Chapter 9
Construction and the Housing Market

- In the past two years, activity in the construction industry has stabilized at a high level, following significant growth in previous years. This stability may reflect that the increase in activity in the industry has neared its limit.
- The "Buyer's Price" program is intended to lower the cost of purchasing a home for young couples. It focuses on high-density construction, mainly outside areas of high demand. This program lowers the cost of a home for those who win program lotteries, and increases demand. It is not clear how it will affect home prices in the market as a whole.
- Building reinforcement as part of National Outline Plan 38 increased the number of homes in buildings (density), mainly in the Tel Aviv district. However, the program may negatively impact the potential to expand the supply of dwellings in areas in the central regions in the medium to long term, since it blocks the possibility of creating greater density in places where a build-vacate-and-build program might be appropriate.
- Even though the stock of capital per employee in the construction industry increased in the past decade, there is still a marked technological lag in the industry relative to industries in the business sector, which is accompanied by a relatively low wage. These characteristics also reflect the high proportion of non-Israeli workers in the industry.

Below, we first describe the current developments. A considerable part of the government's efforts in the field of housing focused on increasing supply, with the aim of responding to the hardships of young couples seeking to purchase a home. As a result of these efforts, the total number of building approvals issued by the District Planning Committees (Planning Administration) increased considerably in recent years. Since 2011, the annual number of building starts has averaged 46,000 units—a rate that should satisfy the demand resulting from demographic growth. In the second section we introduce the new format of the Buyer's Price Program. In the third section, we discuss the quantitative development of additions to existing buildings, under the policy to encourage the reinforcement of buildings (National Outline Plan 38, or NOP 38) and examine the policy's long-term effects on density. The final section focuses on technological developments in the construction industry. The final three issues have a common denominator: They all concern policy decisions that emphasize short-term solutions to urgent problems at the expense of long-term efficiency.

1. CURRENT DEVELOPMENTS

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Home prices and rentals soared for the eighth consecutive year and the rate of increase in home prices rose from 4.7% in 2014 to 8% in 2015. The volume of home transactions increased this year, after declining last year. This combination of statistics indicates that the increase in demand exceeded the expanding supply. This year, demand was positively affected by real factors such as the strength of the labor market, which was reflected in the continuing decline in unemployment and the rise in real wages (also see Chapter 2), as well as financial factors that were influenced by the low interest rates and public expectations of developments in the housing sector.

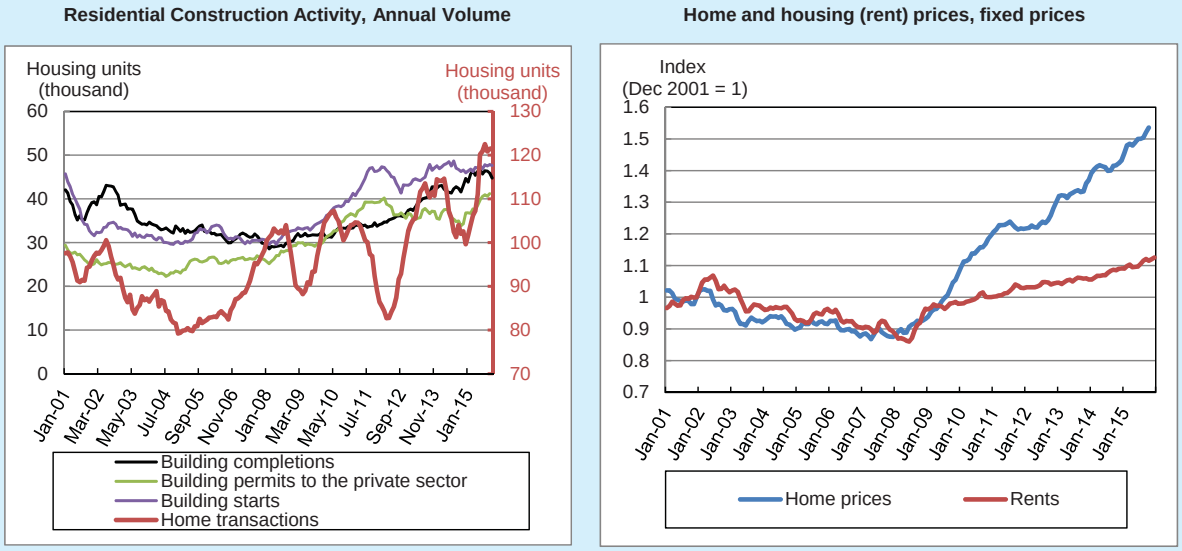
The volume of transactions increased this year after a temporary decline that began in the second quarter of 2014 (Figure 9.1), primarily due to the government announcement in 2014 of the Zero VAT and Target Price programs, which were no longer on the agenda by the end of that year. Furthermore, there were fluctuations in investors' activity in 2015, in response to the increased tax rate imposed on them. In 2015, the government adopted the New Format of the Buyer's Price Program to assist first-time homebuyers (for additional information see below).

The total number of building approvals issued by the district planning committees (Planning Administration) increased considerably in recent years, but marketing was delayed because proper infrastructure must also be built.

A considerable share of the government's efforts in the housing sector focused on increasing the supply.[1] As a result of these efforts, the total number of building approvals issued by the district planning committees (Planning Administration) increased considerably in recent years, and this year approvals for 100,000 housing units were issued (Table 9.2), of which 25,000 housing units were approved by the National Planning and Building Committee for Priority Housing Areas (Hebrew

[1] Planning and construction procedures are described in the Bank of Israel Annual Reports for the years 2011–2014.

Figure 9.1
Residential Construction Activity, Home Prices and Rents, 2001–15



SOURCE: Based on Central Bureau of Statistics.

acronym: Vatmal).[2] (Table 9.2 shows that the Tel Aviv District accounts for a smaller share of total approvals than the District's share of households; we elaborate on this point in Section 3.) As a result, the planned inventory of housing units increased significantly, but, as Figure 9.2 indicates, the impressive increase in the number of approvals issued since 2012 was not reflected in an increase in the total zoned land sold by the Israel Land Authority (ILA)[3], nor in the number of housing starts. This apparently occurred because the approved building plans cannot be executed before meeting the conditions of the building approvals, which include completion of the necessary infrastructure. In contrast, the number of building permits for dwellings built at the initiative of the private sector[4] reached a record high this year, after declining in the past three years (Figure 9.1), but the increase was concentrated primarily in the peripheral areas and in Haifa, while a decline was recorded in the center of the country—Tel Aviv, Jerusalem, and the Central districts (not shown).

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[2] Vatmal—The National Planning and Building Committee for Priority Housing Areas was established in 2014 to identify land and rapidly increase the supply. Its authority supersedes that of any other committee or plan with the exception of National Outline Plan 35. Additional information appears in Bank of Israel Annual Report for the Year 2014, Chapter 7A. In December 2015, the Vatmal approved 13,900 housing units in the Tel Aviv District and 11,500 housing units in the Southern District.

[3] The Planning Administration also issues approvals for privately owned land, while Israel Land Authority sales only refer to state-owned land. There is therefore no direct connection between the two figures. Nonetheless, it is reasonable to expect that Israel Land Authority sales will expand as a result of the increase in the number of approvals that the Planning Administration issues, especially because the government has greater ability to increase the supply of state-owned lands.

[4] These permits are issued by the local planning and building committees.

Table 9.1
The Construction Industry, Selected Data 2001–15

	Level in 2015	(Average annual rate of change) 2001–2007	2008–2015	2010	2011	2012	2013	2014	2015
A. Demand variables				(percent)					
Population aged 20 and over (thousand)	5,358.0	2.1	1.8	1.8	1.8	1.8	1.8	1.9	1.9[a]
Real wage per employee post (2011 prices)[b]	9,225.4	0.0	0.4	0.7	0.4	0.6	1.1	1.3	2.1
Per capita GDP (NIS thousand, 2010 prices)	122.8	1.2	1.7	3.6	3.1	1.0	1.3	0.6	0.6
Unemployment rate (level, percentage points)	5.3	11.7	7.1	8.4	7.1	6.9	6.2	5.9	5.3
Average interest rate on CPI-indexed mortgages (level, yearly average)	--	5.3	2.7	2.4	2.9	2.6	2.3	2.3	2.3
Bank of Israel interest rate (level, yearly average)	--	5.6	1.7	1.6	2.9	2.4	1.4	0.6	0.1
B. Supply variables									
Total (active construction) output (NIS billion, 2010 prices)	102.0	-1.0	4.9	10.1	10.7	8.4	7.3	-4.2	1.5
of which: Residential (including renovations)	62.1	-1.1	6.9	12.6	11.2	8.1	6.3	-0.5	2.4
Nonresidential (structures)	18.9	-3.7	2.0	7.9	5.0	-3.1	16.9	-6.6	-4.4
Other construction work (earth work and security)	18.0	2.7	2.5	5.8	12.3	13.5	2.0	-11.9	4.4
Construction product (NIS billion, 2010 prices)	48.8	-0.7	5.6	11.7	12.3	7.9	6.3	-2.9	1.4
Employees[c] (thousand)	270.3	-2.2	4.1	7.5	3.8	3.9	11.0	4.3	2.6
Stock of homes under construction (thousand, end of year)	97.7	-3.8	5.7	12.0	17.3	5.5	5.0	1.1	3.6
Residential building starts (thousand, end of year)	47.7	-5.6	5.7	15.2	15.7	-7.5	10.3	-3.4	3.9
Residential building completions (thousand, end of year)	43.4	-5.4	5.2	2.1	2.6	9.5	13.5	5.2	-2.8
Supply of new homes available for sale by private sector development (thousand, end of year)	16.3	-6.4	4.5	38.3	33.2	8.8	6.2	1.6	-8.2
Total supply of new homes available for sale (thousand, end of year)	28.6			22.5	36.7	1.8	9.2	14.2	7.3
C. Transactions and prices									
Home transactions	120,037	0.4	2.5	1.8	-16.9	18.8	11.5	-13.0	20.5
New home sales	32,207	-3.7	7.7	20.7	-13.3	14.5	10.6	-7.4	40.0
Home prices relative to the CPI excluding housing	--	-2.5	7.7	15.3	7.6	2.2	7.9	6.6	7.2
Rent prices relative to the CPI excluding housing	--	-0.9	3.4	2.9	3.1	2.6	1.9	2.7	3.9
Input prices relative to the CPI	--	2.6	0.1	-0.1	0.6	1.7	0.6	0.4	1.4

[a] Estimate.

[b] Until 2002, derived from the wages of Israelis and foreign workers. From 2002, from the wages of Israelis only.

[c] Including an estimate of unreported foreign workers.

SOURCE: Central Bureau of Statistics, Ministry of Construction and Housing, and Bank of Israel.

Table 9.2
Construction approvals and households, by district, 2010–15

	North	Haifa	Center	Tel Aviv	Jerusalem*	South	Total
A. District Committee approvals issued (thousands of units)							
2010	4.0	1.0	9.8	2.0	2.0	5.2	24.0
2011	7.7	7.8	6.9	1.9	6.2	2.0	32.5
2012	9.9	15.9	17.5	3.4	6.0	10.8	63.5
2013	19.2	10.0	19.0	7.2	7.1	12.8	75.4
2014	10.2	10.1	17.5	5.1	11.7	8.9	63.5
2015	10.5	11.2	20.3	25.4	11.7	20.5	99.5
Total 2010–15	61.4	56.0	91.0	44.9	44.7	60.2	358.3
B. Distribution of approvals and households by district (percent)							
Approvals	17.1	15.6	25.4	12.5	12.5	16.8	100.0
Households, 2013	14.7	13.5	25.5	22.0	10.8	13.4	100.0

* Jerusalem district includes Ashkelon, Kiryat Gat, Kiryat Malachi and Ashdod and their surrounding areas, which from a geographic standpoint belong to the southern district.

SOURCE: Based on Planning Administration, Central Bureau of Statistics.

The number of housing starts increased slightly this year compared with the previous year (Table 9.1 and Figure 9.1), and since 2011 the average number of housing starts is 46,000 housing units per year (also see Figure 9.3 and further information below). Building completions should reach that level in the forthcoming years (although this year, building completions declined compared with the previous year), due to the lag effect between housing starts and completions. As a result of the fact that the increase in housing starts stopped in 2011, albeit at a high level, the rate of increase in the stock of homes under construction ("active construction") slowed in the past two years[5], and consequently, growth rates in this sector also slowed in this period. From 2010 to 2013, the industry experienced solid growth, which exceeded growth rates in the business sector, but in the last two years, growth in the construction industry slowed. This year, the growth increased by 1.4% after growth declined by 2.9% in the previous year (see Table 9.1).

Building completions are derived with a lag from the level of building starts, and are expected to remain at about 46,000 housing units per year in the coming years.

From 2010 to 2013, the construction industry experienced solid growth, which exceeded growth rates in the business sector, but in the last two years, growth in the construction sector slowed.

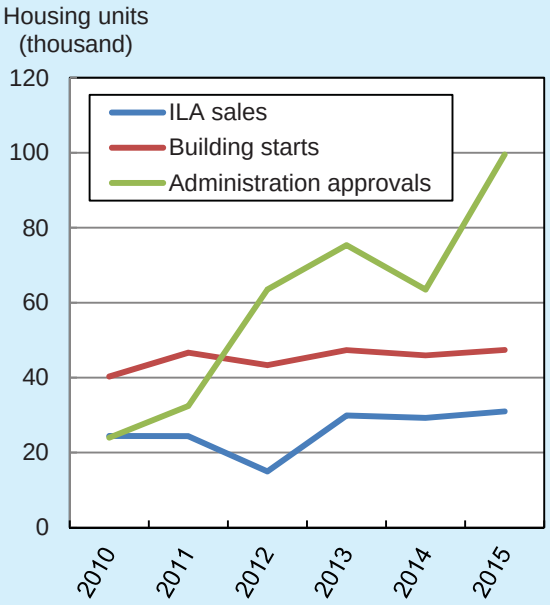
Concurrent with the increase in the number of transactions, the sales of new homes by contractors grew considerably (Table 9.1) in all districts. Despite the increase in the number of transactions, the number of new homes available for sale (including homes under construction) continued to increase and reached 28,000 housing units this year. This state of affairs, together with the fact that the private sector also increased the number of housing starts in peripheral areas despite the high inventory level, is consistent with the assumption that the contractors and developers in the market expect the high level of demand to persist.

5 Construction duration is approximately two years.

Housing starts have remained at an average of 46,000 per year since 2011, which is consistent with the growth in demand for housing in the economy.

As noted, housing starts have remained at an average of 46,000 per year since 2011. Our assessment is that this rate is consistent with the growth in demand for housing in the economy. The Bank of Israel Research Department's estimate, on the basis of an analysis of demographic trends, is that the growth rate of Jewish households is 40,000 per year, and the total growth in Israel is 46,000 households per year. It is important to note that the indicator commonly used—the annual percentage growth of households estimated by the Central Bureau of Statistics—is merely an approximation since the growth rate of households affects the rate of construction but is also influenced by it. That is, these are endogenous variables: the number of households increases as the number of (occupied) dwellings increases (and crowding in homes is diminishing), and the number of dwellings increases in line with growth in the number of households. Unoccupied dwellings will remain only if the volume of construction exceeds the bounds of reason, and if construction falls below the bounds of reason, household crowding will increase.

Figure 9.2
Plans Approved by the Planning Administration, ILA Land Sales, and Building Starts, 2010–15



SOURCE: Based on Planning Administration (Ministry of Finance), ILA, and Central Bureau of Statistics.

2. THE NEW GOVERNMENT'S STEPS IN THE HOUSING SECTOR AND THE BUYER'S PRICE NEW FORMAT PROGRAM

This year, the government took steps to reduce home prices and increase their supply. These steps focus on improving the relative situation of potential first-time homebuyers. In this context it should be noted that the total rate of home ownership in Israel (69%) is higher than the average rate in other developed countries (63%[6]) but in the past decade there has been a decline in ownership rates among young adults and an increase in ownership rates among older adults.[7] As part of the government's efforts, the minimum purchase tax rate on investors was raised, and additional steps were taken to improve efficiency and increase flexibility in the handling of the housing sphere (Table 9.3). The Housing Cabinet announced additional priority housing areas[8] and vacate-and-build sites in order to expedite planning and construction procedures. Furthermore, the government developed the Buyer's Price New Format Program for the years 2015–2017. This program replaced the Zero VAT and Target Price programs that were also designed for similar population groups.

The government increased the minimum purchase tax rate on investors, additional steps were taken to improve efficiency and increase flexibility in the handling of the housing sphere, and developed the Buyer's Price New Format Program.

The Buyer's Price Program is supposed to reduce the prices of dwellings in **high-density buildings**[9] because the program grants a discount on the price of the land, and determines the selling prices of all the dwellings in the building. Notably, the Buyer's Price tenders are not a new concept: They were instituted in a 1994 government decision, and are intended to reduce home prices for eligible buyers who do not own a home. Eligibility is based on criteria such as personal status, number of years of marriage, and number of children. In its new format, the program is much broader: It includes all high-density construction, and the eligible population includes all couples that do not own a home and all unmarried individuals over the age of 35, with no further conditions. The maximum discount on the price of the land is NIS 120,000 per housing unit. Since the price of the land in the peripheral areas may be lower than the amount of the maximum discount, the program additionally offers a grant to buyers[10]

The Buyer's Price Program is supposed to reduce the prices of dwellings in high-density buildings, mainly outside areas that are in high demand.

The maximum discount on the price of the land is NIS 120,000 per housing unit, and the ultimate discount on the dwelling is several tens of thousands of shekels higher than this amount.

[6] See for example, Central Bureau of Statistics (2013), "Housing in Israel—Findings the 2012 Household Expenditure Survey."

[7] Brender and Strawczynski (2014) also show that in the past decade there has been a considerable increase in the percentage of renters (who do not own an apartment) among young families. See "Government Support for Young Families in Israel," Bank of Israel Research Department, Discussion Paper Series 2014.02.

[8] Priority areas are intended to expedite the increase of supply, with the Vatmal approving the plans. The Vatmal Law was passed by the Knesset on July 29, 2014. For more information see the Bank of Israel Annual Report for the Year 2014, p. 223.

[9] The definition of multi-unit housing was modified: Before the modification, construction was considered "multi-unit construction" if it included more than three housing units on at least two floors, with at least one housing unit on each floor. After the modification, construction is considered "multi-house construction" if it includes at least six housing unit on at least two floors, with at least one unit on each floor. Focusing on the existing programs, this modification reduces the number of building plans that are considered multi-unit housing.

[10] To receive the grant, a buyer must hold the apartment for at least five years from the occupancy date (the buyer may rent out the apartment).

Table 9.3
Government measures in taxation and streamlining the handling of the housing market

A. Taxation on investors (purchasing a second home or more)

A temporary order effective from July 1, 2015 to December 31, 2020 sets out two levels of marginal purchase tax: 8 percent up to a purchase amount of NIS 4,800,605, and 10 percent for prices above that amount. Prior to the change, the tax rates for transactions up to that amount were 5, 6, and 7 percent:

Tax rates on investors

New rates (temporary order)		Old rates	
Price of dwelling (NIS)	Tax rate (percent)	Price of dwelling (NIS)	Tax rate (percent)
		Up to 1,162,120	5
		1,162,120 – 3,486,350	6
		3,486,350 – 4,800,605	7
Up to 4,800,605	8	4,800,605 – 16,002,015	8
Above 4,800,605	10	16,002,015 and up	10

SOURCE: Based on Government decision number 73 from June 14, 2015.

B. Measures to streamline handling: Changes in the structure of the government's real estate management and planning structure

1. Concentration of authority in the hands of the Minister of Finance: Authorities were transferred from the Ministry of Interior to the Ministry of Finance, including the Planning Administration and the District Planning Offices, and the Israel Land Authority was made subordinate to the Ministry of Finance instead of the Ministry of Construction.
2. Establishment of a Planning and Development Committee: Its role is to instruct the Israel Land Authority in the allocation of permits for the planning and development of state-owned land, both for new plans and for plans currently in the development process.
3. Establishment of a housing team within the Ministry of Finance: Its role is to coordinate the activities of the Planning Administration, Israel Land Authority, "Dira LeHaskir" government rental company, and the Ministry of Construction. In addition, the team will monitor Housing Cabinet decisions and their execution. The head of the team also serves as Chairman of the National Planning and Building Council, Chairman of the Planning and Development Committee, and Chairman of the National Infrastructure Committee.
4. Expanding the authorities of the "Dira LeHaskir" government rental company: In order to promote long-term rentals, the company will be permitted to plan rental projects on private land, provided that the plans include at least 1000 housing units.
5. Streamlining the release of land (with the objective of increasing the supply of housing): (a) Returning land to its owners, the State of israel, will be separated from the solution to disputes with the landholders, in order to prevent the latter from delaying the former. (b) Land expropriation will be expanded from expropriation for public purposes to expropriation for residential purposes.

Table 9.4
"Buyer's Price" tenders—discount on the price of land per housing unit, the grant to purchasers, and the subsidy on development costs, as a function of the price of land

Price of land per unit before development costs (NIS)	Discount on the price of land	Grant to purchasers (NIS)	Subsidy on development costs (NIS)
Up to 50,000	80%	60,000	40,000
50,000–100,000	80%	40,000	40,000
100,000–150,000	80%	0	0
Above 150,000	NIS 120,000	0	0

SOURCE: Based on Government decision number 315 (Housing Decision 23) from July 30, 2015.

and a subsidy to the developer as a function of the price of the land (See Table 9.4).[11] As we see below, the discount on the dwelling is greater than the discount on the land by several tens of thousands of shekels.

Since this is a program designed to assist eligible individuals to purchase a home, the program defines a maximum discount on land costs per housing unit. The program also sets out that no Buyer's Price tenders will be conducted in areas where home prices exceed a certain amount. Moreover, implementation of the program requires the consent of the local authorities. Where local authorities fail to consent to the program, ordinary land tenders will be conducted, in which the land is sold to the highest bidder. The implication of these restrictions is that the Buyer's Price Program will have little direct impact on high-demand areas such as Tel Aviv or Jerusalem.

According to estimates, a period of 8–12 months elapses from the announcement of a winner in the tender until a building permit is issued by the local building committee. As construction lasts for about two years, buyers enter their homes three years after the tender winner was announced. The time elapsing from the date of the tender to the issue of a building permit is, thus, shorter than the time elapsing in ordinary highest-bidder tenders (approximately three years on average), for two main reasons. First, the Buyer's Price Program shortens the building permit procedure as a result of enhanced coordination with local authorities. Second, in ordinary tenders, developers try to increase their statutory building rights, which entails additional approvals and additional time. In contrast, in Buyer's Price tenders, there is no possibility of increasing building rights and therefore the procedure is quicker. In this respect, Buyer's Price tenders reflect a reduction in potential long-term supply at the expense of accelerating short-term supply.

[11] Despite this method, under-utilization may still exist in remote locations. To illustrate, when the price of land per unit excluding development costs is NIS 20,000, the discount plus the additional grant and subsidy for development costs is only NIS 116,000. This point is even more salient when development costs are less than NIS 40,000 per unit. Nonetheless, there are no significant differences between these amounts and the full discount.

a. The Tenders

Every tender defines a maximum price per square meter for the apartments, which is determined by the Israel Land Authority on the basis of an assessment of the land value, construction costs, and profit. In the land tenders, bidders bid on the price per square meter of the apartments based on a given set of building specifications (the tender is awarded to the bidder who offered the lowest price per square meter, which becomes the maximum price per square meter that the buyers will be charged). The area of the apartments in the tenders does not include the common areas of the building. Therefore, this type of tender creates a tendency to reduce the common areas, which detracts from the standard of the building. This raises objections from local authorities, and several local authorities have managed to impose various measures to modify the original plan in order to improve building quality, for example by selling a portion of the apartments in the building on the open market in order to incentivize the developer to increase the common areas[12], or by allocating a portion of the apartments to individuals who are upgrading their home (rather than first-time home buyers). Furthermore, to reduce their objections to the tenders, several local authorities have received government incentives such as quotas of dwellings earmarked for local residents who meet the tender criteria, and compensation to the local authorities in respect of the betterment levy that the local government "loses" due to the discounted price of the land.[13]

The type of tender in the Buyer's Price program creates a tendency to reduce the common areas in the building, which detracts from the standard of the building. This raises objections from local authorities.

b. Eligible buyers

Since the number of dwellings made available as part of the Buyer's Price Program will be lower than the number of eligible individuals, the program will allocate the dwellings by lottery, and winners will choose an apartment according to their order in the lottery draw: The first winner will choose an apartment first, the second winner will choose an apartment second, and so forth. A person's lottery outcome is therefore extremely important because the apartments in a building (even if they are the same size) have different values, which results in differential benefits to buyers.[14] The program distinguishes between eligible buyers and local eligible buyers and allocates dwellings to these two groups separately.

The Buyer's Price program will allocate homes by lottery (due to surplus demand), making a person's lottery outcome extremely important, and creating differential benefits between buyers.

c. The developers/bidders

The results of several tenders that have been completed indicate that small-scale construction contractors typically bid in these tenders rather than large and well-known developers. This is probably due to two main reasons: First, the contractor

[12] On the free market, the contractor may also sell to investors.

[13] In lieu of betterment levy—the state pays the local authority for lands in the jurisdiction of the local authority that the state sells. This payment is 10 percent of the price of the land.

[14] To illustrate, the price-per-square-meter of a small apartment is typically higher than the price-per-square-meter of a large apartment. Price also depends on the floor, especially in the case of ground-floor or rooftop apartments, and on exposures, view, and so forth.

saves marketing costs as the government determines the identity of the buyers. As a result, these tenders become accessible for small-scale contractors that lack a designated marketing function. Second, the tenders generally split large construction sites into smaller sites of 20–50 apartments each, which also facilitates participation for small-scale contractors.[15] There are no buyer groups in these tenders, as it is the government that determines one's eligibility.

d. Completed Tenders

To date, land designated for 6,000 housing units has been sold in Buyer's Price tenders, for which data are available on 5,072 units in 97 sites. Of these, in only seven sites, no winning bid was announced (that is, no bids were submitted): Mitzpe Ramon (3 sites), Ofakim (3 sites), and Arad (1 site). Winning land prices were between 80 and 97 percent of the maximum price stated in the tender documents, and this trend was similar in all areas. Apparently, the winning price was lower than the maximum price for two main reasons: First, since the government determines eligibility, it saves the contractor marketing costs. In addition, sales risks are reduced, which may facilitate bank financing. Second, construction contractors who bid in the tenders save the developer margins.[16] On the other hand, bidders may be underpricing risk levels as a result of their inexperience in projects of this type. It should be noted that these factors contribute not only to a reduction in the price of the land, but also to a reduction in the price of the apartments. An additional reduction in price results from the predetermined standard of the construction and the reduced tax expenses. Consequently, the total discount on the price of the apartment is several tens of thousands of shekels beyond the discount on the price of the land.

e. The impact of the Buyer's Price Program on the supply of apartments, the demand, and the prices

The program does not typically increase the supply of apartments[17], as it merely modifies the method used to market state-owned land for residential construction. A rough calculation indicates that out of about 100,000 annual transactions involving apartments, only about 15 percent can potentially be sold through the Buyer's Price

The Buyer's Price program does not typically increase the supply of apartments, but does strengthen demand. It is therefore unclear how it will effect home prices in the economy as a whole.

[15] Of the 97 sites regarding which tenders were completed, 60 contain 12–50 units, 27 contain 50–100 units, 9 contain 101–200 units, and one site contains 201–300 units.

[16] In ordinary projects, developers commission building contractor companies, and each party earns a profit. But when a building contractor wins a Buyer's Price tender, the price of the apartment does not include part of the developer's component.

[17] In unrestricted (ordinary) tenders in peripheral areas there are situations in which the price of the land is negative if development costs are deducted—which reflects a lack of demand for such land. Since a development grant and a buyer's grant are offered in the Buyer's Price program, it increases economic feasibility for the developer and thus also increases the potential for increasing the supply in those areas.

Program.[18] This is less than the potential purchases by eligible individuals (first-time homebuyers), who account for about 40 percent of the total annual number of transactions in recent years. Moreover, demand may increase because individuals who did not previously plan to purchase an apartment may join the program to enjoy its benefits, especially since the program is limited to the period 2015–2017. As this program does not typically increase the supply, and since some of the available dwellings will be purchased by potential buyers who only recently joined the market, the program may place upward pressure on non-subsidized home prices as the supply of dwellings in the free market will decline. Although developers in the Buyer's Price Program commit to a maximum sales price that prevents them from increasing their profits as a result of the discount they receive on the land (on condition that oversight is effective), growing demand as supply remains unchanged will increase contractors' profits on sales in the free market.

f. Comparison between Buyer's Price, Zero VAT, and Target Price Programs

As noted, the Buyer's Price Program replaced the Zero VAT and Target Price programs. The three programs share several similarities: (a) They focus on the same target population: young couples in all income clusters who do not own a home, and non-married individuals age 35 or over who do not own a home. (The Target Price program was also available to those upgrading their homes, although they received lower priority than young couples.) (b) They focus on assistance in purchasing a home by reducing home prices (by reducing government revenues). Zero VAT would have reduced the price by reducing taxes, while the Target Price and Buyer's Price programs reduced the price by reducing the price of the land. (As noted, Buyer's Price also includes a subsidy in locations where land prices are low.) (c) All three programs apply to new dwellings. (d) All three programs require a high level of oversight and the involvement of appraisers in determining prices. (e) None of the three programs increase the supply of dwellings, at least in the short term[19], while they do increase demand. (f) All three determine that the buyers are not allowed to sell their new homes for a period of five years from occupancy, but they are allowed to rent them to others.

A greater similarity exists between Buyer's Price and Target Price, as both programs involve the sale of land at discounted prices where such sale also predetermines the maximum prices of the apartments to be constructed on the land and the construction

[18] As Figure 9.2 shows, in recent years, land sales by the Israel Land Authority reached about 30,000 housing units per year, of which about 7,000 are not sold in tenders. The remainder (23,000 units) were sold in an ordinary tender awarded to the highest bidder, and include land for low-density housing. Assuming that the land for low-density housing constitutes 20 percent of the total housing units sold (an assumption based on Israel Land Authority tenders between 2000 and 2013 and on the former definition of high-density construction), there remain 18,500 housing units. Since several local authorities object to the Buyer's Price program, and because expensive land will not be sold in this program, this number is reduced to about 15,000 housing units—15 percent of the annual number of transactions (about 100,000).

[19] Underlying Target Price is the intention to promote a massive and continued sale of land in selected areas, and the success of such a plan depends on increasing the supply.

standard, which is defined by Ministry of Construction specifications. Nonetheless, there are several differences between these programs: (a) impact on price—Underlying the Target Price program is an intention of influencing prices and price expectations in specific areas by promoting a massive sale of land in specific sites. In the Buyer's Price Program, this applies nationwide; (b) Selection of buyers—In the Target Price program, the contractor chooses the buyers out of a pool of eligible buyers determined by the government; In the Buyer's Price program, the government determines the buyers; (c) Government responsibility—Since the government selects the buyers in Buyer's Price, the government may be legally liable for any breach of contract by a buyer; (d) The number of dwellings sold at a discount—In Target Price projects, contractors are permitted to give a discount on no more than 80 percent of the apartments and sell the remainder on the free market. The Buyer's Price program applies to all the apartments in the project. This difference may affect the standard of construction and of the environment; (e) Tender method—In the Target Price program, the price per square meter of the dwellings is determined in advance and the bids refer to the price of the land; In the Buyer's Price program, the price of the land is predetermined and bidders bid on the maximum housing unit price per square meter.

3. THE EFFECT OF NOP 38 (BUILDING REINFORCEMENT) ON POTENTIAL HOUSING DENSITY

a. Background

In his book *Triumph of the City*, author Edward Glaeser[20] argues that although expansive areas exist worldwide, people prefer to crowd together in cities, with one-half of the world's population living in cities. In the USA, 243 million people live in cities that cover only 3 percent of the country's area. Thirty-six million people live in the Tokyo metropolis, and 12 million each in Mumbai and Shanghai. Paradoxically, people are crowding into cities even though the means that make it easy to live at a distance from cities have become more accessible—such as the declining cost of air and land travel, and communications technology that provides a sense of proximity even at great distances.

The Israeli population also prefers centralized locations. Although the principles that guided NOP 35, which was approved by the government in 2005, included dispersion of the population from the country's center to its northern and southern regions, population growth statistics by area between 2005 and 2013 actually show greater growth in the center. But there is a shortage of land available for construction in the center of the country, especially in Tel Aviv, which is evident among other things from the approvals of the district planning and building committees. As Table 9.2 shows, the Tel Aviv District accounts for a smaller percentage of the total number

Similar to the situation worldwide, the Israeli public prefers centralized locations. Thus, from a long-term perspective, greater population density than what NOP 38 can enable is called for in the central districts.

[20] Glaeser, E. (2012). "Triumph of the City: How our Greatest Invention Makes us Richer, Smarter, Greener, Healthier, and Happier".

of planned housing units (that is, the future supply) than its percentage of the total number of households. Thus, from a long-term perspective, greater population density in the central districts is called for. As we see below, although NOP 38 leads to some added density in the short term, it is not consistent with a long-term perspective.

b. NOP 38 and Vacate-and-Build

There are two main tracks for adding apartments to existing buildings: NOP 38 and urban renewal vacate-and-build projects:

NOP 38—This National Outline Plan is designed to reinforce buildings against earthquake damage, focusing on buildings whose building permits were issued before 1980. Under this plan, apartment owners benefit from the reinforcement of the building, a newly constructed security room ("mamad") added to each apartment, and an elevator added to the building.[21] The developer benefits from the right to construct two additional floors.[22] The incentives in this plan include (a) a full exemption on the betterment levy (payable to the local authority), mainly because there is no need to add infrastructure for the small number of new dwellings; (b) and full or partial exemption on betterment tax (payable to the tax authority); (c) zero-percent VAT on inputs; (d) No approval by the planning institutions is required other than a building permit issued by the local committee, which significantly shortens the bureaucracy and increases the parties' certainty with respect to the building rights. If it is not possible to reinforce a building from a structural perspective according to NOP 38/2, which was approved in 2010, the building is demolished and a new building is constructed in its stead (a version of vacate-and-build).[23] In this case, NOP 38/3, approved in 2012, allows construction on the basis of the City Building Plan building rights, and therefore the number of additional apartments may be greater.

Urban Renewal through Vacate-and-Build (other than under NOP 38)—This plan was developed primarily to increase efficient land use and concurrently enhance the environment and housing quality. Under this program, there is a large addition of apartments—three times or more the original number of apartments in the building. These programs offer no incentive in the form of an exemption on the betterment levy[24], and they also require approval by district planning institutions. The government approved the plan in 1998, but no great success on this track has been recorded to date[25], among other things because of betterment levies or the construction of additional infrastructure required by the local government (or the additional loads

[21] Home owners also benefit from an overall renovation of the building, the entrance, courtyard and parking areas.

[22] Amendment No. 3 to NOP 38, dated May 2012, permits an addition of an equivalent of 2.5 stories. Previously, the plan permitted an addition of the equivalent of only a single story.

[23] From an engineering standpoint, it is occasionally impossible to add two floors onto an existing building.

[24] But under some conditions it is possible to obtain an exemption from the betterment levy.

[25] According to Ministry of Housing Data, 2,600 housing units are occupied to date in 15 projects, of which two projects have been completed and the others are still in construction.

on existing infrastructure), the risks and inconvenience to residents[26], and the lack of economic benefits for the developer under such conditions. To expand the application of this plan, in 2013 the government approved the build-vacate-and-build track: First, a new apartment building on available state-owned land is constructed and the residents of the buildings designated for demolition move into the new building. This track increases residents' certainty, and the government covers the developer's bankruptcy risk (the value of the land).

The plan for building reinforcement increases the efficient utilization of land, but only to a relatively limited extent because the number of additional apartments is relatively small. Yet the incentives in this plan are greater than the incentives in the track that significantly increases the efficient utilization of land (vacate-and-build). Moreover, there is little chance that a reinforced building will join a vacate-and-build plan in the next several decades because such a plan serves no one's interests once reinforcement has been completed. Residents receive little added consideration (if any) compared to the initial state. For developers/contractors, adding new apartments after reinforcing the building offers limited economic benefits because the contractor will be forced to compensate more apartment owners. For local governments, the building and its environment are now of a higher standard than before and there is little incentive to improve their quality further, and vacate-and-build projects involve an additional number of apartment owners and therefore added infrastructure is required. Since there is little vacant land in the central regions (Tel Aviv, Center, and Jerusalem), necessitating a density rate that is higher than the rate permitted by NOP 38, this program expands the supply of apartments at the expense of the efficient use of land in the long term.

NOP 38 expands the supply of apartments at the expense of the efficient use of land in the long term, since there is very little vacant land in the center of the country.

C. The data

Central Bureau of Statistics data on construction starts and completions include apartments added to existing buildings, but such additions are not divided by track—private initiative, NOP 38, or urban renewal (vacate-and-build including demolition and re-construction).[27] Table 9.5 presents the apartments added to existing buildings and their distribution by region in two periods: 2000–2007 (a period that does not include NOP 38) and 2008–2015 (a period that does include NOP 38). The Table shows that the average number of additional housing units per year increased from 900 to 1,500 between these two periods. The distribution of the additions by district indicates that half of the additions were constructed in the Tel Aviv (one–third) and Center

In recent years, there has been an increase in the addition of apartments to existing buildings as part of NOP 38, but mainly in the Tel Aviv and Central regions. There was a decline in the other regions.

[26] To illustrate, the apartment owner is obligated to live in a rented apartment during the construction period and is not covered by a Sales Law guarantee against the contractor's bankruptcy, in contrast to the purchase of an apartment from a contractor built on available land.

[27] No separate data exist for vacate-and-build plans. This group includes demolition and re-construction under NOP 38/2 and under urban renewal. The data on construction starts also include the apartments added to existing buildings under NOP 38 for building reinforcement. The apartments that are demolished in a vacate-and-build project are not deducted from the number of building starts measured by the CBS and therefore the data on building starts and on completion rates are skewed upward.

districts. All other districts recorded a decline between the two periods. The Table also shows the additional units as a percentage of total housing starts, by district. The Tel Aviv District shows a marked increase here as well, with the additional apartments constituting 7.6 percent of total housing starts in the second period (the highest rate of all districts), three or more times greater than in the first period. The Center district also shows a marked increase, with the percentage of the additional apartments out of total housing starts increasing by 50 percent from the first to the second period. This trend became more marked in the last two years (2013–2015). The additional apartments in Tel Aviv (40 percent) and Center districts account for 60 percent of the total additions nationwide, and additions account for 11.2 percent of all housing starts in the Tel Aviv district.

Consideration should be given to increasing density in the long term by reducing the approvals issued as part of NOP 38 and increasing the incentives for vacate-and-build programs as part of urban renewal.

Therefore, one way to take into account considerations related to a long-term increase in density is to limit the option of building reinforcement only to buildings that are not suitable for vacate-and-build projects in the foreseeable future. Specifically, incentives for vacate-and-build projects under urban renewal should be increased—especially for build-vacate-and-build projects, because they reduce uncertainty and therefore increase the chances of implementation. To this end, more efforts should be made to identify vacant state-owned land.

Table 9.5
Homes added to existing buildings, 2000–15[a]

	Total	Jerusalem	North	Haifa	Center	Tel Aviv	South
A. Number of units, yearly average							
2000–2007	892	295	218	96	113	95	71
2008–2015	1,498	218	322	107	256	499	88
2013–2015	1,944	244	284	144	391	771	109
B. Additional units as a share of total building starts							
2000–2007	2.8	11.2	3.4	3.3	1.2	2.3	1.6
2008–2015	3.4	6.5	4.1	2.4	1.8	7.6	1.6
2013–2015	4.3	5.8	3.7	2.3	3.0	11.2	2.1

[a] Data for 2015—Until the third quarter.

SOURCE: Based on Central Bureau of Statistics.

4. TECHNOLOGICAL DEVELOPMENTS IN THE CONSTRUCTION INDUSTRY COMPARED WITH DEVELOPMENTS IN OTHER INDUSTRIES

As we have shown above, activity in the construction industry has expanded in recent years. As a result, the industry's demand to increase the number of non-Israeli workers (Palestinians and others) returned to the public agenda, with the argument that the construction industry has encountered difficulties in recruiting Israeli

workers. To examine the implications of employing non-Israeli workers, we examine the development of this industry since the beginning of the 1960s and compare it to corresponding trends in the business sector. We also assess wages in the construction industry compared with wages in the business sector in the past decade. We find that short-term solutions—"importing" non-Israeli workers—perpetuate low wages in this industry, forcing out Israeli workers, and preserve low industrialization leading to low productivity.

Short-term solutions—importing non-Israeli workers—perpetuate low wages in this industry, forcing out Israeli workers, and preserve low industrialization leading to low productivity.

Panel A in Figure 9.3 presents the development of human resources in the construction industry since the 1960s. Before the Six Day War, only Israeli workers were employed in this industry. Employment of Palestinian workers began after the war, spreading quickly and concurrent to the exit of Israeli workers—which attests to the substitution of these two groups. In the late 1980s, Palestinian workers accounted for about 45 percent of all employees in the construction industry. The wave of immigration in the early 1990s, the Gulf War, and the wave of terror that erupted in the mid-1990s marked the beginning of the period in which foreign workers began to replace Palestinian workers. At the same time, the number of Israeli workers also increased until the mid-1990s. In the early 2000s, non-Israeli workers accounted for more than half of all employees in the construction industry, and the government decided to restrict their number following the recommendations of various committees.[28] The number of non-Israeli workers dropped gradually, while the number and proportion of Israeli workers in the construction industry increased—yet again attesting to the substitution effect—with the percentage of non-Israeli workers dropping to 27 percent in the mid-2000s. Since then, the number of Palestinian workers has increased at a more rapid pace than did the number of Israelis, while the number of foreign workers remained stable. The proportion of non-Israeli workers increased, to one-third this year.

Panel B examines capital per worker, an accepted indicator used to analyze technological developments and productivity. In the construction industry, this ratio has the lowest value of all industries, with a marked difference between the construction industry and the rest of the business sector. Panel C presents the development of the capital per worker ratio since 1969. This panel shows that ratio in the construction industry increased since the early 1990s, and especially since the 2000s after it had remained unchanged in the 1970s and 1980s. The recent increase occurred concurrently with an increase in the number of Israelis employed in the industry and the government's resolution to gradually curtail the employment of foreigners since the beginning of the previous decade.[29]

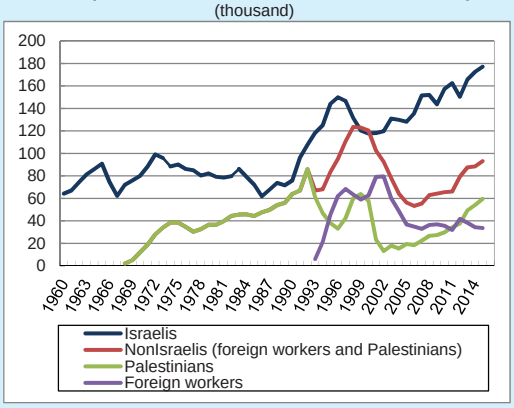
The increase since the beginning of the previous decade in capital per worker in the construction industry occurred concurrently with an increase in the number of Israelis employed in the industry and the government's resolution to gradually curtail the employment of foreigners since the beginning of the previous decade.

[28] For example the Ben-Shalom Committee (1997), the Buchris Committee (2002), the Rachlevsky Committee (2002), the Andorn Report (2004), the Domenicini Report (2005), the Economic-Social Agenda for Israel (2008–2010), the Eckstein Committee (2007), and the Eckstein Committee (2011).

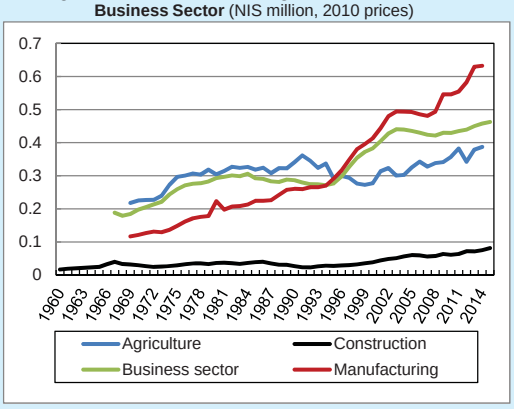
[29] The dotted line in this Panel represents a correction for foreign workers. Of the roughly 33,000 foreign workers who worked in the construction industry in 2015, only about 12,000 are registered, with the remainder based on CBS estimates. The dotted line deducts half of the estimated number of workers, to correct for potential underestimations of capital per employee and output per employee.

Figure 9.3
Composition of Workers in the Construction Industry and Indicators of Industrialization and Productivity in the Industry, 1960–2014

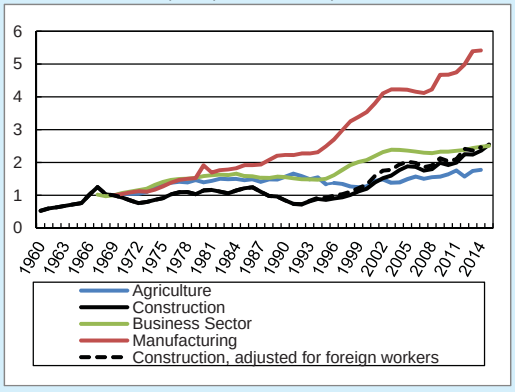
A. Composition of Workers in the Construction Industry (thousand)



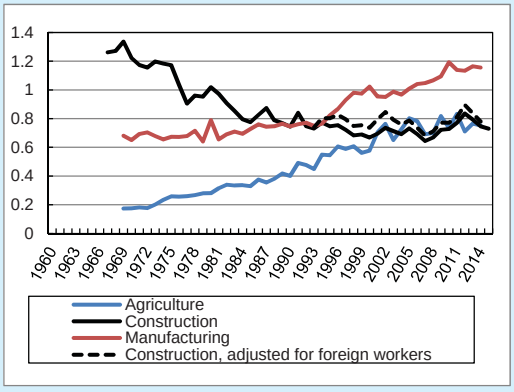
B. Stock of Capital per Worker in the Construction, Agriculture and Manufacturing Industries, and in the Business Sector (NIS million, 2010 prices)



C. Capital per Worker Ratio in the Construction, Agriculture and Manufacturing Industries and in the Business Sector (2010 prices, 1969 = 1)



D. Product per Worker in the Construction, Agriculture and Manufacturing Industries, Relative to Output per Worker in the Business Sector



SOURCE: Based on Central Bureau of Statistics.

Panel D presents output per worker in the construction industry compared with workers in the business sector. It emerges that in the 1960s, output per employee in the construction industry was 25 percent greater than the average output per employee in the business sector. Output per employee in the construction industry was similar to the relative development of capital per employee: it declined over three decades relative to the business sector, while other industries continued to expand. Only since the mid-2000s was a gradual increase recorded (concurrently with a relative increase in capital per employee). According to this panel, in 2014, output per employee in the construction industry was 80 percent of the average output per employee in the business sector.

Output per employee should be reflected in employee wages. Construction can be executed using various combinations of capital and skilled and unskilled labor.

As wages of unskilled labor rise, contractors have greater incentive to increase the use of capital and skilled labor. Construction work is difficult, physical labor in an uncomfortable work environment that includes health hazards. It is therefore reasonable to expect compensation in the form of relatively higher wages compared with wages of workers of similar qualities in other industries. High wages should lead contractors to increase their use of capital and therefore should lead to high work productivity compared to other industries that employ similar workers at lower wages. To examine this hypothesis, we used regressions on the wages of males in the construction industry and in the rest of the business sector for each year between 2004 and 2012 (Table 9.6). For the sake of convenience and to smooth fluctuations in the data, we divided the data into three periods: 2004–2006, 2007–2009, and 2010–2012. The data are taken from the Household Expenditure Survey conducted by the Central Bureau of Statistics. In the regression we added control variables such as age, education, district, and ethnic origin. The relevant variables are shadowed in the Table. The findings indicate that wages in construction were 24–33 percent lower than in the business sector. Wages of Arab construction workers were 20–28 percent lower than wages of Arab workers in the rest of the business sector (sum of the coefficients for Construction and Arab-Construction). Wages of Arab construction workers with 12 years of schooling are 2–7 percent lower than the wages of employees with comparable education in the rest of the business sector. These data indicate that not only are the wages in the construction industry insufficient compensation for the uniquely difficult physical work, they are even lower than the wages of workers with similar qualities in the business sector.

The findings show that the construction industry in Israel is characterized by low wages relative to wages of comparable workers in the business sector. This finding is consistent with the low capital per employee, which is reflected in the low level of industrialization, and consequently, low output per worker. The finding is also consistent with the difficulty in hiring Israeli workers in the construction industry. We postulate that the factors that contribute to this situation include the high rate of non-Israeli workers working for low wages, and the government's willingness to increase their number when demand increases. In this manner, the government inhibits industrialization and contributes to a constraint on increasing the supply of available housing, and possibly to low wages and low productivity in other industries that employ unskilled workers.

The data indicate that wages in the construction industry are even lower than the wages of workers with similar qualities in the business sector.

In March 2016[30], the government decided to bring in six foreign construction companies to build housing units, in order to increase the production capacity in the industry and productivity. Although each foreign company received a permit to bring in up to 1,000 workers in wet work (from the existing quota), these companies are expected to be capital-intensive firms with sophisticated construction methods and rich experience, which should lead to high productivity and reduced construction times. Exposing Israeli companies to their methods may improve the construction

The inclusion of foreign companies with a high level of technology may lead to improved construction methods in Israel and to increased productivity, shorter construction times, and attracting Israeli manpower to the industry.

[30] Resolution of the Housing Cabinet, Section H/59, March 7, 2016.

methods in Israel, increase productivity, and lead to an increase in wages in the industry and thereby attract skilled Israeli workers. It should be emphasized that this approach differs from the approach implemented to date—that is, employment of foreign workers by local construction companies—because the previous approach perpetuated the use of obsolete technology. Concurrently, the government decided to offer incentives to increase industrialization in the construction industry through loans, grants, and accelerated depreciation. It was also decided to increase awareness of industrialization and change the production culture by instituting professional training for everyone involved in the industry—from contractors and developers, through urban planners, architects and engineers, to site managers and workers in wet work—using industrialized technology.

Table 9.6
Wages in the construction industry compared with wages in the business sector—regression results, 2004–12[a]

	2010-2012	2007-2009	2004-2006
Age	0.0711	0.0735	0.0752
Age squared	-0.0007	-0.0008	-0.0008
Ultra-Orthodox	-0.2581	-0.2971	-0.2289
New Immigrant	-0.3336	-0.3959	-0.4535
Up to 12 years of schooling	-0.4104	-0.4218	-0.4117
Arab	-0.2232	-0.2234	-0.2300
Construction	-0.2437	-0.3261	-0.2929
Arab*construction	0.0486	0.0501	0.0636
Construction*12 years of schooling	0.2281	0.2888	0.2274
North district	0.0284	-0.0570	-0.0575
Haifa district	0.0700	0.0452	-0.0108
Center district	0.1859	0.1273	0.0804
Tel Aviv district	0.1801	0.1061	0.0515
South district	0.0368	-0.0530	-0.0752
Judea and Samaria district	0.1319	0.0652	-0.0078
Constant	2.3087	2.3135	2.2247
Observations after inflating	1,000,414	864,194	744,589
Actual observations	11,016	9,829	10,008
R-squared	0.27	0.29	0.3

[a] All of the coefficients have a statistical significance of 1 percent.

SOURCE: Bank of Israel calculations based on Central Bureau of Statistics.