

## Human Capital

Human capital comprises both the physical and mental health of individuals and the knowledge, skills, and competencies that they have acquired throughout their life – attributes that improve their welfare and well-being. The human capital of individuals also contributes to the welfare and growth of the society in which they live, for example through its major role in elevating labor productivity and creating economic capital. At the national level, population composition, migration trends, and labor market characteristics also affect society's ability to care for its members and their quality of life. Rising levels of life expectancy and standard of living in many countries, including Israel, challenge the ability to sustain and develop human capital over time, and underscore the need to shift from a focus on general life expectancy and material standard of living to a focus on quality of life. Israel faces additional challenges concerning human capital: certain aspects of human capital, such as labor market skills and knowledge, are still far behind those of the most developed countries, and exhibit a high degree of inequality. Although Israeli residents' health status is among the best in the world, underinvestment in the healthcare system threatens its quality. Finally, like other developed nations, Israel will be facing many challenges to its existing stock of human capital, posed by technological developments and the transition to a green economy.



## ▣ Definition of Human Capital

Human capital comprises knowledge, competencies, skills, and other attributes that enable the individual to achieve well-being (OECD, 2001, p. 18).<sup>14</sup> The components of human capital are commonly divided into three categories: (1) health, (2) education and skills, and (3) population and employment. In this sense, the definition of human capital in a sustainable well-being framework is broader than the classical definition that originated in economics, which emphasizes the human capital components that are necessary for productivity and economic growth. Different elements of human capital, such as emotional and social skills, are crucial for attaining well-being in its wider sense. Human capital also differs from social capital in that, despite being affected by interpersonal relationships, it lies within the individual.

Like other types of capital, human capital can depreciate, and its preservation and development require investment. Non-use of human capital resources can lead to their erosion, such as skills atrophy. Moreover, because human capital resources are embedded in the individual, they are lost when the individual passes away. Continual investment in human capital is therefore crucial. Unlike with other types of capital, especially natural capital, the use of human capital resources does not cause its depletion – rather, the opposite may be the case. For example, the use of certain skills serves to improve them. In this sense, the use of human capital resources is another means of investing in them. Therefore, when examining sustainable well-being we should measure not only the stock of human capital, but also the factors of production (inputs) and the infrastructures that sustain it.

<sup>14</sup> For further discussion of human capital in general, and of Israeli human capital in particular, see the review of human capital in the Digital Appendix to this report (Chernichovsky, 2021).

## ▣ Health

Health encompasses people's physical and mental state and is a necessary condition for their ability to function and flourish. It does not relate solely to the medical sphere in its narrow sense, but rather also includes mental health, the prevention of health problems, leading a healthy lifestyle, and more. Maintaining human health requires a stock of health-related infrastructure and assets made available to the individual and society at large, such as healthcare institutions, medical equipment, a trained and skilled personnel in a variety of healthcare fields, a body of medical knowledge that is continually updated, social and cultural awareness of risk factors and health-conducting behaviors, and more. These stocks facilitate and maintain the health of the country's residents, in both the present and the future.

## ▣ Education and Skills

Human capital also encompasses the stock of knowledge, skills, competencies, and qualifications that a person acquires throughout his or her life. In the education sphere, as in the health sphere, the stock of infrastructure and assets that allow residents to acquire and cultivate skills, such as schools and teachers, is of decisive importance.

Although it is considered to include only formal education (primary, secondary, or tertiary), it actually encompasses a much broader range of social institutions and avenues of skill acquisition. Firstly, skill and competency acquisition takes place in other institutions, such as preschools, vocational training institutes, workplaces, and more. It can also ensue in informal frameworks, such as extracurricular classes and community centers. Secondly, skill and competency acquisition is not limited in time or to a specific stage of life. People acquire and keep acquiring skills and competencies

throughout their life, though how they do it, and the types of skills or qualifications they acquire, may change.

### ■ Population and Employment

Although human capital is measured at the individual level, aggregate human capital is also contingent on the population's composition. For example, its age composition, diversity, and immigration and emigration trends impact the effective stock of human capital available to society. Therefore, policymakers should concern themselves not only with human capital components at the individual level, but also with their aggregation at the societal level. As well as being the main arena in which human capital is realized, the labor market is also a factor in its development. Attributes of the labor market – such as population composition (especially the ratio between the population's productive and unproductive segments) and migration trends – are closely related to realizing human capital in society and incentivizing its development.

### ■ Human Capital and Well-being

Human capital plays a dual role in well-being: it determines well-being, and enables and preserves it. Regarding the former role, some components of human capital are integral to the very definition of well-being: mental and physical health are major factors in ensuring a high level of personal well-being. Thus, measuring some aspects of human capital is tantamount to measuring current well-being. Regarding the latter role, some human capital components are the building blocks of well-being, i.e., the resources or factors of production that enable the attainment of well-being in the future. The skills or lifestyle that a person acquires at a young age can serve them in the acquisition of additional skills, or in the attainment of

better health, later on in life. A person who leads a healthy lifestyle in the present is likely to enjoy better health in the future. This perspective on future well-being and the ability to maintain well-being over time lies at the heart of the present report.

At the national level, the preservation and development of our stock of human capital requires various factors of production and infrastructures. These are crucially important because human capital lies mainly with the individual, and is lost when one dies. Developing and monitoring the factors of production and the infrastructures needed for human capital is therefore necessary for ensuring well-being, including that of those yet to be born.

The role of individuals' health, education, and skills in their well-being is of course clear. However, the contribution of the population and employment sphere is indirect and operates through its impact on society's ability to care for, and economically support, all its members. Naturally, not all segments of society are capable of making the same contribution to the resources of well-being, which makes it imperative to achieve a balance between different segments of society. The ability to contribute to the resources of well-being is usually a consequence of the individual's stage of life. For example, children and the elderly (as well as people with disabilities or chronic illness) are usually only able to make a relatively small contribution to well-being resources, inevitably using many more resources than they can provide. The economic aspect of this is the need for a sufficiently large productive population to finance the various social services needed by the dependent population. There are also nonmarket issues, such as the time and attention necessary to care for the dependent population.

The dependency ratio (the ratio between these two segments of society) is largely an outcome of the rate of natural increase, but is also affected by migration trends. Thus, just as the dependency

ratio affects other aspects of human capital, immigrant and emigration characteristics also have an impact on other aspects of human capital. On the one hand, the immigration of young and healthy individuals who undertake necessary work that the local labor force cannot perform enlarges the productive portion of society and improves society's ability to care for all of its members. On the other hand, the emigration of productive members of society, as exemplified by the brain drain, leads to the reduction of the productive segment of society, meaning that fewer individuals in the population are contributing to well-being-related resources. Finally, apart from the demographic structure, there are other characteristics of the labor market that have an impact on well-being, such as the level of job security and the unemployment rate. This impact is, first and foremost, an outcome of the centrality of work in the lives of modern human beings, who devote many hours of the day to it.

Human capital affects well-being also via the relationships between the various components of human capital, and between those components and components of other forms of capital. There is abundant evidence indicating that education and skills are dependent on health. For example, healthy people are likely to find it easier to acquire education and skills than less healthy people are; likewise, educated people are likely to find it easier to maintain a healthy lifestyle than less educated people, due to their higher awareness and understanding of the health issues they encounter. Beyond this, as noted earlier, human capital increases labor productivity and creates physical capital, allowing society to fund the institutions necessary for creating and maintaining individual human capital, thereby improving their material welfare. Given that human beings are social creatures, human capital also impacts the development of social capital, as one's health and social skills are crucial to a membership in a community. Human capital is also important

for the advancement of cultural capital, mainly because cultural creation and consumption often entail personal competencies of various kinds, such as education and acquired skills.

## ▣ Human Capital Resources and Their Measurement

The measurement of human capital should encompass all aspects that make up this type of capital at both the individual and the societal level: indicators related to health, education, and skills acquisition, and indicators related to population and employment. In addition to these indicators, any such measurement must address the factors of production necessary to maintain and develop all aspects of human capital. The measurement of factors of production should encompass, at the very least, several types of stock: infrastructure, budgeting, and workforce. The measurement of every such element should be supplemented with an assessment of their accessibility and distributional inequality.

When measuring human capital, it is advisable to use, insofar as possible, administrative data and "big data" that are now available from various entities. Currently, the National Insurance Institute, the major healthcare organizations (Kupot Holim), the Ministry of Education, and other healthcare and education entities possess considerable information that can help attest to the status of Israeli human capital. This includes information on the functional level of Israeli residents, chronic health problems, medication use, and more. Various organizations are already using this information for their own needs. The usage of this data by the Central Bureau of Statistics can provide a more comprehensive and accurate picture than that currently offered by the other kinds of data that the CBS currently collects, such as sample surveys of self-reporting questionnaires.

## ■ Health

The health status of Israeli residents can be measured in a variety of ways. Here we suggest a few basic indicators that can provide a general picture. As noted above, it is advisable to measure these aspects using big data and administrative data available from the state's healthcare and social services organizations, rather than relying solely on self-reporting in sample surveys. However, subjective indicators, especially with regard to mental health, should also be collected and incorporated. When measuring healthcare-related infrastructure and budget, emphasis should be placed on both the average and the inequality (dispersion) of these indicators. Health capital should be broadly defined, and not be confined to narrow medical fields; it should include resources of mental health, of physical and mental well-being, and of prevention.

### Health

**Healthy life expectancy (HALE) indicator:** A healthy life expectancy indicator should be developed, preferably based on indicators commonly used worldwide, such as quality-adjusted life years (QALY) and disability-adjusted life years (DALY). Such indicators should be accompanied by a measurement of the gap between life expectancy in Israel (as measured in national statistics) and HALE.<sup>15</sup> Noting the gap between life expectancy and HALE is important, given that rising life expectancy alone can be inversely related to well-being. Reducing the gap between the two is therefore crucial to well-being.

**Physical health indicator:** Measures the percentage of people suffering from physical health problems that impede their daily functioning, broken down by severity and type. It is recommended to use administrative data to measure physical health, e.g., data from the major healthcare organizations and the National Insurance Institute.

**Mental health indicator:** Measures the percentage of people suffering from mental health problems that impede their daily functioning, broken down by severity and type. It is recommended to use administrative data to measure mental health, e.g., data from the major healthcare organizations and the National Insurance Institute.

**Subjective health indicator:** A subjective indicator should be developed that measures the individual's self-assessment of his or her health status, with a distinction between physical and mental health. This indicator could draw on Central Bureau of Statistics data on self-assessment of health and reported feeling of depression already collected. However, consideration should be given to expanding the measurement of mental health to other dimensions, such as anxiety, stress, and more.

<sup>15</sup> Healthy life years (HLY) are already being measured today as part of the well-being indicators published by the Central Bureau of Statistics. The CBS measures healthy life years in terms of DALY.

**Healthy lifestyle indicator:** A healthy lifestyle indicator should be developed in consultation with relevant experts. It should cover aspects of physical exercise and healthy nutrition, provide the highest-resolution picture possible, and enable international comparison. For this indicator, existing Central Bureau of Statistics measurements of individual health behaviors can be used.<sup>16</sup> A healthy lifestyle attests to the individual's health status at the time of the measurement, but also reduces his or her chance of suffering from health problems later on.

**Healthy lifestyle education indicator:** An indicator that measures the national investment in education on a healthy lifestyle should be developed. This indicator can be based on public expenditure intended for this purpose, the number of study hours devoted to the topic in schools, or the number of relevant job positions in the education system (e.g., nutritionists and physical education teachers).

### Healthcare infrastructure

People's ability to enjoy good health depends largely on the healthcare infrastructure available to them. The existing healthcare infrastructure should therefore be properly maintained, and should be updated in accordance with medical developments and changes in the size and composition of Israel's population. In addition, the infrastructure's geographic and cost availability should be measured.

<sup>16</sup> This indicator was developed by the CBS in cooperation with the Ministry of Health, and is reported among the well-being indicators published by the CBS.

**Healthcare institutions indicator:** Measures the ratio of healthcare institutions per thousand people in Israel, broken down by type of institution. This indicator should include the full range of existing healthcare institutions, such as hospitals, community clinics, and social services organizations.

**Hospital beds indicator:** Measures the average occupancy rate of hospital beds during the winter months, by type of hospitalization (general, mental health, and long-term care). Measuring occupancy, in addition to a simple bed count, enables one to estimate the gap between demand and supply.

**Essential medical equipment indicator:** Measures the number of available pieces of essential medical equipment per thousand people in Israel, by type of equipment. A precise list of critical medical equipment, such as ventilators and imaging equipment, should be developed with the aid of experts in the field.

**Appointment availability indicator:** Measures the average time needed to secure an appointment for a basic healthcare service (including consultation, treatment, or tests), by type of service and geographic location. Appointment availability gives an estimate of the gap between demand and supply for various healthcare services. For example, low availability of equipment-based appointments can indicate an inadequate availability of the relevant equipment.

### Healthcare budget

All activity in the healthcare sphere is supported, and indeed made possible, by the funding allocated to it. In Israel, some of this funding comes from private health insurance, while the rest



comes from the public sector. In order to sustain adequate levels of healthcare resources in the future, the allocated public budget should be proportionate to the size and needs of the population. From a future-oriented perspective, improving human capital also entails developing new knowledge and technology. Although the status of Israel's human capital can also be affected by R&D in other countries, it is very important that R&D processes take place in Israel. Such processes facilitate the formalization of solutions suited for the Israeli context, enrich the country's healthcare workforce, and bring Israeli residents to the forefront of healthcare innovation and development.

**Healthcare budget indicator:** Measures public expenditure on healthcare, by healthcare subfield. Because public spending on healthcare and changes in that spending must accord with changes in population size and demand, such an indicator should be estimated in relation to Israel's population growth rate and the healthcare consumer price index.

**Healthcare R&D indicator:** Measures the ratio between healthcare R&D expenditure and GDP, by funding and performing entity.

### Healthcare personnel

The healthcare services provided to Israeli residents do not depend solely on the available infrastructure, but also on the availability and quality of healthcare personnel. Healthcare personnel measurement should focus on at least three aspects. Firstly, it should consider the percentage of people currently employed in the healthcare professions. Secondly, in order to provide a future-oriented perspective it should address the availability and quality of training of healthcare professionals. Thirdly, it should examine healthcare

personnel attrition. Rapid and frequent turnover of healthcare personnel undermines sustainability, as it reduces the workforce stock and wastes the extensive resources allocated to the training of these personnel. Looking toward the future, we need to develop indicators for remote medical care, and for the use of robotics and artificial intelligence in medicine, which could mitigate problems of healthcare personnel availability and attrition.

**Healthcare workers indicator:** Measures the percentage of workers in each healthcare profession in Israel, per 1000 residents.

**Healthcare training positions indicator:** Measures the number of training positions for workers in each healthcare profession in Israel, per 1000 residents.

**Healthcare personnel attrition indicator:** Measures the percentage of workers in each healthcare profession who left their jobs within a short period.

### End-of-life well-being indicators

Scientific and technological developments in the medical sphere are one of the main drivers of rising life expectancy and also one of the main contributors to the prolongation of life among the elderly. This increase in the percentage of the elderly population poses economic challenges to society as a whole, but it can also have a negative impact on the well-being of the elderly themselves and the family members who care for them. It is therefore appropriate to monitor these implications of rising life expectancy with additional indicators that can complement the measure of the gap between actual life expectancy and HALE, as discussed above.

**Percentage of elderly long-term care patients indicator:**

Measures the percentage of people aged 70 and over suffering from physical disability or cognitive decline who require full-time nursing care (based on administrative data, e.g., from the National Insurance Institute and the health service organizations).

**Support services for end-of-life well-being indicator:**

With the aid of relevant experts, an indicator should be developed to determine the scope and quality of well-being support services for people at the end of life. Such an indicator could, for example, utilize data on the occupancy rate of beds in nursing homes, on the number of patients receiving palliative or geriatric care at home, and on the percentage of physicians and medical staff providing such care.

**Accessibility and inequality of healthcare services**

As with other types of capital, a large stock of human capital is not enough to support well-being; the capital stock must also be accessible in order to ensure equitable care, timely treatment, and adequate prevention for all Israeli residents. One way of assessing inequality is to break down the indicators proposed above by gender, age, geographic location, socioeconomic status, nationality, and other parameters. Manifestations of inequality in these indicators could also be presented in a comprehensive and holistic way to assist in the detection and evaluation of systemic inequality that occurs across multiple indicators. Finally, additional indicators could help quantify the scope of inequality in healthcare from a different perspective by focusing on the gap between public and private healthcare services.

**Private health insurance indicator:**

Measures the percentage of Israeli residents who have private health insurance, broken down by type of coverage (long-term care, surgical, prescription drug insurance, etc.). Distinctions should also be made between the different types of private insurance. Specifically, the indicator should measure the percentage of people with supplementary health insurance provided by healthcare organizations, of people with insurance from private insurance companies, and of people with both of these types of insurance.

**Private versus public healthcare quality gap indicator:**

Measures the availability gap between the public and private healthcare systems with regard to various kinds of service, e.g., appointments with specialist physicians, treatments, operations, and medications.

**Private versus public healthcare expenditure indicator:**

Measures private healthcare expenditure relative to public healthcare expenditure.

**Healthcare inequality among the elderly indicator:**

An indicator (or several indicators) that measures different aspects of inequality in healthcare – in the availability and quality of healthcare services – for the elderly population should be developed. The purpose of this indicator is not to assess disparities between the elderly and the general population, but rather to identify gaps between different groups within the elderly population. For this indicator, the demographic breakdowns proposed above for other indicators could be used here as well, or other specific parameters, focusing on this population and its needs, could be developed.



## ■ Education and Skills

Education and skills measurement should be broad enough to incorporate a variety of skills, even ones without direct economic value, as well as those acquired in informal education frameworks. In this sphere as well, we need to calculate not only the levels of the measures, but also the degree of inequality in them. Special emphasis should also be placed on measures of the quality of education and skills, as a focus on the number of years of schooling or on the percentage of those enrolled in educational institutions could pull our assessment in the direction of quantity rather than quality.

### Education and skills

Human capital manifests first and foremost in the stock of knowledge and skills available to the individual. Measurement of this stock should relate to Israeli residents' hard and soft skills alike. Moreover, looking toward the future, our focus should not be solely on current skill levels but also on the percentage of those studying in various frameworks as an indication of Israel's future stock of competencies and skills.

**Children's competencies indicator:** Measures Israel's results on the Programme for International Student Assessment (PISA), by field of study tested. In consultation with experts, consideration should be given to the addition of soft-skill measures, and to the development of an assessment tool for children similar to the Programme for the International Assessment of Adult Competencies (PIAAC) for adults.

**Core studies indicator:** Measures the percentage of Israeli children not studying core subjects.

**Attainment of high school diploma indicator:** Measures the percentage of high school diploma holders within the Israeli population, as well as the percentage of these who studied mathematics or English at the 5-unit level.

**Post-secondary education degree indicator:** Measures the percentage of Israelis who attained a post-secondary education degree standardized by the quality of the educational institution, by type of degree and field of study.<sup>17</sup>

**Adult competencies indicator:** Measures Israel's results on the PIAAC assessment, by subject. Consideration should be given, with expert input, to adding soft-skill assessment measures.

**Effective years of schooling indicator:** Measures the number of years of schooling of Israeli residents, standardized by contribution and relevance to the labor market, and by the quality of studies or of the educational institution (e.g., Argov, 2016).

**Enrollment in post-secondary institutions indicator:** Measures the percentage of adults studying for academic degrees or pursuing vocational training (in certificate or non-certificate programs), by type and field of study, and standardized according to quality of program or study institution.

<sup>17</sup> Several Israeli studies have tried to determine the importance of the quality of studies and of educational institutions. These studies could be helpful in standardizing the academic institutions, by quality of the institutions or of the programs they offer (Krill, Fischer, & Hekt, 2018; Achdut et al., 2018; Chief Economist Division, 2020).

### Educational infrastructure

Although people can acquire education and skills in various ways, including self-study and life experience, institutions established for educational purposes are still the primary channel for doing so, especially in the early life stages. To ensure that Israeli residents can acquire education and skills relevant to the modern labor market, the existence of an adequate stock of relevant infrastructure and such institutions must be sustained.

**Educational and training institutions indicator:** Measures the number of institutions for education and skills acquisition in Israel, by institution type. This indicator should encompass formal institutions such as preschools, schools, and institutions of higher education. It should also include informal institutions such as community centers and vocational training and retraining institutes. Additionally, an indicator should be developed to measure educational institution quality. For schools, attempts have been made to quantify the quality of the education system by district, based on teacher psychometric scores or on PIAAC results within the local-authority jurisdiction. For institutions of higher education, see Footnote 17.

**Technological infrastructure of the education system indicator:** Assesses the availability of the technological infrastructure (e.g., computing equipment, fast Internet connectivity, and the possibility of effective remote learning) required for study and for the acquisition of education and skills, for both children and adults.

### Education budgeting

As in the healthcare sphere, a person's ability to acquire education and skills throughout his or her life depends on the existence of opportunities and relevant institutions, which require funding if they are to endure in the long term. Again, as in healthcare, resource allocation to R&D in the education and skills sphere is highly important for empowering Israel's future human capital. Because public expenditure on education as a share of total public expenditure is large, it is important to determine the efficacy of that expenditure.

**Education and skills budgeting indicator:** Measures public spending on education and skills relative to Israel's population size, by educational or skill field (e.g., preschools, schools, institutions of higher education, training institutes, religious educational institutions, and more).

**Education and skills R&D indicator:** Measures public expenditure on education and skills R&D, relative to GDP.

### Education and skills personnel

Education and skills are generally acquired with the help and instruction of appropriately trained personnel, such as teachers, counselors, and lecturers. The percentage of those employed in the education professions therefore affects the possibility of Israeli residents to acquire education or skills. The quality of these personnel is very important as well.



**Number of workers in the education and skills professions indicator:**

Measures the number of workers in each of the education and skills professions in Israel, per 1000 residents. This measure should also be standardized by the size of the relevant population (schoolchildren, higher education students, etc.).

**Education and skills personnel quality indicator:** Consideration should be given, with input from relevant experts, to developing an indicator for the quality of personnel in the education and skills professions. Teachers' psychometric and PIAAC scores are sometimes reported, but these reflect only limited aspects of education personnel quality. Another option is to measure the wage differences between workers in these professions and other workers of similar educational attainment. The larger the gaps disfavoring education and skills personnel, the more these professions may be expected to attract a lower-quality workforce, and the faster the attrition rate will be.

**Education and skills personnel attrition indicator:** Measures the percentage of workers in each of the education and skills professions who left their jobs within a short period.

**Accessibility and inequality**

As in healthcare, measurement of the education and skills sphere must address inequality and accessibility disparities. As noted earlier, one way of assessing inequality is to break down the indicators proposed above by different segments of the population: geographic, socioeconomic, nationality, and more. Beyond this, special indicators could be proposed to assess the scope of inequality by way of focusing on the public-private services gap.

**Private per-pupil education services expenditure indicator:**

Measures the percentage of private expenditure per pupil for education services, by gender, income level, and geographic area.

**Population and Employment**

When conducting measurement in the population and employment sphere, three main issues should be addressed: population composition, migration trends, and labor market characteristics.

**Population composition**

The ratio between the economically active population and the economically dependent population is a major factor in society's ability to see to the needs of all of its members. The indicator commonly employed to measure this assesses the dependency ratio based on labor market participation, broken down by age. However, it is important to estimate the dependency ratio using the share of employed to unemployed people. Technological developments may also affect the meaning of the dependency ratio as currently measured, and it would be appropriate to develop additional dependency measures that are more closely linked to worker output (productivity). Still, this is a narrow economic view of the contribution or dependency of the various population segments. People of retirement age may not contribute to the labor market workforce, but they make other contributions to well-being, in familial and community contexts. It is therefore worth considering additional measures based on, for example, the share of those involved in community or familial activity, relative to the dependent population.

**Employed-to-unemployed ratio indicator:** Measures the ratio between the number of employed and unemployed working age people, by various demographic categories, both at present and in accordance with the future demographic forecast. As an alternative to this ratio, it is worth considering the ratio between the individual's earnings and the benefits s/he receives.

### Migration

Trends in migration to and from Israel should be monitored, with an emphasis on migrants' education and skills attributes, and on their age composition. Immigration to Israel of educated working age people could have a positive impact on the country's human capital, its population composition, and other well-being resources, such as economic capital and growth.

**Migration indicator:** Measures the number of people emigrating from Israel, people immigrating to Israel, and the balance between them. Apart from quantitative assessment, a qualitative component should be developed for this indicator that would take migrants' human capital into account. This component would illuminate the flow of human capital into Israel and out of Israel (as exemplified by the brain drain).

### Employment

The attributes of the labor market have an impact on well-being and other aspects of human capital. The work-life balance is important both in terms of physical and mental health and in terms of one's ability to maintain meaningful social relationships (see the chapter [Social Capital](#)). This balance is largely determined by labor market

characteristics, and varies among countries and occupations. It is also important that one's education and skills match one's work. A mismatch in this respect can give rise to problems and frustrations; the worker may feel unfulfilled, and be unable to maximize his or her potential and labor productivity. Given the rapid technological development of the past few decades, it is also worth examining how technology threatens various professions and occupations. Certain occupations may become irrelevant, and this may endanger the employment of segments of the population. This would, of course, have consequences for well-being and related issues, such as the dependency ratio.

**Work-life balance indicator:** Measures the average number of hours per day available to a person for leisure purposes. This data is generally based on time-use surveys, but due to their cost, such surveys are rarely administered in Israel. Alternative measures can be considered for this indicator, such as average number of daily work hours in Israel in comparison to other countries. This latter measure would be appropriate given Israel's low productivity per hour worked, which is partly an outcome of having a higher number of work hours than other developed countries. Not only does working many hours reduce the leisure time available to Israeli residents, compromising their well-being; it also yields no economic benefit.<sup>18</sup>

**Education system efficacy indicator:** An indicator should be adopted or developed that determines the degree to which skills acquired in the various education systems are currently well suited to the demand in the labor market, and as projected for the future (Mazuz-Harpaz and Krill, 2017).

<sup>18</sup> As noted above, leisure is also of great importance in terms of social capital; a similar indicator is thus proposed in the chapter [Social Capital](#).



**Job–education congruence indicator:** Measures the percentage of workers whose work is matched with their field of study and with their skill level.

**Efficacy of human capital investment in well-being terms indicator:** Measures should be adopted or developed that assess human capital return on investment in well-being terms (e.g., wage and life satisfaction). This kind of test can be done at the individual level, for example, with regard to the effect of additional years of schooling on wage and life satisfaction

**Occupations threatened by technology indicator:** Measures the percentage of workers employed in occupations threatened by technology.

**Labor market mobility indicator:** An indicator should be developed that assesses current labor market mobility, whereby workers dismissed from their jobs can find new jobs according to their skills, and others can advance in their careers and change jobs. This kind of mobility is important for workers' ability to utilize their skills. When developing this kind of measure, consideration should be given to the ease of finding a new job (e.g., job search duration or the ratio between jobseekers and job openings), the economic protections given to workers when changing jobs (e.g., eligibility for various social and unemployment benefits), the degree to which the new job is suited to the worker's skills, and the availability of vocational training and retraining courses.

**Labor market accessibility indicator:** An indicator should be developed that assesses the labor market's accessibility to different population groups, with an emphasis on high-paying jobs. The indicator could be based on data relating to labor market discrimination, geographic segregation of various fields, and remote work options.

## ▣ Principal Challenges

There are several challenges that could potentially diminish and endanger Israel's human capital stock. For example, there are social disparities with regard to human capital, rising life expectancy and population aging, and changes in skills requirements (of the individual and the labor market as a whole) resulting from technological developments or artificial intelligence.

## ▣ Social Inequality

Human capital is not distributed evenly across the Israeli population.<sup>19</sup> In some areas, the Arab and ultra-Orthodox sectors' starting point is substantially lower than that of the secular Jewish sector, and the same is true of those living in Israel's (geographic-social-economic) periphery compared to those living in central Israel. This situation is due in part to an unequal allocation of human capital factors of production, e.g., budgets and infrastructures. Other factors have to do with values and culture, e.g., the ultra-Orthodox sector's low math, science, and English study levels and low employment rates among working age males. To these, one may add forecasts pointing to changes in Israel's population composition, including a rise in the share of the Arab and ultra-Orthodox sectors compared to other, more economically productive sectors. If these trends

<sup>19</sup> This topic is discussed at length in both the economic capital review (Sarel, 2021) and the human capital review (Chernichovsky, 2021).

pointing to a rise in the share of these two sectors are realized, then Israel's human capital stock is in danger of relative diminution.

### ■ Rise in Life Expectancy and Well-being

In recent years, countries around the world have experienced a substantial rise in life expectancy. This increase is largely due to improved living conditions and the wonders of modern medicine. The rising life expectancy poses a major challenge with regard to sustainable well-being.

Firstly, rising life expectancy entails a new perspective on well-being. For years, high life expectancy attested to welfare and good living conditions as people could only reach an advanced age in their presence. Today, however, it is clear that, at least for the very old, long life expectancy is not necessarily associated with high levels of well-being. It is therefore important that we estimate the gap between healthy life expectancy (e.g., of the population not requiring full nursing care) and life expectancy itself. Concern for future well-being, and hence for the availability of the resources that facilitate it, should focus not on prolonging life, but rather on the mental and physical welfare of the ailing and the elderly. A higher healthy life expectancy will enable the elderly population to keep contributing economically and socially.

Secondly, a higher life expectancy followed by rapid technological development compels people to adjust and adapt their skills to an ever-changing reality. Skills and competencies that were relevant in the past may lose their value, thereby eroding the stock of human capital. After a few decades of life and employment, people may find themselves lacking the skills or competencies needed in order to thrive. Finding training frameworks and methods for all stages of life is a necessity if we want to ensure that rising life expectancy will not lead to an erosion of Israeli residents' well-being.

Thirdly, the rise in life expectancy, if not accompanied by a rise in healthy life expectancy, worsens the dependency ratio due to population aging. As our population discussion showed, a change in the dependency ratio may impair society's ability to care for all of its members. The higher the share of the aging and unproductive segment of society, the larger and more disproportionate the amount of resources it needs, especially in the healthcare sphere. If Israel does not find the resources to meet this demand, the future well-being of its residents will be at risk.