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Bread and the dilemmas of socialist paternalism in Israel, 1948–1977

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ABSTRACT

This is the first study of bread regulation in a post-World War II democratic country. Under Israel's Labor Socialist regime, bread was mostly privately supplied. In setting prices, policymakers faced tradeoffs between producer profits/viability of small-scale producers and consumer welfare, and between producer profits and minimizing inflation and real appreciation. Subsidization entailed a tradeoff between producer profits and consumer welfare on one hand, and fiscal responsibility and exchange rate unification on the other hand. We study the regulatory changes that took place as the industry structure evolved, and document the changes that occurred in the revealed weights of producer profits, consumer welfare, fiscal responsibility and exchange rate unification. Over 1952–1977, regulatory reforms accelerated the process of technologically-based rationalization, and policy was strongly pro-consumer. This process did not unfold smoothly: Regulatory changes occurred in four phases, with (sometimes) sharp fluctuations in consumer welfare, producer profits, fiscal policy and exchange rate policy.

1. Introduction

This paper is the first study of the political economy of bread regulation in a democratic country after World War II. In many countries, bread regulation took the form of a cheap bread regime—a combination of price controls and universal (=untargeted) bread subsidies. While there is a substantial social scientific literature on cheap bread regimes in autocracies (e.g. Egypt, Jordan, and Iran; see Ghada et al., 2013 and the sources cited therein), there is no literature on cheap bread regimes in democracies (e.g. Israel, 1948–1990; the UK, 1939–1956 and 1974–1977; West Germany, July 1950–1958 (from 1953, under the Berlin municipality); New Zealand (until 1967); India (1942–1995)).[1] Our paper fills this gap.

From the establishment of the modern State of Israel in 1948 until 1977, the Government of Israel was led by the pro-Western socialist Labor Party. Israeli socialism was unique in that ownership of the means of production was divided among three economic sectors: the public sector (25% of NNP in 1953), the Histadrut—General Federation of Labor[2] (almost 22%) sector, and the private sector (roughly 53%) (Halevi 1957). Monopolies and cartels were pervasive in the public and Histadrut sectors (Halevi 1957; Hillman 1988).

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[1] Each of these countries scored 0.8 or higher on the Machine Learning Democracy Index; for details, see Grundler and Krieger (2021).

[2] The Labor Party-dominated Histadrut represented 86% of all Jewish workers in 1955 (Sobel 1963); its virtual monopoly over labor was reinforced by its control over health and pension systems.

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Consumer goods were generally supplied by the private sector. Many private consumer goods sectors were monopolistic or cartelistic, just like the Histadrut-dominated sectors (see Hillman 1988 for a comprehensive description of the economy, including socialist and private monopolies and cartels in individual industries). Despite the prominence of the public and Histadrut sectors, the economy was not planned but relied on regulated markets including regulated international trade. The combination of socialist ownership and markets led to the designation of the economic regime as "market socialism" (Hillman 1991). Because socialist ownership was not all-encompassing, the economic regime was also described as "socialism in less than one country" (Schnytzer 1991).[3]

Like many consumer goods, bread was mostly supplied by the private sector: Initially, private bakeries had an 82–85% market share, and Histadrut bakeries had a 15–18% market share.[4] With prices regulated, there was nonprice competition between bakeries in the same local markets—every morning, bakeries competed to deliver hot bread to retailers as early and as frequently as possible.

We study the evolution of bread regulation until the political upset of the 1977 elections, when the Likud party defeated the Labor Party for the first time in the history of the modern state. Using hand-collected data[5] from Israel State Archives (ISA),[6] newspapers and other sources, we address the following research questions: How did paternalistic socialist policymakers regulate the bread market to ensure both bread affordability and producer viability? How did regulated bread prices influence the industrial structure of the bakery sector, and how did the industrial structure of the bakery sector influence regulated bread prices? How did bread affordability change over time, and why? How did policymakers balance microeconomic and macroeconomic considerations?

Our story, in brief, is the following. Ca. 1952, Israel's bread industry was ripe for a technologically-based rationalization, due to the prevalence of small, high-cost bakeries and the existence of massive excess capacity. However, the rationalization was delayed due to successful rent seeking: Large, low-cost bakeries and small, high-cost bakeries jointly lobbied the government 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 incentivized noncompetitive behavior and joint rent seeking. In mid-1952, new policymakers took over and decided to end the status quo. They implemented a series of policy reforms that disproportionately harmed small bakeries' profitability; these reforms signaled credibly that small bakeries were no longer viable and eliminated the incentive for noncompetitive behavior and joint rent seeking. The result was a dramatic rationalization of the bakery industry, which unfolded in four distinct phases. During 1974–1977, large bakeries began to exit, and the remaining bakeries transitioned to three daily shifts, which virtually eliminated excess capacity. By January 1977, just 90 bakeries remained, vs. 443 in December 1953 (Fig. 1).

Over 1948–1977, policymakers implemented a strongly pro-consumer policy that greatly increased bread affordability. Although policy was strongly pro-consumer in the long term, it was highly volatile in the short and medium terms: In 1954 and 1962, policymakers sharply increased bread prices, in the context of (attempted) exchange rate unifications and fiscal consolidations. However, during 1964–1973, policymakers froze prices for 9.5 years (!) despite skyrocketing global wheat prices and diminished bakery profitability.

The remainder of the paper is organized as follows: Section 2 describes the Stigler-Peltzman model of regulation, which explains some (but not all) of the major phenomena that we document. Section 3 describes the initial political economy equilibrium around 1952. Sections 4-7 describe the regulatory reforms and rationalization that occurred in four distinct phases over 1952–1977, and identifies the winners and losers in each phase. Section 8 concludes.

2. Theoretical background

We utilize the Stigler-Peltzman (S–P) model of regulation (Peltzman 1976) to explain the regulator's tradeoff between producer profits and consumer welfare. In the S–P model, a regulator trades off two sources of political support, from an industry with political support increasing in industry profits, and from consumers with political support decreasing in the product price. In the political-support equilibrium, with both producers and consumers having positive weights in the political-support function, the regulated price is between the competitive and monopoly prices. Hillman (1982) modifies the S–P model to encompass exogenous change. The change considered by Hillman is a decline in the world price of an industry's output, which changes the origin from which political support is measured by a government choosing a protectionist policy.

In our context, there are two sources of exogenous change which move the origin for political support: a. Technological change which introduces scale economies in bread baking, and thus potentially benefits consumers through reduced production costs; b. In a

[3] There is no detailed historical study of the Israeli food industry. For detailed historical studies of other industries, see Levi-Faur (2001) on textiles, metals and chemicals, Kelman (2016) on paper products, and Krampf (2018, 151–179) on banking.

[4] The dominance of the private bakeries almost certainly predated the establishment of the State. Due to the paucity of relevant data, we cannot provide a definitive explanation for this dominance. We can only state the following facts: a. "The share of the non-private labor economy [including Histadrut enterprises] probably did not exceed 20% of Jewish NDP" (Metzer 1998, 198). b. The Histadrut-affiliated Cooperative Movement failed to achieve dominance, due to the severe organizational weaknesses of its enterprises (Viteles 1968, 8–9).

[5] Although these data are extensive, they have limitations. Data on output are lacking, and data on flour consumption (a proxy for output) are fragmentary; data on subsidies are fragmentary and not reported on a consistent basis. There are gaps in flour price data. Because we lack sufficient data to directly measure bakery profitability, we must rely on the bakery profitability measures that were reported by official bread committees for selected years.

[6] Throughout the paper, ISA materials are referenced by folder number (e.g. 4611/23-Gimmel, 6008/9-Gimmel Lamed, 714/47-Peh). For the sake of brevity, we cite correspondence by date only, with names omitted.

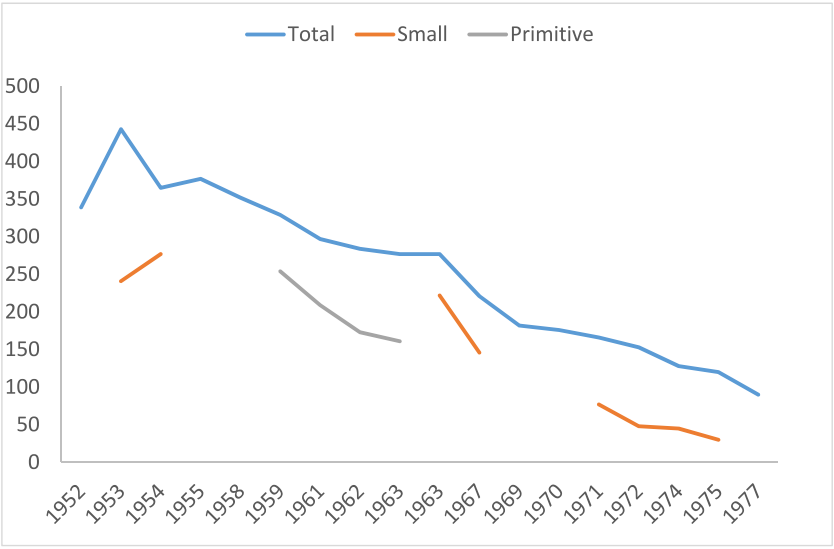

Fig. 1. Evolution of the bread bakery industry, 1952–1977: total number of bakeries, number of small bakeries and number of primitive bakeries.
Notes: Criteria for small bakery classification (which vary by source) are provided in Table A.1. A bakery is classified as primitive if both dough preparation and baking are nonmechanized.
Sources: See Table A.1.

wheat-importing country, a change in the global wheat price, which may benefit or harm consumers.

How does the regulator respond to technological change? We assume that there are two types of producers: large-scale low-cost producers who benefit from economies of scale, and small-scale high-cost producers with no economies of scale. The regulator can set the regulated price high to allow the small-scale high-cost producers to cover their costs, which provides rents for the large-scale low-cost producers. Alternatively, the regulator can set the regulated price low, which eliminates rents but also does not allow the small-scale high-cost producers to cover their costs, thus forcing them to cease production. If the regulator sets the regulated price sufficiently low, even the large-scale low-cost producers cease production.

If the regulator cares paternalistically about producers, he sets the regulated price high, which keeps the high-cost producers in business and provides rents for the low-cost producers. If the regulator cares paternalistically about consumers, he sets the regulated price low, which is disadvantageous for both high-cost producers, which cease production, and for low-cost producers, which may either remain or cease production, depending on the level of the regulated price.

How does the regulator respond to a change in the global wheat price? Suppose that the global wheat price increases. In the S–P model, an exogenous increase in marginal cost leads to an increase in the regulated price and a decrease in producer profits; producers and consumers share the burden of the cost increase and the regulator loses political support. Now assume that the regulator can subsidize producers, and that the regulator perceives the fiscal burden of the subsidy as sufficiently low (this assumption is realistic under normal circumstances). An increase in the global wheat price will cause the regulator to subsidize producers so as to keep the regulated price and producer profits constant.[7] Now suppose that the global wheat price decreases. In the S–P model, an exogenous decrease in marginal cost leads to a decrease in the regulated price and an increase in producer profits; producers and consumers share the gain from the cost decrease and the regulator gains political support. If the regulator perceives the fiscal burden of the subsidy as sufficiently high (this assumption is realistic at times of budgetary crisis), he will reduce the subsidy so as to keep the regulated price and producer profits constant.

Thus, three groups are affected by political regulation—consumers, small-scale producers and large-scale producers. As we shall see, in the initial political economy equilibrium around 1952, regulators cared paternalistically about producers, so that the regulated price was below the monopoly price but sufficiently high to protect small-scale producers. After 1952, regulators cared paternalistically about consumers, so that the regulated price was too low to protect small-scale producers. When global wheat prices quadrupled over January 1970–January 1974, policymakers sharply increased subsidies until the fiscal burden became unsustainable; thereafter, as global wheat prices declined, policymakers cut subsidies.

Before concluding this section, a brief note regarding the measurement of consumer welfare is in order: In an economy with rising wages (and living standards), the appropriate measure of consumer welfare is the ratio of the bread price to the nominal wage, rather than the real bread price. We call this ratio the Bread Affordability Index (BAI). A decline in the BAI means greater affordability, greater consumer welfare, and, in accordance with the S–P model, greater political support from consumers.

[7] This will be the case if the political cost of subsidizing bread (which may be significant, e.g., because taxes must be increased to finance subsidies) is lower than the political cost of not subsidizing bread and thus allowing producers and consumers to be harmed.

3. Initial political economy equilibrium around 1952

3.1. Government ideology and national goals

Israel's national goals, as formulated by Prime Minister David Ben-Gurion and his ruling Labor Party, were as follows: strong national defense; absorption of unlimited Jewish immigration (Gross 1990; Krampf 2009; Krampf 2018, 77); rapid economic development through large-scale physical and human capital investment (Gross 1990, 1995); full employment (like most Western governments at the time; Gross 1990; Krampf 2018, 78, 92–93) and a rising standard of living provided by a welfare state regime, in order to maximize net immigration (Gross 1990, 1995); income equality (Gross 1995) and equality in the distribution of essential goods (Gross 1995; Barkai 1990, 36); attainment of economic independence—that is, ending Israel's dependence on capital flows from abroad (Krampf 2009; Krampf 2018, 73–104); population dispersal for strategic reasons (Evans 2006); food security and self-sufficiency (which was critical given Israel's existence under siege, massive trade deficit and acute foreign currency shortage; Krampf 2009; Krampf 2018, 82) and "return to the land"—maximizing Jewish agricultural employment at the expense of the service occupations that had been predominant in the Diaspora (Metzer 1998, 195–196). According to Labor's worldview, these goals could only be attained through a planned economy, with a preference for public and semi-public (Histadrut) enterprises (Gross 1990; Krampf 2018, 99).

3.2. Bakeries and bread products

The bread market was dominated by private bakeries, which held a market share of 82–85%. Histadrut bakeries—labor owned and managed bakeries that belonged to the Histadrut's Cooperative Center—held a 15–18% market share (Zmanim, June 28, 1954). There were 62 Histadrut bakeries (Haaretz, April 2, 1953), accounting for 14% of all bakeries.[8] Almost all bakeries were wholesale bakeries; direct retail outlets were rare (Beham and Rosenberg 1954).

The major products were standard and white breads, which accounted for 66% of industry revenue in 1955; both varieties were price-controlled and subsidized, via wheat, flour and bakery subsidies (to be explained below).[9] Bread was never rationed, even under the austerity and rationing regime of 1949–1952.[10] Standard (dark) bread was baked using standard flour, which might contain up to 25% rye flour (Rubner 1960, 263). White bread was baked using white flour. The government treated white bread as a luxury good, and forced white bread consumers to cross-subsidize standard bread: It set the relative price of white bread (=white bread price/standard bread price) between 1.7 and 2.3, much higher than the undistorted relative price of 1.2 (Fig. 2).[11]

Other products were challah bread and rolls, sometimes price-controlled, and special bread, which was not price-controlled. Bread was very affordable by international standards (Fig. 3) and was an inferior good. The price elasticity of bread demand was low; −0.1 is a reasonable approximation (see A.1 in the Appendix).

3.3. Profitability, size and mechanization

The process of exogenous technological change was in its infancy: There were five mechanized bakeries in 1951, increasing to nine in 1955 (4126/10-Gimmel; Fein et al., 1964). Profitability was positively related to size/degree of mechanization. Large bakeries were mechanized, efficient and profitable; small bakeries (mostly family businesses), were nonmechanized, inefficient and at best borderline profitable (Argov et al., 1955). Labor productivity 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 (Beham and Rosenberg 1954). Compared with semi-mechanized bakeries, highly mechanized bakeries had 50% lower labor costs and 12% lower total costs (Table A.2).

All subsidies were uniform, not graduated according to bakery size.[12] Henceforth, we use the terms "large," "mechanized," "modern" and "automatic" interchangeably; likewise, we use the terms "small," "nonmechanized," and "primitive" interchangeably.

3.4. Capacity utilization, distribution and competition

Bakeries worked just one 8-h shift daily; thus, capacity utilization on a two-shift basis was just 47% (Argov et al., 1955).

[8] Based on Table A.1, assuming that the number of Histadrut bakeries remained fixed during April–December 1953.

[9] The nascent State of Israel inherited a cheap bread regime from the British Mandatory Government, which had introduced price controls (on standard and white breads) in 1939 and subsidies (for standard bread) in 1942.

[10] Although black markets in rationed foods were rampant in 1949–1952, black markets in bread were almost nonexistent (based on a search of "black market bread" in Hebrew newspapers). In 1951, actual consumption of bread and cereals was 89% of the official marketing figure (Rubner 1960, 60), which indicates the absence of black markets at the national level.

[11] Historically, many bread regulation regimes practiced cross-subsidization: The relative price of fine bread that was consumed by the wealthy was set artificially high, so that the wealthy paid some of the production costs of coarse bread that was consumed by the poor (De Vries 2019, 208–212).

[12] During World War II, and again beginning in 1953, the UK implemented a graduated flour subsidy that favored small bakeries (Maunder 1970, 51). Israeli policymakers never considered doing so.

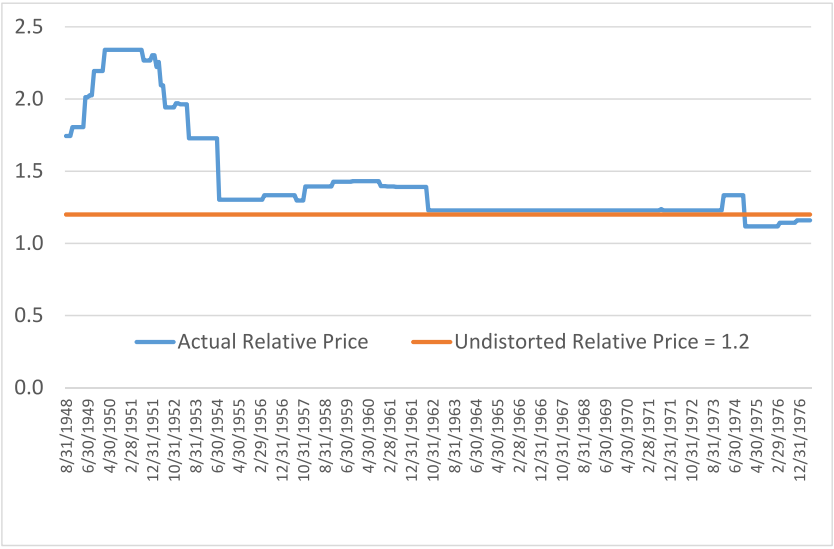

Fig. 2. Relative price of white bread, August 1948–May 1977.
Note: Relative price of white bread = white bread unit price/standard bread unit price. The undistorted relative price is the relative price that should prevail based on physical factors. If the relative price exceeds the undistorted relative price, the degree of cross-subsidization is positive. In Israel, the undistorted relative price was 1.2 (Rubner 1960, 263).

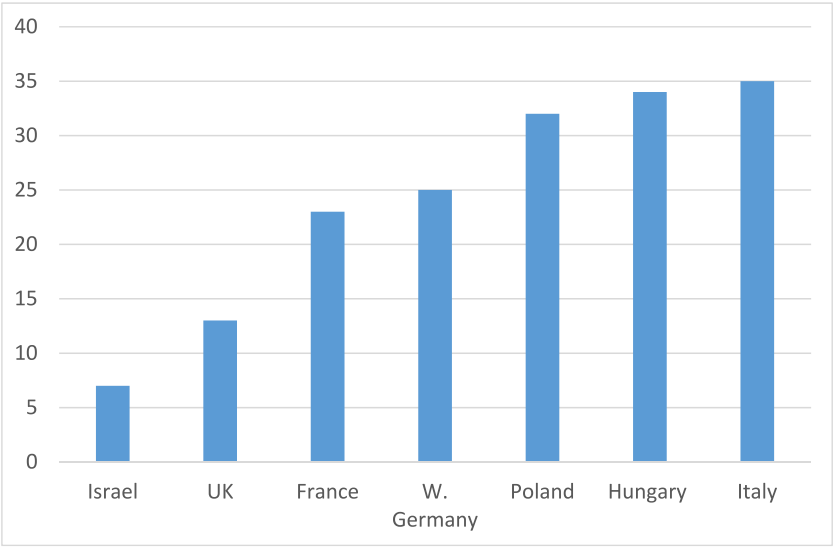

Fig. 3. Minutes of work required to purchase 1 Kg. of bread in selected countries, 1951.
Note: In 1953, Israel's bread prices were roughly 40% of US bread prices (Clawson 1953).
Source: Rubner (1960, 66).

Distribution was highly inefficient: Partially empty trucks made multiple deliveries of partially baked bread to retailers each morning, and bakeries agreed to take back all unsold bread (Beham and Rosenberg 1954). Low capacity utilization and inefficient distribution had two major causes: First, consumers demanded hot bread in the morning only, and bakeries competed intensely to deliver it early and often (Beham and Rosenberg 1954).[13] This was the only form of competition, as there was no price or quality competition (Argov et al., 1955); the lack of price competition may be attributed to inelastic demand. Secondly, the 1951 Law to Prohibit Night Baking (henceforth "the Law") prohibited baking before 6 a.m. (5 a.m. from 1957, 4 a.m. from 1973). The Law was not unique to Israel—it was

[13] The government attempted unsuccessfully to improve distribution efficiency, first by banning bread sales before 11 a.m. , and then by linking each retailer to one bakery (March 1952–September 1953).

based on an International Labor Organization Convention from 1925. Large private and Histadrut bakeries observed the Law, but many small private bakeries did not; enforcement was lax.

3.5. Flour and wage costs

Flour was the largest cost item, accounting for 53% and 65% of revenues for standard and white breads, respectively (Beham and Rosenberg 1954). The government monopolized wheat imports, which supplied 96% of wheat for human consumption (SRI 1955, 136). In 1953, 93% of flour was milled domestically under government contract (440/20-Gimmel); thereafter, all flour was milled domestically (Clawson 1955, 250).[14]

All flour was price-controlled. The price of standard flour was influenced by the wheat subsidy and the flour subsidy. The wheat subsidy was an off-budget subsidy on imported wheat, which was given via the multiple exchange rate system: The government used a formal exchange rate of IL 0.357/$ (IL=Israeli Pound) to convert the US dollar price of imported wheat (and other essential food imports) into IL, vs. IL 0.714 for other imported goods (including "nonessential" foods) (Krampf 2018, 82). The flour subsidy was given by discounting the price of standard flour (714/47-Peh); in 1953, the subsidized price was just 40% of the unsubsidized price (authors' calculation based on Beham and Rosenberg 1954). The regulated price of white flour was influenced by the wheat subsidy and by an on-budget tax on the sale of white flour. Ca. September 1952, the net subsidy on white flour was positive.[15]

Wages were the second largest cost item, accounting for 23% of standard bread revenues in 1953 (Table A.2). Wages were bargained collectively between the Histadrut and the bakers' associations. Union density in bread baking was over 80%; nonunion workers were concentrated in small bakeries. Bakery workers were "among the highest paid workers" in Israel (Beham and Rosenberg 1954). Over April 1949–April 1954, nominal and real bakery wages increased by 153%–165% and 14%–19% (depending on employee rank), respectively (Fig. 4 shows real wages). Due to their higher labor intensity, small bakeries were the hardest hit by wage increases.

3.6. Trade organizations

All bakeries—private and Histadrut, large, medium and small—were united under the umbrella of the National Committee of Bakers' Organizations (henceforth NC).[16] The NC comprised five private bakery organizations plus the Histadrut's Cooperative Center. Periodically, the NC would claim that bakery profits were too low, demand a price increase to compensate for past or anticipated cost increases, and threaten a nationwide bakery strike if the government did not comply. Although the NC wielded significant power, its negotiating position was weakened by two factors: a. The Labor Party was not beholden to the private bakeries. First, its campaign financing did not depend on contributions from private businesses (Heidenheimer 1963). Secondly, two of the NC's private organizations were affiliated with Labor's bitter rival, the General Zionists—a middle class party that staunchly opposed Labor's statist, pro-Histadrut policies. b. The Histadrut was pro-consumer—that is, it placed a higher weight on consumer welfare than on Histadrut bakery profitability; therefore, Histadrut bakeries were more moderate regarding bread prices, compared to private bakeries. This is not surprising: Histadrut member households without a bakery worker comprised 45% of the Israeli population, vs. 0.5% for Histadrut member households with a bakery worker (for details of this calculation, see A.2 in the Appendix).[17]

3.7. Regulation—institutional setting and tradeoffs

The government's bread regulator was a cabinet minister, generally the Minister of Trade and Industry (for a complete list of bread regulators, see Table A.3). The regulator set bread prices, flour prices and subsidies; allocated government credit to bakeries, especially credit from the Development Budget;[18] and decided whether to approve new bakeries.[19] Although the regulator did not intervene directly in wage negotiations, his decisions strongly influenced the bakeries' ability to increase wages. Bread regulation was controlled by the Labor Party, even when bread regulators belonged to other coalition parties (as listed in Table A.3). Turnover of bread regulators was rapid: During May 1948–November 1955, the average term was 1.25 years.

Bread prices were set using the cost-plus method. In setting bread prices, regulators faced complex tradeoffs on both the microeconomic and macroeconomic levels, including the basic tradeoff between bread affordability and producer viability. On one hand, a price increase (ceteris paribus) would increase industry profitability and ensure a steady bread supply, in part by averting bakery

[14] Grain and flour accounted for 13% of all commodity imports in 1953 (SRI 1955, 310).

[15] Wheat subsidy expenditures for wheat milled into white flour exceeded tax revenues from the sale of white flour by a factor of 1.5 (authors' calculations).

[16] In the UK, large and small bakers belonged to separate trade organizations (Maunder 1970, 52).

[17] The Histadrut was generally pro-producer (Halevi 1957); bread was the exception to the rule.

[18] The Development Budget was separate from the ordinary budget and the (secret) defense budget (Kreinin 1956). During 1950–1963, the Development Budget amounted to 10% of GNP.

[19] Presumably, government regulation of bakeries, and of business in general, had a regressive effect: As Chambers and O'Reilly (2022) demonstrate, government regulatory restrictions increase consumer prices and exacerbate wage inequality.

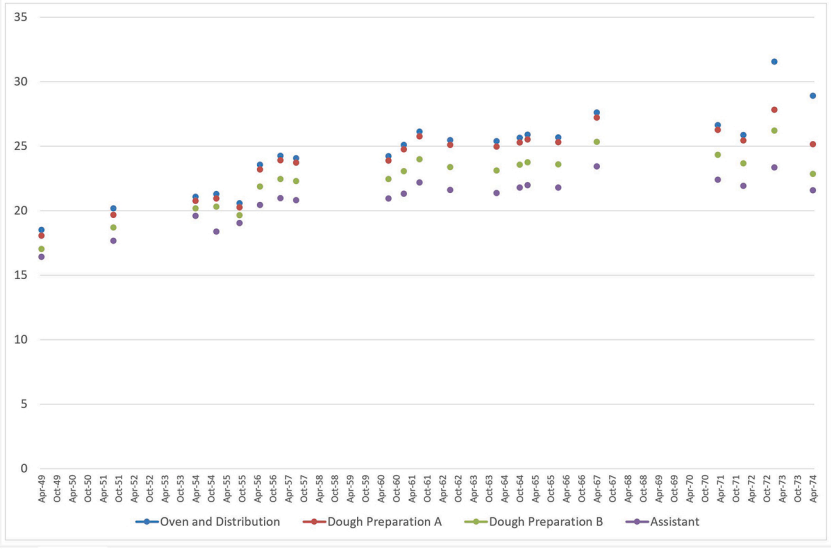

Fig. 4. Real weekly basic wage of permanent employees by employee rank, April 1949–April 1974 (in Sept. 1951 IL).
Source: Authors' calculations based on nominal wage data from Lavon Institute Archives, IV-357-5, IV-357-6, IV-357-7, IV-357-8, IV-357-90, IV-357-156.

strikes. It would also discourage leakages which wasted scarce foreign currency reserves: feeding to livestock,[20] [21] which consumed an estimated 15% of the national bread supply and wasted at least $1.75 million in foreign currency annually (Rubner 1960, 266), and smuggling to neighboring countries. On the other hand, a price increase (ceteris paribus) would harm consumers—especially the poor, and perpetuate inefficiency by keeping small bakeries in business. It would also increase economywide wages, inflation and the government wage bill via the existing COLA mechanism and higher wage demands by the Histadrut. Under Israel's fixed exchange rate regime, higher inflation would cause real appreciation, which would in turn expand the trade deficit and the foreign currency drain.

Regulators could offer the NC subsidy increases in lieu of price increases, subject to the following tradeoff: On the one hand, a subsidy increase would decrease regulated prices and/or increase bakery profits; in the S–P model, the regulator benefits from both of these outcomes. On the other hand, a subsidy increase would widen the fiscal deficit; a wheat subsidy increase would also move the economy further away from a unified exchange rate. Regulators could also offer credit for capital investment, working capital or flour purchases in lieu of price increases.

Due to the macroeconomic/small open economy aspects of the bread pricing and subsidy tradeoffs, both bread prices and subsidies were macroeconomic variables of major importance.

The NC's demands for price increases, accompanied by threats of a nationwide bakery strike, led to intensive negotiations between the NC and the bread regulator, during which the bread regulator evaluated the NC's claims regarding costs and profits. Fact-finding was carried out by official bread committees (e.g. Yehuda et al., 1951) and senior officials from the bread regulator's ministry (typically the Ministry of Trade and Industry (MTI)). Regulatory lag was short: During August 1948–December 1953, the average annual frequencies of price changes for standard and white breads were 2.4 and 2.1, respectively.

The NC invariably submitted costings for a fictitious "representative bakery;" thus, the NC denied the well-known facts (which the government first recognized in August 1951; Yehuda et al., 1951 and 4126/10-Gimmel) that large bakeries had significantly lower costs, and that industrywide wage increases caused greater cost increases at small bakeries.

To many policymakers and observers, "representative" was just a euphemism for "small:" By submitting costings for a small bakery, the NC sought to influence the regulator to base regulated prices on small bakery costs. As long as the regulator played along, this would keep the small bakeries in business, and ensure that the large bakeries would earn generous profits. The Argov Committee (Argov et al. 1955) identified small bakeries' cost increases as the primary factor driving bread price increases, and blamed the NC's united front for this suboptimal equilibrium: "The bakery sector benefits from the advantages of an organized interest group … the unnatural alliance between modern, mechanized bakeries and primitive bakeries is not beneficial to the public or to the bakery sector itself." This assertion is consistent with the theoretical finding that industrywide regulation incentivizes noncompetitive behavior and sustains inefficient firms (Daughety 1984, De Vries 2019, 1983).

During August 1948–June 1952, regulators cooperated with the NC by increasing standard bread prices and reducing standard flour prices (Fig. 5).

[20] A bread price increase would reduce the relative price of animal fodder.

[21] This also occurred in the US and Canada in 1946 (Zweiniger-Bargielowska, 1993), in the USSR in 1989 (Treml and Alexeev 1993) and in Russia in the early 1990s (Joskow et al. 1994).

Thus, the ratio of flour cost to retail bread price (henceforth "flour cost/price ratio") for standard bread fell from 57% in August 1948 to 31% in July 1952 (Fig. 6).[22]

Presumably, the regulators' generosity towards the bakeries was motivated by the need to ensure consistent bread supply and adequate nutrition during the 1948 War of Independence and the mass immigration of 1948–1951 which more than doubled the population, and by their desire to eliminate regional differences in bread prices and bakery wages that were inherited from the British Mandate (see Yehuda et al., 1951).

Although the regulators allowed inefficient bakeries to survive, they sought cost reduction, consistent with the S–P proposition that regulators benefit from cost reduction. In September 1949, the regulator introduced round standard loaves (despite intense opposition by bakeries and bakery unions), thus reducing labor time in standard bread production by 30% and the standard bread price by 6%.

3.8. The industry was ripe for rationalization

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 (using flour consumption as a proxy for output; Fig. 7).

Alternatively, with 60 fully mechanized bakeries working two shifts, the standard bread price could have been reduced by 8.5% while maintaining the regulator's target profit rate of almost 4% (Beham and Rosenberg 1954); in other words, the regulator could exploit exogenous technological change to benefit consumers. The Argov Committee (Argov et al. 1955) stated bluntly that eliminating the small bakeries was "natural and desirable." But rationalization did not occur, because large bakeries had a strong incentive to coexist with small bakeries and continue to engage in joint rent seeking.

3.9. Winners and losers

Who were the winners and losers until June 1952? The weighted real bread price decreased by 6% per year during August 1948–June 1952, while the Weighted Bread Affordability Index (WBAI) decreased by 16% per year (Fig. 8).

Price reductions were largely attributable to subsidy increases;[23] this policy was part of the government's general policy of suppressed inflation in 1949–1951 (see Kreinin 1956), which led to a 66% inflation rate in 1952 (Fig. 9).

Consumers won in the sense that bread became far more affordable, but lost in the sense that prices were higher than necessary (holding subsidies constant) because regulated prices were based on small bakeries' costs. Small and large bakeries won: They enjoyed regulatory rents, as small bakeries survived and large bakeries earned generous profits.

4. Phase I (July 1952–July 1962)

4.1. Regulatory reforms

The transition to a new regulatory regime began with the appointment of Levi Eshkol as Minister of Finance in June 1952. Eshkol and his friend and colleague Pinhas Sapir took over as Israel's chief economic policymakers. They collaborated closely until Eshkol's death in February 1969; thereafter, Sapir was the sole chief economic policymaker until June 1974 (Tables A.3 and A.4). Due to their close collaboration and common goals, their policymaking was highly effective; the effectiveness of their policymaking was reinforced by the almost complete insulation of their ministries (Finance and Trade and Industry) from societal pressures, and by their ministries' "accumulation of expertise and … ability to engage in policy learning" (Levi-Faur 1998).[24] Eshkol and Sapir controlled bread regulation from June 1952 to June 1974, including two periods when the bread regulator was not from the Labor Party (Table A.3).

Eshkol and Sapir were dissatisfied with the status quo in the bakery industry, for both microeconomic and macroeconomic reasons. They believed that a. The public should not be forced to pay high prices to sustain inefficient bakeries. If large bakeries are profitable at current prices, bread prices should be frozen (October 2, 1954, 901/7-Peh); b. Cheap bread incentivizes feeding bread to livestock: 15–20% of the bread supply is being fed to livestock, at a foreign currency cost of $2-$3 million (Herut, July 15, 1954). c. The wheat subsidy is both a fiscal burden and an obstacle to exchange rate unification (Herut, July 15, 1954). d. The government must fight COLA-induced inflation[25] and real exchange rate appreciation.[26]

[22] For simplicity, we do not report the ratio for white bread, which also decreased.

[23] Although we cannot calculate the contribution of subsidy increases to bread price reductions, it must have been large: During June 1948–April 1950, the bread regulator reduced the standard flour price by 61% while global wheat prices declined by just 5%, and increased the bakery subsidy as a percentage of retail price from 7% to 34% (7229/8-Gimmel Lamed).

[24] During 1955–1961, the number of university-trained economists in the Ministry of Finance increased from 20 to 70, and the number in the MTI and Ministry of Agriculture (combined) increased from 8 to 41; many of these economists were trained by Don Patinkin at the Hebrew University (Kleiman 1981). In the Ministry of Finance and MTI, officials were promoted based on merit, not based on party affiliation as in other ministries (Levi-Faur 1998).

[25] "The primary object of [government] price regulation is to avoid price increases that are contrary to anti-inflationary policy objectives" (Hillman 1988).

[26] Sapir and Eshkol must have known that inflation causes real appreciation, which in turn harms net exports and the balance of payments. David Horowitz, Eshkol's advisor and confidante (and future Governor of the Bank of Israel) stated in 1950 that inflation harmed exports and the balance of payments (Krampf 2009), and reiterated that point in 1953 (Report of the Foreign Currency Committee, July 1953, 5526/2-Gimmel).

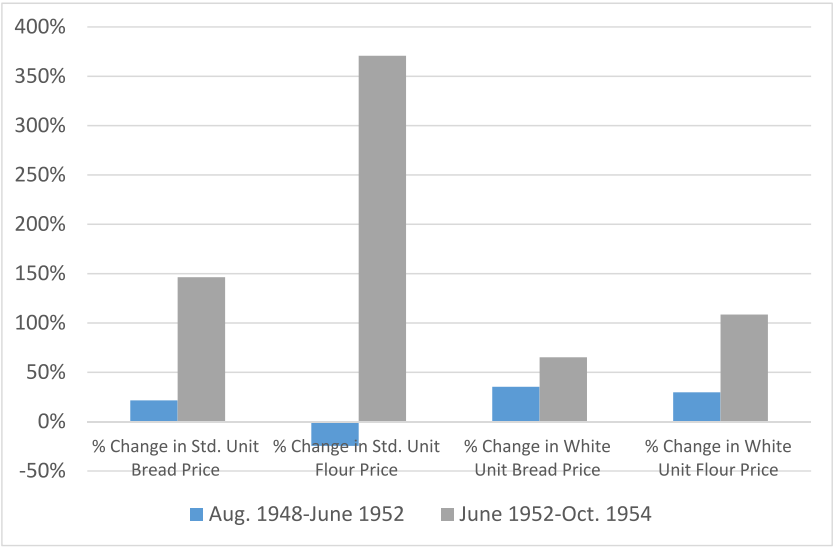

Fig. 5. Percentage changes in official bread and flour unit prices by subperiod, August 1948–October 1954.

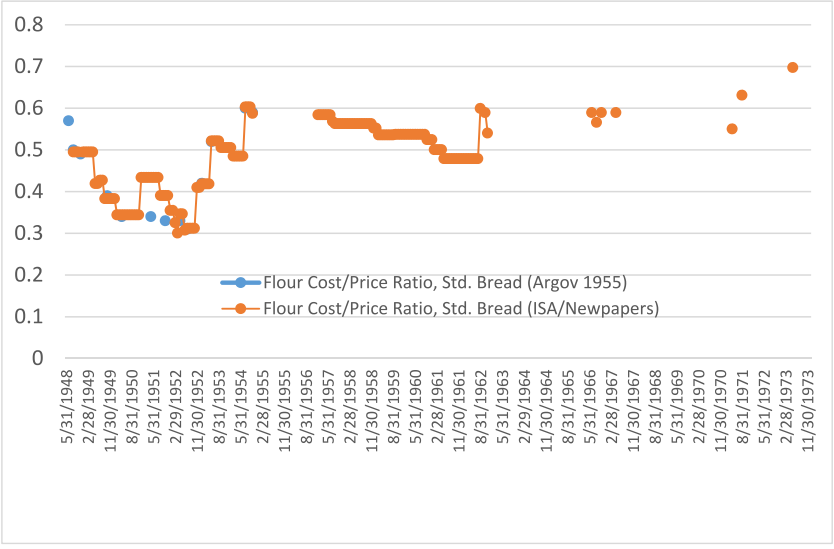

Fig. 6. Flour cost/price ratio for standard bread, May 1948–December 1973.
Note: The ISA/Newspapers series was calculated by the authors, assuming a constant ratio of flour weight to bread weight.

Eshkol and Sapir decided to end the status quo, which they derided as "cost-plus for primitive bakeries" (October 2, 1954, 901/7-Peh). Accordingly, they implemented four major reforms that harmed the bakeries, especially small bakeries:[27] They reversed the decline in the flour cost/price ratio; declared that prices would be set based on medium bakeries' costs, presided over a decline in real bread prices, and refused to liberalize prices; ended government credit to small bakeries while extending credit to large/merged bakeries; and rejected a NC proposal for modest mechanization of small bakeries.

4.1.1. Reversal of the decline in the flour cost/price ratio

During July 1952–October 1954, Eshkol increased the standard bread price by 146% and the standard flour price by 371% (Fig. 6). The flour cost/price ratio for standard bread increased from 31% to 59%, thus reversing the decline in that ratio over June 1948–July

[27] In 1954, the bread regulator, a General Zionist, proposed to compromise with the NC regarding price increases, to allow small bakeries to exit gradually (Bell and Susayeff 1954). Eshkol vetoed that proposal.

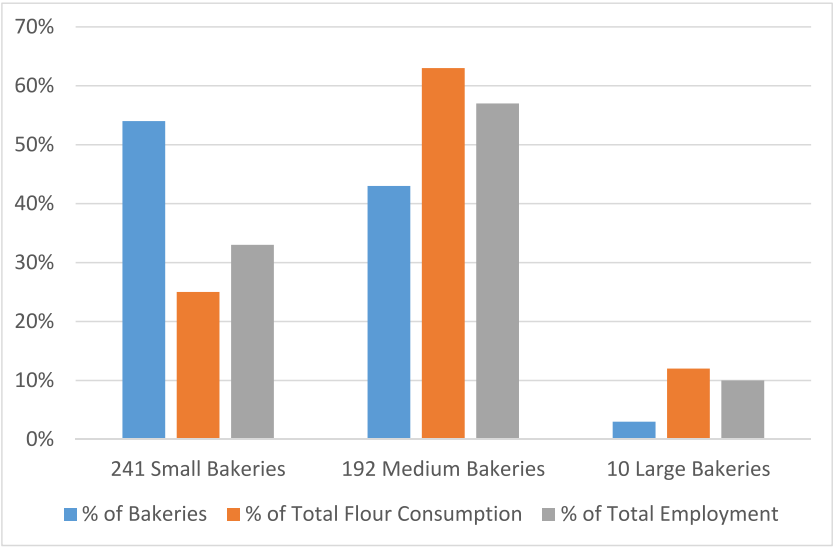

Fig. 7. Industry structure, December 1953.
Source: Argov et al. (1955).

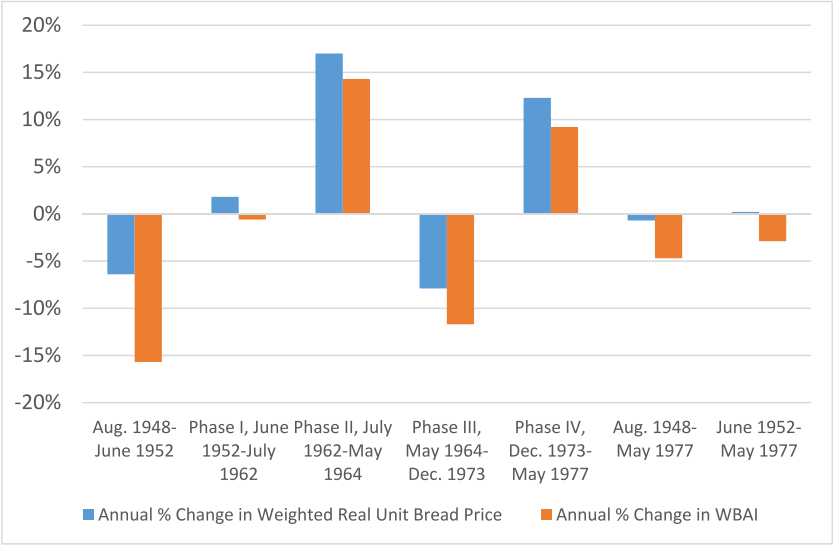

Fig. 8. Annual percentage changes in weighted real unit bread prices and Weighted Bread Affordability Index (WBAI) by subperiod, August 1948–May 1977.
Note: For the weights used to compute WBAI, see A.3 in the Appendix.

1952 (Fig. 6).[28]

In July 1954, Eshkol made a radical change that reduced both bakery profitability and consumer welfare, and simultaneously reduced the degree of cross-subsidization: He increased the prices of standard and white flours by 74% and 9% respectively, and increased the prices of standard and white breads by 40% and 6% respectively (Fig. 10). Thus, the relative price of white bread fell from 1.7 to 1.3, close to the undistorted relative price of 1.2 (Fig. 2).

The MTI informed the bakers directly that "cost-plus for primitive bakeries" was over (Davar, July 18, 1954). The MTI's deputy minister lauded the end of "cost-plus" as "a healthy development," and predicted that henceforth, medium bakeries would earn "a fair profit" but small bakeries would struggle (Herut, July 28, 1954).

The sharp increase in flour prices was due to a sharp reduction in wheat subsidies, which was implemented by increasing the formal

[28] For simplicity, we do not report the ratio for white bread, which also increased.

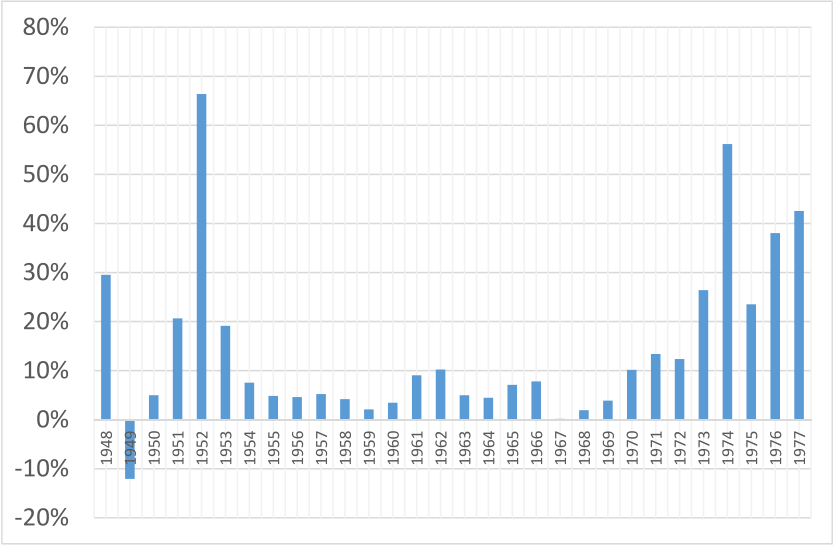

Fig. 9. CPI inflation, 1948–1977.

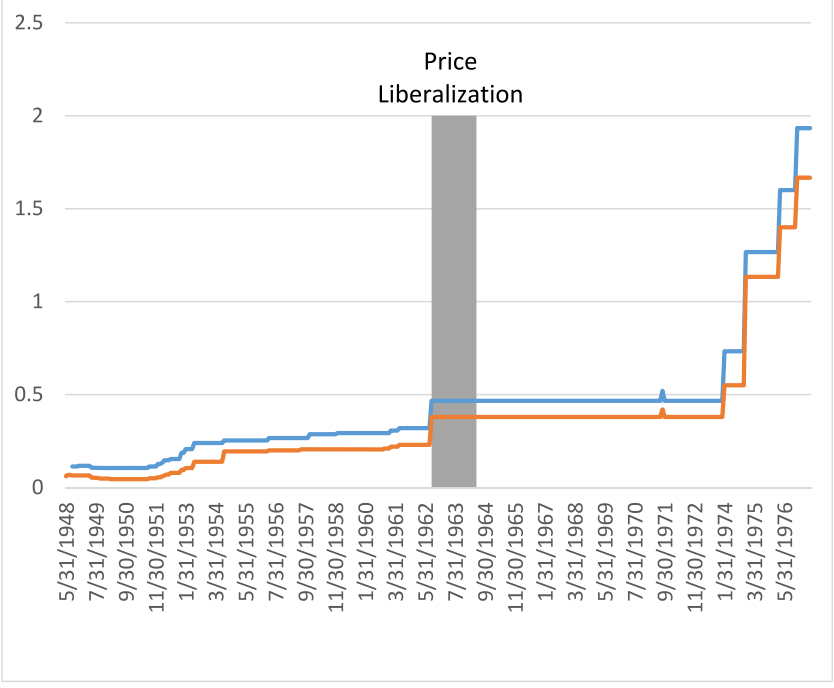

Fig. 10. Nominal bread prices (IL/Kg.), May 1948–May 1977.

exchange rate for wheat imports.[29] Due to the wheat subsidy reduction, the regulated price of standard flour as a percentage of the unsubsidized price jumped from 40% in 1953 to 89% in July–December 1954,[30] and the flour cost/price ratio for standard bread jumped from 49% to 60%. The wheat subsidy reduction was part of a broader reform that consisted of exchange rate unification, abolishing most subsidies and shifting the remaining subsidies to the ordinary budget. Eshkol chose to reduce the wheat subsidy, rather than abolishing it or moving it unchanged to the ordinary budget. (Ultimately, the government failed to achieve exchange rate unification, and backtracked on subsidies during the 1955 election year.)

[29] The formal exchange rate increased from IL 1.00/$ to IL 1.50/$ for standard flour and IL 1.80/$ for white flour (Davar, July 18, 1954).
[30] Authors' calculation based on Haaretz, July 28, 1954, and the USDA wheat price for July–December 1954.

The BAI for standard bread increased sharply in July 1954, then decreased gradually (Fig. 11). Due to the sharp increase in the standard bread price and measures that made animal fodder cheaper and more plentiful, feeding of bread to livestock decreased sharply, as indicated by the 27% decline in standard flour consumption during March 1954–March 1955 (Rubner 1960, 265).

4.1.2. *Declaration that prices would be set based on medium bakeries' costs, decline in real bread prices and refusal to liberalize prices*

Ca. 1958, Sapir declared that he would base regulated prices on the costs of medium bakeries and rejected the NC's "representative bakery" fiction (August 3, 1958, 6008/9-Gimmel Lamed). Over November 1955–December 1960, the weighted real bread price decreased by 9% (Fig. 12).

Beginning in 1956, the NC repeatedly demanded bread price liberalization, which had been recommended by the Argov Committee (Argov et al. 1955). Sapir agreed in principle but repeatedly delayed implementation.

4.1.3. *Ending government credit to small bakeries, while extending credit to large/merged bakeries*

Ca. 1958, Sapir ended Development Budget credit to small bakeries (with limited exceptions); henceforth, only large bakeries or merged medium/large bakeries would qualify. Furthermore, each Development Budget loan would be conditional on a signed commitment not to request price increases (August 3, 1958, 6008/9-Gimmel Lamed)· A senior MTI official explained: "… We decided to give the most efficient bakeries Development Budget [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* (emphasis ours) … There is no justification for giving credit to primitive bakeries and thus prolonging their artificial existence and burdening the price of bread" (March 24, 1958, 6008/9-Gimmel Lamed). Over 1956-early 1963, the MTI granted IL 2.6 million in Development Budget loans to finance new equipment for large bakeries and mergers of small bakeries (Davar, March 6, 1963).[31]

4.1.4. *Rejection of a NC proposal for modest mechanization of small bakeries*

The NC proposed that the MTI would provide Development Budget loans for replacement, renewal and cost reduction in small bakeries, without expanding their output. Sapir agreed in principle in August 1957 (August 6, 1957, 6008/9-Gimmel Lamed), but reversed course in early 1960 by adopting the recommendations of the Gazit Committee (Gazit et al. 1960), the first official committee devoted to the problems of small bakeries, as follows: a. Reject modest mechanization, because it will not reduce small bakeries' costs as promised; b. continue to deny Development Budget loans to small bakeries (with limited exceptions); c. continue to encourage and finance mergers; d. prevent capacity expansion at the industry level. By adopting these recommendations, Sapir signaled that small bakeries had no future, and that large bakeries should compete aggressively and/or seek to take over small bakeries.[32]

4.2. *Rationalization*

During 1955–1959, the number of bakeries decreased by 13% and the number of nonmechanized bakeries decreased by 28%; thus, nonmechanized bakeries as a percentage of all bakeries decreased from 94% to 77%. The rationalization process accelerated somewhat during 1959–1963, after Sapir's bakery credit reform: The number of bakeries decreased by 16% and the number of nonmechanized bakeries decreased by 37%; thus, nonmechanized bakeries as a percentage of all bakeries decreased from 77% to 58% (Fein et al. 1964 and Fig. 13).

In a truly dramatic shift, the market share of nonmechanized bakeries decreased from 52% to 25%, while the market share of fully mechanized bakeries increased from 32% to 62% (using flour consumption as a proxy for output; Fig. 14).

Of the small bakeries that disappeared during 1956-early 1963, roughly one-third merged into large bakeries; the other two-thirds were liquidated (Fig. 1 and Davar, March 6, 1963).

4.3. *Winners and losers*

Who were the winners and losers in Phase I? Consumers won: Although the weighted real bread price increased by 2% per year, it remained low by historical standards. The WBAI decreased by 0.6% per year (Fig. 8). Bakeries lost: The weighted real bread price remained low by historical standards, and the NC failed to obtain price liberalization. Small bakeries suffered the greatest losses—they turned unprofitable and many were forced to merge or exit. Large bakeries sustained milder losses—they remained profitable, but presumably their profit margins eroded after policymakers ended "cost-plus for primitive bakeries."[33] Policymakers compensated large bakeries via Development Budget loans to finance investment and mergers.

[31] For small bakery owners, the realization that the government was forcing them to exit or merge must have been extremely painful. From their perspective, the government's actions must have been tantamount to expropriation. However, there is no evidence of public protests over this issue.

[32] The Histadrut supported small bakery exits and mergers, presumably due to insider/outsider considerations: Histadrut bakeries were larger on average than private bakeries, and many of the potential layoff victims were nonunion workers.

[33] Profitability data are lacking.

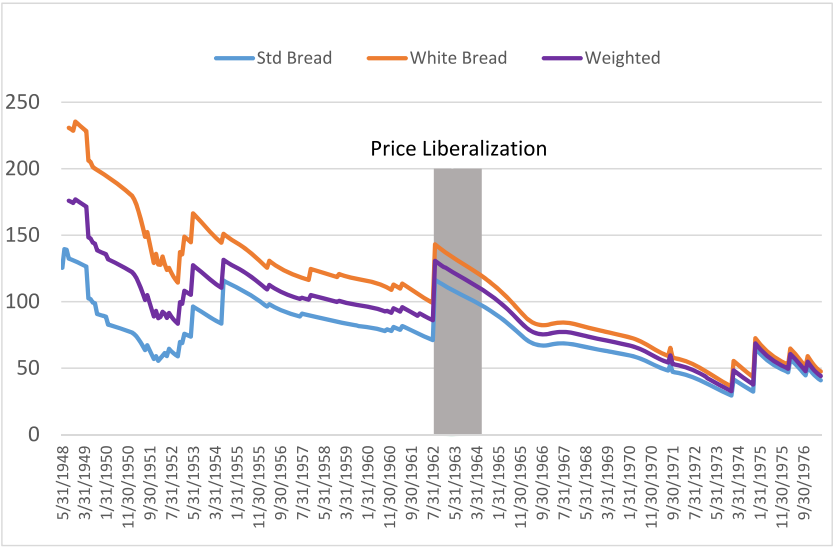

Fig. 11. Bread Affordability Indices (BAI), August 1948–May 1977 (1954 annual average for standard bread = 100).
Notes: BAI = bread price index/index of economywide nominal wage. Higher values of the BAI reflect lower affordability. The nominal wage series was temporally disaggregated from annual to monthly frequency using the Fernandez method with a constant. For the weights used to compute WBAI, see A.3 in the Appendix.
Sources for annual nominal wage index: 1948–1974, Barkai and Liviatan (2007, 44, 74, 111); 1975–1977, Bank of Israel (1978, 252).

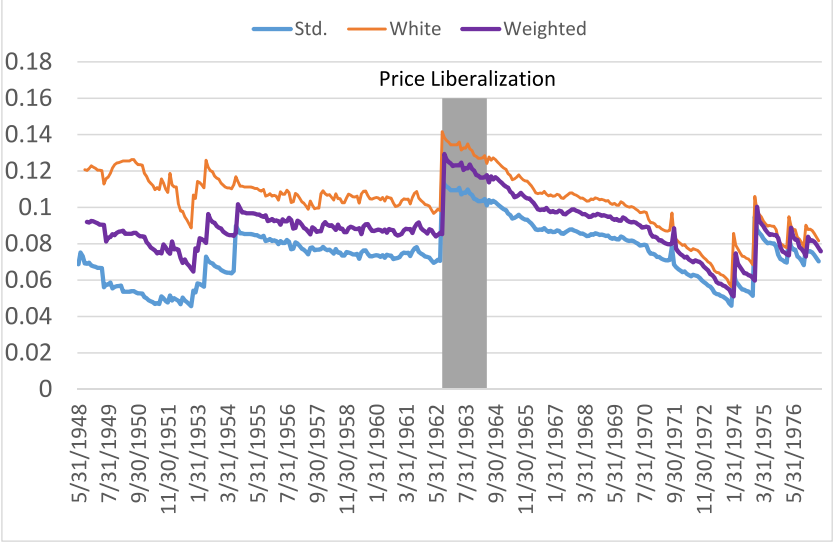

Fig. 12. Real bread prices, May 1948–May 1977 (IL/Kg., in Sept. 1951 IL).
Note: For the weights used to compute weighted prices, see A.3 in the Appendix.

5. Phase II (July 1962–May 1964)

5.1. Regulatory reforms

Despite Eshkol's 1954 attempt to achieve exchange rate unification, the government retained its byzantine multiple exchange rate system. Over 1954–1961, the formal IL/US Dollar rate remained fixed, while the effective rate increased by 54% for imports and 44% for exports. By the second half of 1961, the government realized that the exchange rate regime was unsustainable. In February 1962, the government devalued the formal rate by 67%, from IL 1.80/$ to IL 3.00/$ and unified the exchange rate (Barkai and Liviatan 2007, 87–88). To prevent a real appreciation that would harm net exports, Eshkol and Sapir launched an intensive anti-inflation campaign (Greenberg 2011, 207–209). On the advice of their senior officials, they deemphasized price controls in favor of monitoring and moral

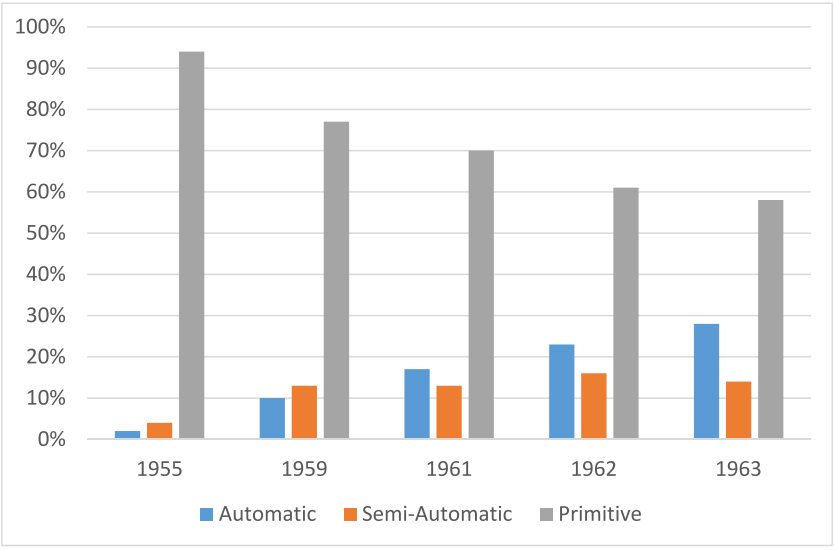

Fig. 13. Percentage distribution of Israeli bakeries by degree of mechanization, 1955–1963.
Source: Fein et al. (1964).

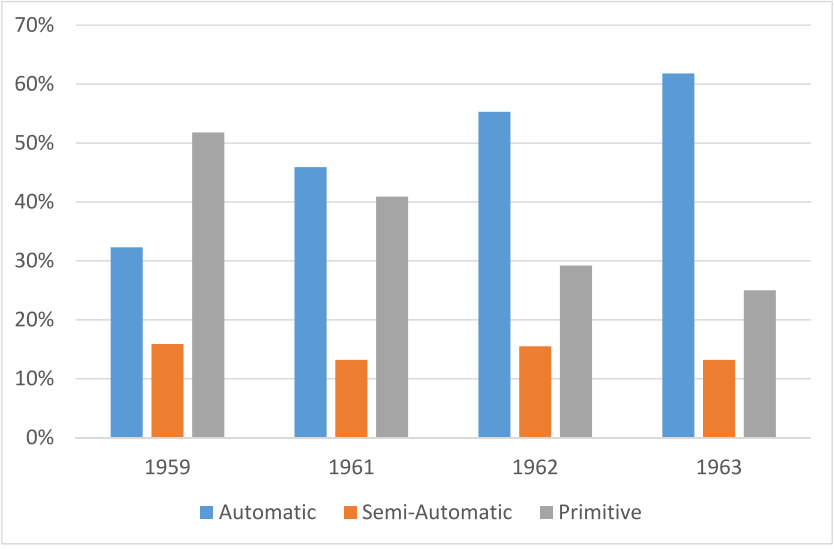

Fig. 14. Market shares by degree of mechanization, 1959 and 1961–1963.
Source: Fein et al. (1964).

suasion (=an announcement that "the government will not see price increases in a positive light"); they figured that if the new approach failed, they would restore price controls within a few weeks (Maariv, June 25, 1962).

In this context, Sapir and Eshkol decided to implement a "revolutionary change" (Sapir, Knesset Minutes, August 8, 1962): Effective August 5, 1962, bread prices would be liberalized and wheat and bakery subsidies would be abolished. Sapir called a press conference and made the following announcement: The IL 38 million wheat subsidy that had been budgeted for FY 1962–1963[34] would be abolished by importing wheat at the new unified exchange rate of IL 3.00/$ instead of IL 1.40/$ (as in July 1954, the wheat subsidy was abolished rather than moving it unchanged to the ordinary budget). Standard and white bread prices would increase by approximately 60% and 38%, thus increasing the CPI by 1.2–1.4 points. This reform would virtually eliminate the distortions caused by artificially cheap bread: wastage by households, feeding to livestock—which had increased since 1960 and wasted $2.5 million in foreign currency annually, and smuggling to neighboring countries—which had increased to a smaller degree. "In light of this situation

[34] The Fiscal Year was April 1-March 31.

and after many doubts, we decided to perform the [medical] operation." Bread would remain inexpensive by international standards (Fig. 15). Poor households would be compensated via transfer payments until the COLA payment of January 1963, which would compensate all workers (Haaretz, July 11, 1962).

Ostensibly, the NC had great cause for celebration: It had finally obtained the price liberalization that it had sought since 1956. But the NC was unenthusiastic, to say the least: "… we will not benefit … because despite the end of official prices we are still restricted by a ceiling price" (Haaretz, July 11, 1962). In other words, this was a price liberalization in name only. The NC sought to exploit the new situation by raising prices in unison. When Sapir heard that the bakeries planned to cartelize and set "unreasonably high" prices (Sapir, Knesset Minutes, August 8, 1962), he threatened to take antitrust action against any price-fixing cartel. But the bakeries were undeterred: On August 6, the bakeries increased bread prices in unison by 97% and 54%, much larger than the 60% and 38% that Sapir had predicted.[35] Sapir summoned the NC immediately; at a marathon negotiation session on August 7, the NC agreed to partially reverse the price increases, by reducing prices 16% and 5%, effective August 9. Thus, for the entire month of August 1962, prices increased by 65% and 45% (Fig. 10), which virtually eliminated cross-subsidization (Fig. 2). The weighted price increase was 52%; this was by far the largest bread price increase in Israel's history. Thereafter, Sapir insisted that all future price increases be coordinated with him.

5.2. Winners and losers

Who were the winners and losers in Phase II? Consumers suffered a major loss: The weighted real bread price increased by 17% per year, while the WBAI increased by 14% per year (Fig. 8). Small bakeries lost despite the price increase—they continued to disappear/lose market share (Figs. 13 and 14). Large bakeries won a major victory—they remained highly profitable[36] and continued to receive Development Budget credit to finance efficiency-improving investment and mergers.

6. Phase III (May 1964–December 1973)

6.1. Regulatory reforms

6.1.1. Prize freeze

After the Tel Aviv bakers announced price increases without his approval, Sapir reimposed price controls in June 1964, froze prices at August 1962 levels until August 1971, and conditioned credit to large bakeries on cooperation with the freeze. On August 22, 1971, Sapir devalued the IL by 20% and simultaneously increased weighted bread and flour prices by 11% and 7%, while keeping subsidies constant. He promised full compensation to poor and large families for basic goods' price increases (Sapir interview, Davar, August 27, 1971). However, the Histadrut forced him to reverse the bread price increase on September 7, after just 16 days (!), as part of a broader compromise on wages and basic goods prices. The freeze remained in effect until January 28, 1974—a period of 9.5 years (!). Sapir maintained the freeze (by choice until August 1971, and thereafter at the Histadrut's demand) despite an official finding that large bakeries had become unprofitable by 1964–1965 (Fig. 16),[37] a 163–203% rise in basic bakery wages over January 1964–January 1974, and a 310% increase in the global wheat price over January 1970–January 1974 (Fig. 17).

To shield consumers from the exogenous increase in the global wheat price and sustain the bakeries, Sapir reintroduced the wheat subsidy and increased wheat subsidy expenditures by 2700% during 1970–1973 (Fig. 18). He reintroduced the bakery subsidy in June 1964[38] and increased bakery subsidy expenditures by 669% between FY 1968–1969 and FY 1973–1974 (Fig. 19).[39]

Beginning in 1967–1968, the MTI adjusted subsidies to target a 10% Return On Equity at large and medium-large bakeries (493/31-Kaf). Under this policy rule, the bakery subsidy as a percentage of sectoral revenues increased from 3% in 1964–1965 to 10% in 1967–1968 and 25% in early 1972 (March 23, 1972, 493/31-Kaf; Gilshon et al., 1969). By January 1974, the weighted bakery subsidy reached 154% of retail price (Fig. 20).

It is important to place these subsidy increases in broader historical context. High and increasing basic goods' subsidies (Arkin 1974)[40] were part of the government's populist policy of increasing subsidies and transfer payments as GDP growth slowed following the Yom Kippur War and the first OPEC oil shock (Barkai and Liviatan 2007, 153). This policy, combined with increased defense expenditures, increased the deficit/GDP ratio to 21% in 1975 (vs. 9% in 1971). The Israeli public saw cheap basic goods as an

[35] In Sapir's words, "the bakers … departed for a free [pricing] regime after 20 years of [price] controls, and estimated the commercial effects of this revolutionary change … differently from the government's representatives" (Knesset Minutes, August 8, 1962).

[36] Profitability measures for 1962–1963 were deliberately suppressed in order to conceal the large bakeries' strong profitability, by mutual agreement between the NC and the Kregman Committee (Maariv, January 13, 1964). For the Kregman Committee's recommendations, see Kregman et al. (1963).

[37] In 1967–1968 and 1971, the nine largest bakeries were only profitable after subsidies (holding prices constant) (Gilshon et al. 1969; 5698/9-Gimmel Lamed).

[38] Pre-1964 data on the bakery subsidy are fragmentary. We know that bakery subsidies were reintroduced in September 1961, and that the bakery subsidy was IL 250,000/month in February 1962 (Haaretz, February 18, 1962 and March 11, 1962).

[39] Bakery subsidies were based on flour consumption, which created a perverse incentive to waste flour (Gilshon et al. 1969). This perverse incentive was finally eliminated in 1980, with the introduction of sales-based bakery subsidies.

[40] Besides wheat and bread bakeries, the following basic goods were subsidized: oil, sugar, frozen beef, milk, eggs, chicken, animal fodder, water and public transport (Arkin 1974).

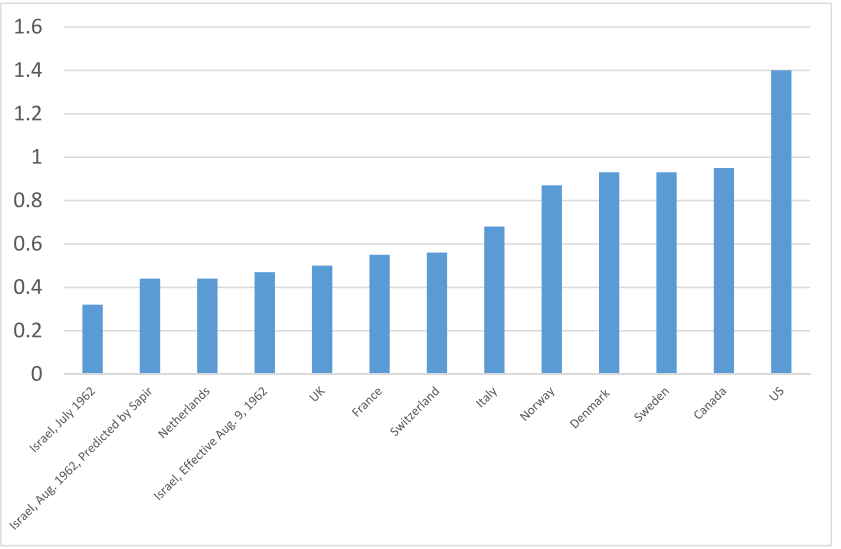

Fig. 15. White bread prices (IL/Kg.) in selected countries, 1962.
Sources: Sapir's press conference (Davar and Haaretz, July 11, 1962) and Sapir's testimony before the Knesset Finance Committee (August 13, 1962).

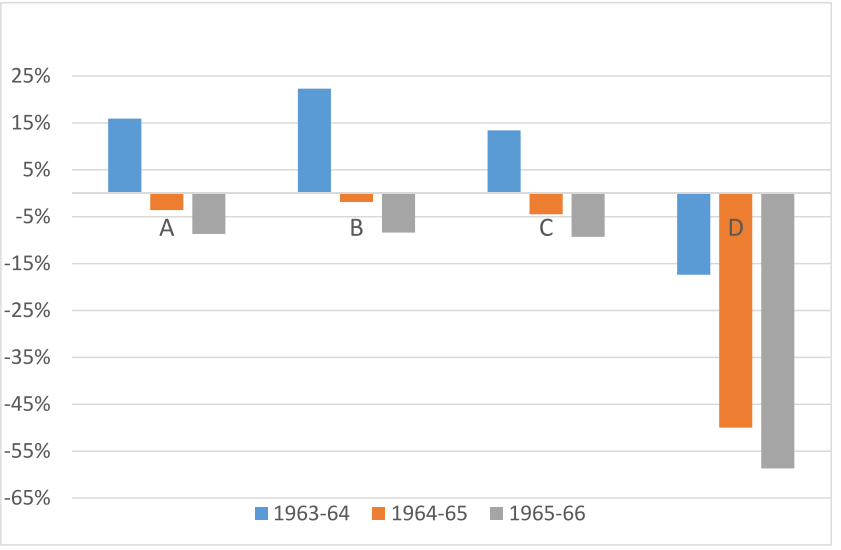

Fig. 16. Profits as a percentage of equity (based on replacement value) by size class, 1963–64, 1964–65 and 1965-66.
Note: Size classes according to annual revenues (in IL 1000s): A, >1500; B, 750–1499; C, 400–749; D, <399.
Source: Mandelbaum et al. (1965).

entitlement: It reacted to basic goods price increases in a "sharp, possibly irrational" manner (Arkin 1971).

Sapir finally lifted the price freeze on January 28, 1974, when he increased the weighted bread price by 51%, reduced the weighted subsidy as a percentage of retail price from 154% to 117% (Fig. 20), and proposed an 89% cut in wheat subsidy expenditures for 1974 (vs. the January 28 forecast; Arkin 1974). He told the Histadrut Convention that wheat subsidy increases were fiscally unsustainable, unfair to taxpayers because they were not targeted to the poor,[41] and caused massive resource misallocation via wastage and feeding to

[41] This is shown in Avnimelech (1976).

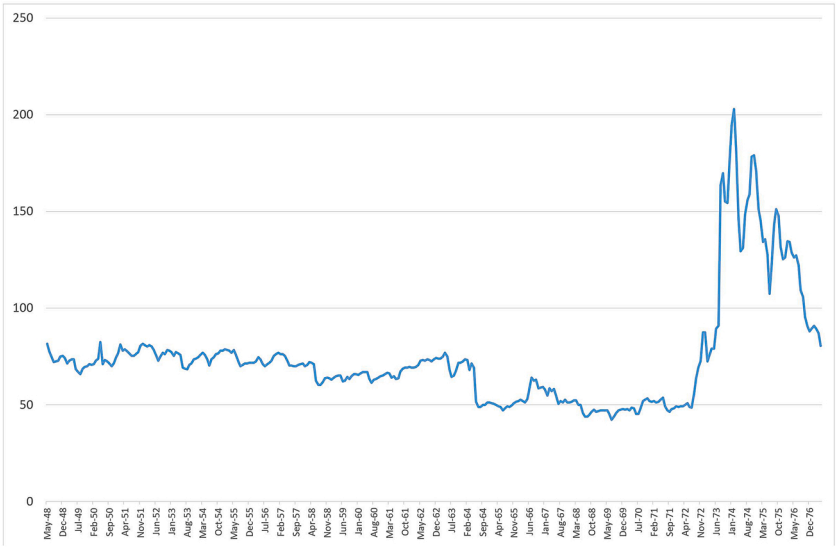

Fig. 17. US season average wheat price ($ per metric ton), May 1948–May 1977.
Source: US Department of Agriculture.

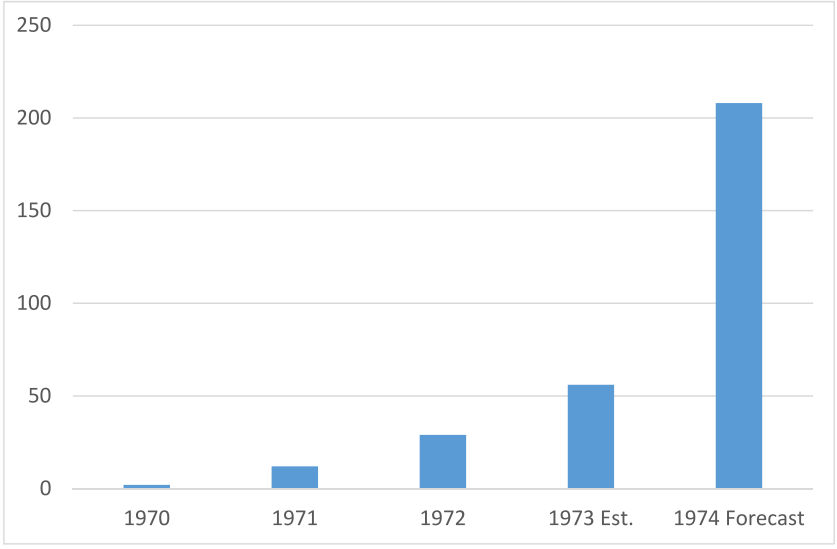

Fig. 18. Wheat subsidy (IL millions), 1970–1974.
Source: Arkin (1974).

livestock. He advocated cutting subsidies for basic goods and increasing their prices, while compensating the poor via increased transfer payments (Davar, March 17, 1974). This principle, which was dubbed "a subsidy for the needy person, not for the [basic] good," was supported by many Labor Party thinkers and by leading economists[42] but was opposed by the Histadrut (as we have seen, the Histadrut prevented Sapir from implementing it in August 1971).

The price freeze, and the conditioning of Development Budget loans to large bakeries on their cooperation with the freeze, made lobbying for price increases (by any coalition of bakeries) an exercise in futility. This strengthened the perception that large bakeries had nothing to gain from coexistence with small bakeries, and (in turn) strengthened large bakeries' incentive to drive out or take over small bakeries.

[42] Don Patinkin (Maariv, February 1, 1974), Yaakov Arnon (Davar, March 2, 1976) and David Horowitz (Maariv, November 8, 1974 and Horowitz 1977) were strong advocates. Abba Lerner espoused the same view back in 1954, while serving as an advisor to the Israeli government (April 25, 1954, 2580/1-Gimmel). For a dissenting view, see Sadka (1979).

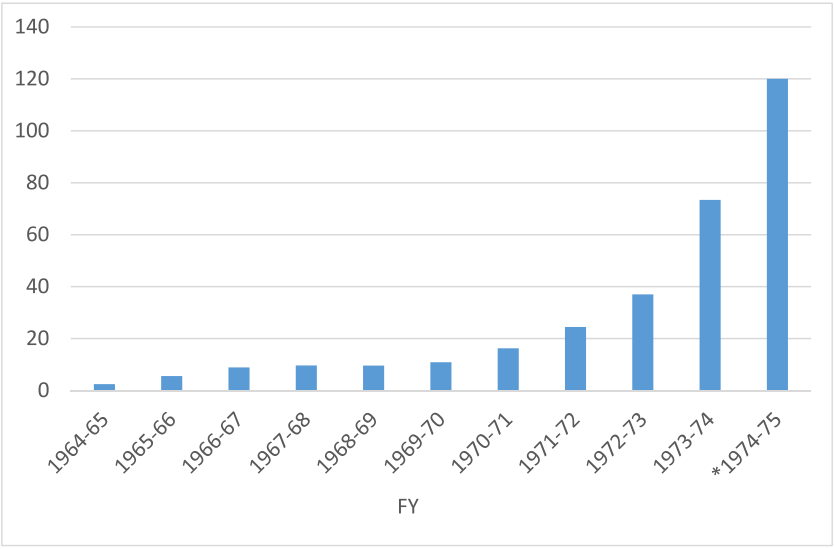

Fig. 19. Bakery subsidy (IL Millions), FY 1964–1965 to 1974–1975.
*Estimated, before 1974 devaluation.
Sources: FY 1964–1965 to FY 1971–1972, 5698/9-Gimmel Lamed; FY 1972–1973 to FY 1974–1975, 5664/17-Gimmel Lamed.

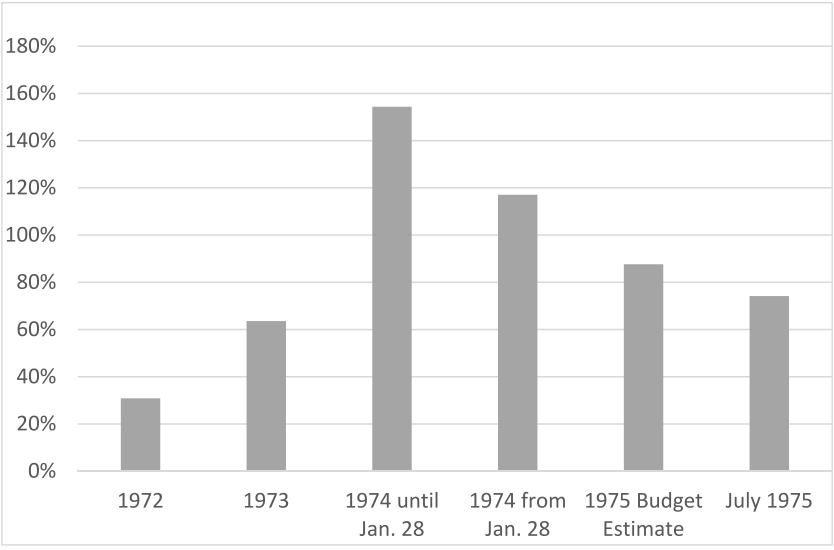

Fig. 20. Weighted bakery subsidy as a percentage of retail price, 1972-1975.
Note: For the weights used to compute the weighted bakery subsidy, see A.3 in the Appendix.
Sources: Arkin (1974), 5664/17-Gimmel Lamed and authors' calculations.

6.1.2. Encouragement of small bakery mergers and exits

In addition to the price freeze, Sapir publicly encouraged small bakery mergers and exits. In 1964, he stated approvingly that efficiency improvements would increase bakery profitability without price increases; this statement was consistent with the S–P proposition that regulators from cost reductions. Sapir added that small bakeries were closing or merging with larger bakeries, in some cases due to owner retirements,[43] and that three large bakeries could replace the current 46 in Tel Aviv. He predicted that "mergers and mechanization should bring about a recovery in this … sector … the trend must be the merger of the remaining small bakeries …" (Davar and Haboker, June 4, 1964). Small bakeries got the message: During 1964, they initiated mergers and also urged the government to initiate and finance mergers (Fein et al., 1964; Lamerhav, December 23, 1964).

[43] Because young adults found baking careers unattractive, many small bakeries closed when their owners retired.

6.2. Rationalization

Sapir's regulatory reforms contributed to rapid rationalization. The bakery sector invested IL 65 million over 1963–1971, primarily for "renewing old equipment, mechanization and automation." The major technological improvements were loose storage of flour (without sacks), new kneading technology, replacement of primitive ovens with advanced labor- and fuel-saving ovens, and automation in baking rolls and packaging bread. These improvements were concentrated in the largest bakeries (Ca. May 1972, 5698/9-Gimmel Lamed).

During 1963–1967, the total number of bakeries decreased from 277 to 221 (Fig. 1); the entire decline occurred in the smallest size class, Class D. Of the 76 bakeries that left Class D, 56 closed and 20 transitioned to larger size classes. As Gilshon et al. (1969) explained: "The decline in the number of bakeries 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 … 32% of bakeries in existence in 1968 were constructed since 1960."

Between 1963 and 1971, 145 bakeries left Class D (Gilshon et al. 1969 and MTI (5698/9-Gimmel Lamed)). The combined revenue share of Classes C and D (medium-small and small) decreased from 61% to 29%, while the combined revenue share of Classes A and B (large and medium-large) increased from 39% to 71% (Fig. 21).

6.3. Winners and losers

Who were the winners and losers in Phase III? Consumers obviously won: They enjoyed a 9.5 year prize freeze that reduced the weighted real bread price by 8% per year and the WBAI by 12% per year (Fig. 8). Both small and large bakeries lost: For all size classes, profits decreased monotonically over 1963–64 to 1965–1966 and turned negative in 1964–1965 (Fig. 16). Approximately 150 small bakeries disappeared (Table A.1). The government used subsidies and Development Budget loans to compensate the remaining bakeries.[44]

7. Phase IV (December 1973–May 1977)

7.1. Regulatory reforms

Large bakeries moved to three shifts ca. 1974; thus, excess capacity was virtually eliminated. This revolutionary change was the result of a new phenomenon: the closing of large bakeries. When a large bakery was about to close, the MTI attempted to save it by offering financial incentives to potential buyers. When closure became inevitable, the MTI urged surviving local bakeries to expand production in order to replace the exiting bakery's production; the bakeries did so via illegal night baking with the bread regulator's (tacit) encouragement (Maariv, January 12, 1977 and Davar, February 24, 1978). Thus, illegal night baking became standard industry practice; the Histadrut protested but to no avail.[45] The regulator's (tacit) encouragement of night baking is consistent with the S–P model.

In November 1974, with Israel reeling from the effects of the first OPEC oil shock, the IL was devalued by 43%. Concurrently, Sapir's successor as Minister of Finance increased the weighted bread price by 90% (Fig. 10), as part of a general reform that reduced subsidies on basic foods and increased their prices by 20–25%. This was the largest bread price increase in Israel's history, even surpassing the August 1962 price increase. The nonworking poor were fully compensated via transfer payments (as Sapir had advocated), but the working poor were only partially compensated (2%–15%, depending on the number of children) and compensation of nonpoor wage earners was delayed (Avnimelech 1976). Thereafter, as global wheat prices declined (albeit not monotonically; Fig. 17), the Ministry of Finance sought further subsidy cuts as part of a sharp fiscal adjustment (which decreased the deficit/GDP ratio from 21% in 1975 to 10% in 1976), but was unable to end the cheap bread regime[46] due to Histadrut opposition.[47]

7.2. Rationalization

The rationalization process continued: By late 1975, there were just 120 bakeries, of which 30 were small. By January 1977, just 90

[44] The available data are less detailed, compared to Phases I-III.

[45] Some bakeries were fined by the Ministry of Labor. The bread regulator urged the Minister of Labor to support repeal of the Law, and in the meantime, to exercise his authority under the Law to permit night baking (Maariv, January 12, 1977). The Minister of Labor refused to support repeal (Davar, February 24, 1978) and apparently refrained from permitting night baking; presumably, he remained passive in order to avoid conflict with the Histadrut.

[46] The cheap bread regime only ended in 1990, when bread subsidies were finally abolished. In 1981, Israel's bread price was by far the lowest among developed countries ($0.23/kg, vs. $0.51-$1.69 in 13 other countries; Byerlee 1983). During 1975–1990, Israel ranked 4th out of 60 countries in government subsidies as a percentage of GDP (Schwartz and Clements 1999). Price controls remain in effect today, although price-controlled breads account for just 8% of bread revenues (as of 2018).

[47] The Histadrut "guaranteed" the price of 14 subsidized basic goods including bread (Davar, June 9, 1975). When the Ministry of Finance proposed to cut the standard bread subsidy to 25% of retail price, the Histadrut insisted on 50% (Maariv, March 19, 1976).

Fig. 21. Revenue shares by size class, 1963–64, 1967–68 and 1971.
Sources: Gilshon et al. (1969) and 5698/9-Gimmel Lamed.

bakeries remained; in Jerusalem, eight bakeries working three shifts held a 90% market share (Davar, January 26, 1977).

7.3. Winners and losers

Who were the winners and losers in Phase IV? Consumers lost: The weighted real bread price increased by 12% per year, and the WBAI increased by 9% per year (Fig. 8). Closed bakeries, some of which were large, lost; whether surviving bakeries won or lost is unknown.[48]

8. Conclusion

Under Israel's Labor Socialist regime, policymakers faced a complex set of microeconomic and macroeconomic tradeoffs when setting regulated bread prices, including the basic tradeoff between bread affordability and producer viability. In this paper, we have documented the regulatory changes that took place over time as industry market structure evolved, both exogenously and endogenously in response to policy. These regulatory changes reflected changes in policymakers' preferences regarding producer profits, consumer welfare, fiscal responsibility and exchange rate unification.

During June 1952–May 1977, regulatory reforms accelerated the process of technologically-based rationalization in the Israeli bread bakery industry, compared to the status quo ante. Over time, the industry became more efficient and its regulatory rents were dissipated, as small-scale, unmechanized high-cost bakeries disappeared via exit or merger, profits of large-scale, mechanized low-cost bakeries were driven to near zero and the industry transitioned from one to three daily shifts. By 1977, only 90 bakeries remained, vs. 443 in 1953. Regulatory policy was strongly pro-consumer—The Weighted Bread Affordability Index (WBAI) decreased by 3% per year (Fig. 8).[49] This was achieved by a combination of rationalization and subsidies.

The process did not unfold in a smooth manner; rather, regulatory reform occurred in four distinct phases, with (sometimes sharp) fluctuations in both consumer welfare and producer profits. For example, policymakers deviated sharply from their usual pro-consumer policy in 1954 and 1962, when they reduced or eliminated subsidies in the context of (attempted) exchange rate unification and fiscal consolidation. Under the 1962 "price liberalization," policymakers allowed bakeries a one-time (weighted) 52% price increase before restoring price controls de facto. Policymakers restored price controls de jure in 1964; thereafter, policymakers froze bread prices for 9.5 years despite skyrocketing global wheat prices and declining profitability even among large bakeries.

There are several key takeaways from our story:

[48] Profitability data are unavailable after 1971.
[49] Over August 1948–May 1977, the decline in WBAI was even steeper, at 5% per year.

a. Although industrywide regulation incentivizes noncompetitive behavior, sustains inefficient producers (Daughety 1984, De Vries 2019, 1983) and incentivizes joint rent seeking by efficient and inefficient producers, policymakers may act to weaken or eliminate these incentives;
b. The Stigler-Peltzman model can explain certain aspects of Israeli bread regulation: policymakers' active support for mechanization, rationalization, and other cost-reducing measures, and the use of subsidies to benefit both consumers and producers. However, the model is too stylized to explain other phenomena, such as policymaker choices when facing tradeoffs that involve macroeconomic and redistributive considerations.
c. In a small open economy with fixed exchange rates, there is a strong interaction between microeconomic and macroeconomic policy considerations. In Israel, bread price restraint was an element of the government's anti-inflation, anti-real appreciation policy; thus, the bread price was a key macroeconomic variable. Likewise, in a wheat importing country such as Israel, wheat subsidies given through the multiple exchange rate system are also a key macroeconomic variable.
d. Policymakers may opportunistically exploit comprehensive macroeconomic reforms to implement measures that are too politically unpalatable under regular circumstances. In 1954 and 1962, Israeli policymakers attempted exchange rate unification and fiscal consolidation to address pressing macroeconomic problems. Simultaneously, they cut wheat subsidies, then informed the public that the purpose of the cuts was to eliminate the feeding of bread to livestock. This was an overstatement at best: Under regular circumstances, the consideration of feeding bread to livestock had little to no influence on policy.

We conclude with some questions for further research:

What factors determine the existence (or nonexistence) of cheap bread policies in democratic countries? Based on the Israeli (1948–1990) and UK (1939–1956, 1974–1977) experiences, we hypothesize that the likelihood of cheap bread policy is increased by war and national emergency, a socialist government, and a strong labor union. Electoral competition does not appear to have played a role in the Israeli case; in the UK case, the potential influence of electoral competition is more complex and requires further research. Thomson (2019, 55–56) finds that "income inequality drives pressure for democratic governments to lower food prices as a form of economic redistribution to poorer voters;" however, this does not appear to fit the Israeli or UK experiences.[50]

How did democratic countries with cheap bread policies deal with the rise in global wheat prices in the 1970s? To what extent did these countries increase subsidies to insulate consumers from global price developments? Was the Israeli experience with bread subsidies typical or atypical? How did bread policy correlate with policy regarding other essential foods?

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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[50] In Israel, the Gini coefficient for Jewish urban families rose from 0.30 in 1954 to 0.41 in 1967, then fell to 0.34 in 1977 (Ginor 1979, 244); the WBAI fell in 1962 as inequality rose, and rose during 1967–1973 as inequality fell. In the UK, cheap bread was abolished by the Conservative Government in 1956 after the Gini coefficient rose slightly over 1950–1956 (following a major decline in 1938–1950; Atkinson 1999), and was reintroduced by the Labour Government in 1974 after the Gini coefficient fell over 1963–1974.

Appendix

Table A.1
Evolution of the Bread Bakery Industry, 1952–1977: Total Number of Bakeries, Number of Small Bakeries and Number of Primitive Bakeries.

Year	Date	Total # of Bakeries	# of Small Bakeries	# of Primitive Bakeries	Source
1952	Jan. 1	339			4128/17-Gimmel
1953	Dec.	443	241 Flour processed ≤30 tons/ month		Beham and Rosenberg (1954), Argov et al. (1955)
1954	Dec. 31	365	277 Capacity ≤4 tons/day on a two-shift basis		Argov et al. (1955)
1955		377		354	Fein et al. (1964)
1958	Mar. 31	352			MTI (6008/9-Gimmel Lamed)
1959		329		254	Fein et al. (1964)
1961		297		209	Fein et al. (1964)
1962		284		173	Fein et al. (1964)
1963	May	277		161	Fein et al. (1964)
1963–64		277	222 Annual revenues ≤ IL 399,000		Gilshon et al. (1969)
1967–68		221	146 Annual revenues ≤ IL 399,000		Gilshon et al. (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 et al.'s (1969) figures.
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)
1975	Nov.	120	30 Flour processed ≤40 tons/ month		21144/10-Gimmel Lamed
1977	Jan.	90			Maariv, Jan. 12, 1977

Notes: IL = Israeli Pound. The criterion for small bakery classification varies by source. A bakery is classified as primitive if both dough preparation and baking are nonmechanized.

Table A.2
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: Beham and Rosenberg (1954).

Table A.3
Bread Regulators, 1948–1977.

Term	Bread Regulator	Ministerial Portfolio	Party	Note
May 1948–Mar. 1949	Peretz Bernstein	Trade, Industry and Supply	General Zionists	Provisional Government Business/economics experience: Grain and coffee trader in the Netherlands.
Mar. 1949–Nov. 1950	Dov Yosef	Supply and Rationing	Labor	Also served as Minister of Agriculture during March 1949–November 1950.
Nov. 1950–Oct. 1951	Pinhas Lavon	Agriculture	Labor	The Ministry of Supply and Rationing was permanently abolished in November 1950, and most of its functions were transferred to the Ministry of Agriculture.
Oct. 1951–Dec. 1952	Dov Yosef	Trade and Industry	Labor	Also served as Minister of Justice during October 1951–June 1952.
Dec. 1952–June 1955	Peretz Bernstein	Trade and Industry	General Zionists	Business/economics experience: Grain and coffee trader in the Netherlands. Deputy Minister Zalman Susayeff (General Zionists; June 1953–June 1955) played a central role.
June 1955–Nov. 1955	Peretz Naphtali	Trade and Industry	Labor	Sharett caretaker government after July 1955. Business/economics experience: Worked at an export company in Germany and Belgium, as an economic journalist and as a researcher for trade unions in Germany. Member of Bank Hapoalim's Board of Directors.
Nov. 1955–May 1965	Pinhas Sapir	Trade and Industry	Labor	Also served as Minister of Finance beginning in June 1963. Business/economics experience: Co-founded and managed the workers' credit cooperative in Kfar Sava. Member, Supervisory Board of Workers' Credit Cooperatives.
May 1965–Nov. 1966	Haim Zadok	Trade and Industry	Labor	Resigned due to differences with Minister of Finance Pinhas Sapir.
Nov. 1966–Dec. 1969	Zeev Sharef	Trade and Industry	Labor	
Dec. 1969–Aug. 1970	Yosef Sapir	Trade and Industry	Herut-Liberal Bloc	
Sept. 1970–Mar. 1972	Pinhas Sapir	Trade and Industry	Labor	Also served as Minister of Finance. Moshe Sanbar was acting minister (official title: "Special Aide to the Minister") during Sept. 1970–Oct. 1971.
Mar. 1972–June 1977	Haim Bar-Lev	Trade and Industry	Labor	Previously Chief of Staff of the Israel Defense Forces (1968–1972). Studied business and economics at Columbia University in 1961.

Table A.4
Ministers of Finance, 1948–1977.

Term	Minister of Finance
May 1948–June 1952	Eliezer Kaplan
June 1952–June 1963	Levi Eshkol
June 1963–Aug. 1968	Pinhas Sapir
Aug. 1968–Dec. 1969	Zeev Sharef
Dec. 1969–Jun. 1974	Pinhas Sapir
Jun. 1974–Jun. 1977	Yehoshua Rabinowitz

Notes: All Ministers of Finance were from the Labor Party. Pinhas Sapir served as Director-General of the Ministry of Finance during June 1953–November 1955. Levi Eshkol served as Prime Minister during June 1963–February 1969.

A.1. Price Elasticity of Demand

We approximate the price elasticity of demand at −0.1, based on the following estimates: price elasticity of bread and cereals in 1996, -0.17 (Seale et al., 2003); elasticity of flour consumption with respect to bread price, −0.09 (authors' calculations based on Sapir's predictions in Haaretz, July 11, 1962); Price elasticity of bread, zero (Beham and Rosenberg 1954; Gilshon et al., 1969).

A.2. Calculation of Percentage of Histadrut Households Without and With a Bakery Worker in 1953

Total bakery employment = 3,522; union density was "over 80%" (Beham and Rosenberg (1954). Assuming that union density = 85%, 2,994 (=85% of 3,522) Histadrut members were employed in the bakery sector. Total Histadrut membership was 293,692 in 1953 (linearly interpolated from figures in Sobel 1963). Thus, 1% (=2,994/293,692) of Histadrut members were employed in the bakery sector. Histadrut member households comprised 45.7% of the Israeli population (linearly interpolated from figures in Sobel 1963). Thus, Histadrut member households without a bakery worker comprised 45.2% (=99% of 45.7%) of the Israeli population, while Histadrut member households with a bakery worker comprised 0.5% of the Israeli population (=1% of 45.7%).

A.3. Weights for Computation of Weighted Series

The following weights were used to compute weighted series:
Weight of standard bread = revenue from standard bread/revenues from standard and white breads.
Weight of white bread = revenues from white bread/revenues from standard and white breads.
Because revenue data are available at a low frequency, we assign weights to time periods as follows:

Months	Weight of Standard Bread	Weight of White Bread	Measured In	Source
Aug. 1948–Dec. 1961	55.7%	44.3%	March 1955, Tel Aviv	Argov et al. (1955)
Jan. 1962–Dec. 1962	46.7%	53.3%	July–Aug. 1962	Authors' calculations, based on Sapir press conference (Davar and Haaretz, July 11, 1962) and Sapir testimony in Knesset Finance Committee, August 13, 1962.
Jan. 1963–Dec. 1972	45.1%	54.9%	1963–1964	Mandelbaum et al. (1965)
Jan. 1973–May 1977	51.3%	48.7%	1973–1974	MTI (5664/17-Gimmel Lamed)

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