 1964).

Table 9—Distribution of Israeli Bakeries by Degree of Mechanization, 1955-1963

	1955		**1959**		**1961**		**1962**		**1963**	
Type	#	%	#	%	#	%	#	%	#	%
Automatic	9	2.4	32	9.7	50	16.8	66	32.2	77	27.8
Semi-Automatic	14	3.7	43	13.1	38	12.8	45	15.9	39	14.1
Primitive	354	93.9	254	77.2	209	70.4	173	60.9	161	58.1
Total	**377**	**100**	**329**	**100**	**297**	**100**	**284**	**100**	**277**	**100**

Source: Fein (1964)

Table 10—Shares of Output* by Degree of Mechanization, 1959 and 1961-1963

Type	**1959 (December)**	**1961**	**1962**	**1963**
Automatic	32.3%	45.9%	55.3%	61.8%
Semi-Automatic	15.9%	13.2%	15.5%	13.2%
Primitive	51.8%	40.9%	29.2%	25.0%

*Output is measured via flour consumption.
Source: Fein (1964)

Table 11—Capacity,* 1959 and 1961-1963

Type	1959	1961	1962	1963
Automatic	6,569	8,558	10,732	12,041
Semi-Automatic	3,045	2,516	2,931	2,404
Primitive	8,837	7,047	5,328	4,995
Total	**18,451**	**18,121**	**18,991**	**19,440**

*tons of flour per month, 8-hour workday

Source: Fein (1964)

Table 12—Capacity Utilization,* 1959 and 1961-1963

Type	1959	1961	1962	1963
Automatic	63.8	66.9	70.2	63.0
Semi-Automatic	67.8	65.6	72.1	67.3
Primitive	75.9	72.5	74.5	61.5
Total	**70.2**	**68.9**	**71.7**	**63.2**

*based on an 8-hour workday

Source: Fein (1964). In 1971, the MTI estimated total capacity utilization at 70% (5698/14-Gimmel).

Table 13—Profits as % of Equity (Based on Replacement Value), 1963-64, 1964-65 and 1965-66

Size Class	Revenues, IL 1000s	# of Bakeries in Sample	Profits as % of Equity, 1963-64	Profits as % of Equity, 1964-65	Profits as % of Equity, 1965-66
A	>1500	8	15.9	-3.6	-8.7
B	750-1499	11	22.3	-1.9	-8.4
C	400-749	36	13.4	-4.5	-9.3
D	<399	84	-17.4	-50.0	-58.7
Total		**139**	**8.2**	**-14.3**	**-20.4**

Source: Mandelbaum (1965)

Table 14—Shares of Revenue by Size Class, 1963-64, 1967-68 and 1971

Size Class	Revenues, IL 1000s	# of Bakeries, 1963-64	Share of Revenues, 1963-64	# of Bakeries, 1967-68	Share of Revenues, 1967-68	# of Bakeries, 1971	Share of Revenues, 1971
A	>1500	8	24.0%	9	25.2%	17	41.6%
B	750-1499	11	14.9%	21	23.1%	36	29.4%
C	400-749	36	25.1%	45	25.4%	36	16.2%
D	<399	222	36.0%	146	26.3%	77	12.8%
Total		**277**	**100**	**221**	**100**	**166**	**100**

Source: Gilshon (1969) and MTI (5698/9-Gimmel Lamed).

Table 15—Wheat Subsidies, 1970-1974

Year	Wheat Subsidies (IL)
1970	2,000,000
1971	12,000,000
1972	29,000,000
1973 Budgeted	29,000,000
1973 Estimated	56,000,000
1974 Forecast	208,000,000
1974 Budget Proposal (After Lifting of Price Freeze)	22,000,000

Source: Arkin (1974)

Table 16—Subsidies to Bakeries, 1968/69-1974/75

Years	Subsidies to Bakeries (IL)
1968/69	9,539,000
1969/70	10,870,000
1970/71	16,136,000
1971/72	24,445,000
1972/73	36,980,000
1973/74	73,396,000
1974/75 (Estimated, post-devaluation)	120,000,000

Estimated bakery subsidies for the 1975 budget were IL 193 million; actual expenditures in 1975 were IL 223 million.

Table 17—Subsidies to Bakeries Per Loaf as a Percentage of Retail Price, 1972-1975

Years	Subsidy Per 1 Kg. Std. Loaf (IL)	Retail Price of 1 Kg. Std. Loaf	Subsidy As a Percentage of Retail Price, 1 Kg. Std. Loaf	Subsidy Per 750g White Loaf (IL)	Retail Price of 750g White Loaf (IL)	Subsidy As a Percentage of Retail Price, 750g White Loaf
1972	0.13	0.38	34.2%	0.10	0.35	28.6%
1973	0.27	0.38	71.1%	0.20	0.35	57.1%
1974 until January 28	0.65	0.38	171.1%	0.49	0.35	140.0%
1974 from January 28	0.75	0.55	136.4%	0.56	0.55	101.8%
1975 Budget Estimates	1.00	0.95	105.3%	0.70	0.95	73.7%
July 1975	0.85	0.95	89.5%	0.59	0.95	62.1%

Source: Arkin (1974), 5664/17-Gimmel Lamed

Appendix—Chronology of Major Macroeconomic and Political Developments

Date	Development	Notes
November 29, 1947	UN passes resolution to partition Palestine. War of Independence begins.	
May 14, 1948	The Provisional Government takes office.	
May 15, 1948	State of Israel is declared	
1948-1951	Mass immigration	Net immigration was 687,000. The population grew from 630,000 at the end of 1947 to an average of 1,494,000 in 1951.
August 17, 1948	The Israeli Lira (IL) replaces the Palestine Pound.	
March 10, 1949	First Government takes office.	The first general election was held January 25, 1949
April 26, 1949	Austerity and rationing policy presented to the Knesset.	
July 20, 1949	War of Independence ends.	
July 1950	Israel signs clearing agreement with Turkey.	In 1953, under this agreement, Israel's leading import from Turkey was wheat. The bakers complained about low-quality flour milled from Turkish wheat.
July 30, 1951	The General Zionist Party, whose constituency includes the private bakeries, almost triples its Knesset representation, from 7 to 20 Members of Knesset, and becomes the second-largest party.	Although Mapai's Knesset representation stayed almost constant, the GZ's strong showing was seen as a protest vote against austerity and rationing. Mapai understood that it must satisfy the public’s demand for economic reform.
February 13, 1952	New Economic Policy (NEP) announced.	Devaluation via two new exchange rates (100% and 180% above the original rate); fiscal and monetary contraction; increased capital inflows; near-elimination of rationing and price controls; and price increases on (price controlled) essential goods. Implemented gradually over 1952–1954. Although the NEP depressed output in 1952, it was successful overall: The trade

		deficit was reduced and foreign currency reserves rose.
June 1952	The GOI introduces a multiple exchange rate system: In addition to the rate of IL 0.357/$ (in effect since September 1949), two new exchange rates are introduced: 0.714/$ and IL 1/$.	
1952	Inflationary spike	Inflation rose from 22.5% (annualized) in Sept-Dec. 1951 to 66% in 1952.
September 10, 1952	Israel signs reparations agreement with West Germany.	Germany promised to pay DM 3 billion to the GOI ("reparations") and DM 450 million to survivors ("restitution") over the next 12 years.
December 24, 1952	Fourth Government headed by Ben-Gurion takes office, with the General Zionists and Progressives included in the coalition.	Peretz Bernstein (General Zionists) returns as Minister of Trade and Industry/bread regulator.
June 13, 1953	Minister of Finance Levi Eshkol appoints Pinhas Sapir as Director-General of the Ministry of Finance.	
July 7, 1953	The exchange rate for wheat imports is set at IL 1/$.	
December 7, 1953	Ben-Gurion resigns as Prime Minister.	
January 1, 1954	The IL is devalued to IL1.8/$, but the exchange rate for wheat imports remains IL 1/$.	
January 26, 1954	Fifth Government takes office. Ben-Gurion is replaced as Prime Minister by Moshe Sharett.	Sharett's governments were chaotic. Senior GOI officials consulted Ben-Gurion regarding defense and foreign affairs. Eshkol completely controlled economic affairs.
December 1, 1954	The Bank of Israel opens.	
June 29, 1955	Sixth Government headed by Sharett takes office, with the General Zionist and Progressive parties excluded.	Peretz Naphtali (Mapai) replaces Peretz Bernstein (General Zionists) as Minister of Trade and Industry/bread regulator.

	Ben-Gurion returns to the GOI as Defense Minister.	
November 3, 1955	Seventh Government headed by Ben-Gurion takes office.	Pinhas Sapir (Mapai) replaces Peretz Naphtali (Mapai) as Minister of Trade and Industry/bread regulator.
October 29-November 5, 1956	Sinai Campaign	
1960-1964		full employment, labor militancy, and wage and price spirals;
February 10, 1962	Second New Economic Policy (SNEP) announced.	a. Devaluation of 67%, from IL 1.80/$ to IL 3/$. b. Partial trade liberalization—gradually, many tariffs were reduced and most export subsidies were abolished, so as to reduce the variance of effective exchange rates and move toward a unified exchange rate. Import quotas were converted to tariffs. Most of the liberalization occurred over 1963–1965. The SNEP ultimately failed: The trade deficit was not reduced and exchange rate unification was not achieved.
1965-1967	Recession	Eshkol, Sapir, and Bank of Israel Governor David Horowitz deliberately caused the recession by means of fiscal and monetary contraction, in an attempt to achieve disinflation and wage restraint, and to improve the BOP by raising industrial productivity and promoting exports. These goals were achieved but at the cost of higher unemployment. (The BOP deficit fell from $570 million to $450 million; inflation fell from 7.8% in 1966 to 0.2% in 1967. During 1968-1972, industrial production, TFP and real exports grew at annual rates

		of 15%, 7% and 16.6% respectively. Unemployment was 7.4% in 1966 and 10.4% in 1967, vs. 3.6% in 1965.) Eshkol and Sapir realized that the recession was more severe than they had planned. In July 1966, they reversed course by implementing a fiscal expansion (including export promotion).
June 5-10, 1967	Six Day War	Helped end the 1965-1967 recession
June 15, 1967-August 7, 1970	War of Attrition	Mainly on the Israel-Egypt front
November 19, 1967	Devaluation	Devaluation of 17%, from IL 3/$ to 3.5/$
August 22, 1971	Devaluation	Devaluation of 20%, from IL 3.5/$ to 4.20/$
October 6-26, 1973	Yom Kippur War	Defense spending increased from 13.9% of GDP in 1969 to 31.6% of GDP in 1973, and the fiscal deficit increased from 6.2% of GDP to 13.6% of GDP.
1974	First Oil Shock	Israel's fuel costs rose by 277% vs. 1973. This precipitated a cost-push inflation (to which increases in defense expenditures and commodity prices also contributed); inflation rose to an average of 36% over October 1973–May 1977, vs. 11% in the industrialized nations. Although defense spending decreased to 29.8% of GDP, the fiscal deficit widened to 18.7% of GDP. Israel was forced to turn to the IMF; over 1972-1978, Israel ranked ninth among non-oil developing nations in amount borrowed under IMF standby arrangements.
1974	The Lost Decade (1974-1984) begins.	The Lost Decade was characterized by "low growth, high inflation and financial crises amid policy seesawing" (Barkai and Liviatan 2007, 10). Real GDP growth and per capita GDP

		growth slowed dramatically, from 11.9% and 8.9% (respectively) in 1972 to 1.4% and -0.3% in 1976. Productivity growth fell from 4.3% during 1961–1972 to 0.1% during 1973–1981.
November 10, 1974	Devaluation	Devaluation of 43%, from IL 4.20/$ to IL 6/$
November 10, 1974-June 24, 1976	11 small devaluations	Cumulative devaluation of 33%, from IL 6/$ to IL 7.97/$.
July 19, 1976-March 21, 1977	Creeping devaluation against currency basket	Cumulative devaluation of 16%.
May 17, 1977	"Political Upset"—Menachem Begin and his Likud party defeat the Labor Alignment, ending 29 years of uninterrupted Mapai/Labor Party/Labor Alignment rule.	

Sources: Bank of Israel, Central Bureau of Statistics, Ministry of Foreign Affairs, 5526/2-Gimmel, Barkai and Liviatan (2007), Gross (1990), Kessler (1965), Navon (2016), Schiffman, Young and Zelekha (2017).