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ANALYZING THE SUCCESS FACTORS OF AN ISRAEL EMPLOYMENT SERVICE PLACEMENT PROGRAM – 'EMPLOYMENT CIRCUITS'

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Abstract. Unemployment is one of the world's most challenging tasks to solve, with 6.3–6.5% of the world's population unemployed in 2021 (4.6% unemployment in Israel). Job placement programs for the unemployed can reduce the duration of unemployment and government unemployment expenditures. This paper explores one of the Israel Employment Service programs for 2016–2019, based on 56,000 job seekers and 82 job seeker profiles. The main findings of the study are: (1) there is no difference between good placement of job seekers from the Arab sector (49%) compared to job seekers from the other population groups (51%); (2) the longer a job seeker remains in the program, the lower is the probability of their returning to the labor market. Moreover, the increased number of activities the job seekers are engaged in can negatively affect their chances of finding a job; (3) socioeconomic factors such as education, disability, religion, and number of children affect job placement.

Keywords: unemployment; job placement program; unemployed; employment service.

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Introduction

The Israel Central Bureau of Statistics (CBS) began collecting and analyzing data on the Israel's labor market in 1948, when the population was only 867 000. At the end of 2021, there were approximately 9.4 million people, living in the State of Israel, with a labor force participation rate of 62% (The World Bank, 2022), which is higher than the average rate in OECD countries (Caesar, 2017). Until the beginning of the 2000s, the employment rate in Israel was relatively low, mainly due to the comparatively low employment rate of men. This changed, however, with the male employment rate in Israel consistently increasing since 2003. At the same time, the male employment rate in Western countries can be described by a decreasing curve, slightly compensated by a modest acceleration in female employment growth. Thus, in the years before the coronavirus pandemic, the employment rate in Israel and the OECD countries was about the same.

In general, unemployment has a strong negative effect economically, psychologically, and physically on individuals and families who face the many consequences of this global problem. The European Commission recognized this as one of the most significant barriers to national prosperity and growth the global society is facing today (Levin and Sefati, 2018; Kabáta et al., 2014). Therefore, one can confidently acknowledge the immense importance of employment and its many positive implications on individuals and society.

In 2021, 4.6% of all Israelis of working age were unemployed, a much lower rate than in other Western countries. There are several possible reasons for Israel's relatively low unemployment rate compared to EU countries. First, the ubiquitous digital transformation, which streamlined and shortened the job search time and the recruiting processes for both employees and employers. The OECD report (2022) highlighted the need to increase digitalization of PES (Public Employment Services) programs in the EU in order to improve services for job seekers and employers. Second, increased involvement of placement companies in recruiting processes resulted in a growth of contract employment. The third one is expanded transportation infrastructures in the geographical periphery. The fourth is social policies and incentives, including: employment rigidity; the power and size of worker unions; replacement rate of unemployment benefits by wages; employee and employer payroll taxes; minimum wage levels; and public spending on labor market programs (Bank of Israel, 2019).

The Public Employment Services (PES) is a form of government organization providing programs and platforms intended to match the unemployed individuals with potential job offers from employers. PES registers individuals who are either unemployed or underemployed, in order to integrate them into the labor force and offer counseling to these registered individuals to help them get hired (Bimrose

et al., 2014). A monograph by the OECD (2016) provides detailed information regarding PES policies, programs and services. This approach to the PES highlights the importance of the PES programs and their vital role in building a strong economy and a better social foundation.

The Israeli Employment Service (IES) is a local form of PES. The Service is a statutory organization established under the 1959 Employment Service Law, following the signing by the State of Israel of an international treaty requiring the signatory countries to establish a state employment agency to provide free placement services to employees and employers alike. To date, the IES is a statutory corporation overseen by the Minister of Economy and Industry, and the Employment Service Council which is the organization's highest authority. The service assists about 400,000 job seekers annually through 71 employment bureaus throughout the country. The main roles of the IES are: (1) assisting job seekers in finding employment; (2) conducting a recruitment test; (3) referring job seekers to professional training centers; (4) assisting employers in finding employees; (5) conducting research on the Israeli labor market, collecting relevant data and publishing regular reports.

The IES also initiates and operates various programs (e.g., 'Employment Circuits') that provide job-seekers with tools to enter the labor market. The goals of these programs are: (a) promote the integration of income guarantee claimants in the job market; (b) cut dependence of income guarantee claimants on allowances; c) prevent income support claimants from sinking into long-term unemployment. The program also offers participants individual and group support as well as tools and assistance to enable them to rapidly integrate into the labor market.

The current research aims to examine the job placement success factors of the Employment Circuit IES job placement program for 2016–2019, based on 56,000 job seekers and 82 job seeker profiles.

Literature Review

Employment provides a source of identity and social status. It also enables people to participate in society, earn money and use resources. Therefore, employment has a substantial impact on the well-being of individuals. Extensive research has been conducted to further validate this point and examine the importance of employment for one's well-being. Unemployment is related to negative effects on individuals in the long- and short-term (Ponomarenko, 2016). Sol (2016) notes that in EU countries, a quarter of unemployed individuals suffering from economic problems also suffer from health problems, alcohol addiction, and/or discrimination. The longer individuals are unemployed, the more likely they are to lose their skills and become unemployable. Such a tendency negatively affects the economy as well. The problems associated with unemployment may result in the unemployed being less healthy, which leads to health-related costs. Winkelman (2014) found that higher local unemployment weakens the work ethic, so regions with higher crime/job dissatisfaction have a more significant impact on unemployment compared to other places. Artazcoz (2004) describes a strong relationship between unemployment and human and mental health.

Areas of high unemployment and social deprivation may also experience higher crime levels, suicide rates and psychological problems. These include, inter alia, loss of economic output, loss of tax revenue, reduced government revenues to spend on public services and increased government expenditure. Zwinkels (2015) notes that the likelihood of the unemployed people returning to work decreases significantly once their allowance is curtailed. For the unemployed, the opportunity of returning to work decreases by 35%. Zwinkels concludes that the unemployed people with problematic debts find it more challenging to return to work compared to other unemployed people. Research conducted in Amsterdam by Konig (2014) on social assistance showed that debt relief paths in the context of employment services lead to more job placements, and that job placements without the relief paths can be relatively limited. A research project among employment service providers in Europe indicated that as soon as unemployed people's debt is reduced, the likelihood of having a job tends to increase. Pohlan (2019) found that job loss has detrimental effects on subjective perceptions of social integration, life satisfaction, access to economic resources and mental health.

Unemployment has always been, and continues to be, one of the major problems facing our world, and its many disadvantages are the subject of considerable research. These disadvantages include the stigmatization and social exclusion that unemployment causes to individuals and the break in the career, as unemployment can lead to an inferior job position or income immobility (Ponomarenko, 2016). Furthermore, unemployment in early adulthood has also been associated with an increased likelihood of unemployment in the future (Ponomarenko, 2016).

In addition to financial and career pattern disadvantages, research has shown that unemployment negatively affects health, increases mortality rates, and can even cause psychological problems such as depression and feeling unworthy. These harmful effects can persist even after individuals return to work, further confirming the long-term consequences and repercussions of unemployment on an individual's well-being. Other studies have shown that long-term unemployment is associated with an increased risk of alcoholism, smoking and increased anxiety (Ponomarenko, 2016).

The connection between unemployment and crime is proven. It is even suggested that because the unemployed or people with lower wages have less to lose from committing a crime, they are more likely to commit criminal offenses. Moreover, it is suggested that reducing the unemployment of previously imprisoned criminals by three months can reduce crime by 5% (Van den berg and Van Vuuren, 2010).

Unemployment during the pandemic. The coronavirus pandemic significantly deepened the unemployment problem. The pandemic outbreak led to an enormous economic crisis with many negative ramifications affecting multiple groups in the population, including women. While the female labor force participation rate increased significantly over the past few decades, there are still gender gaps in employment and labor market participation. There is an obvious gender bias in public sector employment across age groups, religious affiliations, and educational levels. It is estimated that the chances of a woman transitioning from employed to inactivity are higher than for men. However, research shows that women prefer specific jobs, especially in the public sector. Therefore, public employment services and programs may be more successful in placing women in such jobs (Gomes, 2019).

Faced with the pandemic in 2020, economists around the world predicted that unemployment rates would increase significantly due to the closure of borders, schools, shops and restaurants, all measures aimed at limiting the spread of the virus. Indeed, unemployment rates were exceptionally high during this time. Statistics in Europe show that the unemployment rate was 10.7% in Norway and 3.67% in the UK, while in the U.S. it was 14.7% in April 2020. It was almost four times higher than at the beginning of 2020. This was one of the worst economic crises the world had experienced in recent years, with many devastating repercussions on countries and their economies, on small businesses and on the labor market as a whole (Rosen and Stenbeck, 2020).

Similar to the trends found in many OECD countries, the pandemic created unprecedented upheaval in the labor market in Israel: nationwide lockdowns, over a million workers taking unpaid leave, businesses forced to limit the number of customers served, several morbidity waves and more. The size and pace of the upheaval created significant uncertainty, not only about the future of the national labor market, but also about what was happening in real-time. The most brutal pandemic blow was observed in early 2020, when more than a million of Israelis stopped working (Debowy et al., 2021).

From the very beginning of the pandemic, the unemployment rate in Israel rose critically from 3.8% in December 2019 to a peak of 35% in April 2020. However, due to various government policies, the unemployment rate decreased to 15.9% by the end of 2020, and to 6.7% by the end of 2021 (The World Bank, 2022). The relatively fast recovery of the Israeli labor market from the pandemic period may have been possible due to a combination of several factors.

As part of its pandemic response program, the Israeli government adopted the furlough model, which permits placing employees on unpaid leave. This model, which differs from most models implemented in OECD countries (e.g., various combinations of reduced hours and wage subsidies), transferred 45% of the work-hour reduction cost burden to the workers, compared to OECD countries with an average burden rate of 28% (Debowy et al., 2021). This high burden rate created a positive dynamic for the fast return of employees to the labor market. Moreover, despite the considerably disproportionate impact of the pandemic on the labor market in Israel (Zontag et al., 2020), the back-to-work period did not deepen the gap in the labor market between strong-professional and weak-unprofessional workers. The return to the workplace was mainly based on the company needs, not on the employee's position or strength in the organization. Finally, the pandemic did not force workers to take early retirement (i.e., employers did not take advantage of the crisis to rejuvenate the workforce and did not lay off older workers) or to reconsider wages (i.e., employers did not use the crisis to get rid of the most "expensive" workers) (Margalit and Yakir, 2022).

Public employment service. The roots of, Public Employment Services (PES), date back to the 1800s, when it was founded at the local level by municipalities, labor markets and friendly societies. National and centrally organized PES first emerged in 1927 and continued during World War II as a means for governments to coordinate their workforce (Sultana and Watts, 2006). PES vary from country to country, with some being very similar and others very different. Some of the countries men-

tioned in this paper have successful employment placement programs. We discuss what makes them successful and compare them to Israel, which has a lower unemployment rate compared to other Western countries, as discussed above.

The PES in Ireland is currently undergoing reform. This includes more robust and thorough monitoring of services, an increasingly competitive atmosphere, and the use of outcomes as a payment model. Two of the most significant reforms implemented in Ireland are: (1) the "Payment by Results" employment program for the long-term unemployed individuals; and (2) the "Job Path" program, which aims to motivate PES workers to achieve better results (Murphy and McGann, 2022).

In Australia, there has been a shift towards digital self-services over the past 20 years. The focus is on the increasing service success in integrating people into the labor market and preventing long-term unemployment. This shift towards digital services aims to achieve higher integrity in decision-making and ensure adherence to policies through IT systems (Casey, 2022). In this context, it is also worth mentioning that these digital changes have shaped so much of our world and can also affect all labor markets. They may even cause further unemployment. To quote the McKinsey Global Institute, "By the year 2030, globally, almost 375 million people will have to learn skills as their jobs may evolve or perish with the rise of automation and capable robots and machinery" (Manyika et al., 2017). These changes may lead to increased unemployment, requiring people to master new skills to be integrated into the labor market (Bercovici and Bercovici, 2019). According to a study conducted in Italy, the probability of success of an employment service follows a non-linear growth trend for young adults, and decreases with age (Pastore, 2020).

In Israel, the labor market and employment and unemployment rates are characterized by several aspects. On the one hand, data indicate a low unemployment rate and an impressive high-tech sector, demonstrating Israel's high employment rate in this sector (similar to Australia). On the other hand, additional evidence indicates significant gaps between different population groups. There are several discriminated population groups that are not adequately represented in the labor market, including the ultra-Orthodox, disabled individuals, Ethiopian Jews and the Arab population. Many in the ultra-Orthodox sector, particularly ultra-Orthodox men, work in the independent or black-market economy, which is based partly on barter, and are not accurately counted in official statistics. A certain proportion of those already employed will find it quite challenging to advance to a better position or find a better-paying job. The proportion of the discriminated population is predicted to increase to 50% of the total population by 2059 (Bercovici and Bercovici, 2019). Other factors, including religion, age, marital status, gender and education, can also affect the employment rates and the likely success of Public Employment Services (PES) and their placement programs.

Single parents have become a huge target population for incentive policies that aim to integrate them into the labor market and to offer them adequate education and training. In the late 1990s, several countries moved from offering support to trying to integrate those dependent on welfare into the labor market.

This shift was partly due to concerns that this dependency mentality would also affect the children of these single parents. Single parents are still viewed as a vulnerable group with a high-risk profile, when profiling tools are used by public placement programs. These single parents are sometimes categorized as welfare dependent and as individuals with multiple limitations who may be incapable of working. Thus, PES programs may be less successful with this group. However, others argue that the learned skills that stay-at-home single parents acquire can be translated into paid jobs if these individuals would simply change their mindset and the way they perceive themselves. Public placement programs could have a high success rate with these individuals (Brady, 2018).

In Israel, there is extensive data showing the relationship between education and employment rates. According to numerous studies education is considered a financial investment, and overall profit from this investment is the individual's income level. Moreover, neglecting studies about the relationship between education and employment will most likely impair economic growth. Therefore, it is safe to say that the success rate of public placement programs will be higher for individuals with education, as education at all levels is considered a critical factor for business and economic growth.

Some of the success factors of PES programs include profiling tools because they help ensure that the more costly and intensive services are provided to those with a higher likelihood of becoming unemployed in the long term. Profiling tools can help differentiate these job seekers from those who are likely to find jobs more quickly. Countries using this strategy include Germany, Poland, Greece, Luxembourg, Switzerland and others (Desiere et al., 2019; Desiere, 2018). In addition, psychological assessments for job seekers and training programs that meet local labor market needs are also very effective (Martin, 2015).

Strategies and guidelines for PES vary from country to country. For example, assistance, personalized action plans and other services such as job counseling and guidance are provided in European countries. Evidence of the similarities between Israel and European countries in "employment promoting practices" can be found in the literature. These similarities include improving employability skills, connecting the unemployed with service providers, and promoting social policies that allows for more effective and enhanced employment opportunities for individuals (Levin and Sefati, 2018).

There have been numerous attempts to evaluate the effectiveness of various PES programs. For example, Card et al. (2017) conducted a comprehensive meta-analysis of 207 recent labor market programs. The authors divided these programs by time horizon and participant heterogeneity criteria. Regarding the first domain, they demonstrated that there was a significant difference between "work first" style programs (i.e., those that provide job search assistance or incentives to get to work quickly), "human capital" programs (i.e., training style programs), and public sector employment policies. Thus "work first" style programs were found to have a stable impact, while the impact of "human capital" programs was relatively small (or negative) in the short-term, with increasing effect in the medium and long-term. On the other hand, public sector employment policies showed insignificant or even negative impacts regardless of the time horizon. Regarding

the second domain (i.e., participant heterogeneity), a significant effect of program implementation was found mainly among the female participants and among individuals from the pool of long-term unemployed. At the same time, little positive impact of the PES programs was found among young and older employees.

The current research differs from previous studies as it is focused on the Israeli labor market, specifically on the IES Employment Circuits employment program. To the best of our knowledge, such an analysis has not been performed before.

Research methodology

The database contains 82 columns and 55,989 rows (each row presenting a job seeker who joined the IES program and each column presenting the job seeker's characteristics, for example family status, religion, age, number of children and education). The data were collected for the period 2016–2019. Data reclamation findings comprised 14% of empty cells and 86% of complete data.

To arrange the data for analysis, it was necessary to categorize the columns and summarize the data (Table 1). 1860 unique activities were divided into 30 unique categories. The 'Age' column was divided into the following age groups: 18–29, 30–39, 40–49, 50–54, and 55+. Education was divided into the following educational stages: Primary Education, High School, College Degree, Professional Certificate, and No Education. The 'Disability Percentage' column was divided into the categories: None, 1–19, 20–39, 40–59, 60–100. In the 'Language' column there are many options and combinations between languages. Each language has several level types; therefore, all extensions can be subtracted and left with only the name of the language. The 'Licenses' column was converted from a subdivision of categories into general categories. In some cases, certain marital status options may be sensitive (for example, single, polygamous, in a relationship), and were therefore converted into several main family status options: single, married, divorced, widow(er), unknown. The number of children under 18 was divided into 1–3, 4–6, and 7+.

The column 'Depth of Unemployment in Months', with values from 0 to 100, was divided by 10, rounding the result to obtain a categorical column. The column 'Religion' is also divided by major religions: Jewish, Christian, Druze and Muslim. Edge cases do not affect the data and are grouped as 'Other.'

The job placement goal was defined for investigation and analysis purposes. The concept of "success" was defined differently for each category. For research purposes, the success index was divided into four categories, labeled as follows:

1) *High Level Success*: no revolving door cases (job seeker returns to the program within 3 months after job placement), job placement after entering the program = 1, and no resumption date.
2) *Moderate Success*: no revolving door cases, job placement after entering the program > 1, no activity renewal date, and no registration renewal date.
3) *Low Level Success*: all job seekers who are not in categories 1, 2 or 4.
4) *Failure*: no resumption date, no job placement since joining the program, no revolving door cases higher than 0.

Table 1

Socioeconomic characteristics of job seekers*

Characteristic		Weight (%)	Characteristic		Weight (%)
Gender	Male	41	Disability percentage	None	91
	Female	59		1–19 %	1
Age	18–29	16		20–39 %	4
	30–39	27		40–59 %	2
	40–49	34		60–100 %	2
	50–54	15	Marital status	Single	31
	55+	7		Married	45
Religion	Jewish	43		Divorced	21
	Muslim	46		Widow	3
	Druze	3		Unknown	1
	Christian	2	Number of children under 18	None	40
	Other	6		1–3 years	42
	No Religion	0		4–6 years	15
Single parent	Yes	11		7+ years	3
	No	89	Military service	None	82
Education	Primary School	20		National Service	2
	Partial secondary school	19		Military Service	17
	Secondary school	45	Unemployment duration	<1 year	8
	Matriculation certificate	4		2–3 years	9
	Bachelor's Degree	3		3> years	82
	Master's Degree	1		None	0
	PhD	0			
	Certificate Studies	2			
	License studies	0			
	No Education	4			

Note: *based on 55,989 job seekers.

Sources: Compiled by the authors based on their own calculations (-hereinafter, unless otherwise noted).

Research questions

(Q1) Is there a difference in the number of good job placements (categories 1 and 2) between the Arab sector and the other population groups?

(Q2) How long are job seekers in the program before job placement?

(Q3) Does the length of time in the program affect job seekers' job placement success?

(Q4) Does the number of program activities in which the job seeker participates affect their job placement success?

(Q5) Do a job seeker's socioeconomic characteristics affect their job placement success?

To test our research model and the proposed hypotheses, and to better understand the relationships between the selected constructs, we used the following statistical tools:

A Kolmogorov-Smirnov (K-S) test is a non-parametric test used to determine how well the distribution of sample data conforms to some theoretical distribution (Janssen, 2007). In this article a K-S test was performed for Q1 to test whether the difference between the rate of successful job placements was normally distributed. The test was also used for Q3 to test whether each category is normally distributed. For Q4, both Tukey post-hoc and ANOVA tests were used.

A t-test is a statistic test which checks if two means are reliably different from each other. This is a parametric test of difference, with three types of *t*-tests: (a) one-sample *t*-test is used if there is one group being compared against a standard value; (b) two-sample *t*-test (also called independent *t*-test) is used if the groups are from two different populations; (c) paired t-test is used if the groups are from a single population (Bevans, 2022).

An ANOVA (Analysis of Variance) test determines if the results of the survey or experiment are significant (Glen, 2022). The researcher tests the groups to see if there is a difference between them. Researchers use the ANOVA test to determine the influence of the independent variable on the dependent variable in a regression study.

The Tukey Test (or Tukey procedure), also called Tukey's Honest Significant Difference test, is a post-hoc test based on the studentized range distribution (Glen, 2022). After running the ANOVA and finding significant results, Tukey's HSD can be run to determine which mean values of each group (compared to each other) are different.

McFadden's R2 is the log-likelihood of the null model, which includes only an intercept as a predictor (so that the same probability of 'success' is predicted for each individual). The McFadden's formula subtracts the estimated log distribution from 1.

$$R^2McFadden = 1 - \frac{log\ log\ (L_c)}{log\ log\ (L_{null})} \quad (1)$$

In multinomial multivariate regression, it is difficult to reach a result close to 1, because solid explanatory parameters are needed to increase the value of the McFadden's estimate. According to McFadden, the estimate for a good fit model is between 0.2 and 0.4 (McFadden, 2021; Vijverberg, 2011).

In Q5, to answer the research question, it was necessary to compare job placement with the different characteristics of a job seeker. Therefore, the McFadden's method was used.

Results

(Q1) Is there a difference in the number of good job placements (categories 1 and 2) between the Arab sector and the other population groups?

The hypothesis that there is no difference in good job placement between Arab program participants and participants from other population groups in IES Programs was examined with $\propto = 0.05$.

$$diff = [(is_{arab} = 0).POGP - (is_{arab} = 1).POGP] \quad (2)$$

** POGP = proportion of good placements*

There was a need to examine whether the data were distributed in normal groupings. Therefore, we needed at least 30 unique IES bureaus where the number of Arab job seekers provides a statistical basis for the hypothesis (at least 14 Arab job seekers in each bureau were required to reach 30 unique bureaus). A comparison was conducted between program participants from the Arab sector and participants from the non-Arab sector with good job placement from the same IES bureau. The 'diff' column was calculated, representing the differences in the proportion of good placements, in order to estimate the differences in job placement in the same bureau. It was necessary to test if the differences were normally distributed. A histogram shows the number of samples relative to the difference and by a density function. The density function implies that the data represent a normal distribution. The result of the Kolmogorov-Smirnov test shows that the column data are normally distributed, even with equalization between the cumulative distribution function and the Kolmogorov-Smirnov result. Since we had 30 samples, and we saw that the data are normally distributed, we used a *t-test* to examine the difference between dependent pairs (30 of 71 bureaus). It was assumed that populations from the same IES bureau would have more similar characteristics than those from bureaus in other sectors. The critical value was higher than alpha; therefore, the conclusion was not to reject the null hypothesis and to conclude that there is no significant difference between the job placement success of Arabs and non-Arabs.

(Q2) How long are job seekers in the program before job placement?

The calculation in the 'day diff' column shows how long the job seekers were in the program.

$$df_{entry_{dates}}.loc[:,'days\_diff'] = df[LPD] - df_{entry_{dates}}[FJTPD] \quad (3)$$

** LPD = last placement date*

** FJTPD = initial program joining date*

Almost half (49.99) of the Employment Circuit program participants in Table 2 do not have a "job placement date", and for more than 25 "the date of first program entry" is greater than the "last placement date." The data were summarized after clearing the records of the negative 'days diff' column results. The confidence interval for job seekers in the program is: (Left: [0], Mean: 341.42, Right: [1081.56]) [days], $\propto = 0.05$, $\sigma = 377.624$ (days).

Table 2

Distribution of job seekers according to length of time in the program

Category *(days)*	Number of job seekers	Percent of job seekers
0	205	0.366
1–10	1604	2.865
11–30	2842	5.067
31–60	3115	5.564
61–100	2561	4.574
101–150	2285	4.081
151–200	1721	3.074
201–365	4038	7.212
+365	9625	17.191
None/No placement date	27993	49.997

(Q3) Does the length of participation in the program affect their job seeker's placement success?

Does longer participation in the Employment Circuits program provide job seekers with more tools to find employment? If so, does longer participation result in more successful/better job placement? The hypothesis question of whether there is a difference between the length of participation in the program and more successful/better job placement was examined with $\propto = 0.05$.

The division into different success categories and the job seeker's length of time in the program (Fig. 1) suggests that higher success in the Success Index is associated with a shorter period of time in the program (contrary to the assumption that a longer period of time in the program would result in more successful placement in the Success Index). To test if each success category was normally distributed, the Kolmogorov-Smirnov test was performed for each category. The results show that the data in each category were normally distributed. The ANOVA test was performed to examine the difference in the days between the four different categories. The results within the categories show a difference between the categories. To determine which category differs from other categories, a *Tukey-Post-Hoc* test was performed to test program participation time differences between each pair of categories separately.

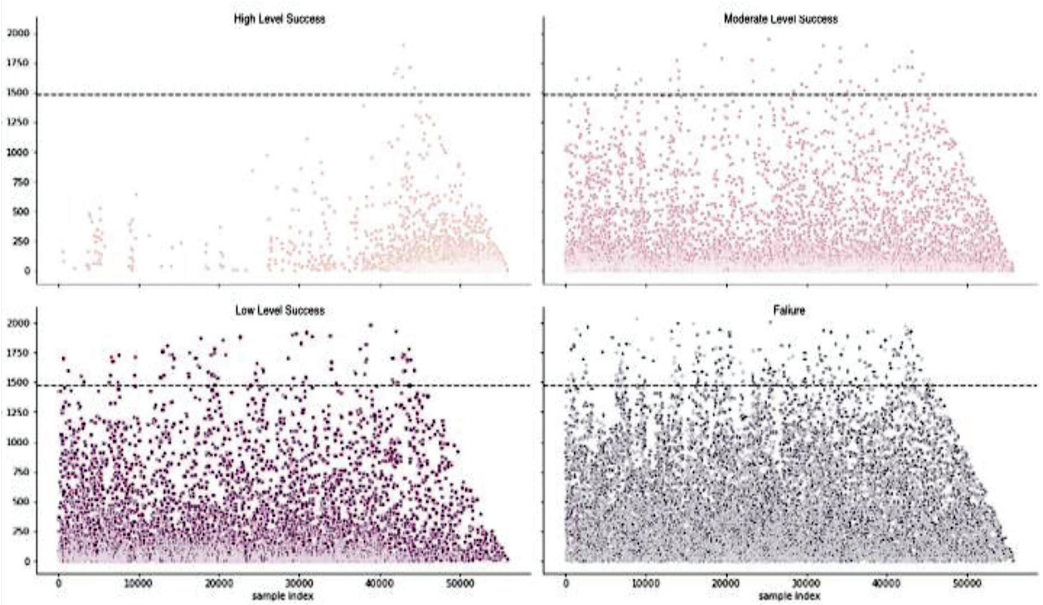

Figure 1. **Time of job seeker in the program by category.**

According to the *Tukey Post Hoc* test results (Table 3), it was found that there are differences between all pairs of means. This is based on the two test results hypothesized.

Table 3

Tukey Post Hoc Test Results

A	B	Mean(A)	Mean(B)	diff	se	tail	T	ρ	hedges
1	2	126.509	229.087	-102.577	8.574	two-tail	-11.964	~ 0	-0.286
1	3	126.509	298.207	-171.698	8.705	two-tail	-19.723	~ 0	-0.479
1	4	126.509	465.836	-339.326	8.087	two-tail	-41.959	~ 0	-0.947
2	3	229.087	298.207	-69.121	6.249	two-tail	-11.061	~ 0	-0.193
2	4	229.087	465.836	-236.749	5.354	two-tail	-44.216	~ 0	-0.661
3	4	298.207	465.836	-167.628	5.563	two-tail	-30.133	~ 0	-0.468

(Q4) Does the number of program activities in which the job seeker participates affect their job placement success?

Only 30 unique activities are defined in the data frame. It was necessary to change the "Activities in the Program" column into a categorical variable and to present "Activity" in a new column to provide a binary classification (if the job seeker participated in the activity = 1 and if not = 0), in order to test the hypothesis that a job seeker's participation in more activities results in less successful placement according to the success categories. Figure 2 shows the percentage of programs per success category.

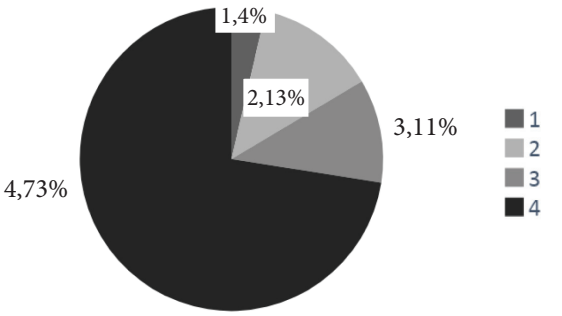

Figure 2. **Number of activities per category.**

Figure 2 shows that job seekers in category 1 generally participated in fewer Employment Circuits program activities than job seekers in the other success index categories. It was necessary to examine if there was a significant difference in variance between activities in the program, by using the ANOVA test. First, we tested if the data were normally distributed. The *Kolmogorov-Smirnov* test showed significant results for any number of activities per category; therefore, the ANOVA test was performed, with the ANOVA ρ value of ~0. This indicates a significant difference in job placement success depending on the job seeker participation in the various program activities. This required further testing of the difference between program activities using the Tukey Post Hoc test.

Table 4

The Percentage of job seekers in each category and activity

Category	Change Course	Process Course	Occupational Hebrew Course	Computer Application Course	Individual Training	…	Number of programs
Category 1 Fraction	4	4	5	0	4		4
Category 2 Fraction	14	12	14	7	13		13
Category 3 Fraction	11	9	8	0	12		11
Category 4 Fraction	71	75	73	93	72		73

Table 5 shows that there is a difference in the number of activities in which the job seeker participates and their job placement success category, except for categories 2 and 3. A decision tree model was created after examining all the different activities separately. The model takes a sample of job seekers and matches their socioeconomic characteristics and program activities to the data frame from which they were sampled, creating a graphical representation for better understanding. The decision tree models job seekers and presents their most probable job placement route, according to job seekers whom they resemble in terms of both their activities in the program and socioeconomic characteristics. The aim of the decision tree is to show the most recommended route (order of activities). There are many other models for this kind of decision, but after considering alternatives it was decided that this model is best for the given situation. The model shows the

most probable trajectory, such that the decision tree should be viewed as depicting the order of best practice for the sampled job seekers. Nonetheless, the route shown in the decision tree does not ensure that following the proposed route will definitely increase job seeker placement success.

Table 5

Tukey Post Hoc test of differences between pairs of categories

A	B	Mean(A)	Mean(B)	diff	se	tail	T	ρ	hedges
1	2	0.967	1.14	-0.174	0.033	two-tail	-5.251	0.001	-0.12
1	3	0.967	1.068	-0.119	0.034	two-tail	-3.548	0.002	-0.082
1	4	0.967	1.253	-0.287	0.03	two-tail	-9.696	0.001	-0.198
2	3	1.14	1.068	-0.055	0.024	two-tail	2.277	0.103	0.038
2	4	1.14	1.253	-0.113	0.018	two-tail	-6.224	0.001	-0.078
3	4	1.068	1.253	-0.168	0.019	two-tail	-8.862	0.001	-0.116

(Q5): Do a job seeker's socioeconomic characteristics affect their job placement success?

This question examined whether a specific socioeconomic characteristic influences a job seeker's job placement success category more than other characteristics. In this study socioeconomic characteristics of job seekers included religion, age, single parent, gender, education level, city, language, country of birth, marital status, children under 18, participation in an activity, disability percentage, medical disability, licenses, military service, released prisoner, and month of job placement ("last job placement date"). A new data frame consisting of these columns was built and the data were inserted. Any country of birth with a frequency less than 1 was removed from the data because these are end-cases that do not affect the results below. In the case of our data the McFadden estimate is 0.239, so it is statistically significant, with a correlation between the socioeconomic variables and job placement success. The variables presented by the model are more likely to influence the job seeker placement success category. All model results are compared with Category 4 (failure), and each model result is significant ($\rho < 0.05$).

Discussion and Conclusion

The current research examines the success factors of the IES program. In this section, we will discuss the findings described in the previous section, draw several conclusions, and propose recommendations for the IES.

Regarding the first research question, the employment rate in the Arab sector was 54.6 in 2015 compared to 81.7 in the Jewish sector (Ministry of Labor, Social Affairs and Social Services, 2015), and 42.5 in the Arab sector in 2016 (Central Bureau of Statistics, 2017). The number of unemployed individuals in the Arab sector is high and requires action. The Israeli government has taken efforts in this

sector and providing funds to increase employment opportunities, education (scholarships, reduced taxes, etc.) and other programs. There are many reasons for affirmative action, including cultural differences, traditions, geographic environment, and social status. The IES uses government funds for the "Tapuah" program (NIS 1.466 million), which is dedicated exclusively to the Arab sector (Israeli Employment Service, 2017). Tapuah operates a variety of technical training programs to integrate job seekers into the workforce . The courses cover a broad spectrum of content, from introductory courses for operating in a computerized environment to advanced courses for training programmers. Particular emphasis is given to imparting a set of tools for successful integration into the workforce , in order to improve participants' financial independence, both immediate and over the long-term. However, the current research findings reveal that there are no differences between the job placement of Arabs and non-Arabs. In other words, the study findings do not justify opening special programs for the Arab sector at the expense of other IES Programs. Therefore, the recommendation is that IES should consider whether it is necessary to initiate a separate program for the Arab sector.

The second, third, and fourth research questions aimed to determine the effectiveness of the IES Employment Circuits program. According to the research methodology, the indicators chosen to measure this variable referred to how long job seekers were in the program before job placement, the average time attending the program before job placement, and the influence of length of participation in the program and job placement success level. The results were surprising and showed that only 50 of potential employees were placed through the program. In addition, it took an average of 341 days for a participant in the IES Employment Circuits program to find a job. The study also showed that the quality of job placement (category) decreases the longer the job seeker is in the program (e.g., Sol, 2016; Winkelman, 2014). Therefore, the findings presented could potentially call into question the effectiveness of all IES programs. In light of these results, it is suggested that IES re-evaluate its program activities. Furthermore, we recommend further study to examine other possible factors which may affect poor job placement.

Finally, the multinomial regression model was established to assess the relationship between unemployment, socioeconomic characteristics of job seekers and job placement. Several results of the model appear to be consistent with common sense thinking, yet others are surprising. First, the model showed that there are more job seekers in categories 1 and 2 (i.e., "high level" and "moderate" success) from cities in the Arab sector compared to job seekers in these categories from cities in the non-Arab sector; there are also significantly more Jewish and Muslim job seeker program participants in category 1. These findings support the results and conclusions regarding the first research question, namely that no significant differences in good job placement were found between the Arab and Jewish sectors. Second, country of origin was found to affect program success with respect to several countries. Thus, significantly more program participants from the countries of origin France and the Soviet Union were found in category 3 than in category 1 (based on the p-value). Furthermore, there were significantly more program participants of Ethiopian origin in category 2. Third, education has a strong effect on the job placement success category. Significantly more program

participants with an academic degree or high school matriculation were in category 1 (i.e., "high level success"), and significantly more program participants with no education were in category 3 (i.e., "low level success"). In other words, educational attainment plays a significant role in successful job placement in the IES Employment Circuit program framework. Lastly, disability affects human life, including the IES program job placement success. Therefore, it is not unexpected that significantly more job seekers with disabilities (disability percentage 20–59) were found in category 2, and with disability percentages 60–100 in category 3. In addition, as expected, no significant presence of program participants with disabilities was found in categories 1 and 2. These findings suggest that people with disabilities are less likely to find employment through the IES Employment Circuit program. In summary, it is suggested that IES should re-evaluate its approach and methods of operation to improve the outcomes of its job placement programs.

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