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הבין-לאומית

The Benefits and Costs of Employment Programs for the Haredim (Ultra-Orthodox) Implemented by the Kemach Foundation

FINAL REPORT

**Lisa Cave
Hamutal Aboody
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I. Introduction

The purpose of the Kemach foundation is to assist the Haredim in integrating into the labor market so as to be able to become independent and support their families. Essential to their approach is to provide the Haredim with resources for training that will enable them to achieve significant levels of earnings, which could enhance the incentive for them to pursue employment.

The goal of this study is to estimate the returns on the investment as reflected in the analysis of benefits and costs from three perspectives: society (economic output), government (budget) and the participant (personal status).

The Kemach foundation funds vocational and academic programs independently and in partnership with JDC/TEVET. In this paper, we examine only the vocational programs funded by Kemach.

A survey of all Kemach vocational graduates is used to determine outcomes of the programs such as: employment rates and earnings levels. The results from the survey combined with cost information supplied by Kemach are used in a benefit cost analysis (BCA) of the Kemach vocational programs.

This paper is organized as follows: in Chapter II, we present a description and analysis of the programs within Kemach. In Chapter III, we summarize the state of Haredi employment. In Chapter IV, we present some of the current income supports that the Haredi population receives. In Chapter V, we report on the findings of the survey with respect to employment and earnings. In Chapter VI, we estimate the net benefits and benefit cost ratios and in Chapter VII, we estimate a cost effectiveness measure for the vocational programs. In Chapter VIII, we summarize the main points.

II. Kemach

Kemach is an independent non-profit foundation established in 2007 with the support of a group of private benefactors, headed by British philanthropist Leo Noe'. It utilizes a holistic approach that relies on in-depth testing and counseling to provide the best occupational path for each participant.

Each Kemach applicant undergoes an extensive screening and testing process. As part of this process the applicant may meet with an industrial psychologist and be referred to professionals in the field that they are considering. The applicant's ability, the counselor's recommendation, and the community's needs together influence the decided course of study. The culmination of the application process is the signing of an agreement defining both the applicant's and Kemach's responsibilities in the program.

Kemach funds two fundamental tracks: vocational training and academic education.. There are two sub-programs within the vocational training track: Kemach vocational and Parnassah B'Chavod. There are two sub-programs within the academic track: Kemach academic and Haredim L'Atidam. Figure 1, provides an organizational flowchart for these programs

Vocational Track. There are two program options within the vocational track: Kemach vocational programs and Parnassah B'Chavod (PB'C). Kemach has the sole responsibility for funding the Kemach vocational programs. They began funding these programs in 2007 for students that wanted to obtain vocational training in areas that PB'C was not offering. The courses of study include: computer programming, accounting and tax consulting, investment advice, and remedial teaching.

Parnassah B'Chavod. PB'C started in 2005 as a JDC/TEVET program. TEVET (Fighting Poverty Through Employment) is a joint partnership program between the JDC and the Government of Israel designed to remove social barriers to employment and raise the marketable skills among Israel's most vulnerable communities (including the Haredim). TEVET provides a wide range of services offered through various programs.

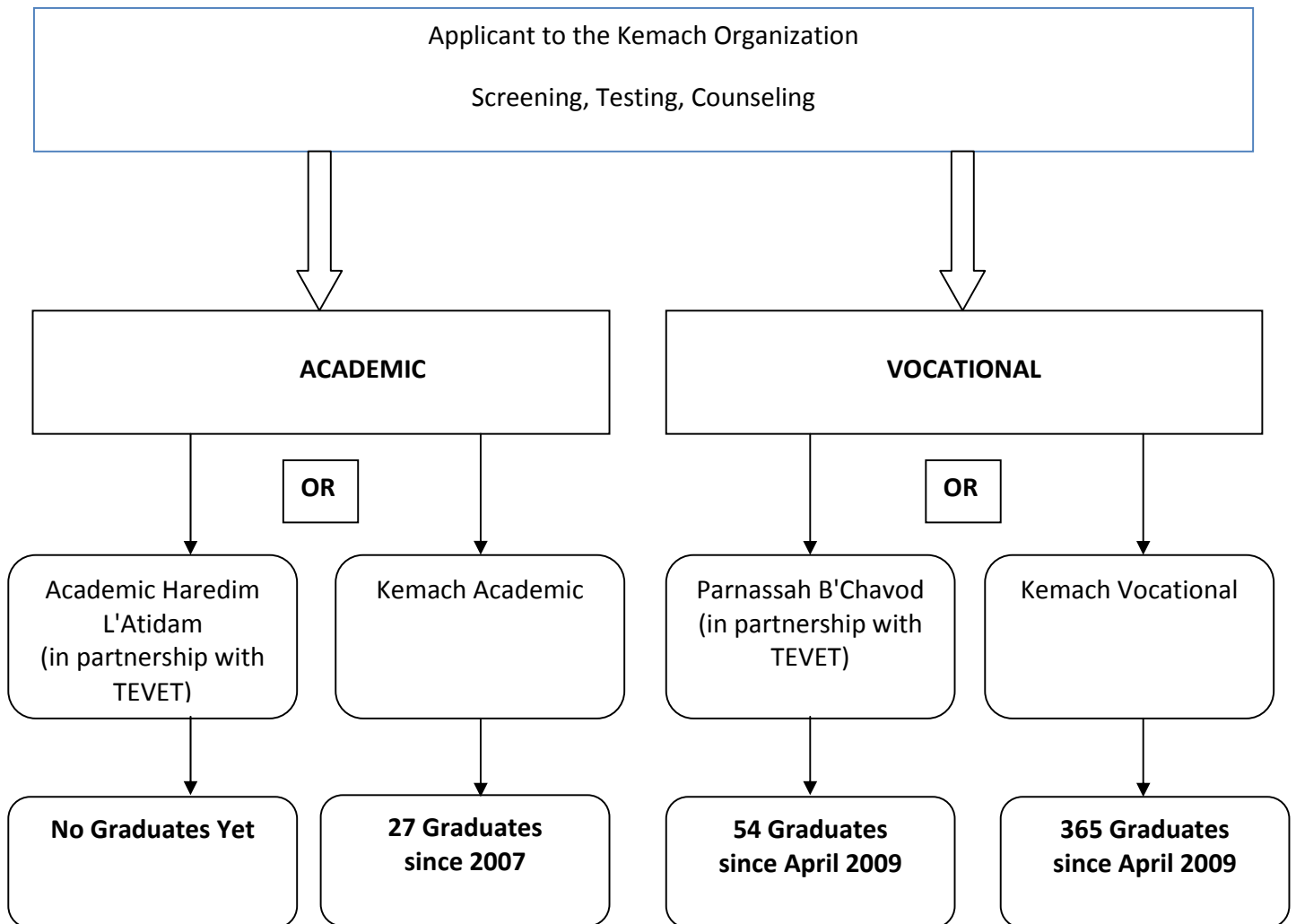
Every year PB'C operates numerous courses located throughout the country. It offers a range of subjects from software testing, training for electricians, and swimming instruction. Kemach became the primary operator for TEVET in April 2009 so we only relate to graduates in this period.

Academic Track. Kemach funds an academic educational track for those students that want to pursue academic study but are not eligible for Haredim L'Atidam (HL'A). Students in the Kemach academic track take classes at a number of universities.

Haredim L'Atidam (HL'A) is a program that Kemach funds in conjunction with JDC/TEVET. It is designed to facilitate academic education of the Haredim. The program, which started in 2009, targets only those students with no secondary education that are either currently studying in Kollel or have studied in Kollel in the last three years. It provides tuition and in certain cases living stipends to students to help them complete their academic education.

Since a typical academic degree takes a minimum of three years to complete there are currently only 27 academic graduates. Given the size of this sample, we are not able to conclude anything definitive about this group. Therefore, this study focuses solely on the graduates of the vocational track (Kemach vocational programs and PB'C).

Figure 1: Academic and Vocational Options Provided by Kemach



Notes: Parnassah B'Chavod started in 2005 as a TEVET program became a partnership between Kemach and TEVET in April 2009.

According to the Fall 2010 Participant Report, Kemach has received 7,035 applications, for all its programs since they began in 2007. Kemach has or is funding some 5,600 persons. Of these, 8 percent (446 participants) have graduated and less than 2 percent (62 participants) have dropped out. The remaining 90 percent (5,092 participants) are - either in the registration and testing process - 30 percent /1,666 participants; have been approved for scholarship and are waiting to study - 4 percent /204 participants; or studying - 56 percent /3,169 participants (Table 1). Thus, the programs funded by Kemach have high participation rates.

Table 1: Applicants to All Kemach Programs by Category Since Kemach Began in 2007 through September 2010

Applicant Category	Number of Students
Total Applicants	7,035
Did not meet Kemach Criteria	440
Decided not to enter the program	1,048
Currently Enrolled	
Currently undergoing Registration, Testing, Development, and Planning	1,666
Waiting to start their program	204
Currently Studying	
Kemach Programs	2,316
HL'A	478
PB'C	319
Graduated a course but currently studying	56
Graduated	446
Dropped out before completed the Program	62

Source: Fall 2010 Kemach Participant Report

III. Background on Employment in the Haredi Sector

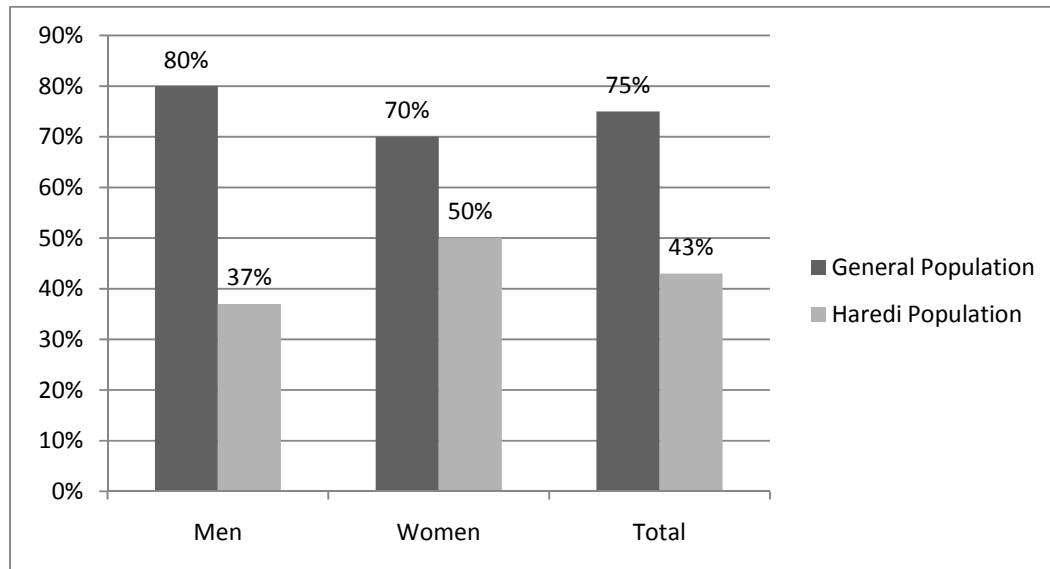
A. Population

The current Haredi population is estimated to be between 600,000 to 800,000 persons, 8 and 11 percent of the total population. The Haredi working age population (age 20 to 64) is estimated at 233,000 representing 6 percent of the non-Haredi general Jewish population in this age range. (Feferman, 2010)

Based on estimates, from 2002 to 2006, approximately 100,700 (43 percent) of the total (men and women) Haredi working age population were employed compared to 1,500,000 (75 percent) of the general working age population. (Figure 2) Forty four thousand working age Haredi men (37 percent) are employed versus 788,000 (80 percent) of the total population and 57,500 (50 percent) versus 717,500 (70 percent) for women. Thus, the gap is much narrower for women. (Figure 2) Therefore, there are

74,000 (63 percent) Haredi men and 57,500 (50 percent) of working aged Haredi women that are not employed. (Feferman, 2010)

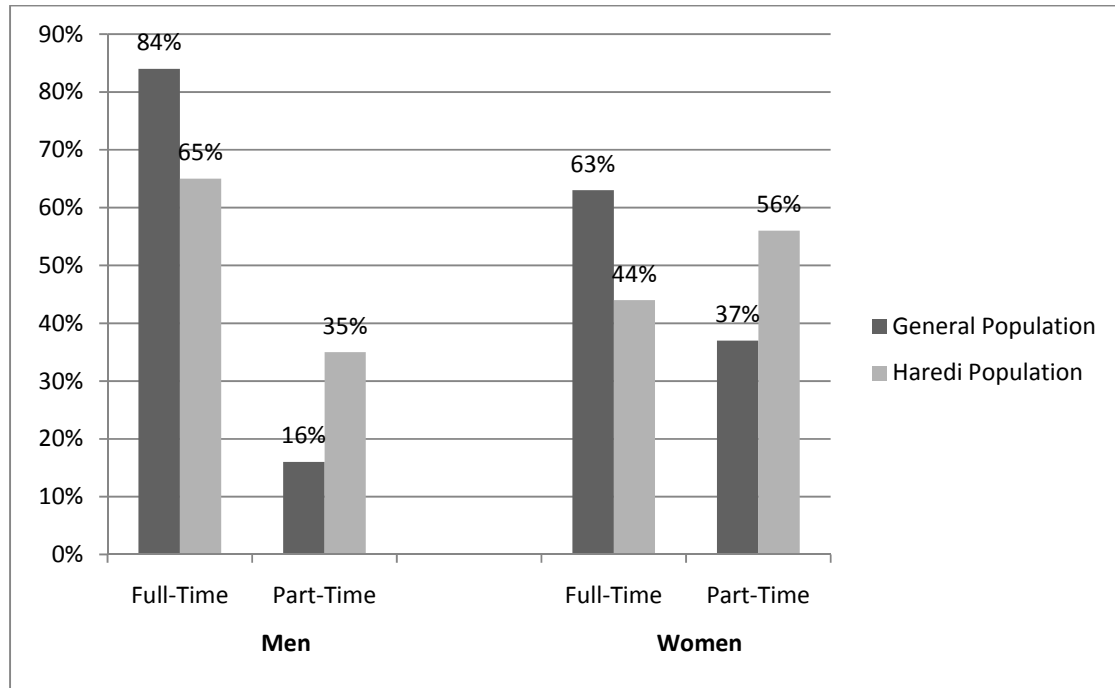
Figure 2: Employment Rates of the General and Haredi Populations (Aged 20 to 64) by Gender in 2008.



Source: Feferman, 2010.

In addition, in 2008 the incidence of part-time work was higher among the Haredim than the general population (Figure 3). Thirty five percent of employed Haredi men were employed in part-time positions relative to 16 percent in the general population. Fifty six percent of employed Haredi women were employed in part-time positions relative to 37 percent in the general population (Tamir, 2010). Thus, the gap in full-time employment is even greater.

Figure 3: Full-Time and Part-Time Employment Rates of the General and Haredi Populations (Aged 20 to 64) by Gender in 2008.



Source: Tamir, 2010

B. Income and Poverty

In the general population, average monthly household income is 14,498 NIS of which 1,560 NIS comes from government support (10.8 percent). The average Haredi monthly household income is 8,000 NIS of which 2,629 NIS comes from government support (33 percent). (Tamir, 2010)

In 2008, 19.9 percent of all Israeli families were under the poverty line¹. (National Insurance Institute) There is a much higher rate of poverty among the Haredim than the general population: 53 percent versus 13 percent. This may be attributed to the low rates of employment, particularly of men, and to lower wage rates when they are employed.

The increase in the poverty rates are related particularly to the low employment rates of Haredi men, to the low wages when employed, and to the large number of children that need to be supported. Thus, we see that there is a major challenge of procuring

¹ The poverty line is equal to one-half of the median disposable income. In 2008, the poverty line was 2,177 NIS for a single person and 9,057 NIS for a family of eight.

employment for this population and upgrading their earnings potential so that they will be able to become independent and emerge from poverty.

IV. Income Support

The Haredi community benefits from a range of income support benefits. To illustrate, the following table (Table 2) provides estimates of income and work-related expenses for a Haredi family with six children for three alternative employment scenarios. These are: the husband is studying full-time in a Kollel and the wife is not working; the husband is studying full-time in a Kollel and the wife is working and earning minimum wage; both the husband and wife are working full-time earning minimum wage.

Table 2: Hypothetical Monthly Income and Work-Related Expenses for a Haredi Family with Six Children by Work Status of Husband and Wife (in NIS)

	Husband Not Working Wife Not Working	Husband Not Working Wife Working	Husband Working Wife Working
Income			
Earnings		3,710	7,420
Child Allowance	910	910	910
Income Support Payments	940	0	0
Scholarship	700	700	0
Kollel Stipend	1,000-2,000	1,000-2,000	0
Charitable Donations	100	100	0
Total Income	3,650-4,650	6,420-7,420	8,330
Expenses			
Child-care Expenses	0	600-800	600-800
Loss of Municipal Taxes	0	0	230
*Additional Work-Related Expenses	0	500	800
Total Expenses	0	1,100-1,300	1,630-1,830
Total Income Less Expenses	3,650-4,650	5,120-6,320	6,500-6,700

*These include transportation, childcare during school vacations, and clothing
Source: Tamir, 2010

The hypothetical impact of a husband that stops studying full-time and becomes employed at minimum wage is the loss of income support of 940 NIS (if the wife is not working), scholarships of 700 NIS, Kollel stipends of 1,000-2,000 NIS and donations of 100 NIS per month.

Additional expenses rise with employment. Employment of the wife is associated with monthly expenses of 1,100-1,300 NIS, consisting of: childcare - 600-800 NIS and work-related expenses - 500 NIS. Employment of the husband raises work-related expenses (such as transportation and childcare during school vacations) by an additional 300 NIS.

When both the husband and wife are working, they are ~~now~~ required to pay municipal taxes of 230 NIS.

Thus, the total monthly household income minus expenses varies across the three employment scenarios. From 3,650-4,650 NIS if the husband is studying full-time in Kollél and the wife is not working to 5,120-6,320 NIS if the husband is studying full-time in Kollél and the wife is working and earning minimum wage to 6,500-6,700 NIS if both husband and wife are working for minimum wage.

Therefore, there are significant losses in income support and increases in additional expenditures associated with both the husband and wife joining the labor force. However, these losses are offset by the increase in earnings. A further increase in earnings above the minimum wage would further offset the losses of income support and additional expenses.

V. Survey of Kemach Graduates

a. Introduction

In August 2010 a survey of all graduates of the vocational programs since its inception in 2007 was performed by Kemach. On average 12.7 months had passed between the time that a graduate finished the program and when they were surveyed. The average length of time to complete a vocational course was 10.7 months.

According to the Kemach database, 419 students have graduated from Kemach programs. Out of these 388 responded to all of the questions in the survey (Table 3).

Table 3: Total Graduates and Respondents to the Survey by Sub-program

	All Graduates	Kemach	Parnassah B'Chavod
Graduates	419	365	54
Full Responses to Survey	388	335	53
Non or Partial Responses	31	30	1

Source: Survey Results (August 2010)

b. The Findings

We now present the findings relating to the 388 graduates that fully responded to the survey.

The graduates are predominantly male - 89 percent. The average age of a graduate is 32.5 years. On average, male graduates are older than female graduates (Table 4).

Table 4: Graduates that Responded to the Survey by Gender and Age

	Number of Graduates	Percentage of Total	Average Age of Graduate	Minimum Age	Maximum Age
Total Graduates	388	100%	32.5	20	56
Men	344	89%	33	21	56
Women	44	11%	26	20	47

Source: Survey Results (August 2010)

b.1. Employment

According to the Kemach survey, 81 percent of graduates are employed. Sixty seven percent of the graduates are employed in full-time positions, an additional 14 percent in part-time positions, and 19 percent are not employed (Table 5).

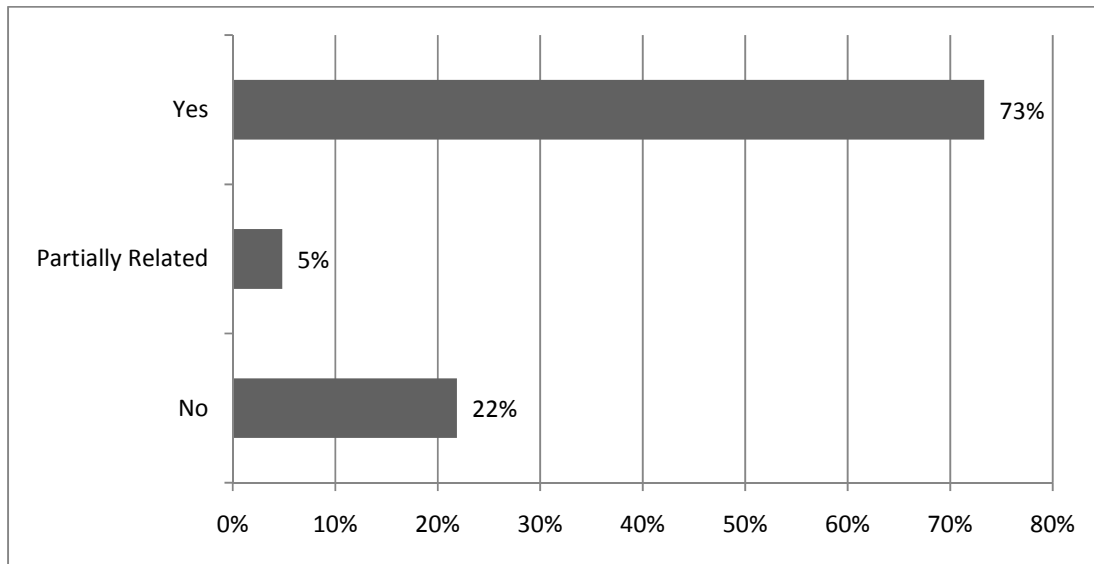
Table 5: Employment Rates

Employment Status	Number of Graduates	% of All Graduates
Number of Graduates	388	
Not employed	73	19%
Employed	315	81%
Full-Time	261	67%
Part-Time	54	14%

Source: Survey Results (August 2010)

Most of the employed graduates reported that they are working in a job related to their field of study - 73 percent, and an additional 5 percent indicated that their job is partially related to their field of study (Figure 4).

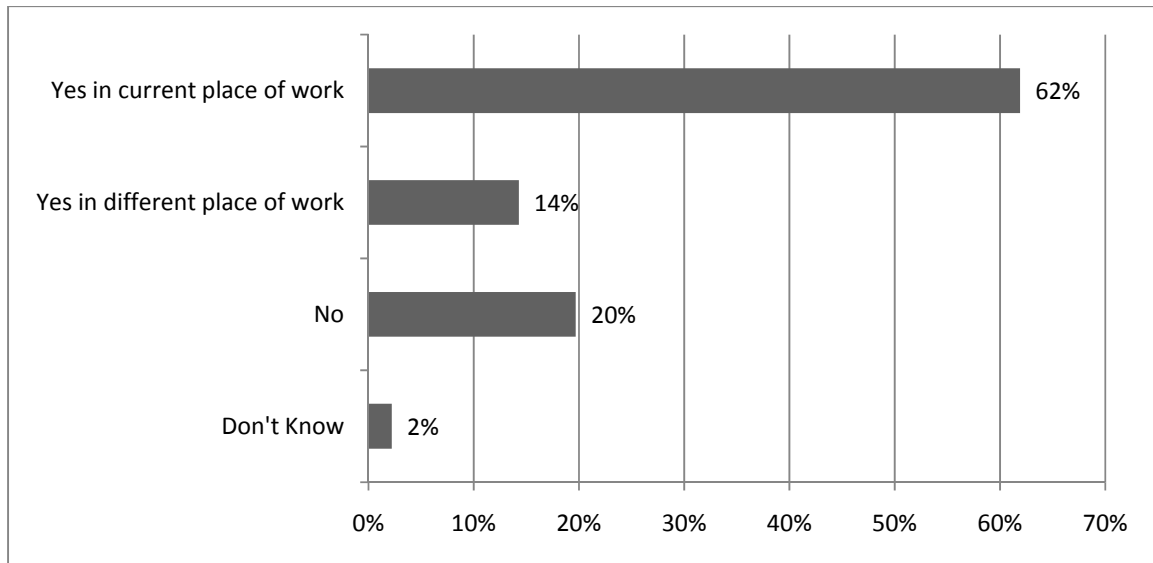
Figure 4: Job Related to Field of Study



Source: Survey Results (August 2010)

Most of the employed graduates reported that they believe they could have opportunities for promotion in their current position - 62 percent, and an additional 14 percent believe that they could have opportunities for promotion in other work places (Figure 5).

Figure 5: Opportunities for Promotion in Current Place of Work and Different Places of Work

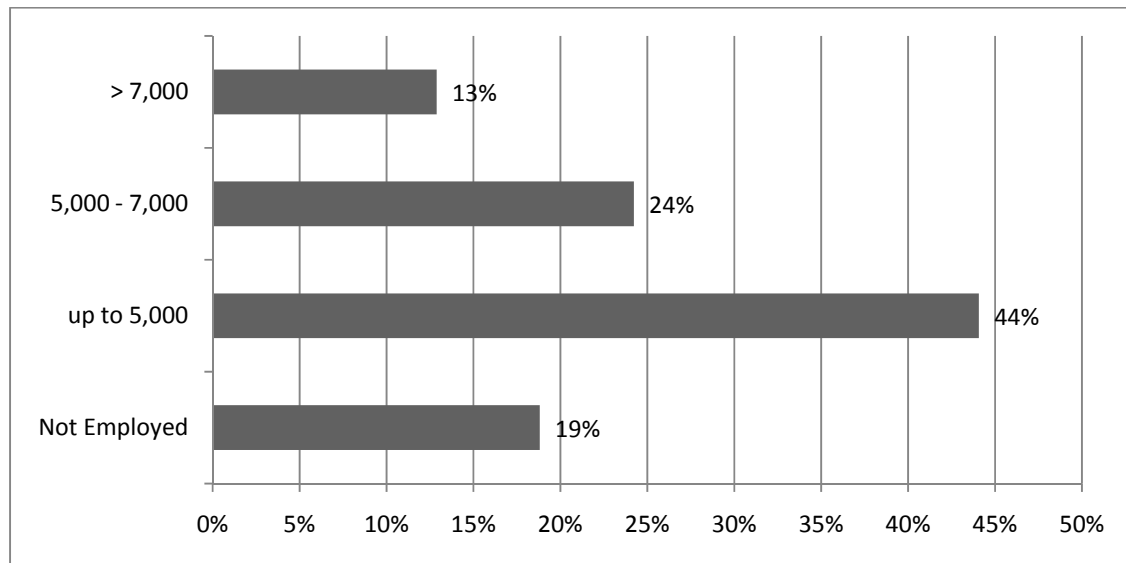


Source: Survey Results (August 2010)

b.2. Earnings

In figure 6, we present the distribution of earnings in three earnings groups. We see that 13 percent report earnings above 7,000 NIS, 24 percent between 5,000 and 7,000 NIS and 44 percent in the up to 5,000 NIS range.

Figure 6: Distribution of Level of Earnings for Those Employed (in NIS)



Source: Survey Results (August 2010)

b.3. Changes in Earnings and Employment

While Kemach is focused primarily on people who are not working, it also sees its role as enhancing the employment of those partly employed and upgrading the type of employment and increasing earnings.

We do not have full and detailed data on the earnings and employment situation prior to the program. Therefore, we cannot definitely say to what extent the employment and earnings data represent a change from the situation before the program. However, included in the survey was a question that sheds light on the possible dimensions of the change.

The graduates were asked as to whether and to what extent they had experienced an increase in earnings. The majority of graduates - 70 percent, reported that they experienced a significant increase in earnings, an additional 3 percent reported that they experienced some increase, while only 25 percent responded that they did not increase their earnings (Figure 7). The 25 percent is very similar to the 19 percent of the

graduates that reported that they were not employed. This suggests that the vast majority of those employed after the program either were not employed at all before hand or were employed less or had significantly less earnings than they have after the program. Therefore, it seems reasonable to attribute most of the change to the program itself.

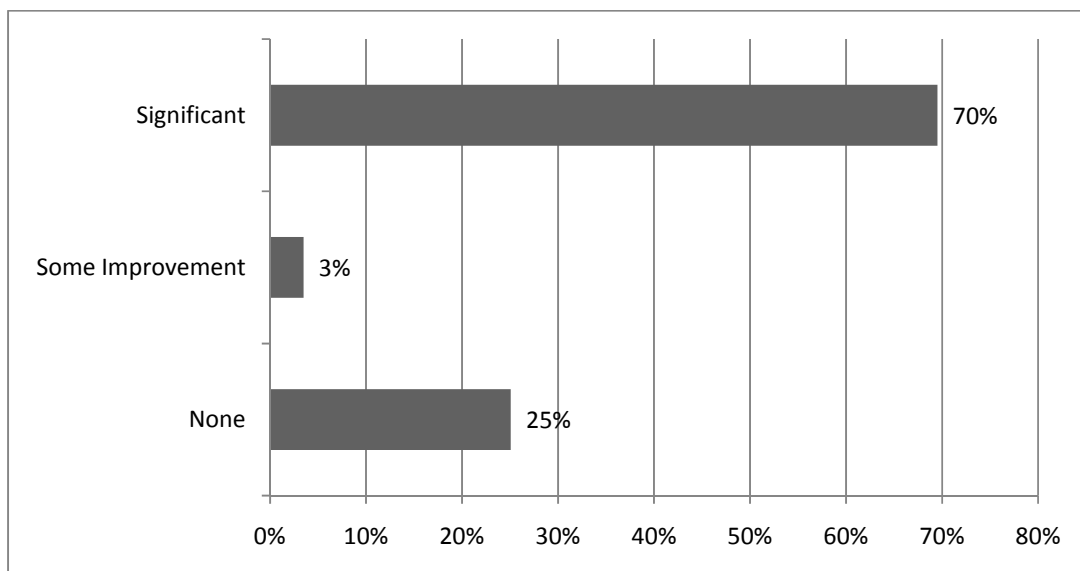
We also looked at the responses by full-time versus part-time employment and we see that a higher percentage of those fully employed reported considerable improvement which lends additional credence to the reliability of the report.

Kemach itself estimates, that although they do not have full data, about 15 percent were employed before the program and had average monthly earnings of 3,850 NIS. Average earnings after completion of the program are 5,300 NIS per month for those employed – 65 percent above the minimum wage adjusted for full-time versus part-time employment.

On this basis, the net change in employment is an increase from 15 to 81 percent or 66 percentage points. The change in average earnings per participant is 4,400 NIS².

We use these estimates as the basis for the subsequent benefit cost analysis.

Figure 7: Reported Increases in Earnings by Graduates and to What Extent³



² This is an average of a change of (5300 -3850) NIS for the 15 percent previously employed, 5,300 NIS for those newly employed, and zero for those not employed at the time of the survey.

³ We compared the Parnassah B'Chavod data in the JDC-TEVET database to the data that Kemach provided. We found consistent employment rates for these graduates.

Source: Survey Results (August 2010)

VI. Benefit Cost Analysis (BCA)

A. Introduction

In this section, we utilize the data from the survey to carry out a benefit cost analysis of the program. In order to examine how these benefits relate to the costs of running the program we heavily rely on the framework of Boardman, Greenberg, Vining, and Weimer (BGVW, 2006).

The first step in BCA is to systematically catalogue the benefits and costs of social programs and attach a monetary value to each. The comparison of the benefits and costs is then usually presented in terms of the net benefits (benefits minus costs) and in terms of the ratio of benefits to costs. (BGVW, 2006) A positive net benefit or benefit cost ratio of greater than one indicates that the total benefits are greater than the total costs.

As laid out by BGVW, 2006 there are three standard BCA perspectives: Society (economic output), Government (budget) and the Program Participant (personal status). The following definitions provide a general description of each perspective.

Society (economic output): This perspective focuses on the contribution of the program to the output of goods and services. Thus, the impact of a program on net societal economic output is the difference between the benefits as reflected in increased outputs and the costs as reflected in the real resources. Earnings are used to measure the extent and value of the output.

Benefits to Society:

- Gross earnings and fringe benefits due to increased employment

Costs to Society:

- Employment program operating costs
- Expenditures that participants incur when they return to work such as childcare and transportation

Government (budget): This perspective focuses on the contribution of the program to government budgetary savings. Thus, the impact of the program on the government is the difference between benefits as reflected in increased revenues and reduced expenditures and the cost of operating the program.

Benefits to the government:

- Increased tax payments and reduced welfare and other transfer payments due to an increase in employment
- Reduced costs of transfer programs as a result of a decrease in the number of recipients.

Costs to the government:

- Employment program costs deducting participant co-payments

Program Participant (personal economic status): This perspective focuses on the contribution of the program to the individual participant's income. Thus, the impact is the difference between benefits as reflected in increased earnings and fringe benefits and the costs as reflected in forgone welfare and other transfer payments and work related expenditures.

Benefits to the Participant:

- Gross earnings and fringe benefits due to increased employment
- Any reimbursements provided to participants as part of the employment program

Costs to the Participant:

- Increased tax payments
- Reduced welfare and other transfer payments due to an increase in earnings
- Expenditures that participants incur when they return to work such as, childcare and transportation

In the next section, we will fill in Table 6 with the estimated values based on Kemach data. However, we should indicate at the outset that we do not have data for fringe benefits which are estimated to be about 30 to 40 percent of earnings. This factor therefore introduces a downward bias in our estimates and should be taken into account when interpreting the findings.

Underlying all three measures are the changes that occur in earnings. However, we are only interested in the extent to which these changes can be attributed to participation in the program. In other words, the actual measurement of benefits and costs should be based on the comparison between changes that occur between the participants and those that occur in a relevant control group. To the extent that they would have obtained similar earnings without the program, the benefits would be smaller. Conversely, if the earnings of the comparison group would have declined such as in a period of growing unemployment the benefits could be underestimated.

In this analysis, we did not have access to comparative data about change in this period for a control group so we will be attributing all of the change in income, benefits and

costs to the program. We will however indicate how the benefits and costs change if we assume lower rates of employment so as to indicate the sensitivity of the analysis to this assumption.

Table 6: Benefit Cost Framework of Employment and Training Programs

	Society Economic Output	Government Budget	Participant Personal Status
Output Produced by Participant			
Gross Earnings	+	Not Relevant	+
Fringe Benefits	+	Not Relevant	+
Participant Work-Related Expenses			
Tax Payments	Not Relevant	+	-
Expenditures on child-care, transportation, etc.	-	Not Relevant	-
Use of Transfer Programs by Participant			
Welfare and Other Transfer Payments	Not Relevant	+	-
Use of Employment Programs by Participants			
Employment Program Operating Costs	-	-	Not Relevant
Reimbursement of job-related expenditures	Not Relevant	-	+

Source: Greenberg, David H., and Genevieve Knight (2007)

Notes:

1. The plus sign (+) indicates anticipated sources of benefits and the minus sign (-) anticipated sources of costs for each of the perspectives

B. Findings

We shall first elaborate the assumptions on which the calculations are based and then go on to present the findings from each of the three perspectives. The benefit cost analysis (BCA) is performed for the 388 graduates of vocational programs that completed the survey.

Benefits: In looking at the benefits of the program we are interested in the employment and earnings outcomes of the graduates.

The total benefits are based on the reported change in earnings. From the earnings figures, we calculated the change in tax payments, and forgone welfare payments of the 315 placed graduates.

The net benefits and benefit cost ratios are a function not only of initial placement but also on the assumptions about continued employment in the future. Each additional year of employment brings additional benefits that can be used to offset the costs of the program.

We estimate the net benefits under three assumptions with respect to subsequent employment: 1 year, 5 years, and 30 years. Even though the lifetime perspective is ultimately the most important, it is more and more common in the literature to look at the short-term benefits.

In order to extend the analysis beyond one year, one needs to make some assumptions about wage growth and to discount the value of future benefits and costs. To make the numbers directly comparable we did not assume a real wage increase or use a discount rate in the 1-year and 5-year estimates. We took these factors into account in the 30-year estimates, assuming a 3.5 percent discount rate, a 1 percent increase in real wages, welfare and transfer payments, and work-related expenditures and we begin discounting after the first 5 years.

The 30-year period was selected because the average age of the graduates is 32 and the retirement age for men is 67, a difference of 35 years. We assume that the graduates will work for 30 of those 35 years, or 83 percent of the years.

In this analysis, we did not have access to comparative data about change in this period for a control group so we will be attributing all of the change in employment and earnings to the program. We will however indicate how the benefits and costs change if

we assume lower rates of employment so as to indicate the sensitivity of the analysis to this assumption.

Costs: The cost of the program to society and the government is the total cost to operate the program. It is calculated for the 388 students that completed the survey (315 employed and 73 not employed). Total costs include tuition, administrative, and additional expenses. According to the Kemach database the average cost is 10,300 NIS, of which Kemach funds 8,400 NIS, and the student 1,900 NIS. Tuition costs are approximately 87 percent of the total costs.

The Kemach administrative budget covers a number of different programs. We therefore needed to separate out the costs that should be attributed to the 388 students that are the focus of this analysis. We thus calculated the administrative costs per Kemach participant per year and multiplied that by the time in years that each participant spent in the program for each of the 388 graduates.

There are two additional expenses that we attribute to the participants, initial testing and evaluations by an industrial psychologist. Every participant is required to take a test when applying to Kemach. The test costs 120 NIS, of which the participant pays 50 NIS. In addition, according to the Kemach budget 10 percent of all applicants receive an evaluation from an industrial psychologist at a cost of 350 NIS per evaluation.

Beyond program costs there are the participant work-related expenses (e.g. childcare and transportation). These were based on estimates made by Tamir (2010) of the size of these costs for a typical Haredi man entering the work force (Table 2).

The calculations for each of the perspectives for one-year of employment are shown in detail in Table 7. A summary of the results for all of the employment time periods is shown in Table 8. The following findings are presented per capita.

a. Society (Economic output). The one-year benefits to society are composed of the change in gross earnings, 44,000 NIS. The costs to society include any increases in expenditures for participants due to employment (e.g. childcare and transportation), 3,600 NIS and the costs of operating the program, 10,300 NIS. The benefits exceed the costs: net benefits are 30,100 NIS per graduate and the associated benefit cost (BC) ratio is 3.2 (Table 7). That is a return of 3.2 shekels for every shekel spent on the program.

An increase in the number of years of employment from one to five, increases the net benefits to society to 191,700 NIS per graduate with a benefit cost ratio of 7.8. That is a return of 7.8 shekels for every shekel spent on the program. This is because the costs

remain constant and each additional year of employment adds some 40,000 NIS of benefits.

A further increase to 30 of years of employment, raises the discounted net benefits to 936,020 NIS per graduate with a benefit cost ratio of 10.8. That is a return of 10.8 shekels for every NIS spent on the program.

For 500 graduates the net benefits to society would be 15 million NIS if they work for one year, 95.8 million NIS if they work for 5 years, and 468 million NIS (discounted) if they work for 30 years (Table 8).

As noted, we perform sensitivity analysis of the benefits and costs to changes in employment. This is done by calculating the employment rate required for the net benefits to be positive and thus the benefit cost ratio greater than one. As previously mentioned, we assume that 15 percent of the participants are employed prior to the program. Therefore, we calculate the impact of the program in employment percentage points for which the benefits equal the costs. The results are:

1. One year– 35% employment rate: a change of 20 percentage points
2. Five years – 19% employment rate: a change of 4 percentage points
3. Thirty years – 16% employment rate: a change of 1 percentage point

Thus, for all three time periods only low rates of employment are required for the benefits to equal the costs. Therefore, even if the present postgraduate employment rate is an overestimate of the program's impact (such as due to lack of a control group) we can still expect the program to have positive net benefits.

b. Government (Budget). The one-year benefits to the government are composed of the change in taxes paid to the government as a result of increased earnings of 3,100 NIS. The benefits to the government are also the savings due to a reduced reliance on welfare payments, 20,700 NIS and other transfer payments, 800 NIS. The training program costs to the government are calculated on the assumption that the government assumes responsibility for Kemach's share of these costs. The training program costs net of the participant's share are 8,400 NIS per graduate. Thus, the benefits exceed the costs: net benefits are 16,175 NIS per graduate and the associated BC ratio is 2.9 (Table 7). That is a return of 2.9 shekels for every shekel spent on the program.

An increase in the number of years of employment from one to five, increases the net benefits to the government to 114,475 NIS per graduate with a BC ratio of 14.6. That is a return of 14.6 shekels for every shekel spent on the program. This is because the costs

remain constant and each additional year of employment adds some 24,600 NIS of benefits.

A further increase to 30 years of employment, raises the discounted net benefits to 567,075 NIS per graduate with a BC ratio of 68.3. That is a return of 68.3 shekels for every shekel spent on the program.

For 500 graduates the net benefits to the government would be 8 million NIS if they work for one year, 57.2 million NIS if they work for 5 years and 283.5 million NIS (discounted) if they work for 30 years (Table 8).

Similar to the sensitivity analysis performed for society we calculate the employment rate required for the net benefits to be positive under each of the three employment period assumptions. The results are:

1. One year– 40% employment rate: a change of 25 percentage points
2. Five years – 20% employment rate: a change of 5 percentage points
3. Thirty years – 16% employment rate: a change of 1 percentage point

c. Participant (Personal Status). The one-year benefits to the participant are composed of the change in gross earnings, 44,000 NIS. The costs to the participant include any increases in taxes paid - 3,100 NIS, expenditures due to employment - 3,600 NIS, lost welfare and other transfer payments (these include lost Kolliel scholarships and stipends) - 21,500 NIS, and any tuition costs for the program - 1,900 NIS. The benefits exceed the costs: net benefits are 13,900 NIS per graduate and the associated BC ratio is 1.5. That is a return of 1.5 shekels for every shekel spent on the program.

An increase in the number of years of employment to five years increases the net benefits to participants to 77,200 NIS per graduate with a benefit cost ratio of 1.5. That is a return of 1.5 shekels for every shekel spent on the program.

A further increase to 30 years of employment, raises the discounted net benefits to 368,920 NIS per graduate with a benefit cost ratio of 1.6. That is a return of 1.6 shekels for every shekel spent on the program. The benefit cost ratios do not increase as significantly as for the societal and government calculation because the loss in transfer payments remains the same from year to year.

For 500 graduates the net benefits to the participants would be 7 million NIS if they work for one year, 38.6 million NIS if they work for 5 years and 184.5 million NIS (discounted) if they work for 30 years (Table 8).

To test the sensitivity of the results we estimate the employment rate required for the net benefits to be positive under each of the three employment period assumptions. The results are:

1. One year– 23% employment rate: a change of 8 percentage points
2. Five years – 17% employment rate: a change of 2 percentage points
3. Thirty years – 16% employment rate: a change of 1 percentage point

The benefit cost ratios for the government are larger than for all other perspectives. This is because both society and the participant have costs that continue with each additional year. For society, these costs are work-related expenditures, such as childcare and transportation. For the participant, these costs include work-related expenditures, tax payments, and forgone welfare and other transfer payments. In contrast, the only cost to the government is program costs, which are incurred only in the first year.

d. Government and Society: The last column in Table 7 adds together the benefits to society and the government because both of these can be viewed as an increase in societal gains in economic output and budgetary savings. This perspective increases even further the net benefits.

VII. Cost-Effectiveness Analysis (CEA)

A. Cost-Effectiveness Analysis (CEA)

In this section, we examine the relationship between the costs of running the program to a measure of effectiveness, job placement.

Cost Effectiveness. The cost effectiveness is calculated for the government perspective. As stated above, the training program costs to the government are calculated on the assumption that the government assumes responsibility for Kemach's share of these costs.

The total operating cost to the government for 388 students is 3.3 million NIS. Three hundred and fifteen of the 388 graduates are employed and thus the cost per placement is 10,400 NIS.

VIII. Summary

The purpose of the Kemach foundation is to assist the Haredim in integrating into the labor market so as to be able to become independent and support their families. Essential to their approach is to provide the Haredim with resources for training that will enable them to achieve significant levels of earnings. This can considerably enhance the incentive for them to pursue employment. The goal of this study is to estimate the returns on the investment as reflected in the analysis of benefits and costs from three perspectives, society (economic output), government (budget) and the participant (personal status). Benefits were measured purely from an economic perspective as related to changes in earnings.

In order to provide the information required for the calculations Kemach performed a survey of all vocational program graduates. The results indicate that a large percentage (81 percent) of all graduates are employed. This represents an increase of 66 percentage points from the estimated pre-program 15 percent. A consequence of the increase in employment is that a high percentage of graduates, (70 percent), reported a significant increase in earnings. Thus, the survey results suggest that the vocational programs have been successful in increasing Haredi earnings and employment.

Net benefits and benefit cost ratios were estimated under assumptions about the length of time a graduate who entered employment would work: 1 year, 5 years, and 30 years.

All estimated net benefits were positive and the benefit cost ratios greater than one. This means that the benefits exceeded the costs of the program for each of the 3 perspectives under the different assumptions.

- From society's perspective, the per graduate net benefits rise from 30,100 NIS to 191,700 NIS to 936,020 NIS and the benefit cost ratios from 3.2 to 7.8 to 10.8 over the three employment periods.
- From the government's perspective, per graduate net benefits rise from 16,175 NIS to 114,475 NIS, to 567,075 NIS and benefit cost ratios from 2.9 to 14.6 to 68.3, respectively.
- From the participant's perspective, the per graduate net benefits increase from 13,900 NIS to 77,200 NIS to 368,920 NIS and the benefit cost ratios from 1.5 to 1.5 to 1.6 over the three employment periods. The benefit cost ratios do not increase as significantly as for the societal and government calculation because the loss in transfer payments remains the same from year to year.

The net benefits to society for 500 graduates for the three employment time periods are 15 million NIS if they work for one year, 95.8 million NIS if they work for 5 years and 468 million NIS if they work for 30 years.

In summary, we find that Kemach has been successful in increasing employment and earnings in the Haredi community. The returns to society, government and the individual are all substantial. We need to caution that in evaluating the impacts on earnings, we did not have a control group in order to isolate the impact of the program from changes that might have occurred in any case over time. However, a sensitivity analysis demonstrated that even if we assume much lower impacts on employment and earnings the net benefits remain positive.

Table 7: Benefits and Costs per Graduate Assuming 1 Year of Employment after completing the Program by Perspective in 2010 (in NIS)

	Society (Economic output)	Government (Budget)	Participant (Personal Status)	Society + Government
Output Produced by Participant				
Gross Earnings	44,000	Not Relevant	44,000	44,000
Participant Work-Related Expenses				
Tax Payments	Not Relevant	3,100	-3,100	3,100
Expenditures on childcare, trans, etc.	-3,600	Not Relevant	-3,600	-3,600
Use of Transfer Programs by Participant				
Welfare Payments	Not Relevant	20,700	-20,700	20,700
Other Transfer Payments	Not Relevant	800	-800	800
Use of Training Support Programs				
Training Program Operating Costs	-10,300	-8,425	-1,900	-18,725
Net Benefits (Benefits – Costs)	30,100	16,175	13,900	46,275
BC Ratio	3.2	2.9	1.5	3.1
The Impact on Employment for which the Benefits equal the Costs (in percentage points)	20	25	8	22

Notes: These calculations are based on: 1. employment rate of 81% or an increase of 66 percentage points from the pre-program estimated rate of 15% - a program impact of 66 percentage points. 2. A change in average earnings per participant of 4,400 NIS from pre-program levels.

Table 8: Cost Effectiveness and Net Benefits (discounted) per Graduate, by Perspective and Assumed Employment Period in 2010 (in NIS)

	Society (Economic output)	Government (Budget)	Participant (Personal Status)	Society + Government
Cost Effectiveness				
Cost per placement		10,400		
Net Benefits				
Net Benefits – 1 Year of Employment	30,100	16,175	13,900	46,275
Net Benefits – 1 Year of Employment For 500 Graduates	15 million	8 million	7 million	23 million
Net Benefits – 5 Years of Employment	191,700	114,475	77,200	306,175
Net Benefits – 5 Years of Employment For 500 Graduates	95.8 million	57.2 million	38.6 million	153 million
Net-Benefits – 30 Years of Employment	936,020	567,075	368,920	1.5 million
Net Benefits – 30 Years of Employment For 500 Graduates	468 million	283.5 million	184.5 million	750 million

Table 9: Benefit Cost Ratios and Breakeven Rate⁴ of Employment per Graduate, by Perspective and Assumed Employment Period in 2010 (in NIS)

	Society (Economic output)	Government (Budget)	Participant (Personal Status)	Society + Government
Benefit Cost (BC) Ratios				
BC Ratios – 1 Year of Employment	3.2	2.9	1.5	3.1
BC Ratios – 5 Years of Employment	7.8	14.6	1.5	9.3
BC Ratios – 30 Years of Employment	10.8	68.3	1.6	15.5
The Impact on Employment for which the Benefits equal the Costs (in percentage points)				
Employment Rate Change - 1 Year of Employment	20	25	8	22
Employment Rate Change – 5 Years of Employment	4	5	2	4
Employment Rate Change – 30 Years of Employment	1	1	1	1

⁴ Breakeven rate – a rate at which the benefits are equal to the costs so the net benefits are zero and the benefit cost ratio is equal to 1.

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Appendix 1: Details of Calculations of Costs and Benefits for 5 and 30 years of Employment Assumptions

In tables 1 and 2, we provide the detailed calculations behind the 5- and 30-year estimates of the benefits and costs.

Table 1: Benefits and Costs per Graduate Assuming 5 Years of Employment after Completing the Program by Perspective in 2010 (in NIS)

	Society (Economic output)	Government (Budget)	Participant (Personal Status)	Society + Government
Output Produced by Participant				
Gross Earnings	220,100	Not Relevant	220,100	220,100
Participant Work-Related Expenses				
Tax Payments	Not Relevant	15,500	-15,500	15,500
Expenditures on childcare, trans, etc.	-18,100	Not Relevant	-18,100	-18,100
Use of Transfer Programs by Participant				
Welfare Payments	Not Relevant	103,400	-103,400	103,400
Other Transfer Payments	Not Relevant	4,000	-4,000	4,000
Use of Training Support Programs				
Training Program Operating Costs	-10,300	-8,425	-1,900	-18,725

Table 1 Continued: Benefits and Costs per Graduate Assuming 5 Years of Employment after Completing the Program by Perspective in 2010 (in NIS)

Net Benefits	191,700	114,475	77,200	306,175
BC Ratio	7.8	14.6	1.5	9.3
The Impact on Employment for which the Benefits equal the Costs (in percentage points)	4	5	2	4

Notes: These calculations are based on: 1. employment rate of 81% or an increase of 66 percentage points from the pre-program estimated rate of 15% - a program impact of 66 percentage points. 2. A change in average earnings per participant of 4,400 NIS from pre-program levels.

Table 2: Benefits and Costs per Graduate Assuming 30-Years of Employment after Completing the Program by Perspective in 2010 (in NIS)

	Society (Economic output)	Government (Budget)	Participant (Personal Status)	Society + Government
Output Produced by Participant				
Gross Earnings	1,031,120	Not Relevant	1,031,120	1,031,120
Participant Work-Related Expenses				
Tax Payments	Not Relevant	72,400	-72,400	72,400
Expenditures on childcare, trans, etc.	-84,800	Not Relevant	-84,800	-84,800
Use of Transfer Programs by Participant				
Welfare Payments	Not Relevant	484,500	-484,500	484,500
Other Transfer Payments	Not Relevant	18,600	-18,600	18,600

Table 2 Continued: Benefits and Costs per Graduate Assuming 30-Years of Employment after Completing the Program by Perspective in 2010 (in NIS)

Use of Training Support Programs				
Training Program Operating Costs	-10,300	-8,425	-1,900	-18,725
Net Benefits	936,020	567,075	368,920	1.5 million
BC Ratio	10.8	68.3	1.6	15.5
The Impact on Employment for which the Benefits equal the Costs (in percentage points)	1	1	1	1

Notes: These calculations are based on: 1. employment rate of 81% or an increase of 66 percentage points from the pre-program estimated rate of 15% - a program impact of 66 percentage points. 2. A change in average earnings per participant of 4,400 NIS from pre-program levels.

Appendix 2: Assumptions used to calculate the benefits

Since we lack basic data on the number of children and wife's labor force participation prior to and after the program, we need to make a set of assumptions in order to calculate the participant's tax payments, work-related expenses, and welfare and other transfer payments. These assumptions are only used to calculate the income of the participant. We do not relate to total family income in this report.

Employment Status and Earnings:

Prior and After the Program

- Based on the general rate of employment of Haredi women we assume that 57 percent were employed prior and after the program and that the percentage is the same for both participants who are employed and not employed.
- Each participant has at least three children

Earnings and Related Tax Payments:

Gross Earnings. The change in gross earnings is the difference between earnings prior to the program and earnings after the program. Gross earnings after the program are based on the distribution of earnings reported in the Kemach survey (Figure 6). We select the following earnings levels to represent the ranges: 3,850 NIS (minimum income) for up to 5,000 NIS; 6,000 NIS for 5,000-7,000 NIS; and 8,500 NIS for the 7,000 NIS and up income range. We assume that if a participant was working prior to the program he was earning a minimum wage of 3,850 NIS.

Tax Payments. The change in tax payment includes changes in: Income tax payments, National and Health Insurance payments, and VAT payments.

Income Tax Payments. The husband and wife file separate tax returns. The taxes of the husband are based on the husband's earnings and are independent of the wife's earnings. Thus, the change in income tax is calculated using the change in gross earnings and the number of tax exemption credits a participant receives. The husband receives 2.25 exemption tax credits if their wife works (57 percent of all participants) and 3.25 exemption tax credits if their wife is not working (43 percent of all participants).

National and Health Insurance. The appropriate percentages (Israeli Tax Authority) are applied to the change in gross earnings.

VAT. Net income (gross income – taxes) is multiplied by the marginal propensity to consume (MPC) and VAT applied to this amount. The change in VAT is the difference between VAT paid on net income prior to the program and after the program.

Expenses

Work-Related Expenses. Work-related expenses include transportation and childcare during school vacations (Table 2). Tamir estimates that work related expenditures are 800 NIS per month if both the participant and spouse are working and 500 NIS per month if only the participant is working. The change in work-related expenses is the difference in work-related expenses prior to the program and after the program

Welfare Payments

Welfare and Other Transfer Payments. Welfare and other transfer payments if both the husband the wife are not working include: child allowances (910 NIS), income support payments (940 NIS), scholarships (700 NIS), Kolliel stipends (1,500 NIS) and charitable donations (100 NIS). Total welfare and transfer payments are therefore, 4,150 NIS per month.

If the wife is working then the income support payment is lost. Total welfare and transfer payments are 3,210 NIS per month. (Kemach 2010 Report and Tamir, 2010).

We assume that when the husband becomes employed they lose all transfer payments except for the child allowance.