PROMOTING THE INTEGRATION OF ETHIOPIAN ISRAELIS IN HIGHER EDUCATION AND EMPLOYMENT IN THE STEM AND HIGH-TECH FIELDS

Presented to the Future Leaders organization and the Edmond de Rothschild Foundation
by NAS-ناس Research and Consulting Group, Ltd.

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Structure of the Presentation

Methodology and sources of information

1 Key data: demographics, education, higher education and the labor market

2 Mapping organizations & programs in the field: government programs, civil society organizations, national organizations

3 Barriers for integration into higher education and employment in STEM and high-tech

4 Insights and recommendations

Methodology and Sources of Information

The research presented here was conducted for the Future Leaders Organization and the Edmond de Rothschild Foundation between December 2022 and March 2023, and included three main content areas, which are based on the following methodologies and sources of information:

Quantitative data

- Open sources of the Central Bureau of Statistics (CBS), the Council for Higher Education (CHE) and the Ministry of Education (RAMA);
- Special analyses prepared for the study by the CBS, the CHE, and government ministries;
- Data from academic studies.

Mapping organizations & programs in the field

- Interviews with senior officials in government ministries and agencies and civil society organizations;
- Collecting materials about the organizations from open sources, including evaluation studies.

Barriers chapter

- Interviews with Ethiopian Israelis in the high-tech industry;
- Interviews with human resource managers in the high-tech industry;
- Interviews with senior officers in government ministries, academia and civil society organizations;
- Academic studies and government reports.

* In the study, we applied the CBS's definition for Ethiopian Israelis: Persons born in Ethiopia or whose father was born in Ethiopia (unless otherwise specified).

Chapter 1

GENERAL DATA

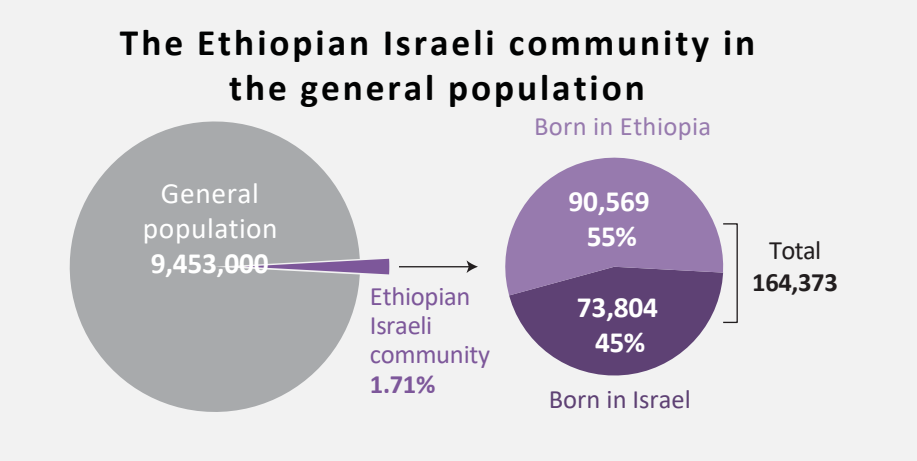
Demographics

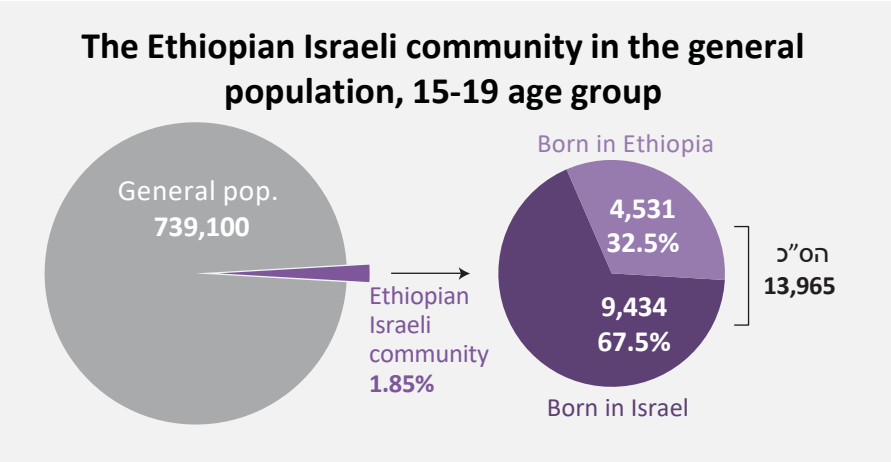
The education system

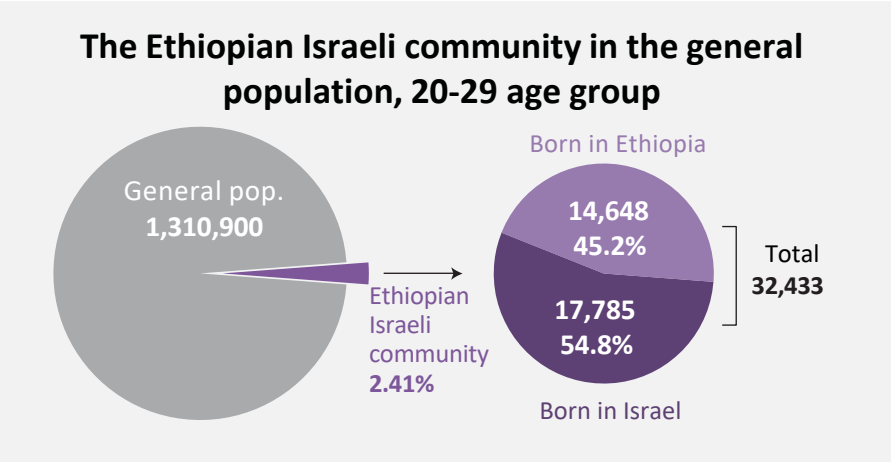
Higher education

The labor market

Demographics (as of the end of 2021)





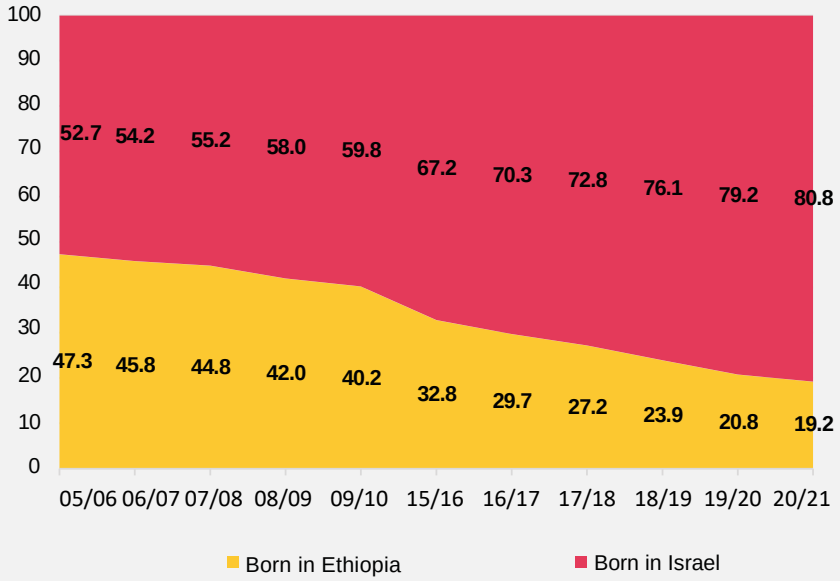


Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, 2022

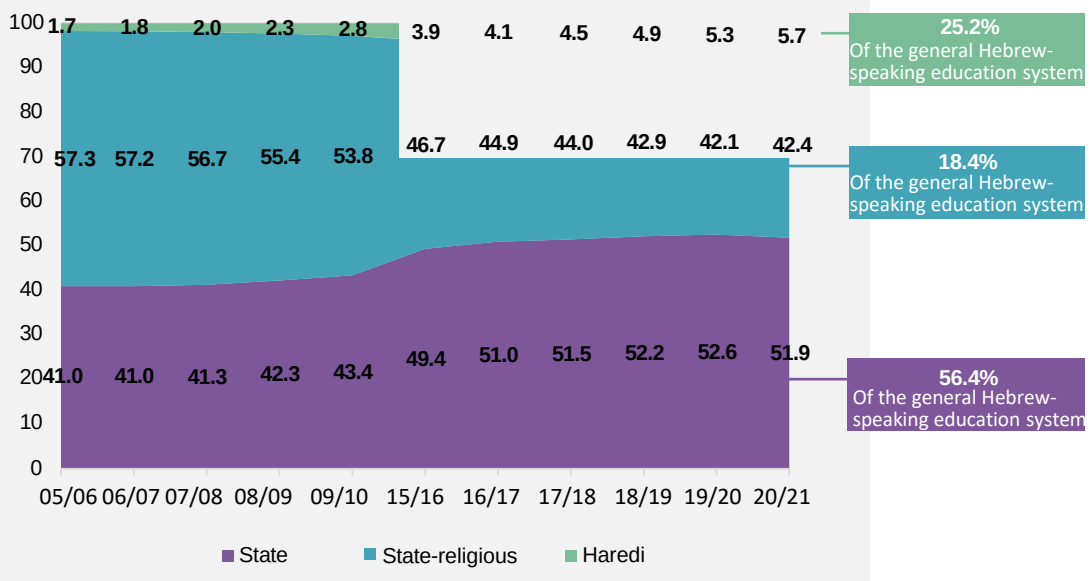
Ethiopian Israeli Students in the Education System

- In the 2020-2021 school year, 32,619 students of Ethiopian origin studied in the education system, accounting for 2.3% of all students in the Hebrew-language education system (similar to the Ethiopian Israelis' share in the general population).
- A high percentage of them attend the state-religious education system (42%), but it has decreased over the years. A low percentage attend Haredi education (5.7%), but it is consistently increasing.
- While 20 years ago, some half of all student of Ethiopian origin were born in Israel, now more than 80% are Israeli-born.

Ethiopian Israeli students by place of birth (%)



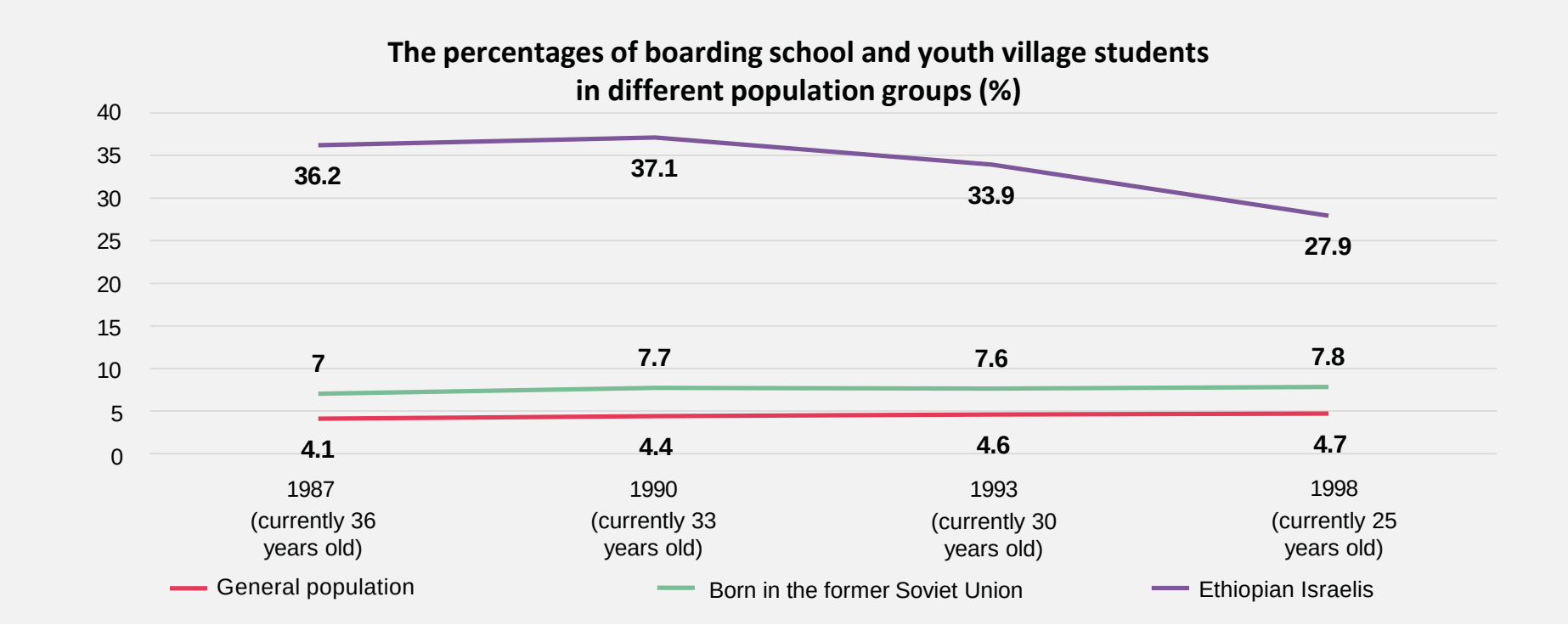
Ethiopian Israeli students by education stream (%)



Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, 2022

Ethiopian Israeli Students in Boarding Schools and Youth Villages

- Despite a decrease in the last decade, there is still a particularly high proportion of Ethiopian Israeli students in boarding schools and youth villages.
- Despite the paucity of contemporary data, on the basis of this trend, it may be inferred that currently, about one quarter of the students of Ethiopian origin in each birth year in the relevant ages attend boarding schools.

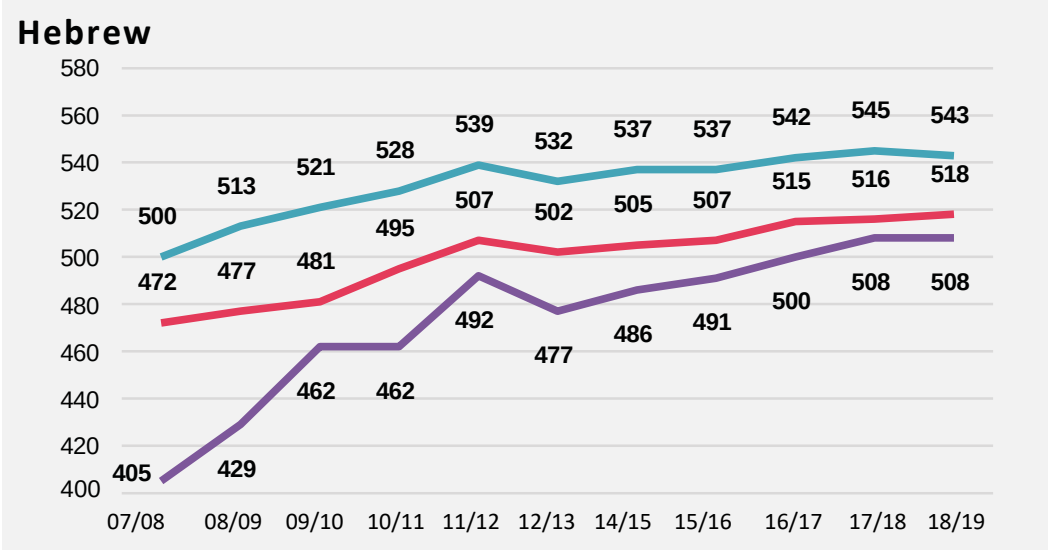


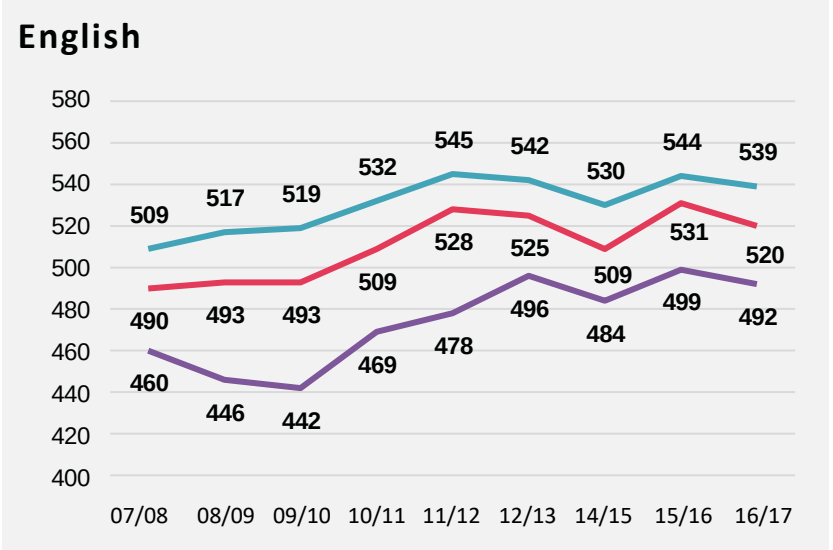
The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia.

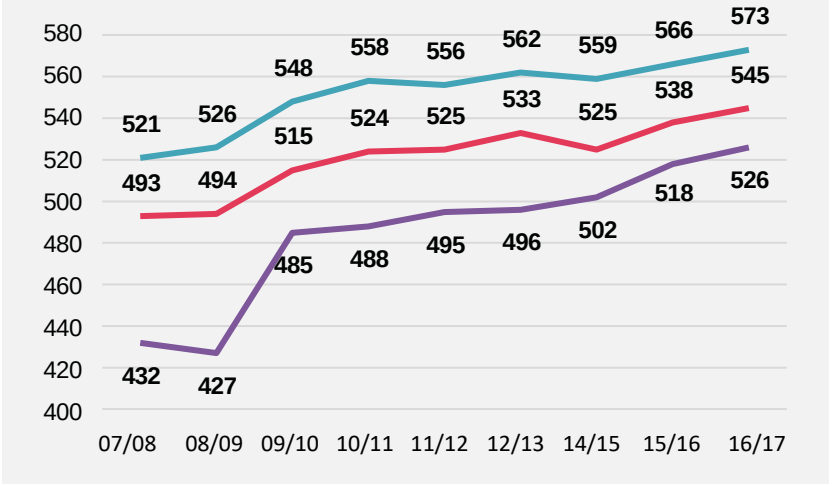
Source: Edna Shimoni and Tehila Refaeli, ***Youth in the Transition to Adulthood: Background, Achievements, and Challenges in Four Birth Years***, 2021

Meitzav Exam 5th-Grade Scores 2007-2017

- Hebrew-speaking education
- Hebrew-speaking education (low socio-economic background)*
- Ethiopian Israelis







- **English**: The gap between Ethiopian Israelis and the general Hebrew-speaking education has narrowed up till 2017 but has remained high and relatively stable since then (a gap of more than 45 points).
- **Hebrew**: The gap has consistently narrowed, and as of 2018, it has almost closed in comparison with students from low socio-economic background.
- **Mathematics**: The gap has gradually narrowed but remains high (>45 points in comparison to the general Hebrew-speaking education and ~20 points in comparison to the Hebrew-speaking education of low socio-economic background).

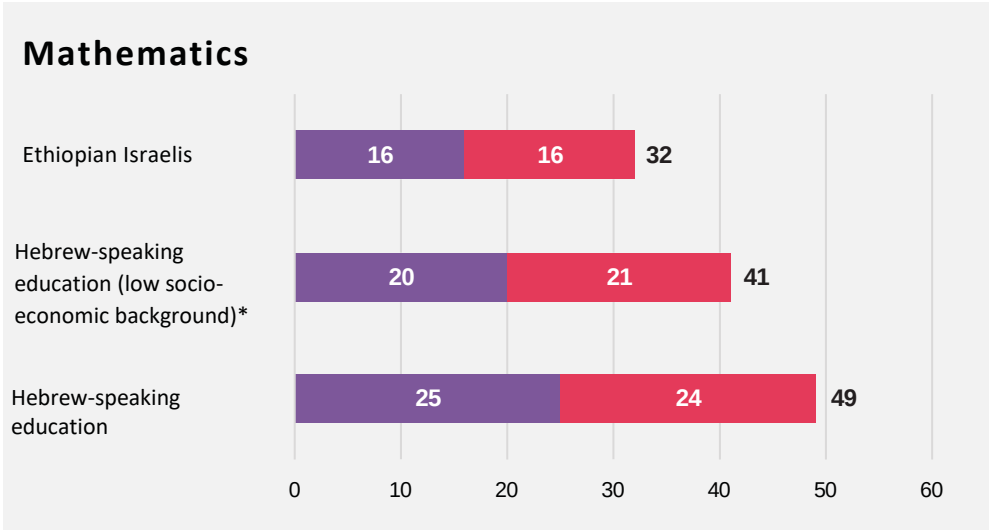
* Non-Ethiopian

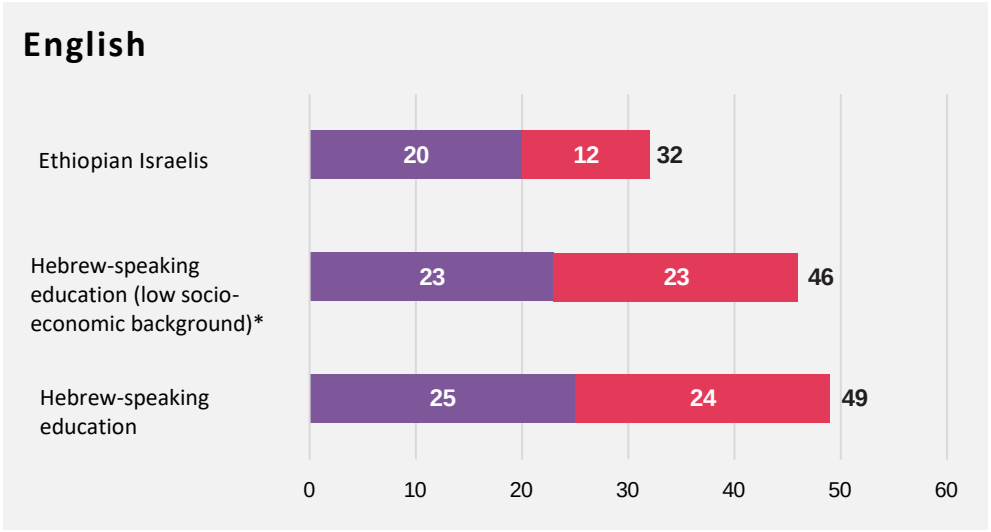
Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

Meitzav Exam 5th-Grade Scores 2018/19

(new grading system)

- In 2018/19, the Meitzav grading system was changed for English and mathematics.
- The new grading system also showed significant gaps between Ethiopian Israelis and the general Hebrew-speaking education system 5th graders.
- In **English**, only 12% of the Ethiopian Israeli students were allocated to the high level – **half** of the corresponding rate among the general Hebrew-speaking education system students (24%).
- In **mathematics**, only 16% of the Ethiopian Israeli students were allocated to the high level, in comparison with 24% in the general Hebrew-speaking education system students.

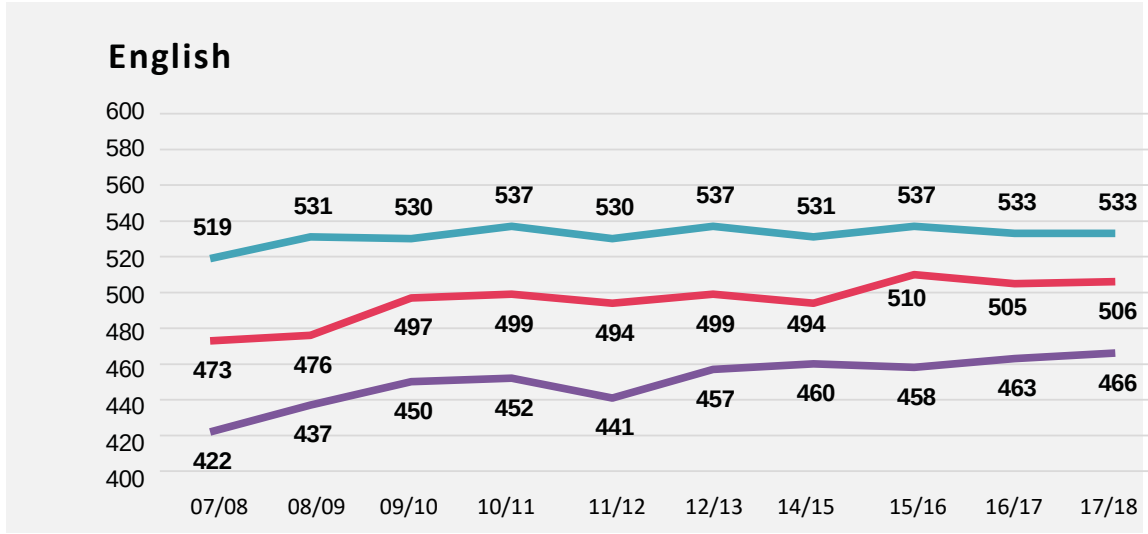




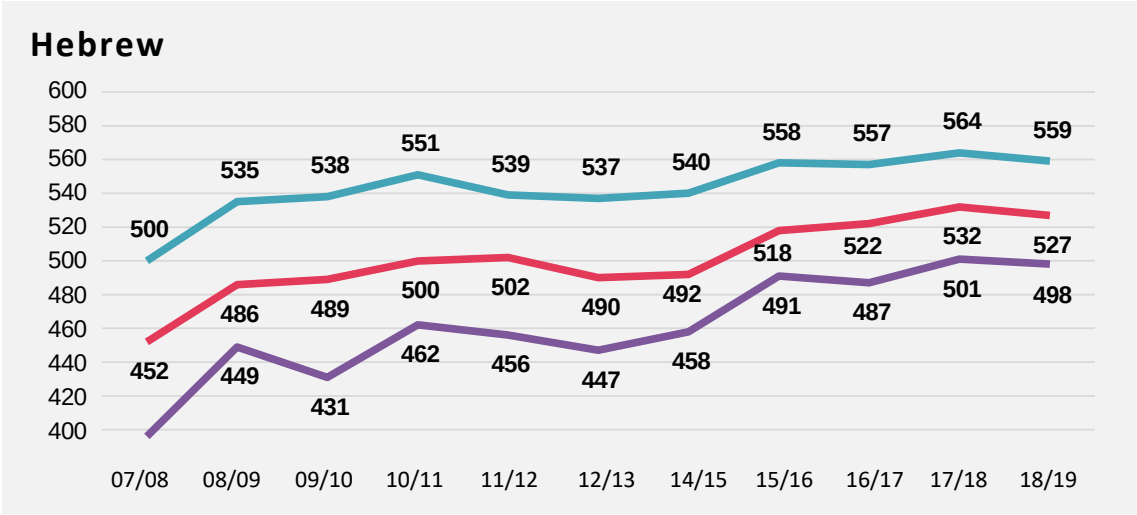
* Non-Ethiopian

Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

Meitzav Exam 8th-Grade Scores – English and Hebrew



- **English**: The grade gap between Ethiopian Israelis and the general Hebrew-speaking education system students decreased, from 100 points to 70 points.

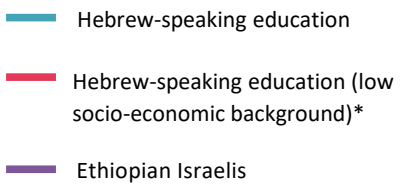


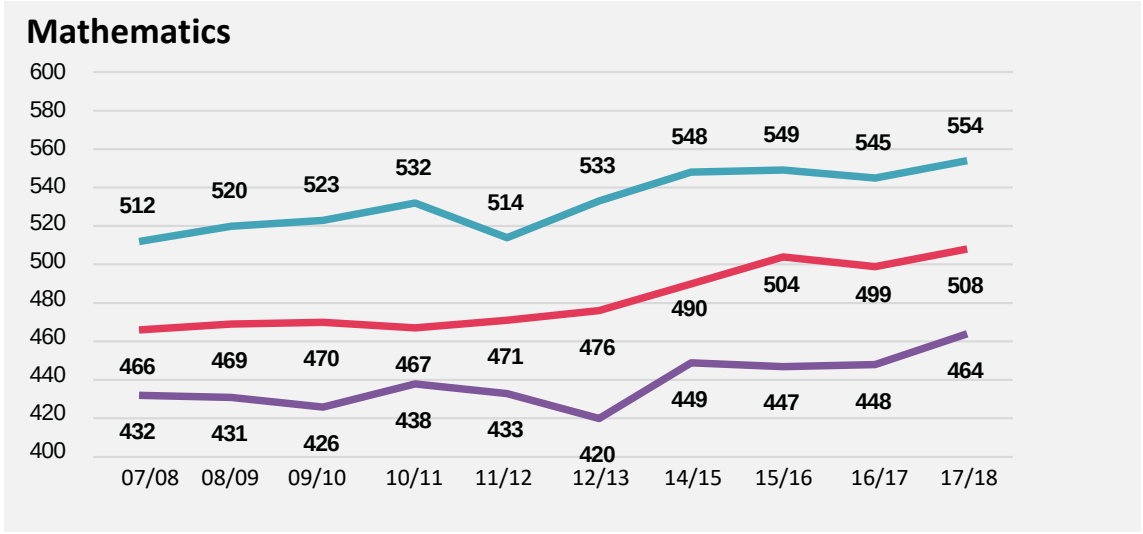
- **Hebrew**: The grade gap decreased even further, from 100 points to 60 points.

* Non-Ethiopian

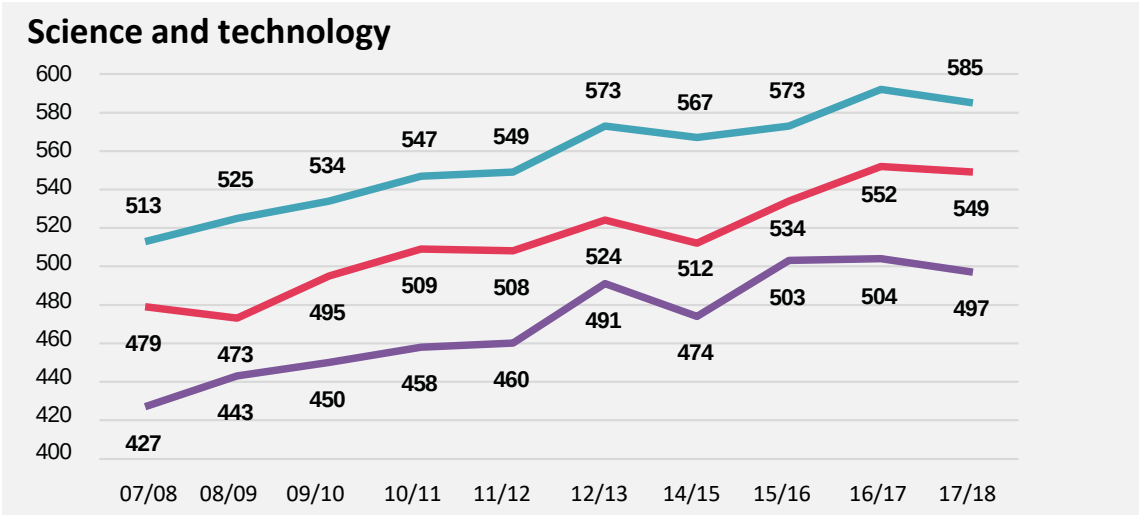
Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

Meitzav Exam 8th-Grade Scores – Mathematics and Science and Technology





- **Mathematics**: Despite an increase in Meitzav exam scores among Ethiopian Israelis in 2014/15, the gap between them and the general Hebrew-speaking education system students did not decrease, remaining very high (90 points).



- **Science and technology**: Here, too, the gap between Ethiopian Israelis and the general Hebrew-speaking education system students did not decrease and remained high (more than 85 points) and without change from 2015/16 to 2017/18.

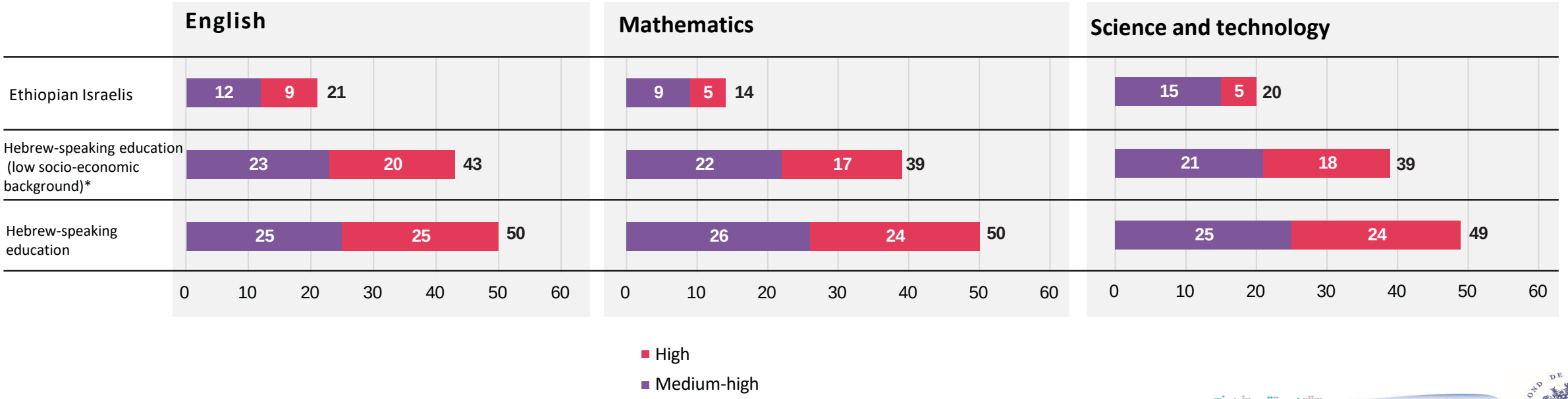
* Non-Ethiopian

Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

Meitzav Exam 8th-Grade Scores 2018/19

(new grading system)

- In 2018/19, the Meitzav grading system was changed for English, mathematics and science and technology.
- According to the new grading system, the gaps between Ethiopian Israelis and the general Hebrew-speaking education system 8th graders are high.
- Only 5% of the Ethiopian Israeli students were allocated to the high level in mathematics and science and technology (in comparison with 24% in the general Hebrew-speaking education system students and 17-18% of the Hebrew-speaking education system students from low socio-economic background).

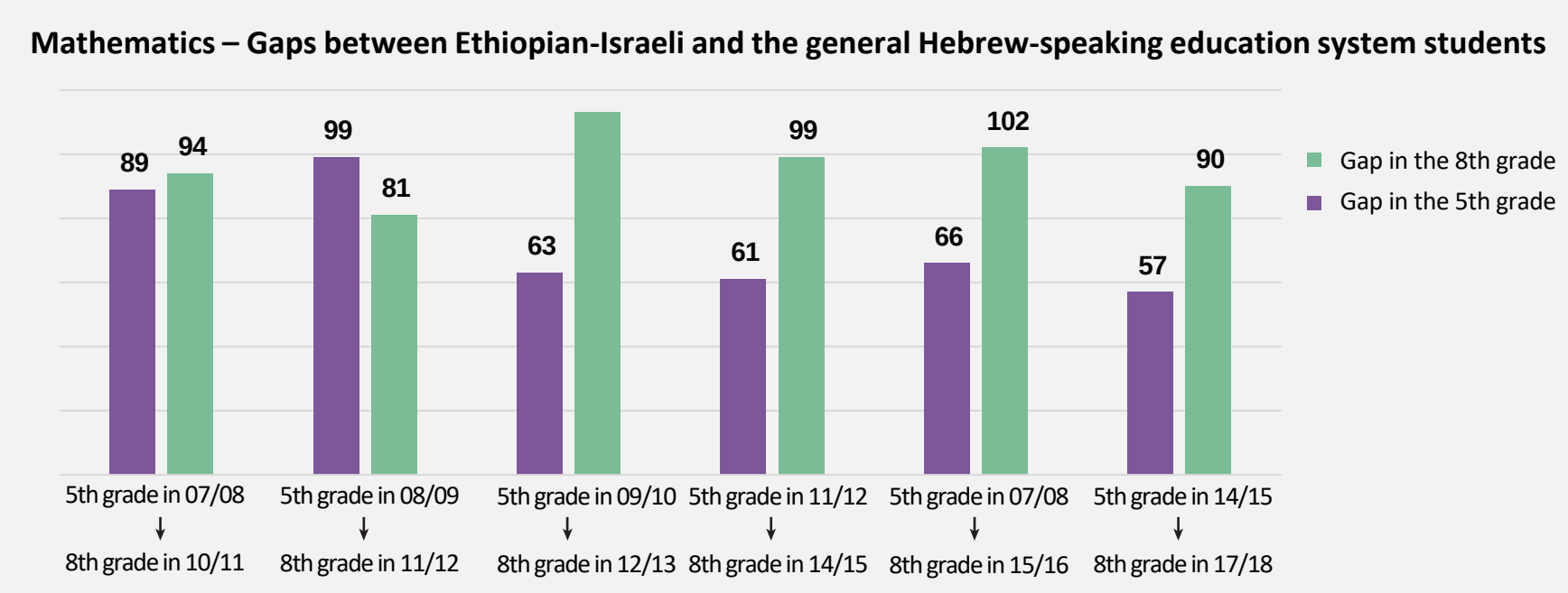


* Non-Ethiopian

Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, June 2020.

The Gap Increases between the 5th and the 8th Grade (Mathematics)

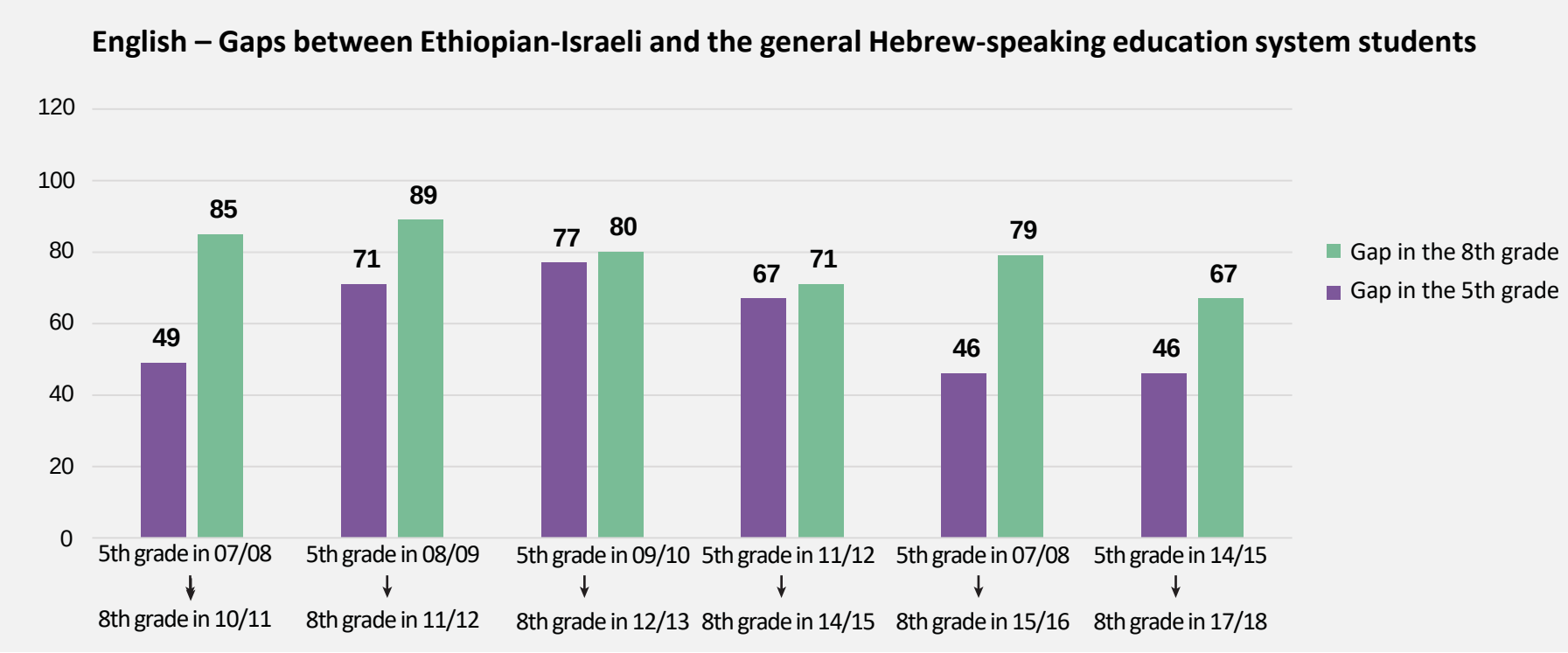
- In all subjects in all years, the gap between the achievements of Israeli Ethiopian students and the general Hebrew-speaking education system **is higher in the 8th grade in comparison with the 5th grade** (regardless of cohort).
- Even when comparing the achievements of the same group in the 5th grade and 8th grade, the gaps clearly increase.



Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

The Gap Increases between the 5th and the 8th Grade (English)

- In comparisons of the Meitzav scores in English, and despite a trend of decreasing gaps in the 5th grade, when the same group reaches the 8th grade, the gap from the general Hebrew-speaking education system students grows.

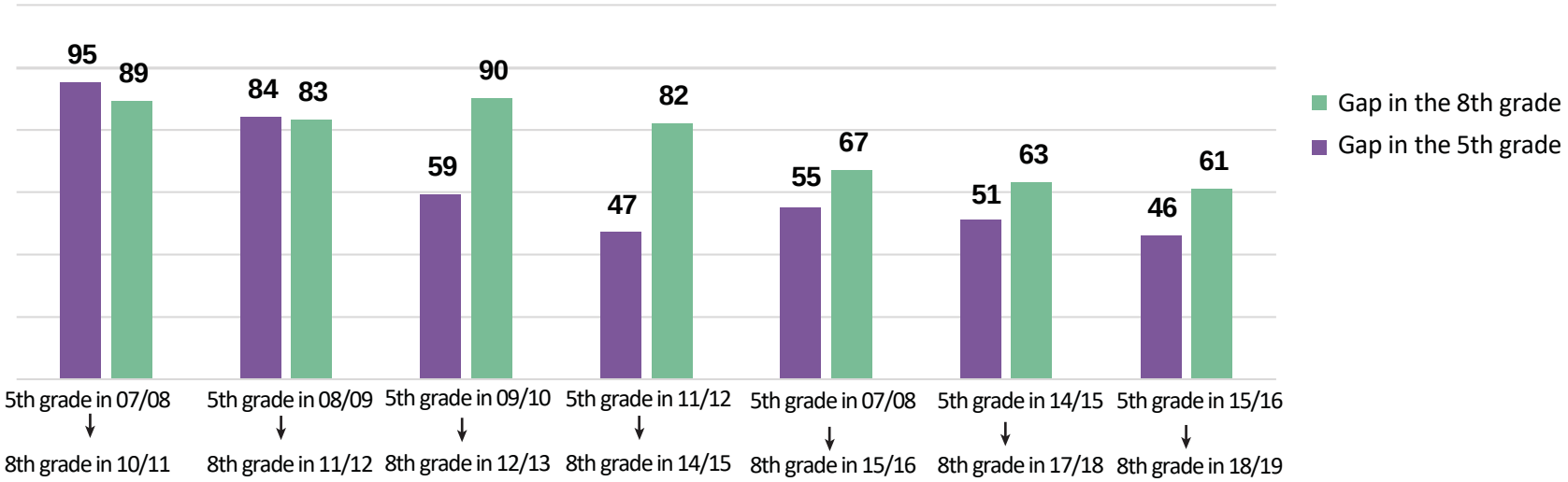


Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

The Gap Increases between the 5th and the 8th Grade (Hebrew)

- In comparisons of the Meitzav scores in Hebrew, the gap between Ethiopian Israeli and general Hebrew-speaking education system students increases from the 5th to the 8th grade, but it seems that as of 2012/13, the rate of increase is less dramatic.

Hebrew – Gaps between Ethiopian-Israeli and the general Hebrew-speaking education system students



Source: **Achievements of Ethiopian-Israeli Students as Reflected in the Meitzav Exams**, Ministry of Education, various years.

Meitzav Exam – Additional Insights

The gender gap

Past gaps favoring girls have become negligible, with only a small gap remaining in Hebrew.

The gap between state and state-religious education

Excluding a certain gap in English in the 5th grade, no gaps remain on the basis of school supervision.

The gap between immigrants and native-born Israelis

In both the 5th and 8th grades, in all subjects, there is a gap favoring native-born Israelis. The gap is relatively small in science and technology.

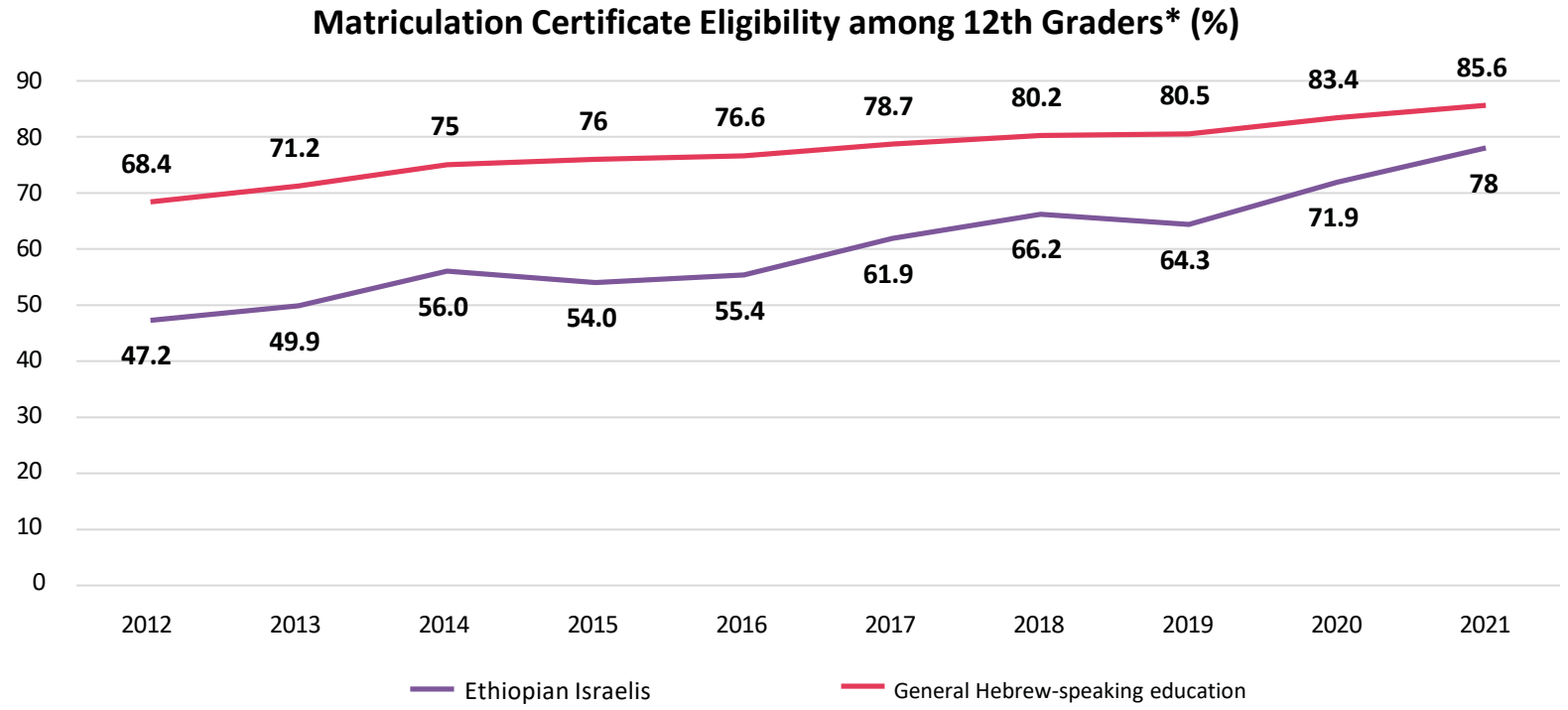
Positions and Motivation

- In the 5th grade: No real differences exist between Ethiopian Israelis and all Hebrew-speaking education students in the importance and enjoyment of all subjects. **The relatively low agency among Ethiopian Israelis in mathematics and science and technology stands out negatively** in comparison to all Hebrew-speaking education students. For example, only 71% of Ethiopian Israeli 5th graders expressed feeling competent in math vs. 81% among all Hebrew-speaking education students.
- In the 8th grade: The importance attributed by Ethiopian Israeli students, and the enjoyment they report to have in the tested subjects remains similar to the general Hebrew education, but **the gap in agency is exacerbated**. Only 51% of Ethiopian Israelis feel competent in math, in comparison to 69% in the general Hebrew education students and 64% in Hebrew education students with a low socio-economic background; the respective figures for science and technology, are 45%, 65%, and 61%.

Insight: It is important to strengthen Ethiopian Israelis' sense of agency and self-confidence in STEM subjects from a young age, as many students may abandon these subjects early on, making it difficult to rectify later on.

Eligibility for a Matriculation Certificate

- In the last decade, there was an increase in matriculation eligibility rates both among Ethiopian Israelis and the general Hebrew-speaking students education system.
- Up till 2019, the gap narrowed only slightly (from 20 to 16 percentage points). In 2020-2021, the gap was significantly reduced, but this may be due to exam concessions during the Covid pandemic.

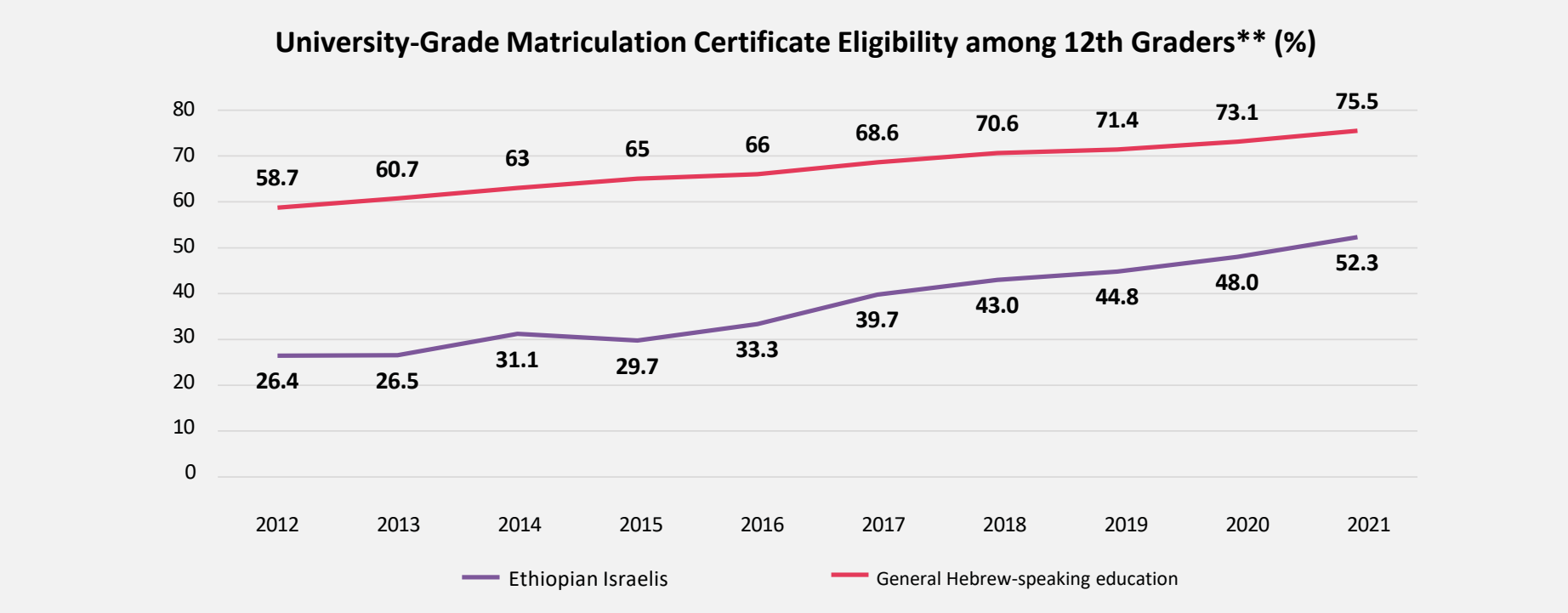


* Excluding Haredi education students (Ethiopian Israelis or general Hebrew speaking students).

Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, various years.

Eligibility for a University-Level Matriculation Certificate

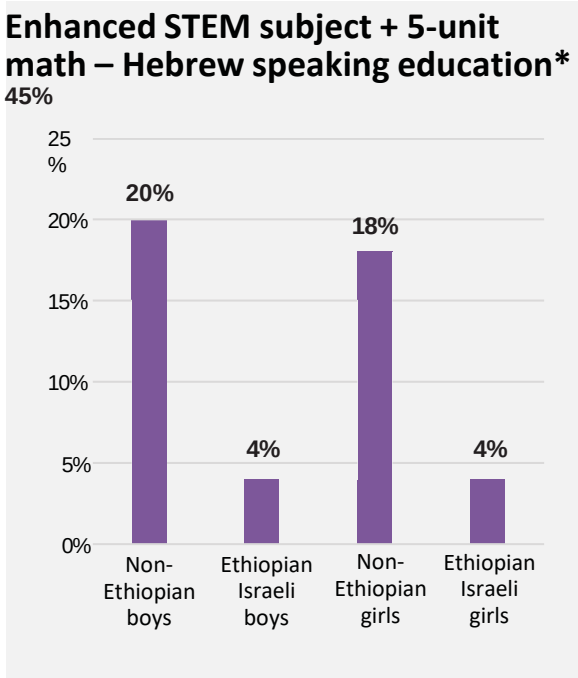
- There was also an impressive increase in university-level* matriculation eligibility rates among Ethiopian Israelis in the past decade, and the gap between them and the general Hebrew-speaking students closed by 10 percentage points (from 32 to 23 percentage points). This gap is still high in comparison to the gap in matriculation certificate eligibility.
- Even today, only 50% of the Ethiopian Israeli students meet the minimal requirements for university acceptance, in comparison to 75% among the general Hebrew-speaking education system students.

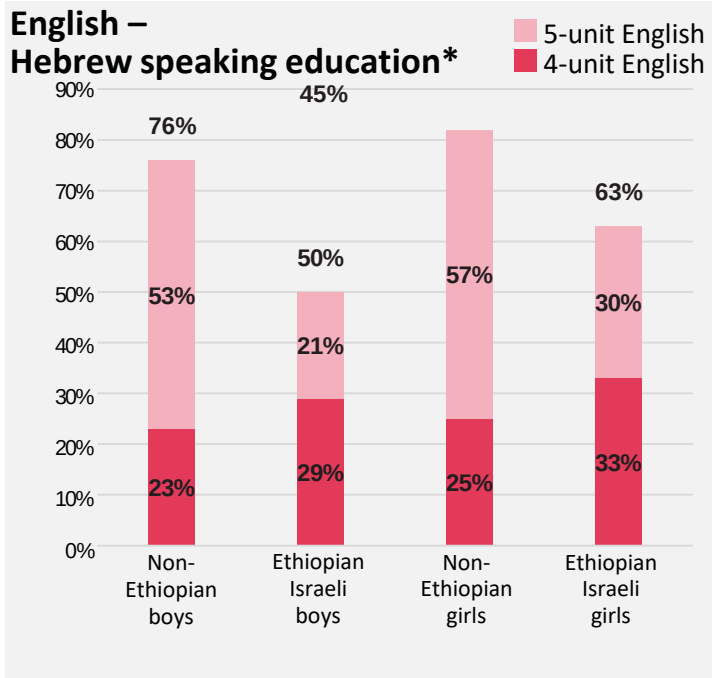


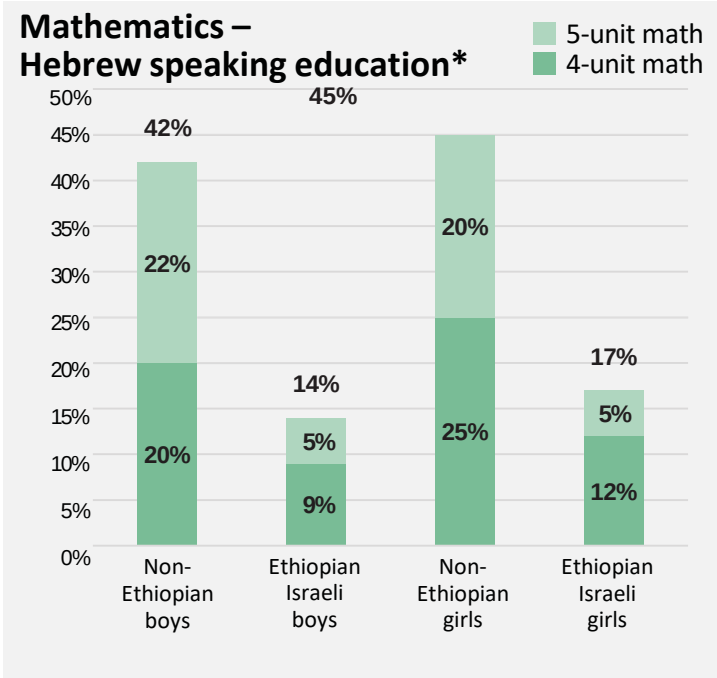
* Matriculation (*Bagrut*) with at least three units in mathematics and four in English.
** Excluding Haredi education students (Ethiopian Israelis or general Hebrew speaking students).
Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, various years.

Matriculation Certificate Quality

- **There are significant gaps in matriculation certificate quality** between non-Ethiopian Hebrew-speaking education system students to Ethiopian Israelis, without a consistent gender difference.
- The percentage of non-Ethiopian students pursuing **five matriculation point mathematics and a STEM subject** is **four times higher** than that of Ethiopian Israelis.
- While there was an increase in the percentage of Ethiopian Israeli students pursuing five matriculation point mathematics or an enhanced scientific subject, the increase in the general Hebrew speaking education was greater, resulting in **widening gaps**.



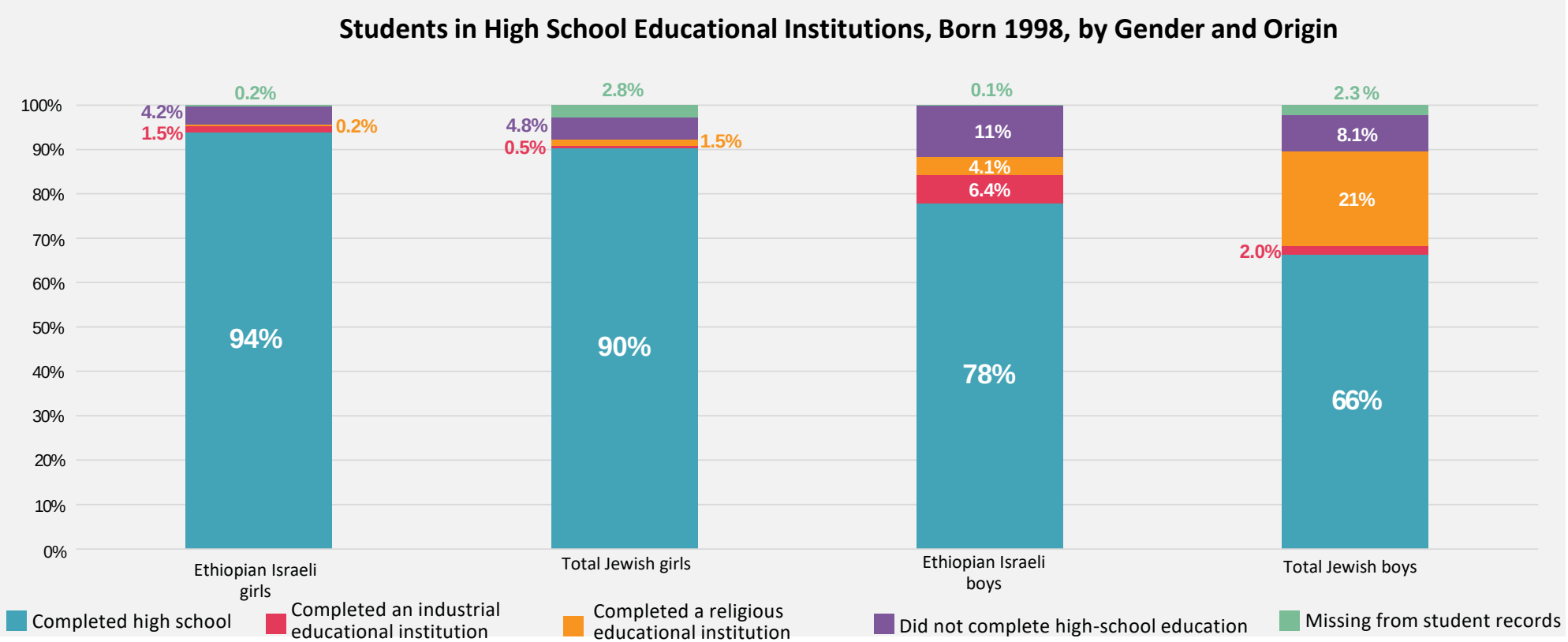




* Excluding Haredi education students (Ethiopian Israelis or general Hebrew speaking students).
The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia.
Source: Chachashvili-Bolotin, Talmi-Cohen and Yohanani, 2021.

Educational Frameworks and Attrition

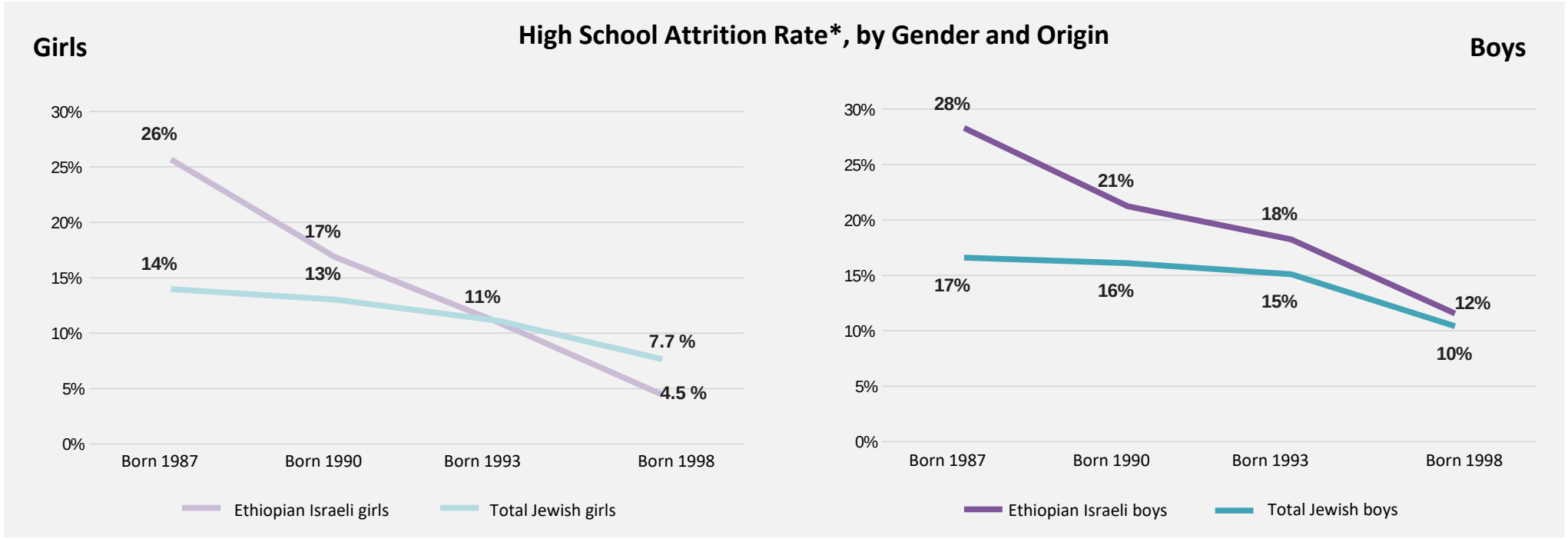
- **Among Ethiopian Israeli boys**, there are noticeably high rates of industrial school enrolment and boys who did not complete a high school education. On the other hand, there is a low rate of Ethiopian Israelis who graduated yeshiva institutions in comparison to all Jewish boys.
- **Among the girls**, there are no significant differences between Ethiopian Israelis and the general Jewish population.



The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia.
Source: Shimoni and Refaeli, 2021.

Attrition

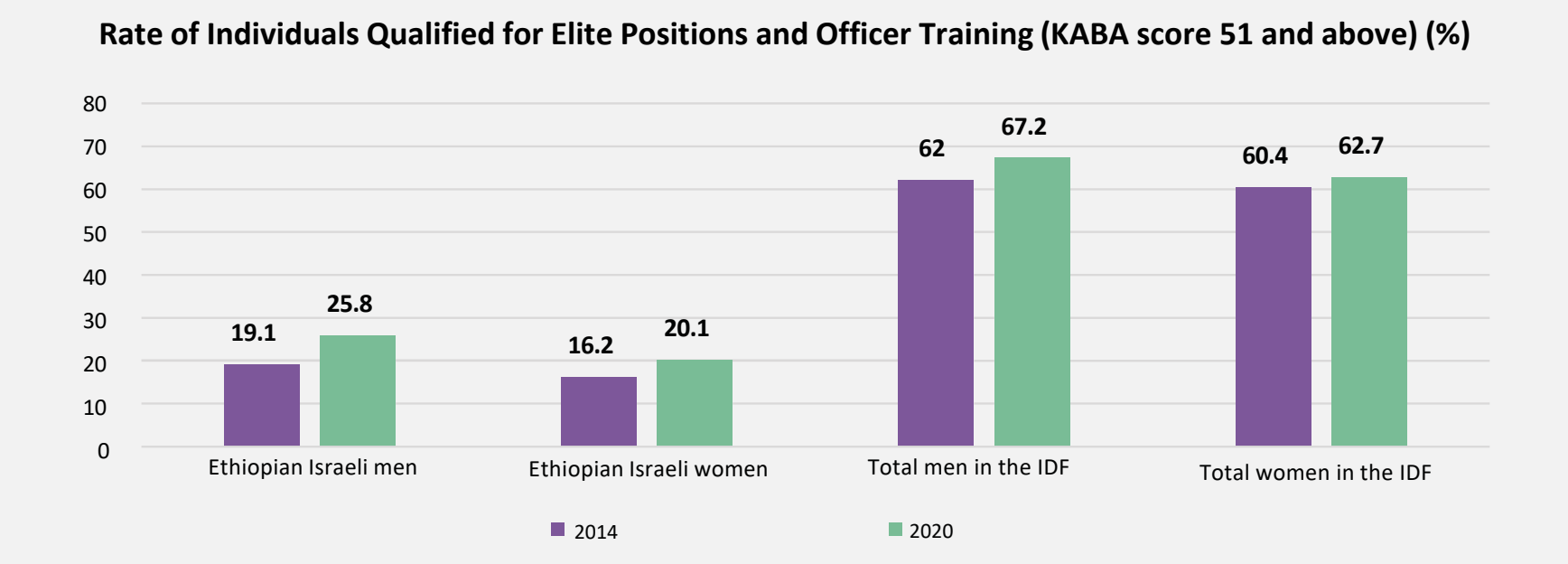
- **Among Ethiopian Israeli girls**, there is a sharp decrease over time in the percentage of drop outs* – from 26% among those born 1987 (36 years old today) to 4.5% among those born 1998 (25 years old). There is a decrease also among Jewish girls, but it is relatively moderate. In the last birth year measured (1998), the attrition rate among all Jewish girls was even higher (7.7%) than that of Ethiopian Israeli girls.
- **Among Ethiopian Israeli boys**, there was also a significant decrease between those born 1987 and 1998 – from 28% to 12%. This percentage is slightly higher than the corresponding figure for all Jewish boys (10%).



* Students who did not graduate from a high school institution or are not registered in student files in one of Israel's educational institutions.
The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia.
Source: Shimoni and Refaeli, 2021.

Military Service

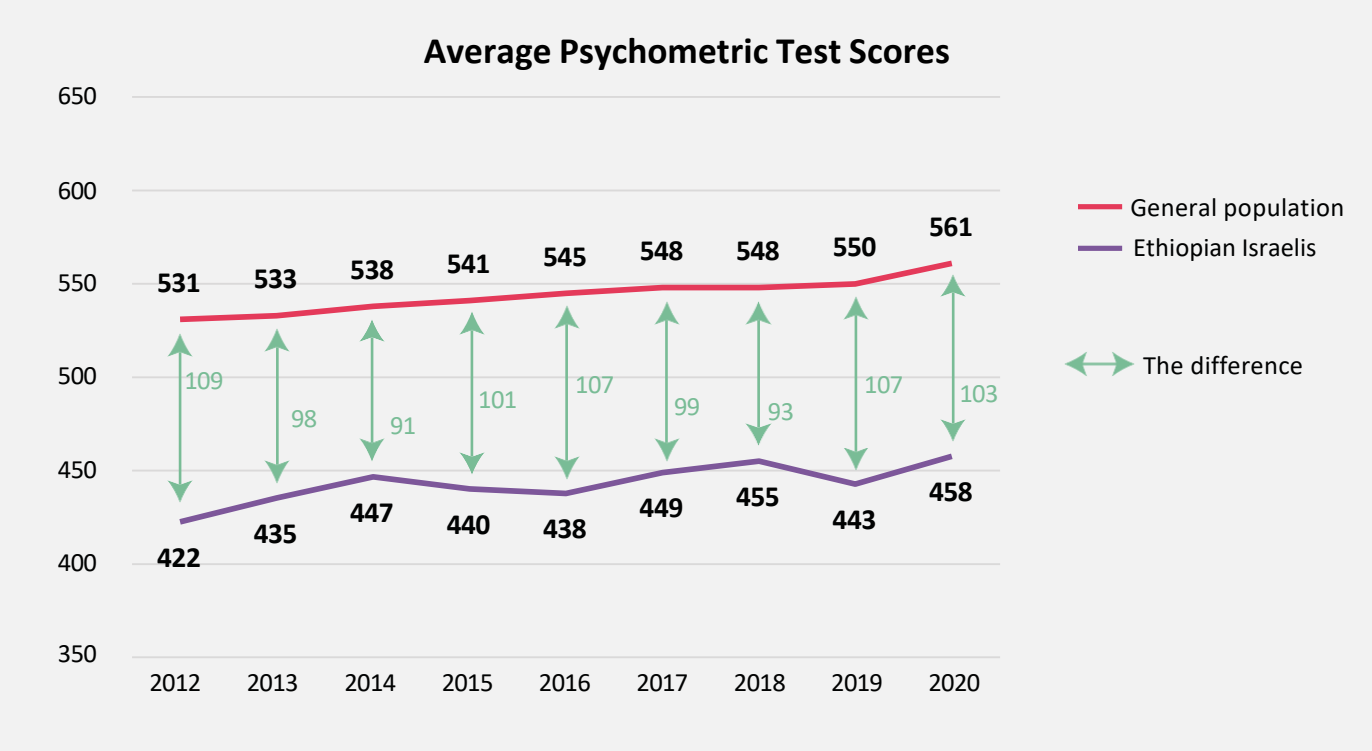
- Military service is considered to be a significant stage for integration in Israeli society and economy. Serving in technological units constitutes a pathway into the high-tech industry.
- Despite government efforts in the past years, Ethiopian Israelis still have difficulty in integrating into the military in high-quality roles*.
- **Officer training participation rates** have slightly increased, from 1.3% in 2014 to 1.6% in 2020.
- **The number of Ethiopian Israelis in the military academic reserve program** decreased, from 27 in 2014 to 14 in 2020.



* Obtaining accurate information regarding the integration of Ethiopian Israelis in technological IDF units was not possible.
. Source: Directorate for Ethiopian Israelis' Integration, the Prime Minister's Office,
the National Program for the Integration of Ethiopian Israelis: Activity Summary Report for 2017-2020, October 2022

Psychometric Test Scores

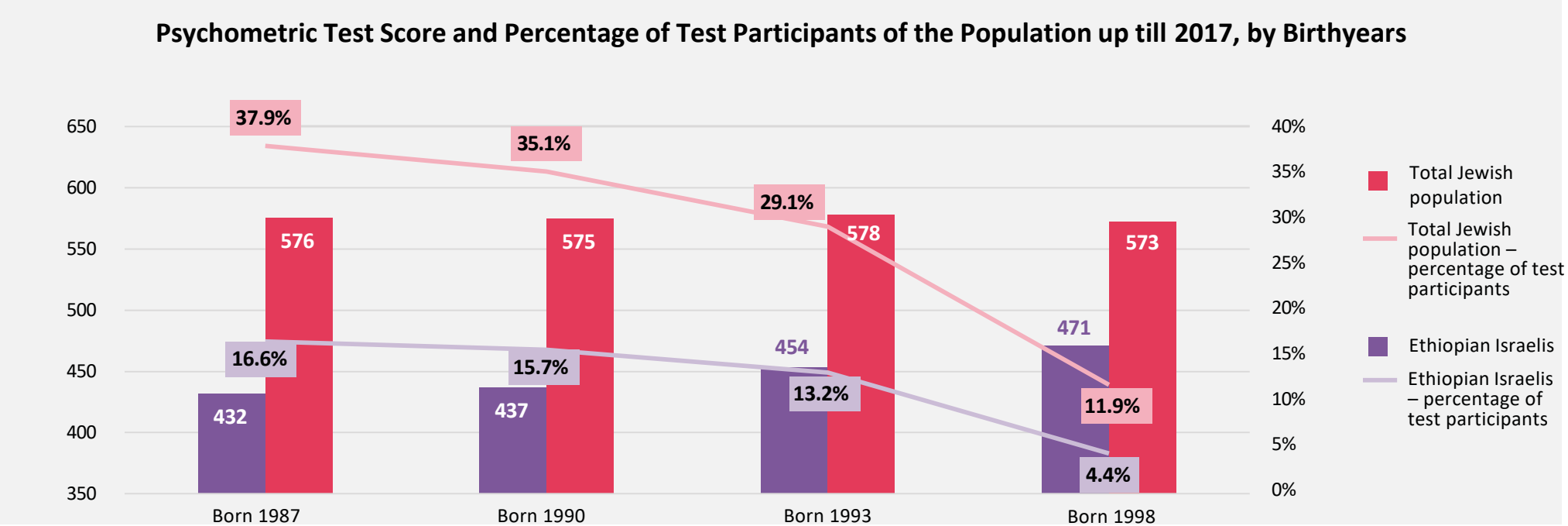
- Achievements in the psychometric exam are 100 points lower among Ethiopian Israelis in comparison to the national average.
- Despite a gradual increase in Ethiopian Israelis' average test scores, the weighted gap between them and the general population has not been reduced (slightly reduced in English, but increased in quantitative thinking).



Source: Analyses of the annual statistical report, the National Institute for Testing and Evaluation, various years.

Psychometric Test Scores by Cohorts

- An examination by cohorts (rather than by year) reveals that the gap between Ethiopian Israelis and the general Jewish population decreases among the younger cohorts.
- The gap between Ethiopian Israelis and the general Jewish population among those born in 1987 (who were 30 years old at the time of the measurement) was 144 points. The gap decreased to 125 points for those born 1993 (24 years old at the time of the measurement).
- Among those born in 1998, the gap dropped further, to 101 points, but as they were 19 years old at the time of measurement, it appears that the rate of those taking the test are not representative.

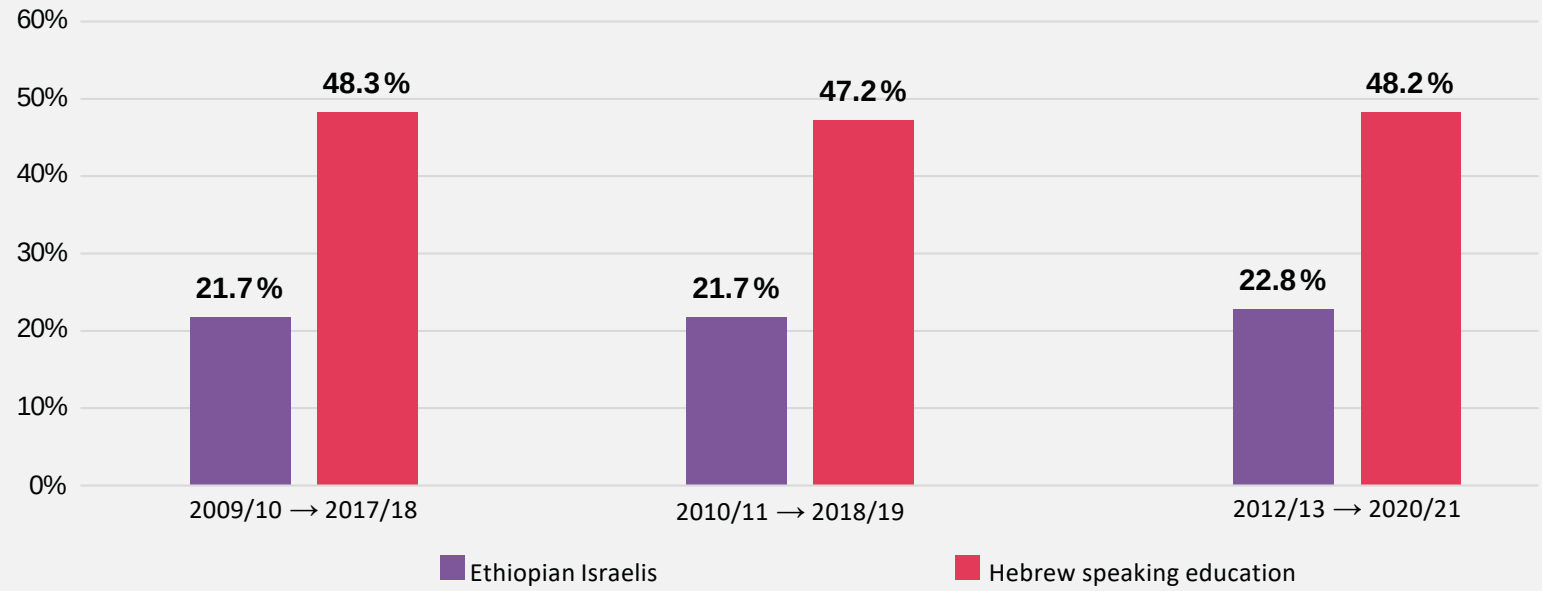


The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia.
Source: Shimoni and Refaeli, 2021.

Integration into Higher Education

- The quality of the matriculation certificate and psychometric test scores are relatively low, in addition to other barriers that will be detailed later, lead to a **low percentage of Ethiopian Israelis integrating into higher education institutions**.
- Of the Ethiopian Israelis who graduated from high school in 2012/13, only 22.8% continued to bachelor's degree studies within eight years of completing their high school studies, vs. 48.2% among all high-school graduates in the Hebrew-speaking education – **less than a half**.

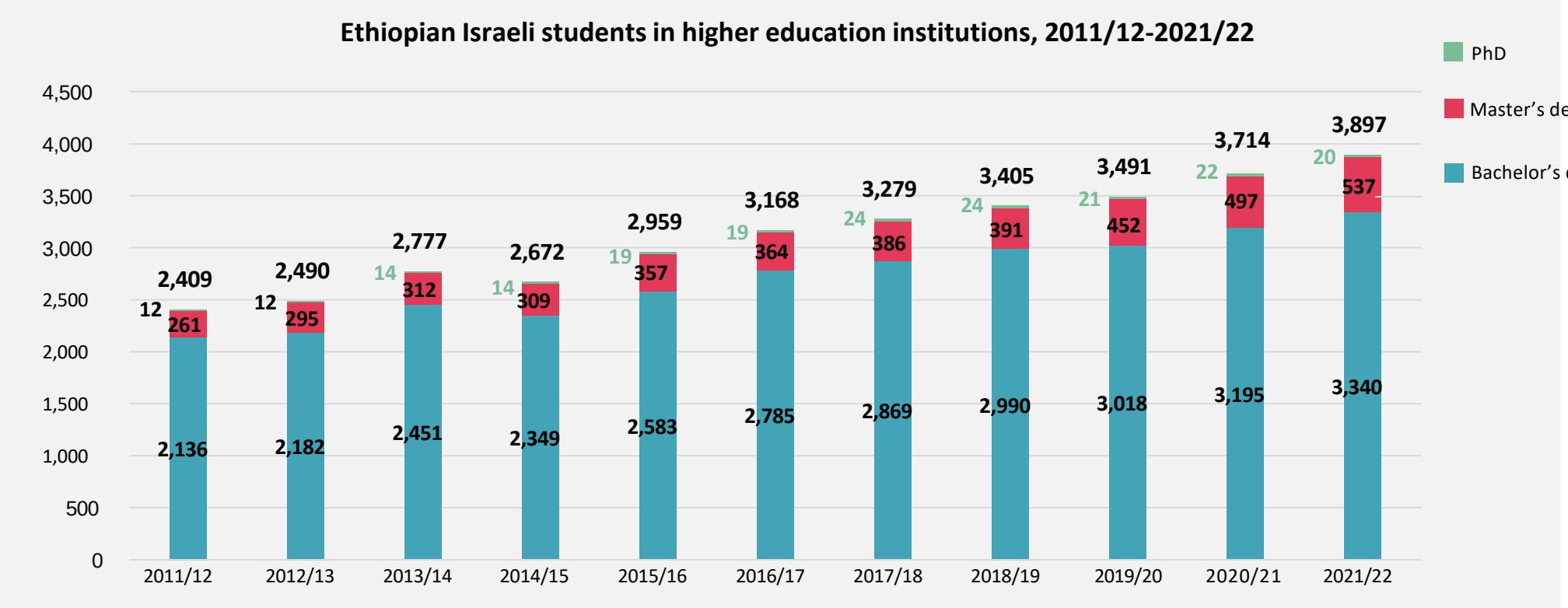
Percentage of grade 12 students who pursued bachelor's degree studies within eight years of graduating high school



The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one or both parents born in Ethiopia.
Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, various years.

Number of Ethiopian Israeli Students by Degree

- **The number of Ethiopian Israeli students** in bachelor's and master's degrees has increased significantly in the last decade: An increase of 56% in bachelor's degree and of 106% in master's degree (i.e., more than double).
- **The number of Ethiopian Israeli PhD candidates** was doubled (from 12 to 24) between 2011/12 to 2017/18, but has since remained static and even somewhat decreased (20 in 2021/22).

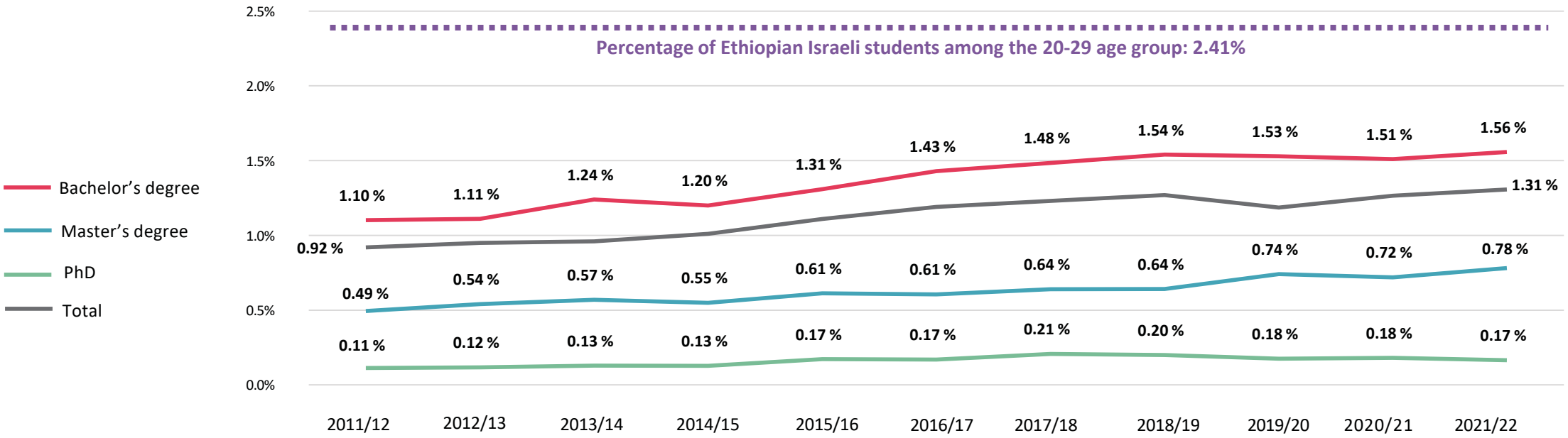


Excluding students of the Open University and in diploma studies.
Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, various years.

Percentage of Ethiopian Israeli Students

- **The percentage of Ethiopian Israeli students** among all students in all higher-education institutions has increased noticeably in the last decade.
- **The increase in master's degree was the most** significant, while in PhD degree there was a sharp increase up till 2017/18, but since, (until 2021/22), there has been a decrease.
- However, in all degrees and especially in master's and PhD, the percentage of Ethiopian Israeli students is lower than their share in the general age group (20-29 years old).

The percentage of Ethiopian Israelis among all students by degree

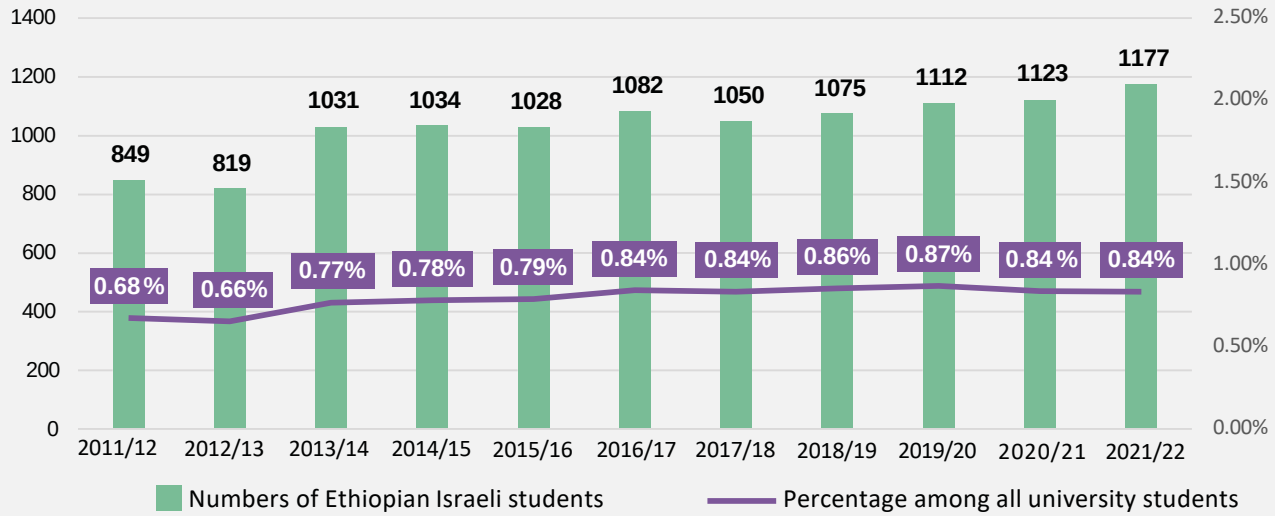


Excluding students of the Open University.
Source: Analyses of Central Bureau of Statistics data.

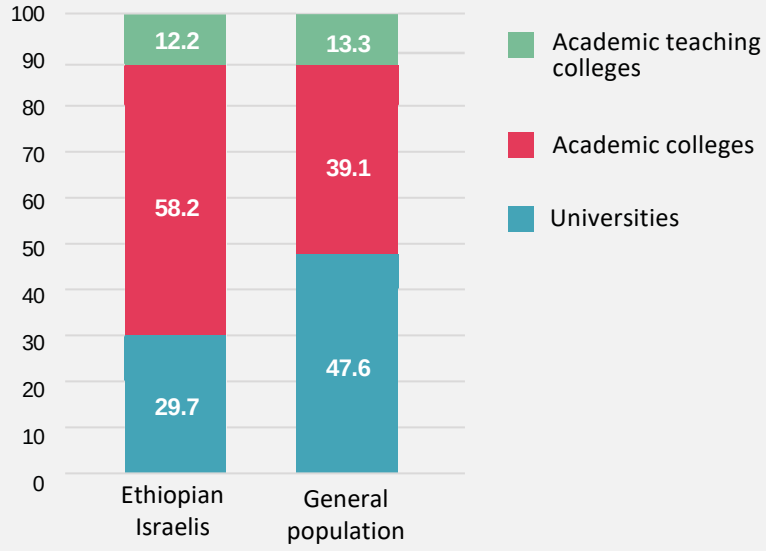
Academic Institution Type

- A high percentage of Ethiopian Israeli students attend academic colleges, and **a relatively low percentage attend universities.**
- Over the past decades, the number of Ethiopian Israeli students in universities has risen, but their percentage among all university students has remained similar from 2016/17 to 2021/22.
- The majority of Ethiopian Israeli students are women (71.7%), with no differences among institution types (vs. 60.1% of women among the general student population).
- In 2021/22, 625 Ethiopian Israeli students pursued a bachelor's degree at the **Open University**, accounting for 15.8% of all Ethiopian Israeli bachelor degree students (vs. 17.5% in the general student population).

The number of Ethiopian Israeli students and their percentage among all university students



Students by type of institution, 2021/22 (%)



Excluding students of the Open University and in diploma studies.
Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, various years.

Academic Institutions

with 90 Ethiopian Israelis students or more

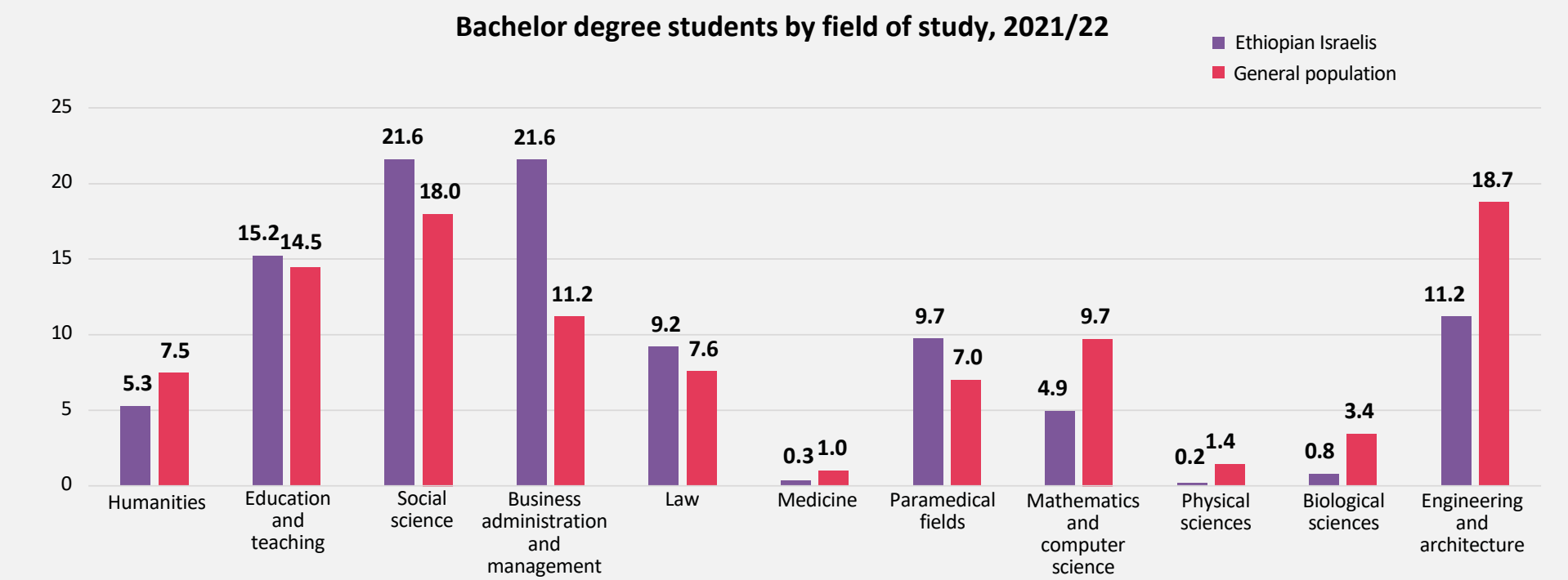
- The number of Ethiopian Israeli students is especially high in **colleges and/or higher education institutions in the periphery**. Attending these institutions probably stems from a combination of area of residence and lower acceptance criteria.
- In 2021/22, **34%** of all Ethiopian Israeli bachelor's degree students studied in **non-budgeted institutions** (in comparison with 21% among the general student population).

Institution	Institution type	Ethiopian Israelis students (2020/21)
Ono Academic College	Non-budgeted college	450
Peres Academic Center	Non-budgeted college	289
Ariel University	University	238
Ashkelon Academic College	Budgeted college	216
Hebrew University of Jerusalem	University	202
Bar-Ilan University	University	200
University of Haifa	University	188
Tel Aviv University	University	151
Yezreel Valley College	Budgeted college	123
Netania Academic College	Non-budgeted college	115
Sapir Academic College	Budgeted college	112
Holon Institute of Technology	Budgeted college	104
College of Management Academic Studies	Non-budgeted college	96
Ben-Gurion University of the Negev	University	95

Source: Data received from the Aliyah and Integration Ministry

Fields of Study

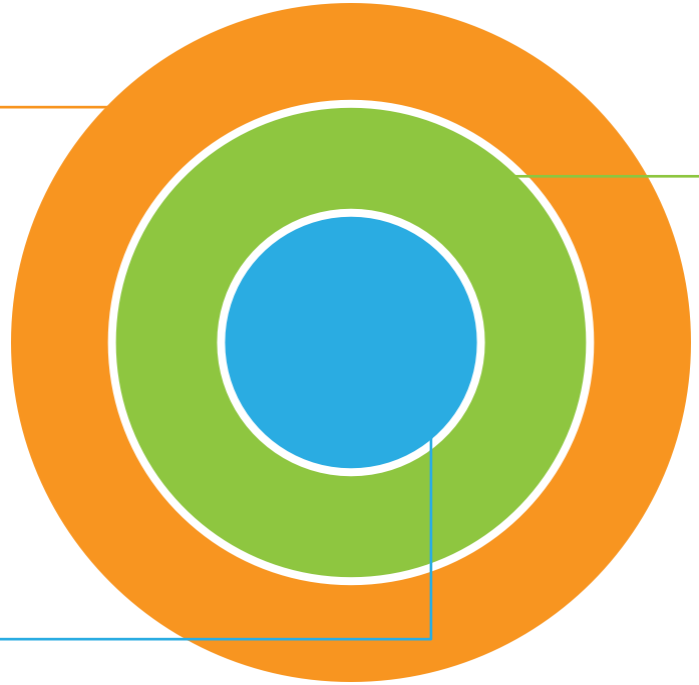
- Not only does the percentage of Ethiopian Israeli students in academic institutions fall short of their population share, they also pursue less prestigious fields of study and institution types in comparison to the general population.
- This data probably reflect not just the preferences of Ethiopian Israeli students but also the increased difficulty of integrating into fields of study with high demand.



Excluding Open University students.

Source: NAS ناس data.

A Guide to STEM and High-Tech Fields of Study in Higher Education



All study fields

STEM fields according to the Central Bureau of Statistics

Mathematics, statistics and computer science; the physical sciences; the biological sciences (excluding agriculture); engineering and architecture.
Here medicine is considered as a STEM field.

High-tech fields of study*

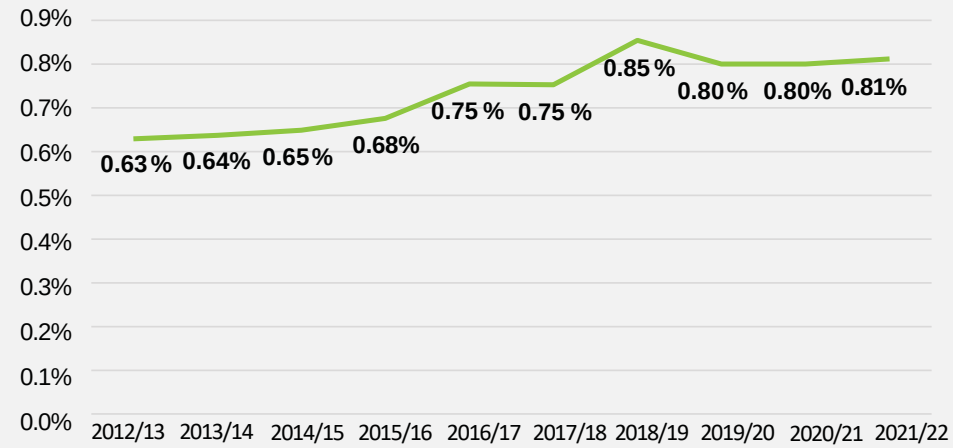
Mathematics, mathematics-physics, statistics, computer science, mathematics-computer science, management information systems, electrical engineering, computer-electrical engineering, computer engineering-computer science, communication systems engineering, information systems engineering, electro-optics engineering, electronics and information systems engineering.

* Based on the CHE's definition for high-tech fields of study. The CHE updates the definition according to industry needs.

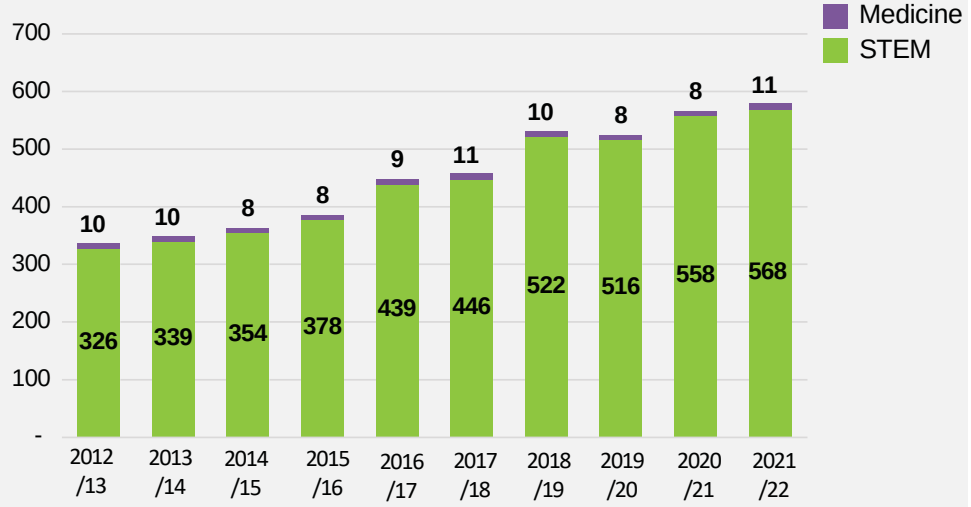
Ethiopian Israeli Students – STEM Fields

- In the last decade, there is **a consistent increase in the number of** Ethiopian Israeli bachelor's degree students in STEM fields – from 336 in 2012/13 to 579 in 2021/22.
- Accordingly, there is also **an increase in the percentage of Ethiopian Israeli students**, from 0.63% in 2012/13 to 0.85% in 2018/19, but starting in 2019/20, there is a certain decrease in this percentage.
- The percentage of Ethiopian Israeli bachelor's degree students in STEM fields (~0.8%) is **lower than their percentage of all bachelor's degree students** (1.56% in 2021/22) and considerably lower that their percentage of the relevant age group (2.4% of 20-29 year olds).
- In total, 17.7% of all Ethiopian Israeli bachelor's degree students pursue STEM fields, in comparison to 33% among the general student population – **about half**.

Percentage of Ethiopian Israelis of all bachelor degree students in STEM fields (including medicine)



Number of Ethiopian Israeli bachelor degree students in STEM fields



Excluding Open University students.

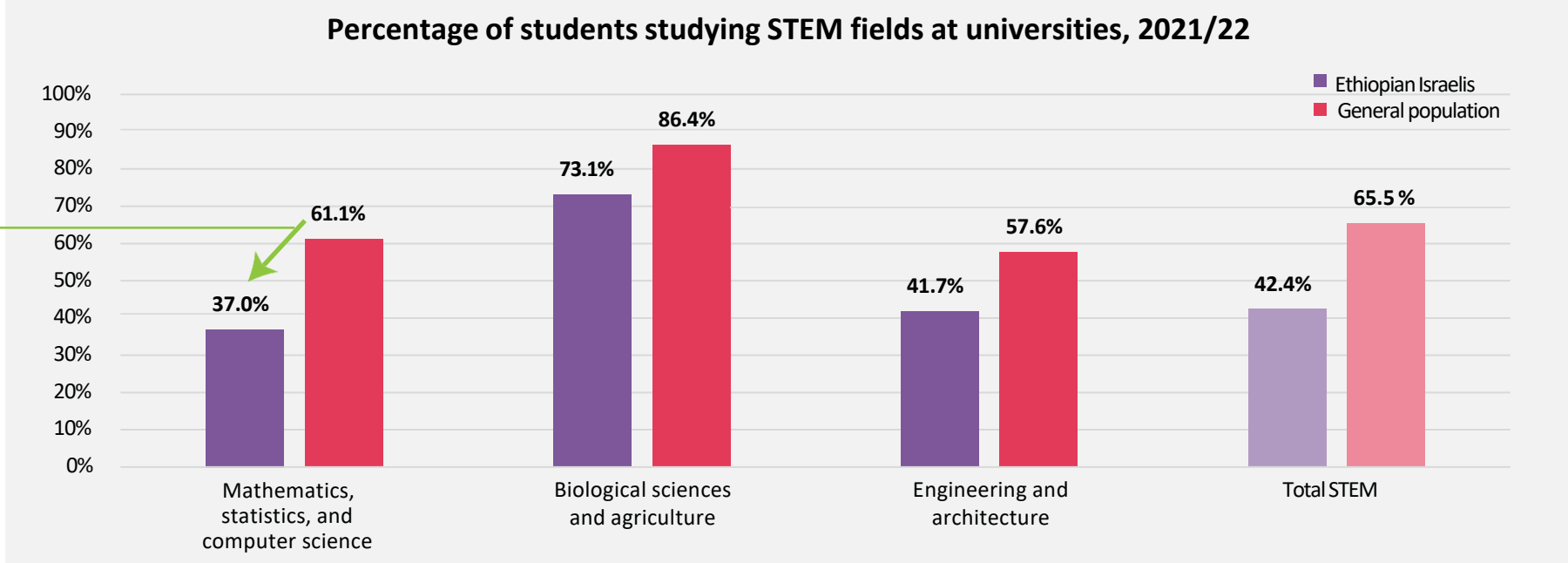
Source: Ethiopian Israeli Students – analyses by NAS ناس of CHE data. General population – CHE website.

STEM

STEM Studies – Type of Institution

- An examination of the type of educational institution in which studies of STEM fields are pursued shows that a lower percentage of Ethiopian Israelis studies at universities in comparison to the general population.
- The gap is especially salient in the fields of mathematics, statistics and computer science, where it stands at 24 percentage points in comparison to the general population.
- The graph below shows the percentage of students studying at universities in each STEM field, out of all the students in the same field (at both universities and colleges).

Only one-third of the Ethiopian Israeli students study these fields at universities, compared to two-thirds from the entire population.



Notes:

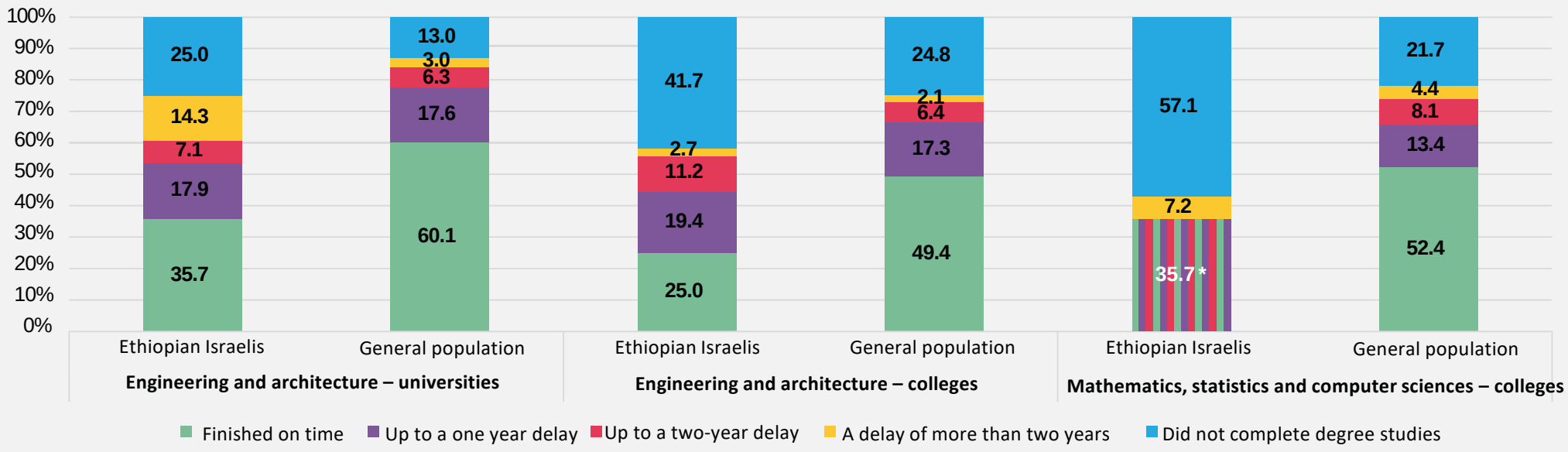
1) Medicine and physical sciences were not included as they are taught only at universities.
2) In this graph, the field biological sciences includes agriculture, as it was not possible to separate them in the source data.
3) Open University students are not included.

Source: Ethiopian Israeli Students – NAS ناس analyses of CHE data. General population – CHE website.

STEM Studies – Attrition and Extension of Studies

- Academic attrition rates among Ethiopian Israelis **are high in comparison to the general population** – approximately 30% vs. 20%, respectively.
- **In STEM study fields, especially in colleges, the attrition rate is double and even higher** among Ethiopian Israeli students.
- Simultaneously, **the rate of those completing within the standard time is lower** among Ethiopian Israeli students.
- Council of Higher Education's data show that in 2019/20, 14.2% of the Ethiopian Israeli students in the first year of their bachelor's degree dropped out (did not continue to the second year), in comparison to 10.7% among the general student population.
- Due to the high attrition rates, particularly in colleges, the number and percentage of Ethiopian Israelis among bachelor's degree graduates is extremely low.

Bachelor's degree students who began studying in 2013/14, by graduation time (%)



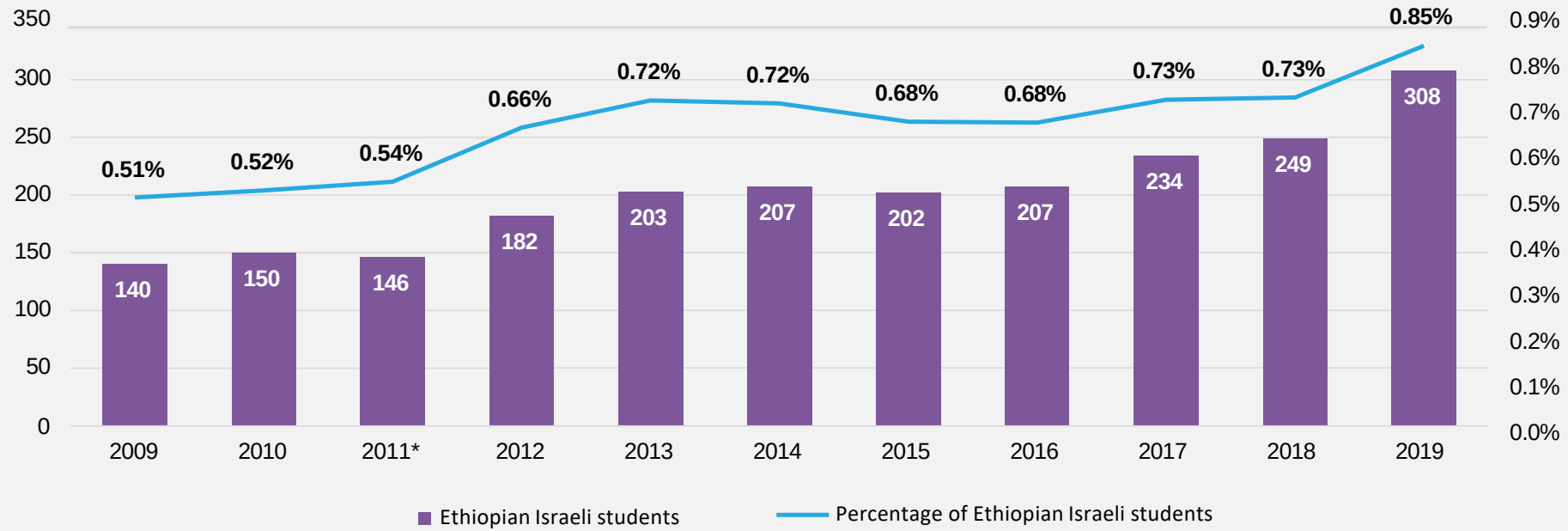
* Due to the limited number of cases, the figure refers to those who finished within the standard time, up to one year late and up to two years late.
Monitoring was conducted until 2020/21.
Due to the paucity of observations in the Ethiopian Israeli community, it is not possible to present additional fields of study.

Source: Ethiopian Israeli Students – analyses by NAS ناسof CHE data. General population – CHE website.

Ethiopian Israeli Students – High-Tech Fields

- The number of **Ethiopian Israelis in high-tech fields of study more than doubled** from 2009 to 2019.
- In the context of the general increase in the number of students in the high-tech fields, the percentage of Ethiopian Israeli students in these fields increased 'only' by 66%.
- Compared to there share in the population, Ethiopian Israelis are **still underrepresented** (0.85% vs. 2.41% in the 20-29 age group).

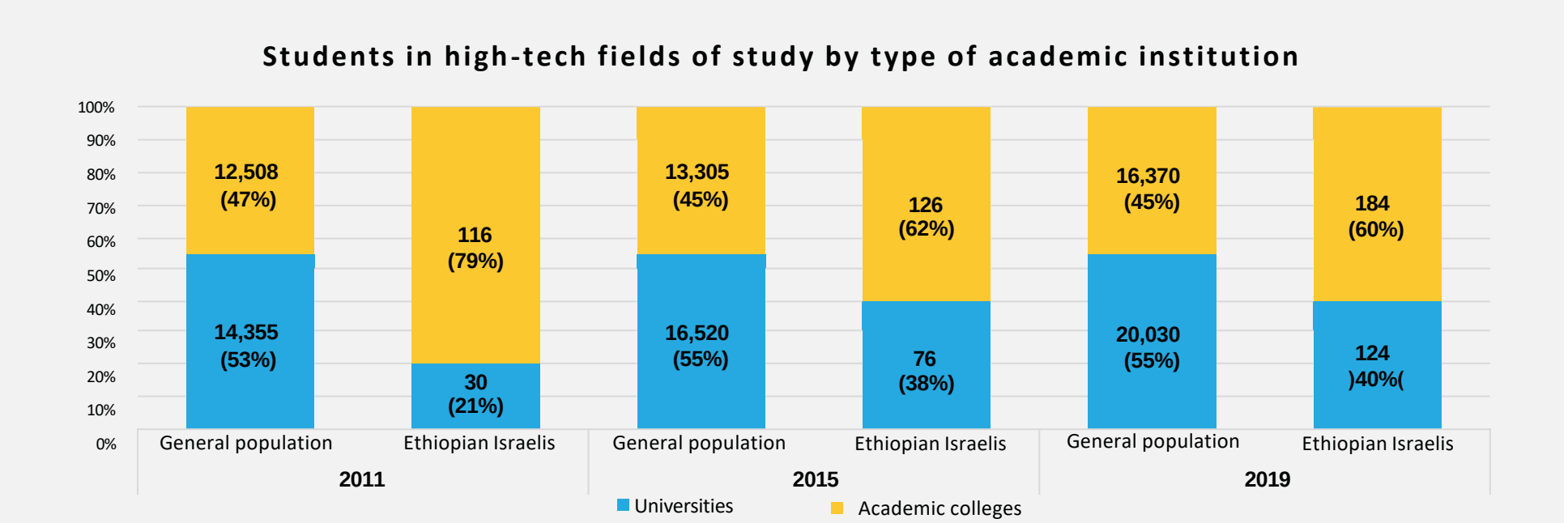
The number of Ethiopian Israeli students in high-tech* fields, and percentage of all students



Source: Analyses of CHE data by NAS-ناس.

High-tech Studies – Type of Institution

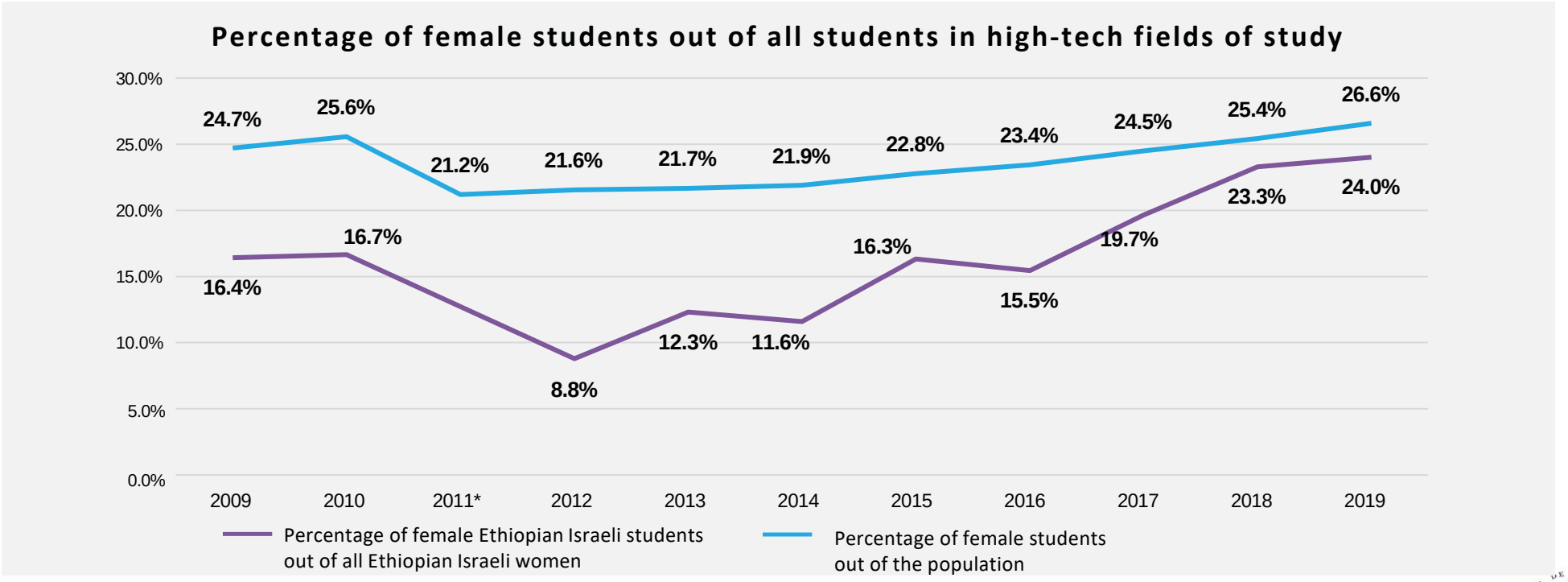
- Not only is the representation of Ethiopian Israelis in high-tech fields low, **their share in university studies in these areas is even lower**.
- Of the students pursuing studies in high-tech fields, a little over 50% attend universities. As of 2019, the corresponding figure among Ethiopian Israelis is 40%.
- However, this is a significant increase from 2011, with only 21%.
- Underrepresentation: Despite the considerable improvement, in 2019, Ethiopian Israelis comprised only 0.62% of all students in the high-tech fields of study.



Source: Analyses of CHE data by NAS-ناس.

High-Tech Studies – Gender Gap

- In both in the general population and among Ethiopian Israelis, the representation of female students in the high-tech subjects is low, although there has been an improvement in both groups in recent years.
- The low rate of Ethiopian Israeli women applying for bachelor's degree studies in high-tech fields opposes their high percentage among the Ethiopian Israeli students in academic institutions (over 70%).
- Their matriculation achievement data cannot explain this, since girls' eligibility for matriculation with five unit mathematics or with a scientific subject of study in high school is not lower than that of boys.



* Due to the limited number of cases in 2011, gender segmented data are not available.
Source: Analyses of CHE data by NAS-ناس.

Non-Academic Training

Importance for the integration of under-represented populations

The Committee for Increasing Human Capital in High-Tech's report noted: "Underrepresented populations' low integration rate in tech jobs requires the encouragement and significant targeting of non-academic training for populations with emphasis on women, Arab society, the Haredi community, Ethiopian Israelis, people with disabilities and people from the social-geographical periphery."

Importance for high-tech

In view of the paucity of human capital in the high-tech industry, in recent years, non-academic tracks (bootcamps and practical engineering programs) have played a significant role in training employees for high-tech.

High returns in salary

According to a report by the Ministry of Finance's Chief Scientist, the return in salary on practical engineering studies in high-tech fields (programming, electronics, and electricity) is similar to a professional degree from a college and higher than a university degree in the humanities and social sciences.

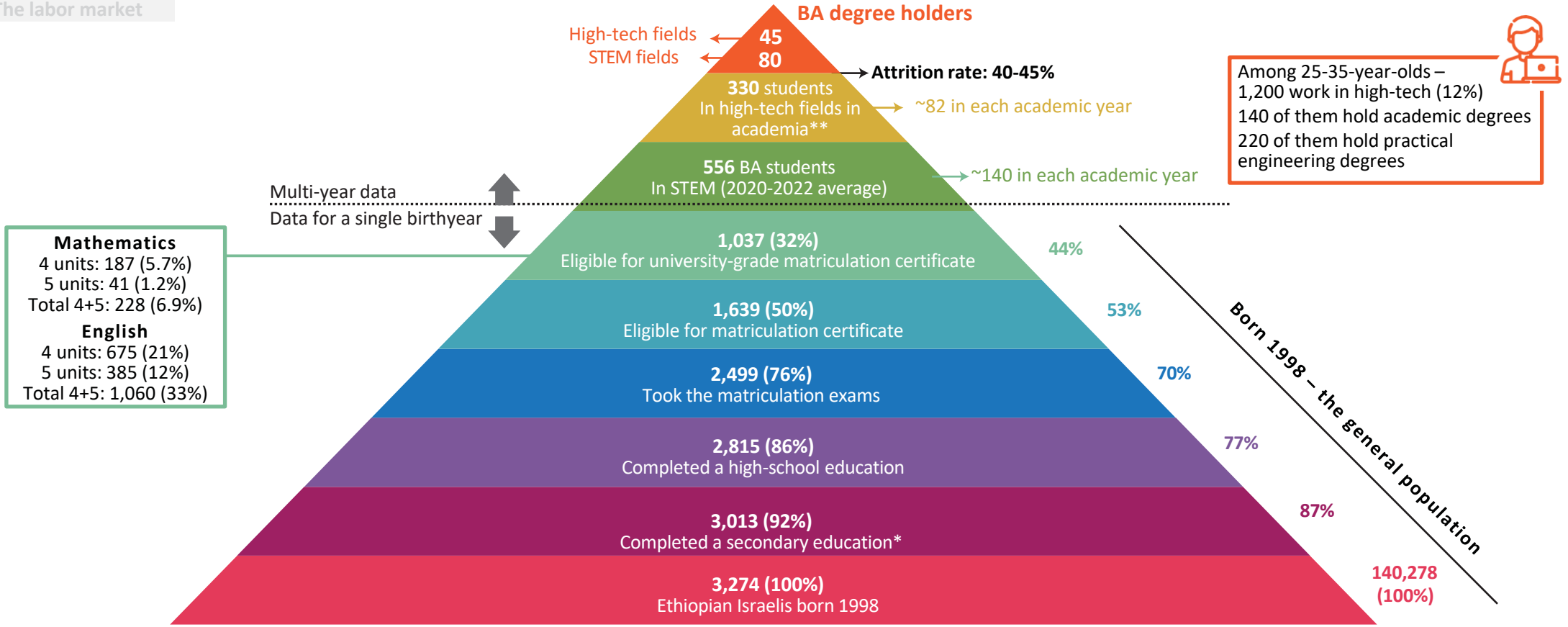
Non-academic training for Ethiopian Israelis in high-tech

Of the 25-35-year-old Ethiopian Israelis employed in high-tech industries, only 12% hold an academic degree, in comparison to 53% among non-Haredi Jews.* In other words, non-academic training already plays an important role in their integration.

* Gilad Cohen Kovacs: **Integrating, but Slowly: Trends in the Employment of Haredim, Arabs, and Other Groups in the High-Tech Industry**, Ministry of Labor, 2022.

Summary

Ethiopian Israelis' representation in high-tech education, higher education, and employment

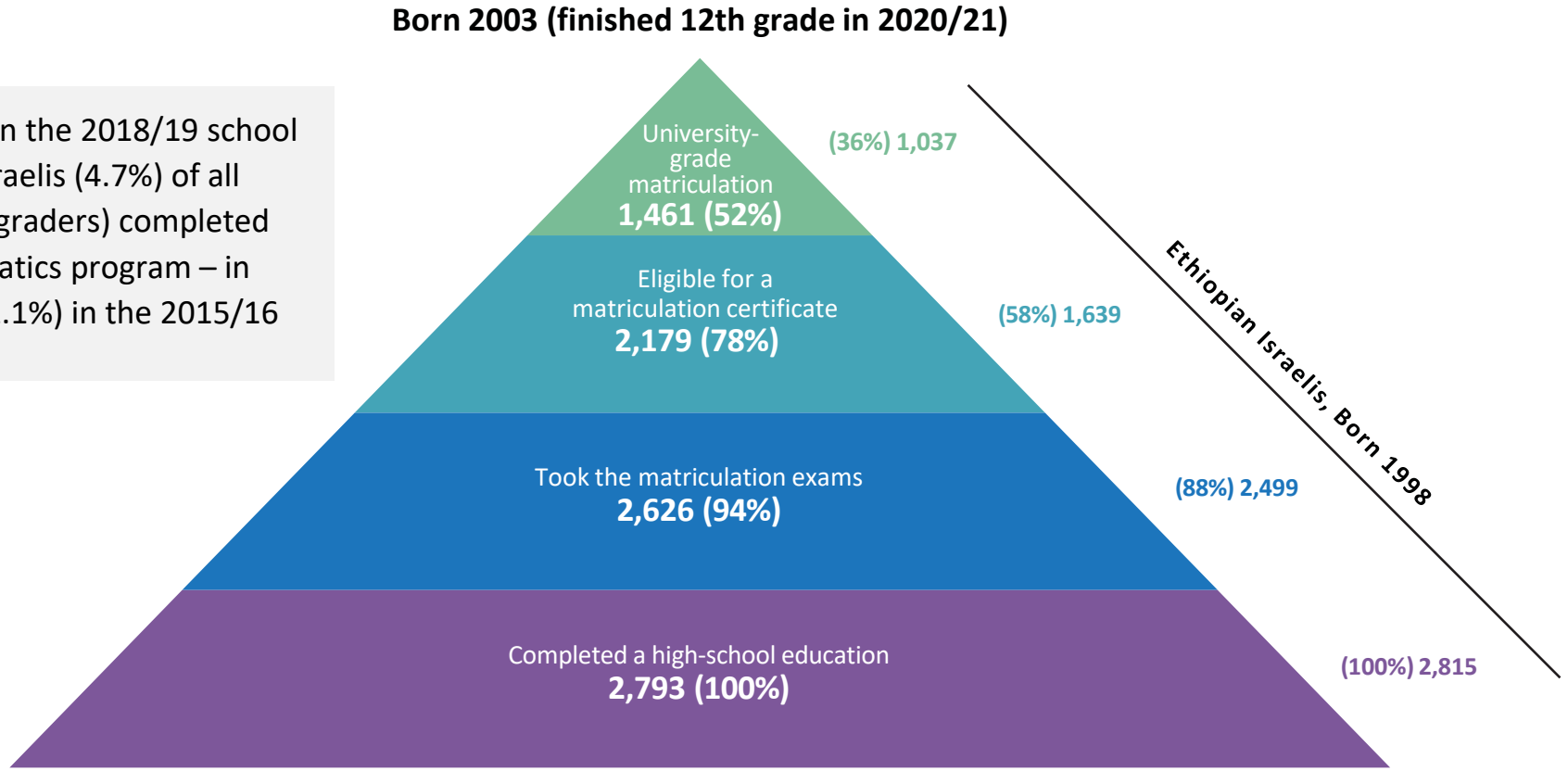


* Including religious schools (yeshivas and midrashoth) and vocational schools.
The Ethiopian Israeli population consists of persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia.
** Data segmentation is not available for Ethiopian Israelis studying in MAHAT (government-run institute for training in technology and science) colleges (technicians and practical engineers); therefore, this item of data is not shown in the pyramid.
Sources: Shimoni and Refaeli, 2021; analyses of CHE and CBS data.

Ethiopian Israelis' Representation

Expansion of the pyramid in recent years

According to a study, in the 2018/19 school year, 134 Ethiopian Israelis (4.7%) of all Ethiopian Israeli 12th graders) completed the 5 units in mathematics program – in comparison with 63 (2.1%) in the 2015/16 school year.*

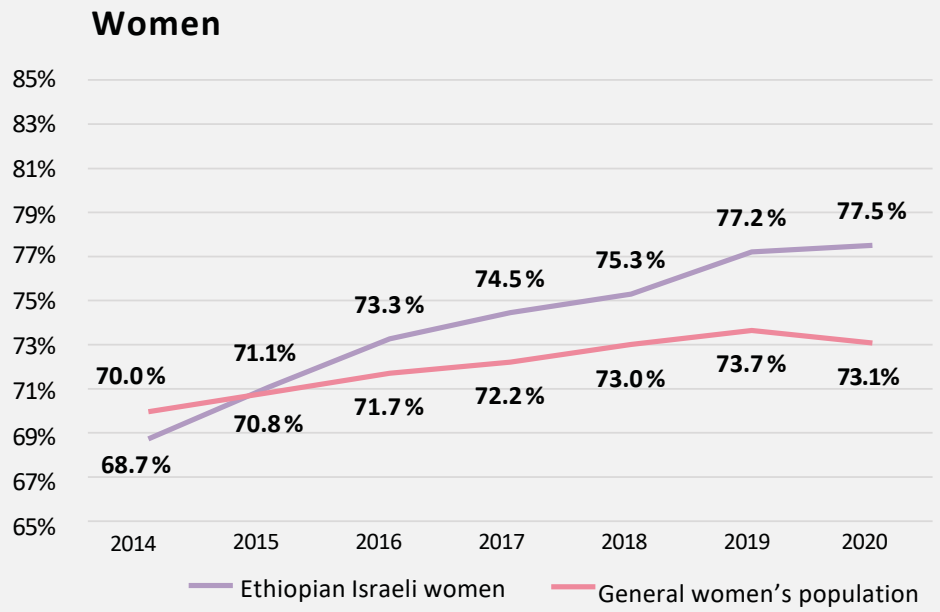


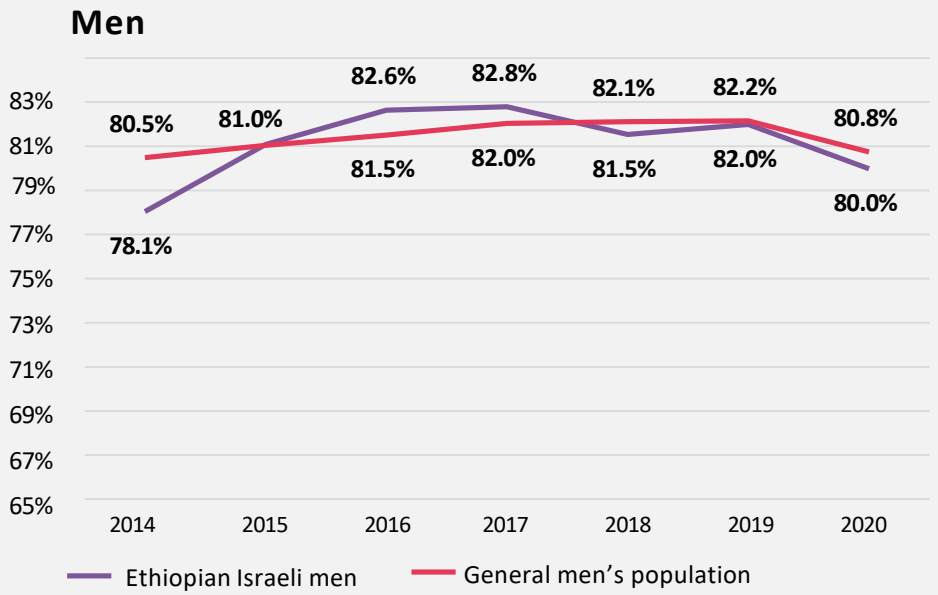
Sources: Birthyear 2003 – Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, 2022. Birthyear 1998 – Shimoni and Refaeli, 2021. Chachashvili-Bolotin, Talmi-Cohen and Yohanani, 2021.
The definition of Ethiopian Israelis in the source of the 1998 birthyear data includes persons born in Ethiopia, or born in Israel and have one parent born in Ethiopia; whereas for the 2003 data, the definition includes persons born in Ethiopia, or born in Israel whose father was born in Ethiopia.

Employment Rates

- In the early 2000s, there was a significant gap between the employment rates of Ethiopian Israelis and the general population, but the gap narrowed consistently and as of 2015, **the employment rate of Ethiopian Israelis is higher than the general population**.
- **Among women**, the positive gap in the employment rate of Ethiopian Israelis widened in comparison to all the general women's population, but their employment rate is slightly lower as compared to the employment rate of non-Haredi Jewish women (82.1% in 2020).
- **Among men**, the employment rate of Ethiopian Israelis is similar to the employment rate of the general men's population, but is also somewhat lower than that of non-Haredi Jewish men (85.7% in 2020)

Employment rates among 25-64-year-olds, by gender and origin



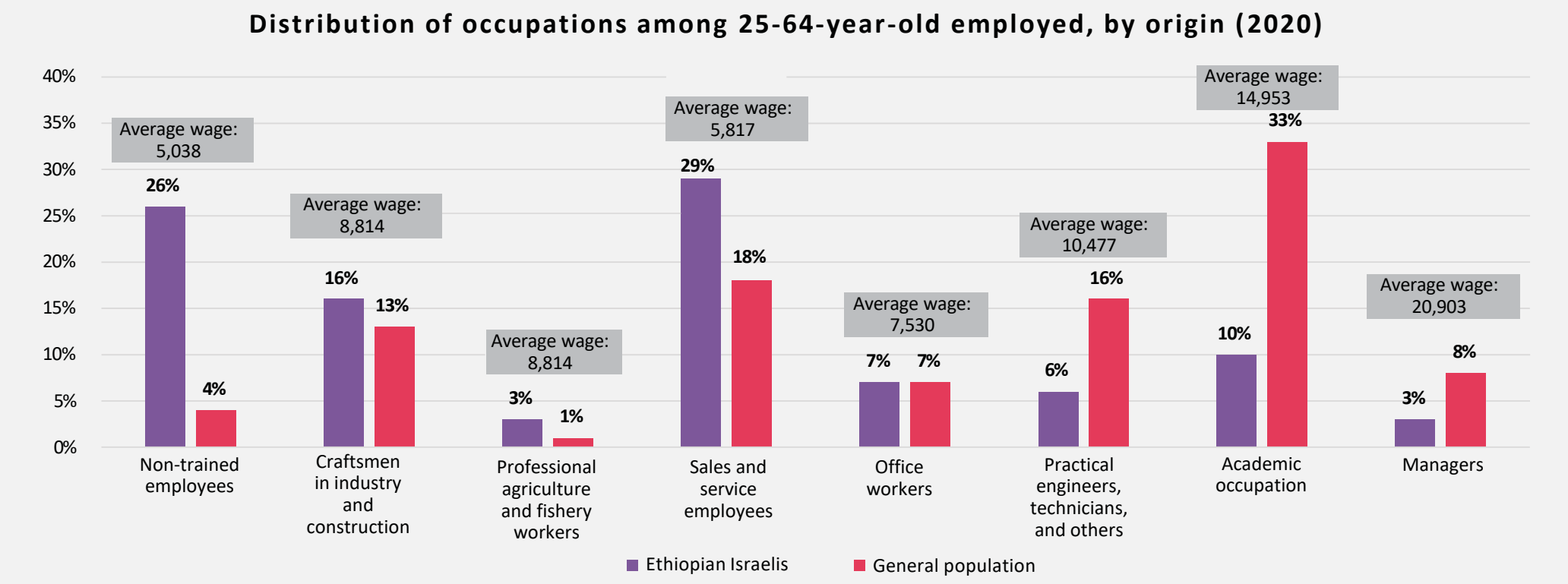


Note: Due to the small number of observations, the employment rates refer to a three-year moving average.

Source: Analyses of CBS human resources survey data, from a Ministry of Labor presentation, May 2021.

Occupation

- **Overrepresentation in low-wage occupations**: A very high percentage of Ethiopian Israelis are employed in non-professional trades – **more than six times** of that of the general population. A high percentage is also employed in sales and service positions. In these two fields, the average salary is the lowest among all occupations.
- **Underrepresentation in high-wage occupations**: The percentage of Ethiopian Israelis in management positions or in academic professions is almost three times lower of that of the general population (13% vs. 41%). In these fields, the average salary is the highest among all occupations.

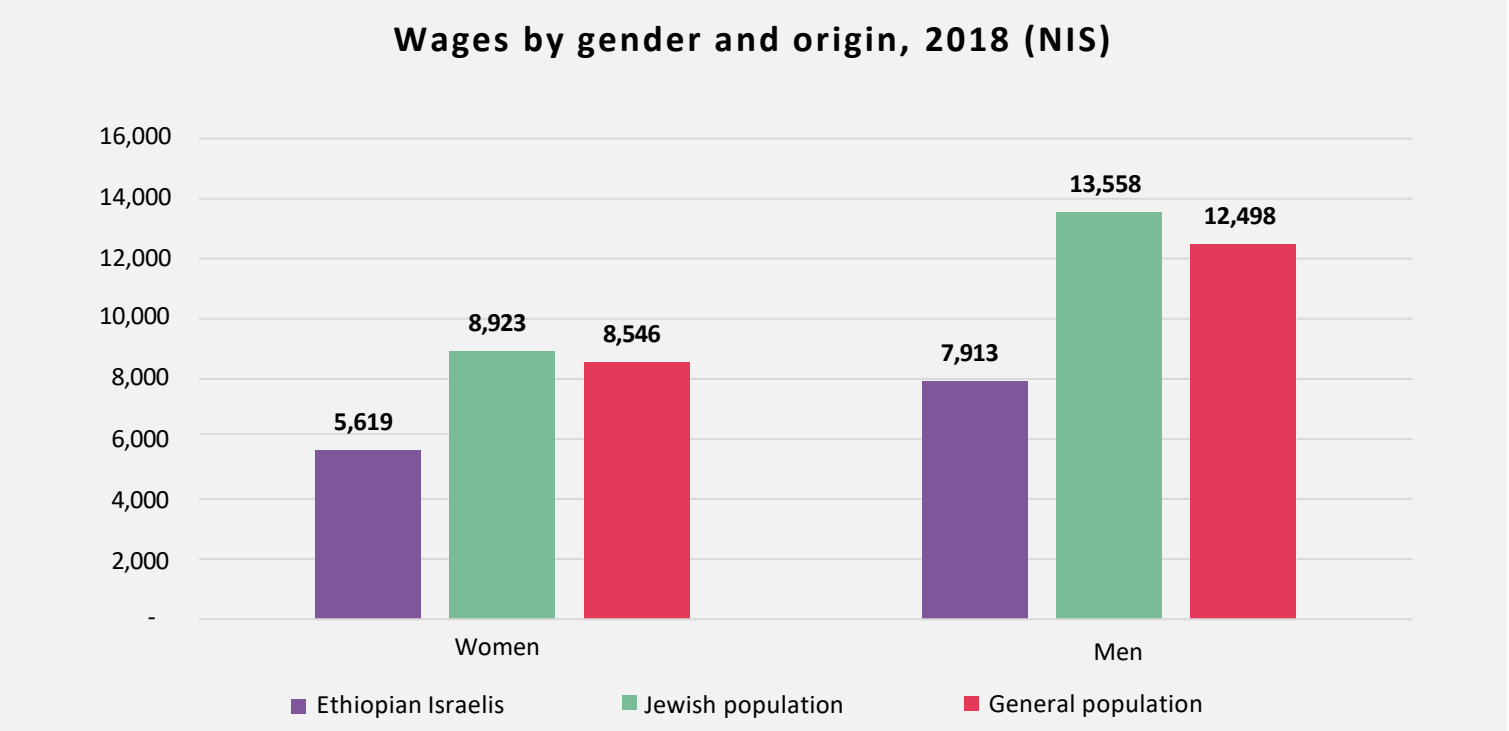


Note: The average wage refers to 2019.

Source: Occupations – analyses of CBS human resources survey data, from a Ministry of Labor presentation, May 2021. Average wages – CBS's Statistical Abstract of Israel 2022.

Wages

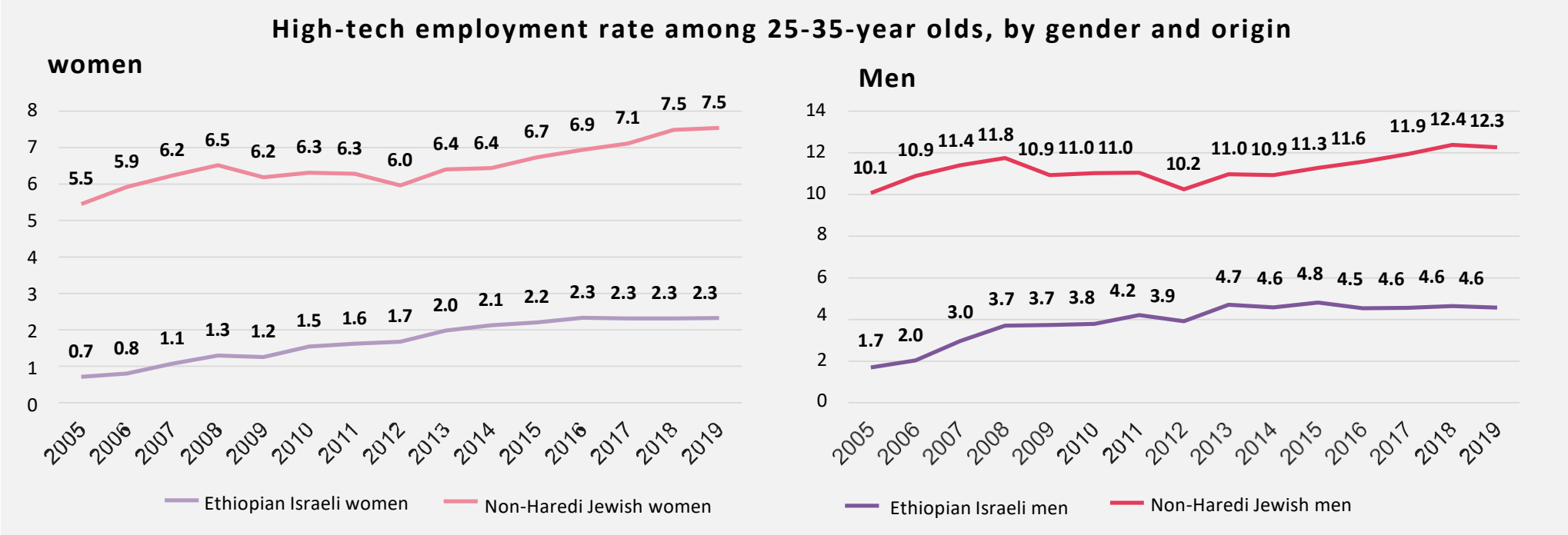
- The overrepresentation of Ethiopian Israelis in low-wage occupations and underrepresentation in high-wage occupations leads to **wage gaps** in comparison to the general population.
- According to the Equal Employment Opportunity Commissioner's Report for 2022, Ethiopian Israeli women, particularly holders of academic degrees, endure a **significant wage inequality** in high-income professions in the private sector.



Source: Adva Center, Social Report 2020.

Employment in the High-Tech Industry

- **Employees numbers**: From 2005 to 2019, the number of 25-35-year old Ethiopian Israeli employees in high-tech in Israel increased from 240 to 1,160 (approx. 780 men and about 380 women).
- **Employee percentages**: until 2013, there was an increase in the rate of Ethiopian Israeli employees in high-tech and since then it has slowed. At the same time, the percentage of high-tech employees in the non-Haredi Jewish population rose consistently in 2013-2019, thus, the gaps have widened.
- **Women's representation**: Among Ethiopian Israelis, the representation of women is particularly low and stands at 34% (also compared to a low representation of 38% among non-Haredi Jews).



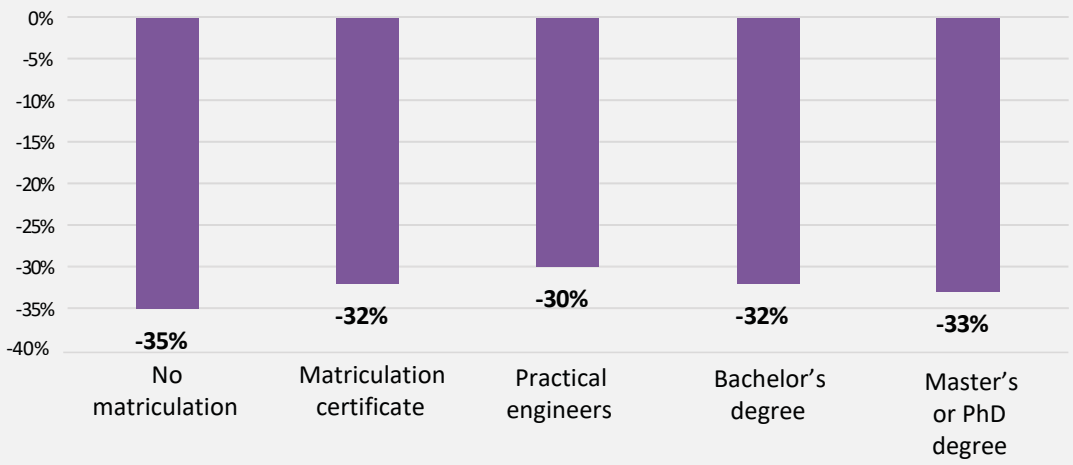
High-tech industry: 21 – pharmaceutical manufacturing, including homeopathic medicines; 26 – computer, electronic and optical equipment manufacturing; 303 – aircraft, spaceships and related equipment manufacturing; 62 – computer programming, consulting in the field of computers and other related services; 631 – data processing, storage and related services; 720 – research and development centers; 721 - research and development centers in engineering and the natural sciences.

Source: Analyses of administrative data provided by the Ministry of Labor, based on Gilad Cohen Kovacs, 2022.

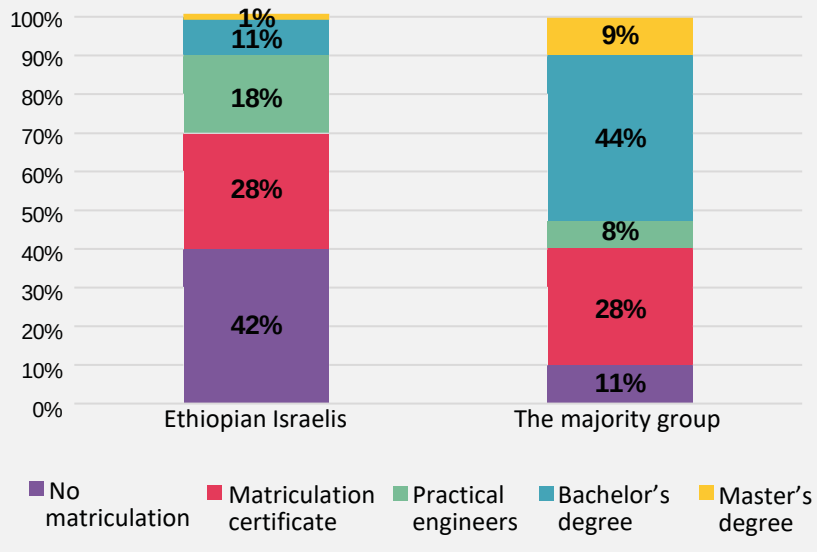
High-Tech Industry Employees' Education and Wages

- **The distribution of education among Ethiopian Israelis** in the 25-35 age group employed in high-tech industries is very different from the majority group:*
  - A particularly low percentage hold an academic degree (12% vs. 53% in the majority group).
  - A relatively high percentage hold a practical engineering degree (18% vs. 8% in the majority group).
- The percentage of individuals without a matriculation certificate is almost **four times** that of the majority group (42% vs. 11%)
- There is a distinct wage gap of 30-35% between Ethiopian Israelis and the majority group employed in high-tech at all levels of education.
- All of the above indicates that among Ethiopian Israelis employed in the high-tech industry, there is a very high percentage of employees in non-technological jobs, at low wage levels and through non-academic tracks.

The wage gap between Ethiopian Israelis and the majority group, among 25-35-year-olds high-tech employees (in %, 2019)



Distribution of education among 25-35-year-old high-tech employees, by origin (2019)



*The majority group: Non-Haredi Jews who are not Ethiopian Israelis or from the former Soviet Union.

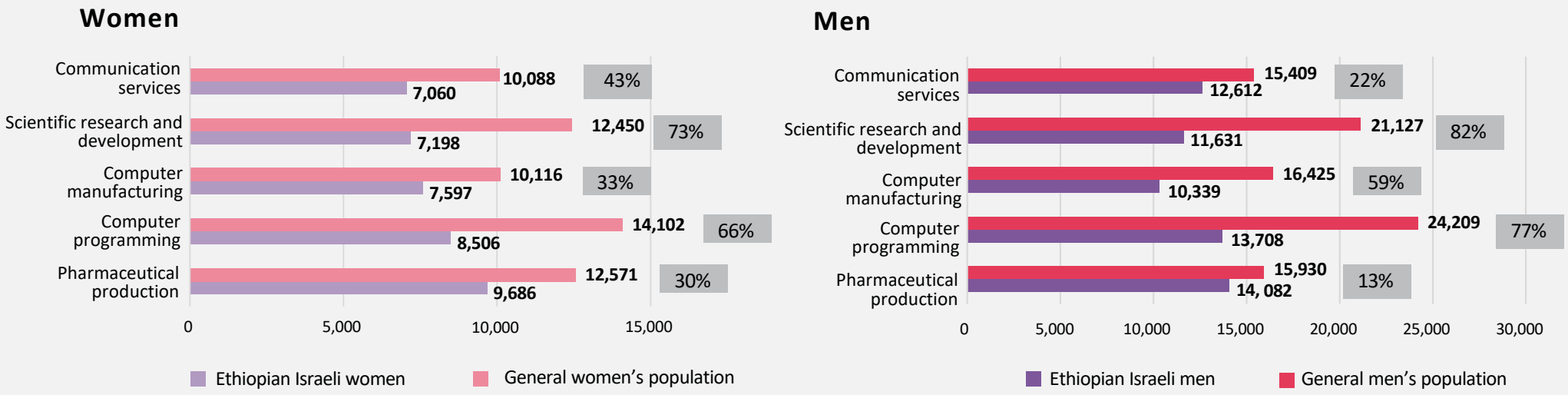
Source: Gilad Cohen Kovacs, 2022.

Wage Gaps in Selected High-Tech Fields

Employees without academic degrees

- An examination of the wage gaps between Ethiopian Israeli and the general population **in the same high-tech field** and **at the same education level** shows **gaps of tens of percentage points** to the disadvantage of Ethiopian Israelis.
- In high-tech fields with a particularly high wage level (research and development and computer programming), among men and women without academic degrees, **the gap between Ethiopian Israeli and the general population is 66-82%**.

Wages of employees without academic degrees, 18-64 age group (2020)



The percentages represent the wage gaps to the advantage of the general population of the same gender.

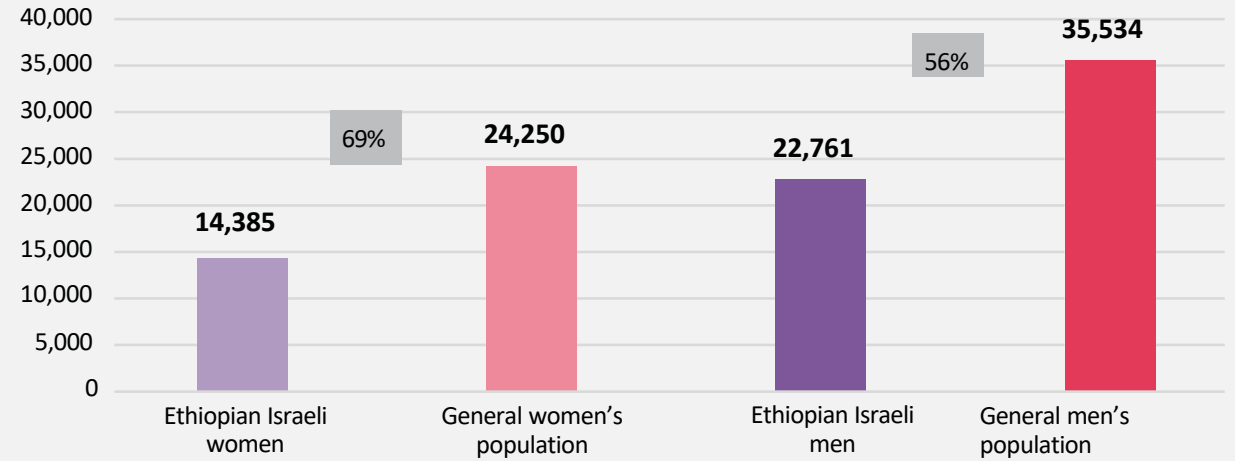
Source: Alexandra Kalev, Yafit Alfandari, Ayala Ginat and Tzipi Berman, The Diversity Index: Representation and Wage Equality in the Private and Public Labor Market (Sixth Edition), Equal Employment Opportunity Commission, May 2022.

Wage Gaps in Selected High-Tech Fields

Employees with academic degrees

- Due to a paucity of observations, the only available comparison between holders of academic degrees from the Ethiopian Israeli community and the general population is in the computer programming field. This comparison indicates **immense wage gaps**.

Wages of employees with academic degrees in the computer programming field, 18-64 age group, by origin and gender (2020)



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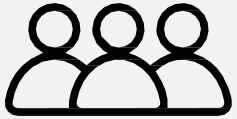
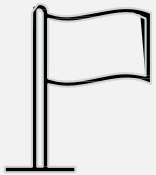
Chapter 2

MAPPING ORGANIZATIONS & PROGRAMS IN THE FIELD

Government programs



Civil society organizations promoting Ethiopian Israelis



National organizations

Government Responses in Higher Education

focusing on STEM

01 The CHE's Excellence Program for Ethiopian-Israelis

- In the 2016/17 academic year, responsibility for the program for the integration of the Ethiopian Israelis' population was transferred from the Ministry of Aliyah and Integration (Student Administration) to the CHE.
- The program operates in **budgeted higher education institutions**, and includes:
  - Providing candidates with access and guidance (through the 'Hesegim' program, which will be detailed below).
  - Academic assistance in pre-academic preparatory programs and through the bachelor's degree studies: Tutoring, support for financing a psychometric preparation course, funding learning disability diagnosis, funding for psychological therapy, and assistance in funding rent and/or travel costs.
  - Financial assistance:
    - Preparatory program students can apply for the "Deserving of Assistance" scholarship (not intended specifically for Ethiopian Israelis, but most of them are eligible).
    - Ethiopian Israeli bachelor's degree students are eligible to a full study scholarship throughout all the years of their degree studies.
    - Ethiopian Israeli master's degree students are eligible to a full study scholarship in the first year of their studies; students in the research track are also eligible in the second year.
- **The financial assistance is provided through the office of the Dean of Students** in each academic institution. Some of the institutions provide an expanded assistance package for Ethiopian Israelis, by employing designated coordinators, funding online auxiliary courses, language adaptations, English lessons, and more.
- **Inclusive admission policies**: The majority of the universities and a number of academic colleges enable Ethiopian Israelis' enrollment to bachelor's degree studies under modified conditions (typically, a lower threshold in the psychometric exam score, by up to 100 points than the department's threshold) through a Feuerstein Institute diagnosis.

02 The Ministry of Aliyah and Integration

- The ministry assists Ethiopian Olim, up to 15 years from their Aliyah.
- It provides full scholarships to Olim students in bachelor's and master's degrees and in practical engineering programs, as well as subsistence stipends in the amount of NIS 5,400 for each year of study in the bachelor's degree.
- It provides a comprehensive package of support during the studies, which includes an instructor, subsidized tutoring and academic support, funding for learning disability diagnosis, social activities, social support, and psychological assistance.
- In total, it supports some 55 Ethiopian Olim each year in the STEM fields (excluding medicine).*

* According to data provided by the Ministry.

03 The Jewish Agency

- The Jewish Agency (JA) operates 15 centers for some 5,600 Olim from Ethiopia, in which 700 olim participate in various professional training programs (electronics, driving, computer applications, jewelry, preparatory programs, etc.)
- In July 2022, a QA automation course was opened for 25 young Olim with relevant background and a basic level of English. The course was taught by Tech-Career.
- In addition, the JA conducts leadership courses and exposure to the world of science for high school students in the centers, as well as a pre-academic program for 18-30-year-old Olim who had completed a bachelor's degree (or a part thereof) abroad.
- The JA intends to expand the types and number of technological courses.

04 The Joint Distribution Committee (JDC)

- Since Government resolution no. 324 (2015), there are no programs dedicated to Ethiopian Israelis.

Government Responses in Higher Education

focusing on High-Tech

The “La’merchak” Program

- **A government program promoting the integration of Ethiopian Israelis in high-quality employment** and with adequate wages, which began operating in 2014. Until 2019, the program operated as a Ministry of Labor, Welfare and Social Services and Joint-TEVET joint project, and was since integrated into the Labor Branch.
- The program provides vocational guidance, including personal counseling, occupational diagnosis, soft skill and professional skill workshops, vouchers for professional training, organizing and funding engineering studies in collaboration with employers, and placement assistance.
- The majority of the program’s participants are young adults, aged 18-34 (84%) with an education up to the matriculation certificate level (93%). Most of them (90%) worked when they joined the program, albeit for a low wage, close to the minimum wage.
- In 2022, 98 vouchers for professional training were distributed (pre-Covid, the number of vouchers was double).
- Number of participants in practical engineering studies: Approximately 50 each year.
- Today, a new operating model is promoted for the three Labor Branch programs for Ethiopian Israelis – Lamerchak, In-Tech (with Tech-Career, which will be detailed below), and the program for outstanding academics (with Olim Beyachad, presented below). The model is dynamic, in order to provide a response continuum. These activities for Ethiopian Israelis will link into the Labor Branch activities for young adults in the general public. The integrated program will be titled “The Youth Development Initiative”.

Source: Myers-JDC-Brookdale Institute, Evaluation of the “Lamerchak” Program: Vocational Guidance for Members of the Ethiopian Israeli Community, June 2021.
The data refer to the years 2015-2020.

Civil Society Organizations' Programs to Promote Ethiopian Israelis **focusing on STEM and High-Tech**

01 Leaders of the Future

- Established in 2011 by Jonathan David, this non-profit invests in education for excellence and leadership in the Ethiopian Israeli community.
- **The Youth Program**:
  - Some 200 students in a program dedicated to enriching and reinforcing the scientific abilities of Ethiopian Israeli 5th to 12th graders.
  - Extracurricular learning twice a week at the Oranim College: Mathematics, science, English, and skill development.
  - Trips and visits (the Knesset, courts, high-tech companies) and exposure to role models from the Ethiopian Israeli community.
  - At the end of the program, participants take a roots trip to Ethiopia.
  - Participants are monitored and supported during their enlistment and service in the IDF and after it.
- **The Admas program for students in STEM fields:**
  - Some 120 STEM students (including medicine) in four universities (the Technion, Ben-Gurion, Tel Aviv, and the Hebrew University).
  - The program provides a scholarship, mentoring, and group meetings.
- **Additional programs**: Local Leadership Development (offered in 20 towns), "Ambassadors for the State of Israel."

02 The Ethiopian National Project (NGO)

- Established in 2001 as a collaboration between the Jewish Agency, the Jewish Federations of North America, JDC, Keren Hayesod, and representatives of the Ethiopian Israeli community. Its main activity is through partnerships with the Government of Israel (mainly the Ministry of Education).
- Operates in 14 towns across Israel with a significant Ethiopian Israeli community, and focusing on youth (13-18-year-olds) and their parents, in programs to improve education.
- **School Performance and Community Empowerment (SPACE)**:
  - A scholastic assistance program (especially in core subjects) for 7th to 12th graders inside school after school hours. The program provides a response for social needs, leadership identification and promotion, exposure to academia, and strengthening students' connection to their Ethiopian heritage.
  - Four weekly hours in small groups (up to 10 students). Starting in the 2016/17 academic year, 20% of the program's students are not Ethiopian Israeli.
  - The program encompasses 14 towns, 69 schools, 870 12th graders (655 of them – Ethiopian Israelis).*
  - A study of the program showed that its participants are mostly from a low socio-economic background and that its main impact is in raising the rate of matriculation certificate eligibility, less so with five units in mathematics.**
- **Bridges:**
  - An English language proficiency program for junior high and high school students, which highlights spoken language.
- **Additional programs**:
  - Scholarships for medical and dental students.
  - Parent empowerment workshops.

* Data correct for the year 2018/19.

Ruth Baruj-Kovarsky, Viacheslav Konstantinov, Lilach Zohar: **The Ethiopian National Project (ENP) in Israel: The SPACE Scholastic Assistance Program – 2018-19, Myers-JDC-Brookdale Institute, February 2022.

03 Olim Beyachad

- Established in 2007, the organization focuses on integrating Ethiopian Israelis into high-quality employment, on the basis of the assumption that such integration will contribute to an internal and external change of perceptions of the Ethiopian Israeli community. It works with youth, students, academics, and business owners.
- **Youth:**
  - Group program: For outstanding 7th-11th grade students from Petah Tikva, designated for five units in mathematics. Its 80 participants receive four hours of learning in mathematics and additional quantitative subjects in a community center.
  - Personal excellence program: For 10th-12th grade students who excel in a variety of fields (mathematics, physics, art, sports, music, and social leadership), in which participants receive personal support to maximize their abilities: Individual tutoring sessions, mentoring, enrichment workshops, scholarships for higher education, counseling and guidance.
- **Students:**
  - Program for outstanding students: For outstanding students who are pursuing advanced degrees in medicine, paramedicine, exact sciences, computer science, engineering, and advanced degrees in prestigious educational institutions. The program includes 55 students who receive personal guidance, mentoring, scholarships, and tutoring in English if necessary, and are accompanied until completing their degrees and even subsequently. The participants meet five times annually in order to create an impact network and exposure to future opportunities.
  - "Tessa" internships program: Internships in leading companies for second-year students with an average of 80 or higher in law; economics; business administration; CPA; the integrated philosophy, politics and economics program; engineering, and computer science. Some 20 participants each year, who receive personal guidance until they integrate into a high-quality student jobs, visits to market leaders, a personal mentor, and group enrichment sessions. The program operates in cooperation with Bank Hapoalim, the Ministry of Labor and leading high-tech organizations. The main difficulty is in participant recruitment, as employers demonstrate a high level of responsiveness.
- **Academics:**
  - Career development programs for academics by sector – business, public, teaching; operates as a joint venture with the Ministry of Labor and the Ministry of Education (in the program for teaching staff).
  - The participants receive group training, networking opportunities, a personal mentor, and individual employment counseling for integration into high-quality jobs and management.

04 Tech-Career

- Established in 2002 to provide Ethiopian Israelis with technological training in order to enhance their capacity for successful integration into high-tech in high-wage jobs.
- **8-10-month bootcamp (with board):**
  - For post-military service young adults who hold a full matriculation certificate. Includes some 140 students every year, who are accepted after a screening process that examines cognitive abilities and motivation.
  - The intensive training (~800 study hours and 1,200 practice hours), mainly in programming, cyber, automated QA, and DevNet , in addition to improving soft skills and English.
  - The process includes high-tech companies' intensive involvement (mentors, visits, lectures, job interview simulations, hackathons, final projects).
- **Adult training in technological professions (evening courses):**
  - Intended for bootcamp alumni or academics in technological professions who seek to upgrade their abilities.
  - The majority of the courses are data analysis.
  - The training process lasts some six months, three times a week, evening studies, mostly remote learning. About 80 students every year.
- **Placement model:**
  - The organization maintains continuous and close contact with dozens of high-tech companies, both through the employer relations team and the alumni. Course contents are updated according to industry needs and placement rates are high (80%-90% in the bootcamp).*
- **InTech:**
  - A new career path to the high-tech world which is in initial stages, in collaboration with the Ministry of Labor as part of an employment innovation grant track and in cooperation with Aluma organization's "Hesegim" program.
  - The program orients young Ethiopian Israelis to a variety of high-tech professions through practical experience that includes three months of experience and guidance, at the end of which, participants are directed to the appropriate training for them.
  - The program was formulated on the basis of the recognition that some Ethiopian Israelis may not be well-suited for Tech-Career courses but can successfully integrate into other professions and types of training programs in the high-tech industry.
  - The program's first cohort included 45 participants.

* According to data provided by the organization..

National Organizations' Programs with Significant Activity for Ethiopian Israelis **focusing on STEM and Tech**

01 Aluma

- An NGO which works to promote young people from the social and geographic periphery in their military service, education, and employment. Aluma operates higher-education programs on behalf of the CHE.
- **Hesegim program**:
  - A national program sponsored by the CHE, which strives to make higher education more accessible to people from Israel's social and geographical periphery. Operated by coordinators in 36 towns in youth centers.
  - The coordinators work with some 7,500 youths each year, from the initial consultation stage up to their placement in an academic institution.
  - In 2021, some 1,162 Ethiopian Israelis sought consultation (approximately 15% of all youth who approached), an increase over previous years (500 in 2018/19). However, only 30% of the Ethiopian Israeli youths began their studies, in comparison to 42% of all youths.*
- **A unique response for Ethiopian Israeli youths:**
  - About 10 towns with a high percentage of Ethiopian Israelis have an additional coordinator who focuses on the Ethiopian Israeli population (but is not dedicated exclusively to them).
  - Vouchers in a total amount of NIS 3,000 for psychometric preparation courses for about 400 Ethiopian Israelis every year.

* According to data provided by the organization..

Aluma – continued

- **Hesegim for High Tech**:
  - A CHE assistance program for young adults who do not meet the admission requirements for academic studies and cannot afford the cost of tuition. Participants are required to pass a pre-academic preparatory course in order to be accepted for studies.
  - The program is implemented at Bar-Ilan University, Ben-Gurion University, and the Technion in the fields of computer science, engineering, and exact sciences.
  - Participants receive a scholarship for their tuition and living expenses in the pre-academic preparatory program for engineering studies and ruing their first year of academic studies; funding for a psychometric preparation course; personalized academic support throughout their studies; and a personal computer.
  - Each cohort includes about 150 students, only a few of whom are Ethiopian Israelis.
- **Internship program:**
  - A joint Aluma and CHE program which assists students to gain experience during their studies through an internship in organizations (without being paid), along with an accompanying academic course.
  - The program is intended mainly for students nearing the end of their studies in fields without specialization.
  - The initiative is funded by the Edmond de Rothschild Foundation (IL), the Ruderman Family Foundation, and the National Insurance Funds.
  - Some 3,000 students take part in internships, of whom about 50 are Ethiopian Israelis.
- **Academia+**
  - A program that aims to reduce students' dropping out of their academic studies in high-tech fields. A limited program that operates only at Tel Aviv Academic College's computer science and information system departments.

02 Atidim*

- An NGO which works to promote young people from the social and geographic periphery through programs in the technological subjects of studies, from the junior high school to higher education.
- **The Atidim to Industry and High-Tech program**:
  - A program for first-year students in the fields of engineering and computer science.
  - In the program, participants receive personal guidance, a study scholarship throughout their degree, academic assistance, preparation for the world of employment , networking opportunities and promotion for employment in the high-tech industry.
- **The Pa'amei Atidim program:**
  - Practical engineering and technician studies, followed by integration into technological roles in the IDF.
- **The Atidaim Practical Engineers program:**
  - Practical engineering studies in collaboration with the industry's companies.

* No data found with regards to Ethiopian Israelis' participation in the organizations' programs.

Organization Mapping – Summary

- Guidance to tech studies
- Teacher development
- Exposure to the industry
- Tech training
- Heritage
- Accompaniment to employment
- Guidance to higher education
- Accompaniment to higher education
- Empowerment and leadership
- Scientific enrichment
- Volunteering
- Languages
- Matriculation preparation
- Financial aid

	Elementary	Secondary	Tertiary and academic	Preparation for employment and placement
The Ethiopian National Project		SPACE, Bridges		
Olim Beyachad		Personal and group excellence program	Outstanding Students, "Tessa" (Internships)	Outstanding Academics
Tech Career			Day and night courses, In-Tech	
Leaders of the Future		Youths	Admas	
Aluma				
Atidim				
CHE				
Aliyah and Integration Ministry				
Lamerchak				

Chapter 3

BARRIERS FOR INTEGRATION INTO HIGHER EDUCATION AND EMPLOYMENT

The main barriers faced by Ethiopian Israelis in integrating into STEM and tech studies and employment in high-tech

01 Marginalization and Disadvantaged Socio-Economic Background

- A high percentage **reside in cities in the periphery and/or in neighborhoods with a low socioeconomic status**, suffering from neglect, poverty and high crime rates.
- A particularly high percentage of the families are **registered with welfare departments**. These high rates are due to both the cultural gaps and difficulties in integration and the Israeli welfare system's perception of the Ethiopian Israeli population as 'problematic' and the family unit as 'at risk'.
- Due to the misconception that the home environment of Ethiopian Israelis places their children at risk, **a high percentage of children and teenagers were removed from their homes to boarding schools**. Although this phenomenon has decreased in recent years, a high rate among those who are now in their 20s and 30s were in these schools.
- **Housing density and lack of technological equipment** – occupancy density is high compared to the general Jewish population, while the rate of ownership of communication equipment is lower – 54% have a home Internet connection and 59% own a home computer (vs. 74% and 78%, respectively, among the general population).
- **Youths' parents** – most are immigrants; in addition to the "regular" immigration difficulties (language, employment, housing, etc.), many have endured racism and suspicion. Most of them have less than a high-school education, a very low percentage have a post-secondary education, and a considerable portion had difficulty finding their place in the labor market and are employed in minimum wage occupations. Economic difficulties, language barriers, and cultural gaps make it difficult for parents to be involved in advancing their children in the education system.

Even if an Ethiopian Israeli youth's family is not a "welfare case", the environment in which they grow up is saturated with such cases and shapes their worldview, aspirations, and chances of success. The interviewees said that their living environment did not push them to aspire to higher education and employment in prestigious professions.

Shimoni and Refaeli, 2021.

Source: Central Bureau of Statistics, **Population of Ethiopian Origin in Israel – Selected Data for the Sigd Holiday**, 2022.

Engdau-Vanda, S., Gatenio-Kalush, M., & Karni, B. H., 2020

02 The Education System

- The research shows that at times, students encounter discrimination from the teaching staff – mostly covert, but sometimes overt.
- It appears that the system lacks confidence in the potential of Ethiopian Israelis.
- A significant part of the children and youth study in educational frameworks in neighborhoods and regions with a low socioeconomic status and a high rate attend special education – 17.2% vs. 12% in the education system as a whole.*
- There is a paucity of high-quality informal extracurricular activities in their residential area.
- During high school, there is a lack of guidance with regards to the options in military service and the employment world.

"When I was in the fourth grade, the teacher decided, at her own discretion, to move me and my friends [Ethiopian Israelis] to a separate class. Without explanations or anything. Only after my father made a scene, did they send us back and fire the teacher. You have many such stories.."

"I know of many who the system overlooks – people with very high potential."

"The education system tracks us to under-achieve. I'll give you an example, I know students who, although they had the capacity to study 4 and 5 unit level in mathematics, the teacher determined will go to 3 units. Only after the principal intervened, were they transferred to 4 and 5 unit program, which they completed."

* The Knesset's Research and Information Center, **Data on Ethiopian Israeli Students Eligible for Special Education Services**, August 2022.

03 STEM Entrance Barriers

- Late entry into academic studies or foregoing them all together because of a lack of guidance and economic pressures.
- Difficulty with the psychometric exam.
- Not enough role models.
- Learning difficulties due to a background of underprivileged schools, lack of parental support.
- Economic difficulties and low utilization of economic support options.
- Alienation, feeling “the first Ethiopian”.

04 High-Tech Entrance Barriers

- Lack of social networks in a homogeneous industry that is based on the “friends’ referral” system.
- Lack of awareness of the high-tech world and a perception that it is a field beyond their ambitions.
- Difficulty in soft skills.
- Low English level.
- Low rate of participation in the IDF’s technological units.

“Of course I felt alienated. I was always the only Ethiopian in the scientific subjects. In many cases, I was also the only woman. It was much more difficult for me. Clearly, if there were more people from the community or more women, it would have been much better for me socially.”

“Most people don’t want to be the trailblazers who pave the way for others.”

. * The Knesset's Research and Information Center, **Data on Ethiopian Israeli Students Eligible for Special Education Services**, August 2022.

Chapter 4

INSIGHTS AND RECOMMENDATIONS

01 Creating a Holistic View and Integration

Insight

There is no holistic program to promote the participation of Ethiopian Israelis in the high-tech industry. Existing efforts are scattered among government agencies and civil society organizations, without a synchronization or comprehensive vision (as mentioned, a new project by the Labor Branch is attempting to promote a comprehensive process, but it is partial and is only in its initial stages).

Recommendations

Establish a round table for all the stakeholders, along the entire age continuum:

- Early stages (i.e., informal science activities for elementary school students);
- Junior and high school (i.e., expanding tutoring in mathematics and science, empowerment);
- The military service (i.e., direction to technological units);
- Academic and post-secondary studies (i.e., guidance, training, suite of academic support, mentoring, etc.);
- Integration into the labor market (i.e., assistance with placement, accompaniment, and soft skills).

Mutual familiarity between the various government and non-governmental programs will enhance the range of responses and its suitability for Ethiopian Israelis.

02 Early-Stage Intervention

Insight

The educational gaps between Ethiopian Israelis and the general population increase in the transition between elementary school and junior high school.

Recommendations

- Investing in programs for academic reinforcement, empowerment, and strengthening agency at the end of elementary school and at the beginning of junior high school (e.g., expanding the Leaders of the Future's youth program to additional towns that have a significant number of Ethiopian Israeli students).
- Investing in informal activities that expose children and youths to science and the use of digital means.
- Exploring an option of connecting into the Ministry of Education and Ministry of Science's activities under Government Resolution 1852 (the National Plan for Increasing and Developing Human Capital in High-tech), which is supposed to prepare a plan to increase the number of students in science and English and to operate informal programs among underrepresented groups (Arab society, Ethiopian Israeli community, women).

03 Enhancing Integration into Higher Education

Insight

A significant gap still exists between Ethiopian Israelis and the general population in terms of a high-quality matriculation certificate and psychometric exam score that provide entry into STEM studies in academic institutions. In addition, Ethiopian Israeli students lack knowledge about relevant STEM study paths and the high-tech world and do not consider this an accessible option. At the academic education stage, Ethiopian Israelis are underrepresented in universities and overrepresented in colleges, especially the non-budgeted ones.

Recommendations

- Investing in academic reinforcements for Ethiopian Israeli students in STEM subjects in the 10th-12th grades, among students with high potential which the education system does not provide with an appropriate responses, and young adults with potential who need to improve and complete high-quality matriculation.
- Incorporating more meetings with role models from the high-tech world in the early stages and in high school.
- Conducting a deep examination of the reasons for the lower rate of Ethiopian Israelis who choose higher education within the “Hesegim” program.
- Increasing access to academic education at universities by promoting and raising awareness of alternatives to the psychometric exam. These include, for example, the Feuerstein Institute, or admission of students whose grades are just below the admission threshold. It is recommended to advance this solution in collaboration with the leading universities and raise the community’s awareness of it.
- Monitor the results of the InTech pilot program Tech-Career, and enhance the connection between this program and other programs that aim to integrate Ethiopian Israelis in STEM studies.

04 Preventing Drop Out in Continuing Studies – Academic and Social Support

Insight

Demanding studies, in conjunction with a lack of existing tools and a paucity of support, lead to high dropout rates among Ethiopian Israelis in STEM fields of study, mainly in colleges. In many cases, the educational assistance offered by the CHE is insufficient and its implementation runs into difficulties (i.e., shortage of tutors).

Recommendations

- Assisting students in STEM fields in universities and colleges through a system of academic reinforcement, provided by the CHE's envelope of support.
- Creating programs that incorporate meetings with STEM academic alumni and role models who have integrated into the high-tech industry. Such meetings will contribute to the students' sense of competency and provide inspiration by sharing alumni's experience in academic studies and the employment world.

05 Preventing Drop Out in Continuing Studies – Economic Support

Insight

Many Ethiopian Israeli students rely on scholarships that help them focus on their academic studies by alleviating financial pressures, especially in demanding STEM degrees. It seems that both designated scholarships for Ethiopian Israelis and scholarships not specifically designated to them are not being taken full advantage of.

Recommendations

- Concentrating all relevant scholarships (designated to Ethiopian Israelis and non-designated, such as “Marom” scholarships) at the beginning of each academic year, and informing as many Ethiopian Israeli students as possible in each institution. To this end, it is recommended to strengthen collaborations with the CHE, as well as Dean of Students’ student advancement units, which are responsible for implementing the CHE assistance package for Ethiopian Israelis.
- Expanding the scholarships for Ethiopian Israeli students in additional universities and academic colleges with a large body of Ethiopian Israeli students, as detailed in slide 29 above (e.g., Ariel University, Bar-Ilan University, Holon Institute of Technology, etc.)

06 Integrating Women into Higher Education

Insight

Women account for less than 30% of all Ethiopian Israeli students in STEM and high-tech fields of study, despite the fact that they comprise more than 70% of all Ethiopian Israeli students, and their eligibility rate for matriculation with five units of mathematics and a science subject is similar and even higher than that of Ethiopian Israeli boys.

Recommendations

- Advancing dedicated efforts to integrate and direct Ethiopian Israeli girls and young women to STEM fields of study.

07 Promoting Integration in Continuing Technological Studies

Insight

In recent years, one of the prominent entryways to the high-tech industry, especially for underrepresented populations, is non-academic training – practical engineering programs, professional training, bootcamps, etc.

Recommendations

- Investing in targeting and marketing these tracks for Ethiopian Israelis for whom the academic track is not relevant, in order to increase the number of Ethiopian Israeli students in practical engineering programs that lead to high-tech.
- Examining options for collaboration with the Labor Branch in subsidizing professional training related to the high-tech industry and in cooperation with employers from the industry.
- Considering an investment in the activity of the Tech-Career organization, which is the most prominent actor in the training and placement of Ethiopian Israelis in the high-tech industry through bootcamps.

08 Institutionalizing Services of Integration into Employment and Alumni's Accompaniment

Insight

Ethiopian Israeli students' difficulty to acquire soft skills and lack of professional network creates a difficulty for them to integrate into the industry.

Recommendations

Expanding field organizations' programs to institutionalize student accompaniment towards the end of their studies and alumni accompaniment into the world of employment through the following steps:

- Creating collaborations with employers in the field in order to establish a mentoring program that will accompany students in the final year of their degree studies, as well as accompany newly graduated individuals towards their integration into the high-tech industry.
- Providing students in their third year and above with a structured and organized series of employment-readiness workshops, with such components as a course in spoken business English, with a focus on preparing for job interviews in the high-tech industry and public speaking; a CV writing workshop; a workshop about job searching on social networks (mainly LinkedIn).
- Forming a network of alumni who can assist one another in integrating and progressing in the high-tech industry.

09 Creating a Segmented and Continuously Updated Database for Decision Making

Insight

There is a lack of segmented data on Ethiopian Israeli students and alumni in STEM fields of study and in academic institutions and technological training programs. There is a significant lack of data on the characteristics of Ethiopian Israelis employed in the high-tech industry.

Recommendations

- Allocate a dedicated budget for the gathering of information on Ethiopian Israelis in all continuing study programs. This information can be used to raise awareness about the assistance offered by field organizations, increase scholarship utilization, understand processes in the integration of the Ethiopian Israeli community in STEM fields of study, and plan future actions on the subject.
- Forge collaborations with the CBS, CHE , the Innovation Authority, Start Up Nation Central, and the Labor Branch in order to establish a continuously updated database with information of the numbers of student and alumni in high-tech-oriented higher education programs or in high-tech employment.
- Create a collaboration with the CBS and the Labor Branch (MAHAT and the Vocational Training Division) to produce – currently non-existent – data on the characteristics of Ethiopian Israelis' participation in practical engineering programs and vocational training courses.

Interviewee List

Talal Dolev	Implementation Headquarters, Prime Minister's Office
Adv. David Abetta	Deputy Director General of the Aliyah and Integration Ministry
Matan Aweka	Ministry of Economy (Labor Branch)
Uri Ziv and Ahmed Asmar	Council for Higher Education
Shlomo Brihon	David Foundation/Leaders of the Future
Dr. Avraham Negosa	David Foundation/Leaders of the Future
Shmuel Yilma	JDC – Ashalim
Daniela Michaeli	Diversity and Strategy Division, The Hebrew University
Dakar Shimshon	The Equal Opportunities Unit, The Hebrew University
Michal Gilad	Student Advancement, Tel Aviv University
Lital Niv	Admas Center, Tel Aviv University
Takele Mekonen	CEO, Career Tech
Tali Makere	Leaders of the Future alumna, Ben-Gurion University
Lior Dago	Leaders of the Future alumnus, Technion
Havetamo Yosef	The Jewish Agency
Ornan Podan	Aluma
Yasmin For Yitzhak	Olim Beyachad – outstanding students and Tessa programs
Shoshi Kassai	Future Leaders program coordinator, Ben-Gurion University
Keren Atlai	Future Leaders program coordinator, Technion
Dvora Daseta	Future Leaders program coordinator, Tel Aviv University
Roy Herzog	Employment of Populations Administration, Labor Branch
Matan Hamo and Ortal Mekonen	Employment of Populations Administration, Labor Branch
Ella Shelef	HR manager, AT&T
Hila Yehuda	Software development manager, Microsoft
Israel Mengistu	Tech-Career graduate
Yoni Bitau	Tech-Career graduate