

**BANK OF ISRAEL**

Office of the Spokesperson and Economic Information

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Press Release:

**Special analysis by the Bank of Israel’s Research Department: The economic cost of absence from work during the Swords of Iron War[[1]](#footnote-1)**

* **During the first 5 weeks of the Swords of Iron War, the weekly cost of the decrease in labor supply in respect of employee absences was approximately NIS 2.3 billion.**
* **Employee absence derived from the complete closure of educational institutions (NIS 1.25 billion), the displacement of residents who were evacuated or who left their homes (NIS 0.6 billion), and by the broad call up of the reserves (NIS 0.5 billion).**
* **The costs analyzed below do not reflect the total adverse impact on the labor market and the economy. In addition to these, there were costs derived from a decline in demand, the absence of Palestinian and foreign workers, and more.**
* **At the end of the first 5 weeks, the cost of the absences had already declined due to the partial opening of the education system, but at this point, it is difficult to estimate the scope of its effective opening. The cost is expected to continue declining as the education system returns to more orderly activity, the economy adjusts to the situation with solutions for employees from evacuated areas, the threat of rockets to the home front declines, and the scope of reserve soldiers is reduced. The calculation method described in this paper will serve the Bank of Israel going forward as well, in assessing the updated cost of the attack.**

The State of Israel is at war. It began approximately 5 weeks ago, after terror organizations in the Gaza strip carried out a horrible deadly slaughter in Israel. Beyond the loss of lives and the anguish, the war has significant economic ramifications. In this analysis, we focus on the adverse impact to the supply side of the labor market. We assess the number of workers who cannot reach their regular places of work and the cost deriving from that for the businesses that employ them. In our understanding, there are 3 main factors in the absences from work beyond the routine and seasonal rate of absenteeism:

1. Absences due to being called up to the reserves

2. Absences of residents of evacuated or cleared areas

3. Absences of parents due to the closure of the education system.

This document presents a method developed at the Bank of Israel to quantify the cost of the absences deriving from the supply side. It does not include reference to the effect of the demand for workers, meaning businesses that, due to a decline in demand for goods and services that they supply, reduced production, and therefore have reduced the hours of work, or had to place employees on unpaid leave or lay them off. This analysis refers to Israeli workers, and therefore does not analyze the adverse impact from the supply side deriving from the lack of entry of Palestinian workers in Israel or from the exit of foreign workers from Israel. The overall impact of these and other factors is weighted in the Research Department’s forecast published on October 23, 2023.

Based on assumptions and initial analyses, we assume that the overall weekly cost of the absences from work at the current time is about NIS 2.3 billion per week[[2]](#footnote-2) (making up around 6 percent of weekly GDP). About half a billion shekels is in respect of the broad call up of reserves soldiers, about NIS 590 million in respect of absences of about 144,000 residents in areas that were evacuated (in the North and in the South), and about NIS 1.25 billion is in respect to the full closure of the education system, as it was in the first 2 weeks of the war (absence of about 310,000 working parents and less efficient remote work of an additional 210,000 working parents). The partial opening of the education system will probably reduce this cost. The total amount is reached after netting out overlaps.

**1. Absences due to being called up to reserves**

In our assessment, the weekly cost of the absence of the reserves soldiers from their work is about half a billion shekels.[[3]](#footnote-3)

Based on media reports, on October 10, 2023, the government authorized the IDF (Israel Defense Forces) to call up to 360,000 reserves soldiers. For the purpose of the calculations and to be conservative, we assume that the full quota has not been raised at this time, and that some of the people called up to the reserves can continue economic activity even when called up (remote work, contact with the office, rest periods, etc.). Accordingly, we will assume that the effective number of reserve soldiers for our calculation is 50–60 percent of the total noted.

**Table 1**

**The cost of absence from work in respect of reserve soldiers called up**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Population groups (non-ultra-Orthodox Jews)** | **Share of people called up to reserves** | **Average monthly incomea** | **Employment rate (October average, 2018–19)** | **The total weekly cost including employer’s costsb (NIS million)** |
| Ages 21–27 | 41% |  7,397  |  72%  |  117  |
| Ages 28–33 | 34% |  12,784  |  87% |  203  |
| Ages 34–39 | 22% |  17,602  |  89% |  185  |
| Ages 40+ | 3% |  19,898  |  87%  |  28  |
| Total cost |  |  |  | 533 |
| After offsetting residents who were evacuated or left on their ownc |  |  |  | **507** |

a Income from wage or self-employment, based on administrative data for 2021, adjusted for the increase in wages between the 2021 average and July 2023 (an increase of 8.8 percent in average wage).

b Assuming that the employer’s costs make up 20 percent of gross wages.

c Residential areas on the confrontation line in which the percent of residents evacuated is greater than 10 percent (Home Front Command data as of October 25, 2023). These make up around 4.8 percent of employees and 4.9 percent of the cost.

**SOURCE:** Based on Labor Force Survey data in the research room. Income data are administrative data on wages and self-employment income in 2021.

We assumed that the age of those called up to the reserves is distributed in a manner similar to that found by Halifa-Rafael.[[4]](#footnote-4) The employment rate (monthly average of October 2018–19) and the average income (wage or self-employment income) was calculated for each age group.[[5]](#footnote-5)

We assumed that employer’s cost, which represents the labor productivity[[6]](#footnote-6), is 20 percent higher than the gross wage, on average.[[7]](#footnote-7)

We reduced the cost by 4.9 percent (NIS 26 million) in order to offset the cost of absence from work of the reserve soldiers who live in residential areas that were evacuated or those who left on their own, under the assumption that they would have been absent from their work even if they had not been called up to the reserves. (See Section 2 below.)

**2. The absence of workers who were evacuated or who left their homes**

About 144,000 workers were evacuated or left their homes and therefore are absent from their work. The weekly economic cost in respect of this absence is about NIS 590 million.

The calculation is based on data on the residential areas, in both the North and the South, in which more than 10 percent of their residents were evacuated or left on their own, based on data through October 25, 2023 that was given to us by the Home Front Command.[[8]](#footnote-8) In most of the said residential areas, the percentage of those evacuated by the Home Front Command (to hotels, etc.) was more than 80 percent. In some of the residential areas, particularly cities, there are additional residents who found alternatives to evacuation. Therefore, we assume that essentially all the residents will be absent from their work[[9]](#footnote-9), in addition to half the residents of the city of Ashkelon. In addition, we assume that whomever can work remotely (“from home”) is in fact doing so and is not absent from work despite the evacuation. As such, we calculate the number of those missing within the number of those who cannot work from home. In addition, based on a pessimistic scenario, we assume that the productivity of remote work of the residents of the area under existing conditions is 50 percent of their regular productivity.[[10]](#footnote-10) For each area, we calculated the employment rates, the number of employees and the average labor income. Similar to the preceding section, we assume that the overall cost of employment, which represents the economic contribution of these employees, is about 20 percent more than the gross wage.

The total weekly cost in the pessimistic scenario (Table 2) is about NIS 590 million—about 550 million in respect of the absence of 144,000 employees and about NIS 40 million in respect of loss of efficiency as a result of remote work.

We examined another, optimistic, scenario, in which there was less absence of workers. In this scenario, we assume that only 70 percent of residents of the South will be absent from their place of work, as will 50 percent of the residents of the North and 40 percent in the city of Ashkelon. Under this scenario, we assume that the efficiency of work from home is 80 percent of the regular efficiency. Under these assumptions, the weekly cost is about NIS 360 million—NIS 345 million in respect of the absence of 91,000 employees and about NIS 15 million in respect of loss of efficiency in remote work. In the current situation, the optimistic scenario seems less plausible. However, if solutions for evacuation closer to workplaces are found, there will be an increased likelihood that some of the evacuated residents will be able to return to work even before the end of the war, or before a marked improvement in the security situation.

**Table 2**

**Cost of absence from work of residents who were evacuated or who left on their own–pessimistic scenario**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Populationa | Employment rate | Number of employed people | Share of employed at homeb | Share of absentees(assumption) | Share absent from work | Average incomec (excl. working from home  | Weekly cost in respect of employee absences | Weekly cost in respect of loss of productivity of employed at home | Total weekly cost for absence of employees |
|  | (‘000) | (%) | (‘000) | (%) | (‘000) | (%) | (NIS) | (NIS million) | (NIS million) | (NIS million) |
| Residential areas in Northd | 113 | 67 | 75 | 10 | 100 | 68 | 13,773 | 263 | 12 | 275 |
| Residential areas in Southd | 73 | 73 | 53 | 15 | 100 | 45 | 12,788 | 162 | 12 | 174 |
| City of Ashkelon | 110 | 65 | 71 | 11 | 50 | 32 | 13,999 | 126 | 13 | 139 |
| Total | **295** | **68** | **199** | **12** |  | **144** | **13,520** | **551** | **38** | **588** |
| Entire population | 6,390 | 65 | 4,146 | 16 |  |  | 13,191 |  |  |  |
| Residents who were evacuated or who left on their own relative to total population (%) | 4.62% |  | 4.81% |  |  |  | 102% |  |  |  |

a The 18+ population that are not in mandatory military service (individuals 18–21 in industry O whose occupation is marked with an X).

b Employees who were able to work at home (worked from home at least 1 hour in the past month or usually work from home) divided by the number of employed people.

c Income from wages or from self-employment based on administrative data for 2021, adjusted to the increase in the average wage from 2021 to July 2023 (an increase of 8.8 percent in the average wage).

d Residential areas in which the percent of residents who were evacuated or who left their homes exceeds 10 percent (Home Front Command data for October 25, 2023)

**SOURCE: Based on Labor Force Survey data in the research room. Income data are administrative data on wages and self-employment income in 2021.**

**3. Absences of parents due to the closure of the education system**

The cost connected with watching children due to the closure of the education system is NIS 1.25 billion. The cost derives from parents’ absence (about 310,000 employees) or work from home, at reduced efficiency, while keeping watch over children (about 210,000 employees).[[11]](#footnote-11)

The assessment of this cost is appropriate to a situation in which most educational institutions are closed or operating on a very reduced schedule, which does not enable parents to leave the home for long periods of time and to work in an orderly manner. It is reasonable that the partial opening of the education system reduced the cost. However, it may be assumed that the decline in the cost is not absolutely proportional, as there is a correlation between the opening of education institutions and the security situation in the locality in which they are operating. It may be assumed that the education institutions are opened first in residential areas in which the security risk is lower, and in these, the parents already had more alternatives for watching their children from the outset.

We assume that when education institutions are closed, any household in which there are children up to age 14 will have one parent staying home. The relevant households for our analysis are households with two working parents, and households with a working single parent.

We remove from the calculation households in which there is at least 1 parent who works as a teacher, under the assumption that they in any case will not work or will work from home when the educational system is closed. According to calculations based on labor force surveys, there are about 680,000 households in Israel that meet those criteria (about 570,000 households with 2 working parents and 110,000 households with a working single parent. See Table 3.)

We also remove from the calculation the residents of residential areas that were evacuated or those who left their homes on their own due to the war, with the assumption that most of those would be absent from work without regard to the educational system (about an additional 30,000 households). Finally, we remove from the calculation the households in which there is a parent who can work from home (see below). After removing these from the calculation, there are 440,000 households with children up to age 14, who require watching when the educational system is closed or working remotely.

In about 20 percent of households there are youth aged 15–17, who in some cases can replace a parent in watching over younger children. In addition, it may be assumed that in part of the remaining households, other solutions may be found for watching the children. Therefore we will assume that in 30 percent of households in which there are children and there are not teachers or workers from home, the parents will be able to work as usual and not be absent from their work. Under this assumption, the number of people absent and the cost will decrease accordingly, to about 310,000 absent workers. In addition to these, there are about 210,000 households in which the parents can work from home while watching the children, at reduced efficiency.

**Table 3**

**Cost of absences in respect to closing the education system**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Number of households (average, Jan.–July, 2023, thousands) | Average monthly wage cost for the parent with the lowest wage in the household | Weekly cost (NIS million) |
| All households in Israel | 3,156  | 14,341  | 10,650  |
| Households with children up to age 14 | 1,139  | 13,755  | 3,687  |
| Of which : |  |  |  |
| Two employed parents | **694**  | **14,685**  | **2,398**  |
| No teacher in the household | 571  | 15,027  | 2,018  |
| Not in a residential area that was evacuated | 544  | 15,225  | 1,950  |
| Doesn’t work from home | 353  | 13,679  | 1,136  |
| At least 1 works from home | 192  | 27,714  | 250  |
| Working, single parent | **119**  | **14,369**  | **401**  |
| Not a teacher | 110  | 14,567  | 377  |
| Not in a residential area that was evacuated  | 104  | 14,236  | 350  |
| Doesn’t work from home | 86  | 12,974  | 263  |
| Works from home | 18  | 20,247  | 18  |
| Households that need children watched  | **439**  | **13,534**  | **1,398**  |
| Offset by alternatives for watching children (assumption, 30%) | 307  | 13,534  | 978  |
| Households in which at least 1 parent works from home | 210  | 26,983  | 267  |
| Total cost in respect of watching children |  |  | **1,246**  |

We assume that households with 2 parents, the parent with the lowest income will be absent. We assume that in a case in which one of the parents can work from home, he or she will do, and the other parent will be able to work as regular. The economic cost in such cases is the loss of productivity related to working while watching the children. Similar to past sections, we assume that the employer’s cost, which presents the employee’s productivity, is about 20 percent more than the gross wage paid to the employees. In addition, we assume that the wage of each parent increased from 2021 (administrative data that is available to us) similar to the 8.8 percent increase in the average wage.

Finally, we assume that there is little overlap with the cost of calling up the reserves, as if one parent is called up to the reserves, there is an increased probability that the second parent will have to be absent in order to watch the children (assuming that in every household with children up to age 14, one parent stays home). We assume that in there are only very few cases in which 2 parents were called up or a single parent was called up.

1. Written by Osnat Peled, Yuval Mazar, and Guy Levy. [↑](#footnote-ref-1)
2. After offsetting overlaps. The assessments are based on assumptions that appear reasonable in accordance with the situation after 5 weeks of war, the estimate of the number of reserves at this point, the residential areas that were evacuated in the South and the North, and the closure of most of the education system. [↑](#footnote-ref-2)
3. After offsetting overlaps, as will be described below. [↑](#footnote-ref-3)
4. Hofit Halifa-Rafael (2018): “Reserves in various stages of life: Service in the reserves in the eyes of the soldiers, Memorandum 183, the Institute for National Security Studies, Tel Aviv, October 2018.

For statistical considerations, the following calculations are based on the characteristics and income of the non-ultra-Orthodox Jewish populations, as those are the main reserves soldiers. This is not to say that there are not reserves soldiers from other population groups. [↑](#footnote-ref-4)
5. Administrative data for 2021 are adjusted to the average rate of increase of wages in the economy overall from 2021 through July 2023, an increase of 8.8 percent. [↑](#footnote-ref-5)
6. The current paper presents the adverse economic impact in terms of employer’s cost, as it is equal to the worker’s direct economic contribution to the value added of the business or the economy. Labor productivity (Output per worker) includes, in addition to the labor cost, the return on equity as well. [↑](#footnote-ref-6)
7. As a general rule, the employer’s cost is about 30 percent more than the gross wage. In our calculation, we assumed the additional costs to be 20 percent, as it is a relatively young population, and we assume that many of them are receiving fewer benefits than average. [↑](#footnote-ref-7)
8. As of October 29, 2023, there had not been a substantial change in the scope of evacuation and the list of evacuated areas. [↑](#footnote-ref-8)
9. It is likely that a few residents remained to work in the evacuated residential areas, particularly those working in agriculture. In fact, the assumption that all are absent is offset against those absent from other residential areas in which the share of displacement is lower than 10 percent, and were not included in the said calculation. [↑](#footnote-ref-9)
10. See footnote #5. [↑](#footnote-ref-10)
11. For a similar type of analysis, see the position paper by Guy Segal and Yossi Margoninsky: “Characteristics of vacations from studies in Israel—costs to the economy and policy alternatives” (November 2019), Bank of Israel. [↑](#footnote-ref-11)