NORAD REPORT

Demography, economy and education in Tanzania

-with special focus on higher education and research: Drivers, volume, quality and relevance

Written by Knut Thonstad

Norad

Demography, economy and education in Tanzania

-with special focus on higher education and research: Drivers, volume, quality and relevance

Author:
Knut Thonstad

The findings, interpretations and conclusions expressed herein are those of the author and do not necessarily reflect the view of Norad.

ISBN: 978-82-8369-221-1
Published: 20.05.2025

norad.no

Preface

The report analyzes how demography, economics, labor market and education interplay in the development process of Tanzania. The last parts of the report focus especially on higher education and research, giving an overview of challenges and developments in this sector. The development in the higher education and research sector is heavily influenced by these other factors and again has a strong influence on them.

Higher education and research are priority areas of Norway's development cooperation policy. Sound, strategic investments in higher education and research in low- and middle-income countries pay off in the form of strong academic institutions and their societal engagement, development of countries' intellectual resources, competent workforces, visionary leaders, gender equality, human rights and democracy. Among motivations for the focus of the report is that Tanzania is an important partner in higher education and research.

NORHED

The Norwegian Programme for Capacity Development in Higher Education and Research for Development (NORHED) is Norway's flagship program on higher education and research and involves a large number of universities in Norway and developing countries. NORHED aims to strengthen the capacity of higher education institutions in developing countries to produce higher-quality graduates, more and higher-quality research, and more inclusive higher education.

NORHED had its first phase 2013-2019. NORHED II covers the period 2021-2026. A total of 60 projects have been awarded funding, with a financing of about 1.1 billion NOK. The countries involved in the highest number of projects are Uganda, Tanzania, Ethiopia and Malawi. Tanzania is part of 18 of the projects.

Norad has also recently entered into an agreement with The Tanzania Commission for Science and Technology (COSTECH). The support through COSTECH is aimed at funding 25 projects for climate research. This has been important for choosing to write this report on Tanzania and presenting a more detailed analysis of its higher education and research sector.

NORHED aims to contribute to the 2030 Agenda as a whole, but with a particular focus on:

- Sustainable Development Goal (SDG) 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- SDG 5 Achieve gender equality and empower women and girls.
- SDG 17 Strengthen the means of implementation and revitalize the Global Partnership for Development.

A background for the report is what is pointed out in the NORHED II programme document: "The massification of higher education, as it is often referred to, has taken place at the expense of quality in many developing countries. The quality of higher education has been compromised by overfilled classrooms, inadequate teaching facilities, outdated curricula, lack of qualified academic and administrative staff, inefficient systems and management. Inadequate resources seem to pose further challenges in national regulatory frameworks for funding accreditation, effective quality assurance and monitoring of higher education (Norad, 2020)".

The analysis

The analysis in the report is primarily based on a literature review and examination of relevant documents and statistics from various sources. In addition, narrative information gathered from key stakeholders during meetings in Tanzania in the last week of June 2024 is reflected in the report. Together with Norad-colleagues[1] there have been meetings with:

- The Ministry for Education, Science and Technology (MoEST).
- The Tanzania Commission for Universities (TCU).
- The Tanzania Commission for Science and Technology (COSTECH).
- The University of Dodoma.
- The University of Dar es Salaam (UDSM).

Representatives from the Norwegian embassy participated in the meetings with stakeholders in Dodoma and with TCU.

Separate meetings were held with:

- REPOA. Established in 1994 as an NGO under the name Research on Poverty Alleviation. In 2014 the name was changed to REPOA Limited to reflect a broader mandate.
- United Nations Development Program (UNDP) in Tanzania
- UNESCO in Tanzania, online meeting.

About the author: Knut Thonstad is senior adviser in the section for education and research in Norad. He has been special adviser at Norges Bank (the Central Bank) in the field of international economy, and deputy director general in the Ministry of Finance, where he first headed the section for long-term analysis and later the Secretariat for Sustainable Development. He has headed the section for development strategy and governance in Norad and has been Counsellor (Development) at Norway's Embassy in Beijing.

The author thanks Thomas Poulsen, Olav Lundstøl, Lars Loe and Tor O. Rand for good comments.

[1] Grete Benjaminsen and Tor O. Rand

Contents

Figures

Tables

Executive summary

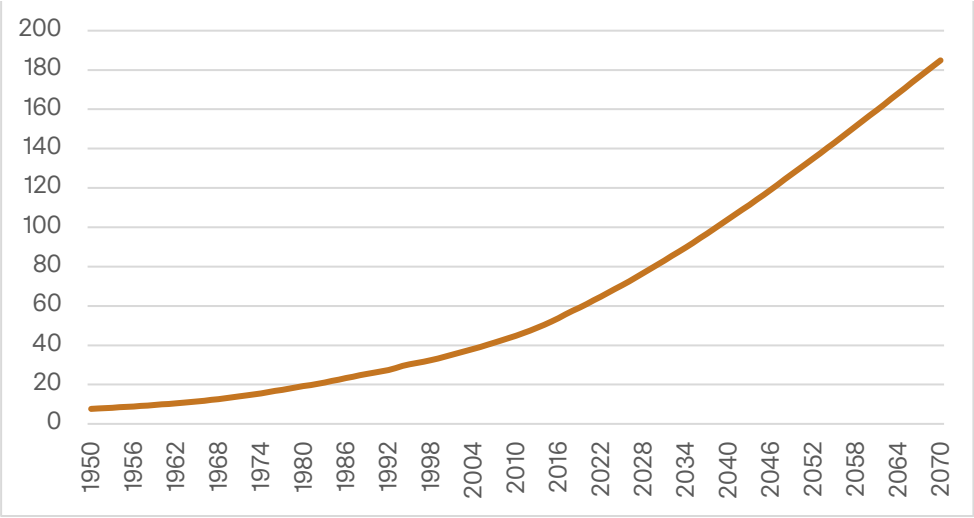
The report analyzes how demography, the economy, the labor market and education influence each other. The last parts of the report focus on higher education and research.

Population

Population growth in Tanzania in 2023 was 1.9 million, 2.9 per cent. The population of 66.6 million in 2023 is almost 9 times larger than the population of 7.6 million in 1950.

High population growth has put substantial pressure on the educational system and on the labor market and has made it difficult to reduce poverty. The UN in its medium variant in the 2024 World Population Prospects projects that the population will further double to 2050. By 2070 the population is projected to reach 185 million (figure 1). Such developments would mean that the pressure will continue into the foreseeable future.

Figure 1. Population in Tanzania in million. 1950-2070 UN medium variant



Source: (United Nations Population Division, 2024)

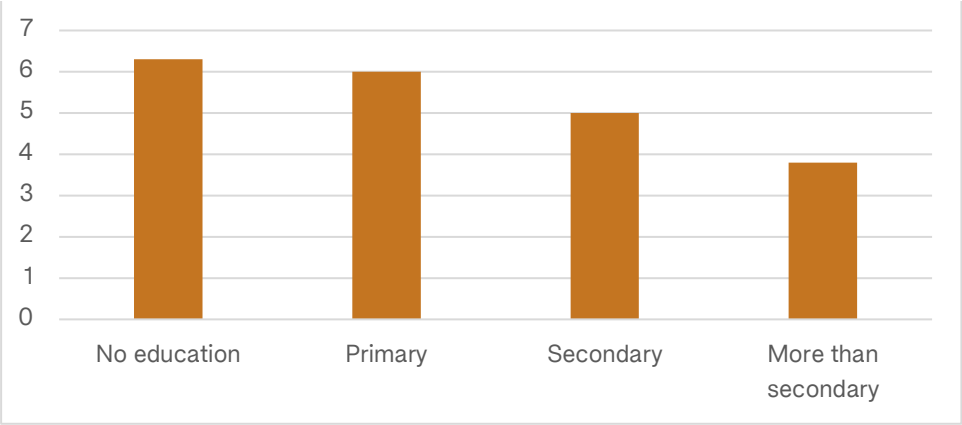
The high population growth reflects that fertility has been declining slowly, while mortality has been declining fast. The total fertility rate (TFR) was 4.6 children per woman in 2023. 18 per cent of births are by teenage mothers, this contributes to the high fertility.

Under 5-mortality declined from 259 per 1000 live births in 1950 to 128 in 2000 and 39 in 2023, a reduction of more than 2/3 since 2000.

In 2023 half of the population was below 17.2 years. High population growth, and a high dependency ratio means that Tanzania has not realized a demographic dividend that could have benefitted labor markets and the building of human capital.

Fertility declines with increasing education (figure 2). For women with no education TFR was 6.3, for women with primary education 6.0, for women with secondary education 5.0, for women with more than secondary education TFR was 3.8.

Figure 2. Fertility by level of education. TFR for the three years before the survey

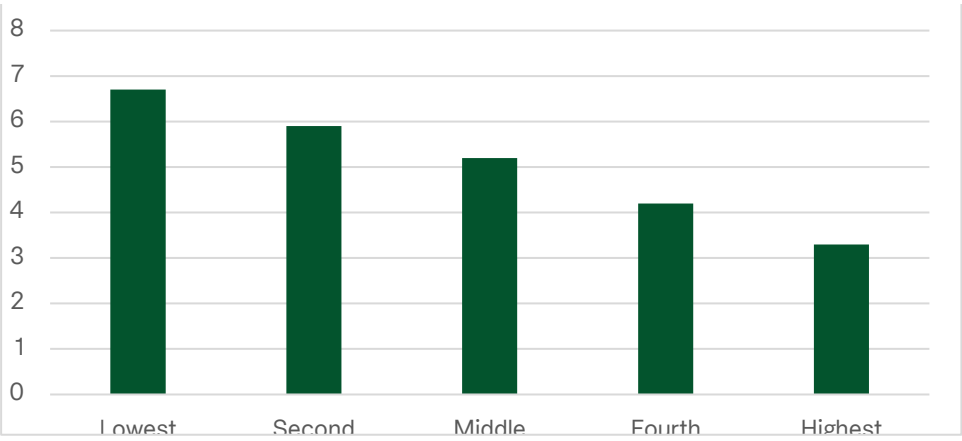


Source: Tanzania Demography and Health Survey (DHS) (Tanzania Ministry of Health et al., 2022)

The small difference in TFR between women with no education and women with primary education may partly reflect the poor state of primary education, with large classes and low learning outcomes. Also, children of more educated and wealthier parents are more likely to continue schooling and to delay pregnancies.

The DHS shows that the poorest fifth of women have much higher fertility than the wealthiest fifth. Women in the lowest wealth quintile have 3.4 more children more than women in the highest quintile, 6.7 children vs 3.3 children (figure 3).

Figure 3. Fertility by Wealth quintile. TFR for the three years before the survey



Source: Tanzania Demography and Health Survey (DHS) (Tanzania Ministry of Health et al., 2022)

Tanzania has had low population density and better access to arable land than many other African countries. Arable land increased by 57 per cent between 2000 and 2022, from 9.7 per cent to 15.2 per cent of land area. This may have been one of the reasons for the low priority of family planning. Population pressure, the use of firewood and increase in arable land, has contributed to that forest in Tanzania has decreased from 60.6 per cent to 50.6 per cent of land area between 2000 and 2022.

The use of modern contraceptives has increased over time, but the increase has recently stalled. Prevalence declined from 32 per cent in the 2015-2016 DHS to 31 per cent in the 2022 DHS for women 15-49 years in union or marriage. The UN has estimated that 27.4 per cent of women 15-49 in union or marriage had an unmet need for modern contraceptives in 2020.

Economy

Tanzania had severe economic setbacks the last quarter of the twentieth century. The level of GDP per capita of 1975 was first reached again in 2001.

Since 2000 Tanzania has had average growth in GDP of six per cent per year, but somewhat lower during the covid-pandemic. Due to high population growth GDP per capita has been growing at a modest three per cent per year. Still, this is better than the overall annual per capita growth in Sub-Sahara Africa of 1.2 per cent in this period. Tanzania became a middle-income country in 2020.

In the period 2000 to 2012 extreme poverty in Tanzania was reduced from 84 per cent to 45 per cent. There was debt forgiveness, and in the period 2000-2012 terms of trade (export prices divided by import prices) improved by 57 per cent, increasing incomes.

This also increased demand for industry and services. There was rapid growth in GDP through structural change out of agriculture, into informal services and industry. In 2000 83 per cent of employment was in agriculture. In 2012 it was reduced to 69 per cent.

Later, much of GDP growth has been driven by large capital-intensive infrastructure projects, creating few jobs. In 2022 employment in agriculture was still 65.5 per cent of total.

Tanzania has had a more egalitarian income distribution than the rest of East Africa, but inequality has increased. Extreme poverty has been declining slowly to about 40 per cent.

Tanzania has managed to avoid debt distress. But it has done so by using a system of cash-based management, restricting month-to-month expenditure, securing a target level of budget deficit. This has reduced predictability for outlays for education and for other recurrent expenditures.

Tanzania has an ambition of developing an agriculture and resource-based manufacturing industry, but manufacturing share of GDP (eight per cent) is lower than 20 years ago. This has also had an adverse effect on jobs more in general.

Lack of finance and sufficient and secure electricity has been holding the economy back. Low skill level and low human capital are an integral part of the problem.

There are substantial increases in electricity supply in the pipeline. The 2,115 MW Julius Nyerere power plant is near completion and has started to produce. This together with other projects may over a few years double electricity generation capacity. This may contribute to an increase in power supply with higher security of supply, more rapid economic growth and an increase in FDI.

After a period of capital-intensive infrastructure projects there could now be a shift towards more labor-intensive activities, again speeding up structural transformation, as was the case 2000-2012.

The labor market

Informal employment in Tanzania was 92.2 was per cent in 2020. This reflects the large agricultural sector, which is informal, and the slow development of a formal sector outside agriculture, leading to few high-quality jobs, low productivity, and a low tax base.

About 1 million youth are entering the job market each year. Only 50-60 000 secure a formal job. The continuous large increase in supply of labor contributes to a substantial underutilization of labor power.

The youth entering the labor market have a low skill level, and there is a skill mismatch. One reason is that education to build relevant skills for the labor market is more infrastructure, materials, and teacher intensive than more general and theoretical oriented education.

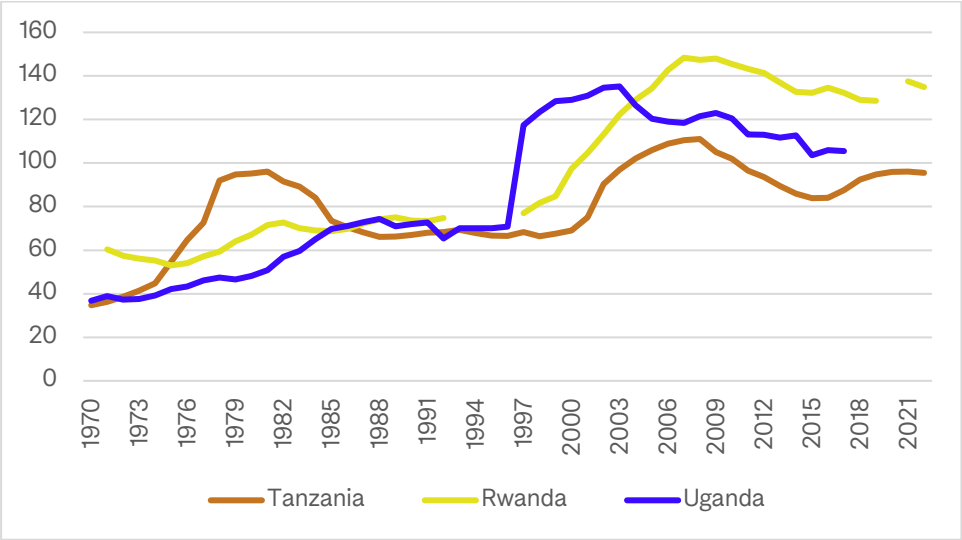
Universities have low emphasis on practical skills. There has not been sufficient focus on Science, Technology, Engineering and Mathematics (STEM). This has also been pointed out by the government, giving priority to these concerns in the current five-year plan.

Education

In 1990 the government expenditure on education was 2.1 per cent of GDP. In the 2000s expenditure increased rapidly. It was 4.5 per cent of GDP and 20 per cent of the budget in 2010. In 2023 expenditure was down to 3.3 per cent of GDP, 13.7 per cent of the budget. A combination of moderate government revenues, large infrastructure projects, increasing debt service and strict deficit control in the government budget may have crowded out expenditure on education.

Figure 4 shows gross enrollment rates (GER) in primary education in Tanzania, Rwanda and Uganda. GER in Tanzania declined during the 1980s-1990s, reaching a low of 66 per cent in 1998, with very negative long-term consequences for human capital and fertility. Free for fee elementary education (FEE) was reintroduced in 2002, rapidly increasing GER to 111 per cent in 2008, giving a major shortage of infrastructure and teachers. Uganda introduced FEE in 1997 and Rwanda in 2003.

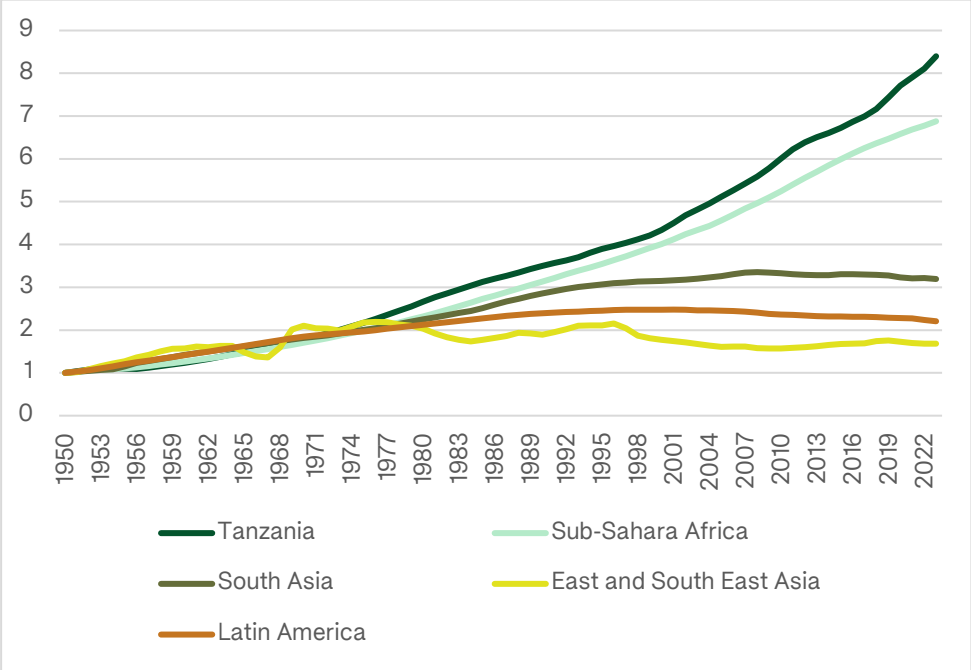
Figure 4. Gross enrollment rates in primary education.



Source World Development Indicators

The growth rate in the number of children in different developing regions was quite similar until 1980. Then the growth slowed except for Sub-Saharan Africa, where the number continued to grow at a high rate. This has contributed to overwhelming the school system, leading to very large classes and high out-of-school rates. Tanzania has had even larger growth rate in number of children than the average for Sub-Saharan Africa (figure 5).

Figure 5. Number of six-year-old children in the population. 1950=1

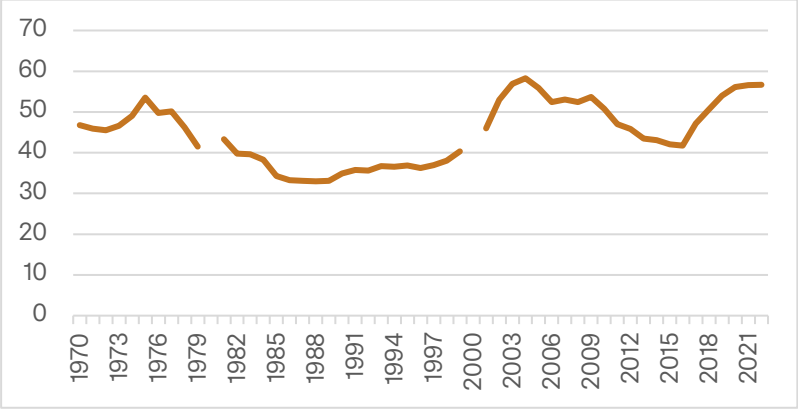


Source: (United Nations Population Division, 2024)

Resources in primary education have not kept pace with the increasing number of pupils. This is reflected in the ratio of pupils to teachers, the educational level among teachers, and insufficient funding for infrastructure and materials.

With FEE in 2002 the pupil-teacher ratio in Tanzania climbed rapidly (figure 6). With currently tight budgets the ratio has again climbed to 56 pupils per teacher. The actual number of pupils in a typical classroom is even higher at 76 pupils per class in 2018.

Figure 6. Pupil-teacher ratio in primary education in Tanzania 1970-2022



Source: World Development Indicators

According to UNESCO GER in lower secondary education was 35.9 cent for boys and 37.9 per cent for girls in 2021. A minority of pupils continue from lower secondary education. In upper secondary education GER was 6.8 per cent for males and 5.1 per cent for females. The low enrollment in upper secondary education seems to be a bottleneck for higher education.

Overview of higher education

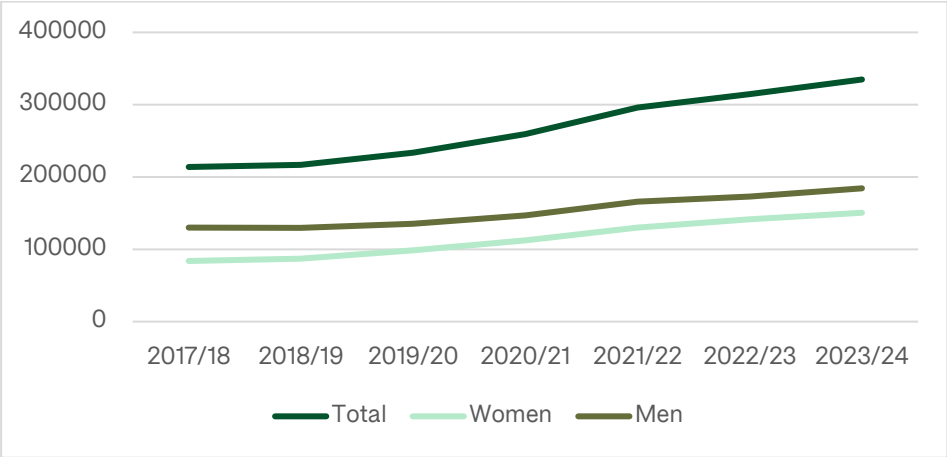
Upon gaining independence Tanganyika had only one higher education institution, today known as the University of Dar es Salaam (UDSM). It started as an affiliated college with the University of London. With over 40 000 students UDSM is the largest university in Tanzania.

The number of students in higher education institutions (HEIs) increased from 4400 in 1982 to 19 000 in 1999. After 2000 there has been a strong emphasis on increasing enrollment in the whole education system, and enrollment in HEIs reached 334 000 in 2023/24 (figure 7).

Private universities started to emerge in Tanzania from 1996 following liberalization of higher education. This reflected strained government finances, a more positive view on the use of markets combined with an ambition to develop higher education.

Most universities are private, but they are on average small. In 2023/2024 64 per cent of university students were in public university institutions.

Figure 7. Enrollment of students in Higher Education Institutions



Source: (The Tanzania Commission for Universities, 2024)

Students and teachers

The share of women among students in HEI has increased from approximately 20 per cent in the 1980s- 1990s to 45 per cent in 2023/24. In 1999 the student-teacher ratio in higher education was 9:1. Since then the growth rate in the number of students enrolled has far outpaced the growth rate of the number of academic staff. The student-teacher ratio in universities has surpassed 30. The increase in the ratio is likely to continue.

29 per cent of academic staff in public institutions held a PhD in 2018, and only 23 per cent in private institutions. A positive development to 2023-24 is that the share of female staff has increased to 30 per cent.

Finance

The main finance of public institutions is block grants linked to the number of students, and tuition fees. The main source of income for private institutions is tuition fees. The strong link between enrollment and finance gives strong incentives to the institutions to increase enrollment while keeping staff numbers down.

Private institutions have more limited resources than public ones, and greater challenges when it comes to quality. There have been numerous cases with loss of accreditation and prohibition against enrolling new students.

All public universities in Tanzania are regarded by the government as research universities, but no part of the block grant is earmarked for research. Thus, universities in Tanzania have depended heavily on donor funding for these purposes. North-South Partnerships has been a strategy for resources for research mitigating constraints of underfunding. A significant amount of donor and international

funding is used for STI and research activities through universities and The Commission of Science and Technology (COSTECH).

Tanzanian institutions in higher education and research

The Tanzania Commission for Universities (TCU), The Tanzania Commission for Science and Technology (COSTECH), and The Higher Education Student's Loan Board (HESLB) are important institutions under the Ministry of Education, Science and Technology (MoEST).

The Tanzania Commission for Universities (TCU)

TCU was established in 2005. The mandate consists of three parts: i) conducting periodic evaluations of universities, their systems, and programs, ii) advising the government on public matters related to higher education, and iii) supporting the universities in their conduct of university operations.

TCU is responsible for quality assurance (QA) of degrees and courses. Courses in universities must be approved by TCU. The responsibility of TCU applies both to public and private institutions.

There is a unit for QA at all universities, to secure a high level of quality. There are now good guidelines and a good system in place for QA, the challenges lie in the implementation. This includes inadequate financing, lack of qualified and experienced human resources to undertake quality assurance functions, and lack of awareness of QA issues. The TCU conducts courses to improve the situation.

The Higher Education Student's Loan Board (HESLB)

Half of the government budget for higher education is used for student loans under HESLB, which started operation in 2005. The loans are need-based and cover living expenses, tuition fees and study material etc. The expansion of loans is an important factor behind the rapid growth in the number of students. In 2017/2018 there were 61 000 applicants. 30 000 got loans. The number of new loans has recently been 70 000, now increasing to 80 000.

A low repayment rate has been raising concerns for sustainability. Recently there have been strong efforts to increase repayments, which have had some success.

The Commission of Science and Technology (COSTECH)

COSTECH was established in 1986. It allocates funding to research projects after applications and competitive processes. The guidelines and systems seem to be of high quality.

ODA has been a main source of financing of COSTECH until recently, but the government share has been increasing. COSTECH works to popularize research results, produce briefs to emphasize the

importance of research, to secure more funding from the government, and the use of science in decision making.

The future of higher education

In the current 5-year development plan the government focuses on more short-term and practical studies, and STEM to improve skills relevant to the labor market. This is positive.

The Higher Education for Economic Transformation Project (HEET) is likely to play an important role. The objective of HEET is to strengthen the learning environment and labor market alignment of priority programs. The project is financed by an IDA-credit of 425 million USD, being disbursed in the period 2022-27.

The HEET project will create 14 public universities satellites, as college campuses. The campuses will be situated in underserved areas that do not currently have universities. The curriculum will focus on themes that are especially relevant to the geographical area. It will be practical, and with a technical focus. The aim is for students to obtain a diploma based on 1 year study. There is an aim to achieve cooperation with business.

There has been a rapid increase in students in higher education in Tanzania, and the increase is expected to continue. Projections in Tanzania Public Expenditure Review FY19 estimates that the number of students will double from 2021 to between 483 000 and 580 000 in 2030.

This raises questions about further increases in the student-teacher ratio, and other issues related to quality. This also underlines the need to actively employ ICT and focus on quality.

Conclusion

Recent economic growth has much been driven by capital intensive infrastructure projects, with a limited employment effect. There is a need for a shift in government expenditure towards education and for increasing investment in labor intensive activities in line with comparative advantage. Tanzania should follow the ambition of labor- and resource-based industrialization.

The infrastructure currently coming into place will contribute to economic growth for Tanzania. There are substantial increases in electricity supply in the pipeline. The 2,115 MW Julius Nyerere power plant is near completion and has started to produce. This together with other projects may over a few years double electricity generation capacity.

A shift towards more labor-intensive activities would speed up structural transformation, as was the case 2000-2012. More rapid growth may also give a substantial increase in government revenue and contribute to an increase in funding for education that would also contribute to long-term growth. Structural change would also make Tanzania more resilient to climate change.

In its Development Vision 2025 Tanzania aimed at an average GDP growth-rate of eight per cent for the period 2000-2025. It achieved a growth of six per cent, and with a population growth rate of three per cent, the per capita GDP-growth was three per cent. GDP per capita doubled over the period.

In the draft development vision 2050 Tanzania aims at becoming an upper-middle-income country by 2050, reaching a Gross National Income (GNI) per capita of at least 4,700 USD. This is almost four times higher than today's level. If the population doubles over the period, reaching upper middle-income-status requires an average growth rate of about 8 per cent to reach the target.

Such a scenario with a combination of very high population growth, a continued high dependency ratio and rapid growth in GDP per capita is very challenging. A lower population growth rate would make it easier to reach the target of becoming an upper-middle-income country by 2050, and with good policies, a GDP-growth rate above 7 per cent is not out of reach.

The high population growth has large negative consequences for educational attainment and quality. It makes it difficult to create sufficient numbers of good jobs, and to avoid labor underutilization, and it makes it challenging to increase productivity and to reduce poverty.

It would be prudent to increase family planning efforts, increase efforts to keep girls in school, and to increase marriage age to 18 years. Lower fertility may be an important contribution to the future quality of education. Family planning could also contribute to reducing the high rate of deforestation.

The UN Population projection, medium variant assumes that TFR in the future is going to decrease at the same slow rate as since 2000, TFR reaching 3.2 in 2050. However, a combination of increasing land scarcity, a priority of education and of family planning could contribute to a much more rapid decline the coming years, something that could give a substantial demographic dividend, and contribute to that Tanzania reaches upper middle-income status by 2050.

Many of the challenges in the education sector reflect conditions outside the sector. There is a mismatch between the very rapid population growth and increasing enrollment rates on the one hand, and low funding on the other. There is a need to address these challenges. Increasing job-relevant education is part of the solution.

Introduction

The report analyzes how demography, the economy, the labor market and education influence each other. The trends and challenges in Tanzania are similar to those encountered in other East African countries and other parts of Sub-Sahara Africa.

Det first chapter presents the long-term development vision of Tanzania as outlined in 1999, and the draft development vision 2050 presented in December 2024. Following the first chapter, there are five sections in the report.

Demography, economy and labor market

There is a presentation of the long-term demographic development in Tanzania, and how high fertility and rapid population growth sets the stage for other areas. It is followed by a presentation of economic developments, how the setbacks in the last quarter of the 20th century have been replaced by progress, and with new challenges. Budgetary practices and the consequences for education are described. There is a discussion of labor markets, the large informality and problems with quality, and how this links back to the education sector, including higher education.

Basic and secondary education

The second part gives an overview of the education sector, with focus on primary and secondary education, and how demography, educational policies, and resources influence enrollment and quality.

Overview over higher education

The third part gives an overview of higher education, development in enrollment, teachers, student-teacher ratios, subjects and financing, the division between public and private institutions, and the incentives in the financing system. The role and influence of external cooperation and of external finance is presented. The conditions for research and its financing are discussed.

Institutions in higher education

The fourth part gives an overview over the central institutions in higher education, The Tanzania Commission for Universities (TCU), The Higher Education Student's Loan Board (HESLB), and The Tanzania Commission for Science and Technology (COSTECH), their roles and achievements, and challenges in their areas of responsibility.

The future of higher education

The fifth and final part presents analyses and programs that point towards the future. It presents targets in the current five-year plan regarding education, the Higher Education for Economic Transformation (HEET) project, current student-teacher ratios in different fields, and projections of student-teacher ratios.

Long term targets – The Tanzania Development Visions 2025 and 2050

The Tanzania Development Vision 2025, outlining the long-term objectives for development policies in the country, has been a guiding document in Tanzanian development (Planning Commission, 1999).

Tanzania had a policy of import substitution, and capital-intensive industrialization during the 1960s and 1970s. The public sector (through public investment) was seen as the principal engine of economic growth. During the structural adjustment programs (SAP) in the 1980s and 1990s these policies were changed to a substantial degree. The Tanzania Development Vision 2025 reflected a reorientation towards a more market-based economy.

An aim in the vision was to graduate from being a low-income country and become a middle-income country by 2025 with a high level of human development. Abject poverty was to be a thing of the past.

The economy was to be transformed from a low productivity agricultural economy to a semi-industrialized one led by modernized and highly productive agricultural activities. The vision stated that racial and gender imbalances would be redressed. It aimed at universal primary education, eradication of illiteracy and a level of tertiary education to master developmental challenges.

Among important goals were gender equality, access to primary healthcare for all, access to quality reproductive health services, reduction of infant and maternal mortality rates by three quarters, universal access to safe water, and life expectancy comparable with levels attained by typical middle-income countries.

One of the targets was a GDP-growth rate of eight percent per annum, deemed necessary to eradicate abject poverty. Tanzania has achieved six per cent average GDP- growth, with a per capita GDP-growth of three per cent.

Tanzania's GNI per capita reached 1,080 USD in 2019, which exceeded the 2019 threshold of 1,036 USD for lower-middle income status. On July 1, 2020, the World Bank announced that the Tanzanian economy had been upgraded from low income to lower-middle income status.

In December 2024 Tanzania presented a draft Development Vision 2050 building on The Development Vision 2025, aiming at least to quadruple GNI per capita to above 4.700 USD by 2050, achieving upper middle-income status. (Ministry of Finance and Planning, 2024). It has ambitious targets on education, labor marked and poverty reduction. Climate and resource management has an important place in the document.

The draft refers to that the population is projected to double to 140 million, and it seemingly does not contain concrete plans for family planning to reduce the high fertility and rapid population growth.

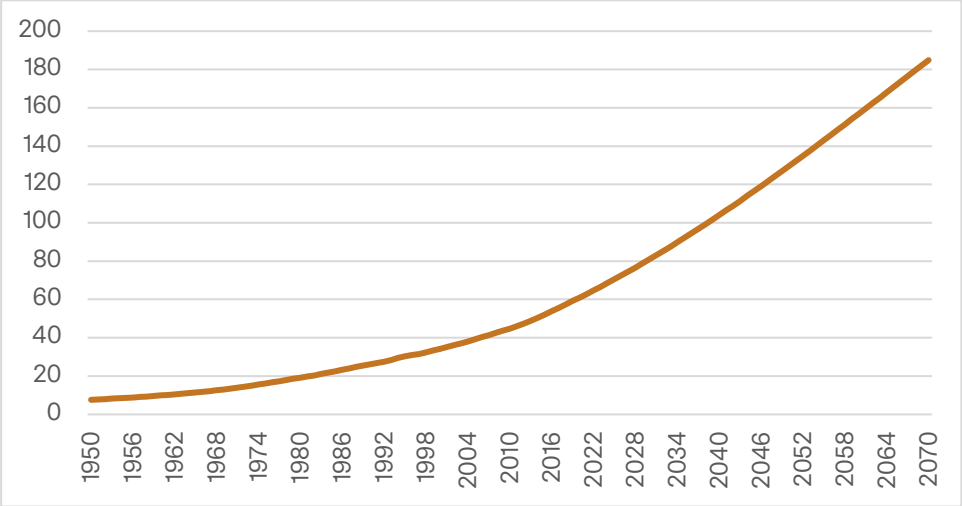
Population

Tanzania is among countries globally with a high population growth rate. The population increase in 2023 was 1.9 million (2.9 per cent). This growth rate is higher than in other Lower Middle-Income Countries (LMICs) at 1.2 per cent, and Low-Income Countries (LICs) at 2.7 per cent.

In 2023 the population was 66.6 million, almost 9 times higher than in 1950. The population is projected to further double by 2050 and reach 185 million by 2070 (figure 1).

The high population growth has consequences for the quality of educational services, for the quality of the labor force, employment opportunities and poverty reduction.

Figure 1. Population in Tanzania in million. 1950-2070 UN medium variant



Source: (United Nations Population Division, 2024)

Slow decline in fertility, rapid decline in mortality

The high population growth is driven by a combination of a slow decline in fertility (table 1) and a rapid decline in mortality, especially child mortality (table 2).

During much of the 1970s the number of children per woman (the Total Fertility Rate (TFR)) increased to above seven children per woman, while at the same time mortality declined and life expectancy increased. The period for doubling of the population was down to 19 years. This phenomenon is often seen during early phases of the demographic transition in developing countries. Improvement in female health increase the possibility to have more births.

Since 2000 TFR has declined by only 1.1 children per woman. TFR was 4.6 in 2023. This is higher than the average of Sub-Saharan Africa of 4.3, LICs at 4.5 and far above levels of other LMICs at 2.6 children per woman. TFR is 2.2 in South Asia, 1.8 in Latin America and 1.0 in East Asia.

Teenage pregnancies contribute to the high TFR in Tanzania. Of 2346 thousand births in 2023 412 thousand, 18 per cent, were by women aged 15-19. The percentage is the same as in 2000.

Table 1. Population in Tanzania

	1950	2000	2023	2050 (projection)
Population, million (1 July)	7.6	34.3	66.6	128.3
Annual population growth, million	0.18	1.0	1.9	2.7
Annual population growth, percent	2.4	2.9	2.9	2.1
TFR (children per woman)	6.2	5.7	4.6	3.2

Source: (United Nations Population Division, 2024) Medium variant.

In 1950 one out of four children died before reaching the age of five. In 2023, under 5 mortality was down to four per 100. This is a reduction of 85 per cent since 1950 and 70 per cent since 2000.

Table 2. Life expectancy and mortality

	1950	2000	2023	2050 (projection)
Life expectancy at birth, years	41.0	53.2	67.0	71.8
Infant mortality per 1000 live births	139.6	83.2	28.9	14.7
Under 5 mortality per 1000 live births	259	128	39	20

Source: (United Nations Population Division, 2024) Medium variant.

Since 1950 life expectancy at birth has increased by 26 years. Between 2000 and 2023 it increased from 53.2 years to 67 years (vs 61.5 to 69.6 in LMICs and from 53.1 to 64.9 in LICs).

Median age in Tanzania is increasing very slowly. In 1950 half of the population was under 16 years. In 2023 half was below 17.2 years. The population is younger than the average of Sub-Saharan Africa where the median age was 18.1 years in 2023.

High dependency ratio, lacking demographic dividend

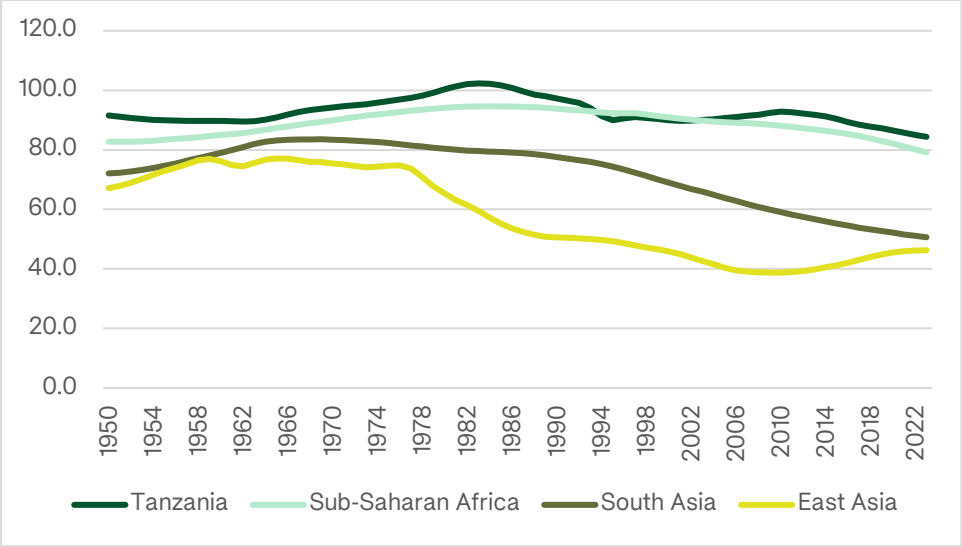
Figure 8 shows developments in dependency ratios in Tanzania, Sub-Saharan Africa, South Asia and East Asia[2].

In 1950 the dependency ratio in Tanzania was 91.6 per cent. It peaked in the early 1980s at more than 100 per cent. In 2023 it was still as high as 84.4 per cent, above the average in Sub-Saharan Africa.

Reduction in the dependency ratio means that the working age population is increasing relative to the number of dependents, thus contributing to an additional increase in GDP per capita. Reduction in the dependency ratio is typically also associated increased female labor force participation, increased private savings, and improvement in education and human capital, and in nutrition, further increasing GDP per capita. Such improvements have been called "demographic dividend".

Comparing Tanzania and Sub-Saharan Africa with other regions (figure 8), we find that East Asia had a rapid decline in the dependency ratio between about 1980 and 2010. This contributed to the very positive developments in physical and human capital and in GDP per capita. In South Asia, in countries such as India and Bangladesh, the gradual decline in the ratio has strongly contributed to the positive economic developments the last decades.

Figure 8. Total dependency ratio (0-14&65+/15-64 years). Per cent



Source: (United Nations Population Division, 2024)

[2] The dependency ratio divides the number of people aged 0-14 years and 65+ by the number of active population (15-64 years).

With already low mortality, and with the projected fertility, the UN projects that median age in Tanzania will increase to 21.8 years in 2050, and that the dependency ratio will decline to 64.6 per cent. This is welcome, but the level projected in 2050 is where South Asia was 20 years ago.

Table 3. Population median age and total dependency ratio

	1950	2000	2023	2050 (projection)
Population median age	16.0	16.4	17.2	21.8
Dependency ratio, per cent	91.6	89.9	84.4	64.6

Source: (United Nations Population Division, 2024) Medium variant.

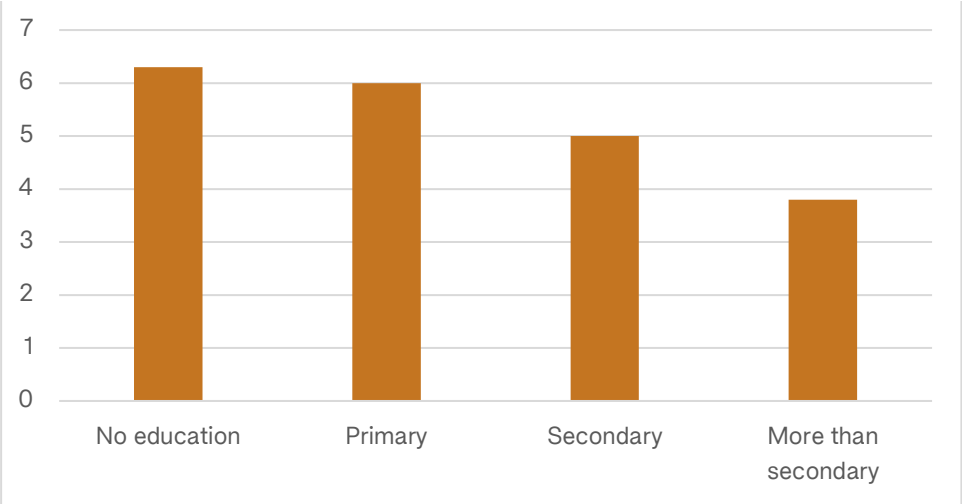
Results from the last Demographic and Health Survey (DHS)

The most recent Demographic and Health Survey (DHS) for Tanzania was presented in 2022 (Tanzania Ministry of Health et al., 2022). Total fertility in the three years before the survey was 4.8. TFR in rural areas was 5.5 and in urban areas 3.6. In Dar es Salaam TFR was 2.8.

Schooling and fertility

Fertility declines with increasing education (figure 2). For women with no education TFR was 6.3, for women with primary education it was 6.0, for women with secondary education 5.0, and for women with more than secondary education TFR was 3.8. The difference between no schooling and more than secondary schooling was 2.5 children per woman.

Figure 2. Fertility by level of education. TFR for the 3 years before the survey



Source: Tanzania Demography and Health Survey (DHS) (Tanzania Ministry of Health et al., 2022)

The numbers imply that a year of education at secondary level and above is associated with larger effect on fertility than each year of primary education.

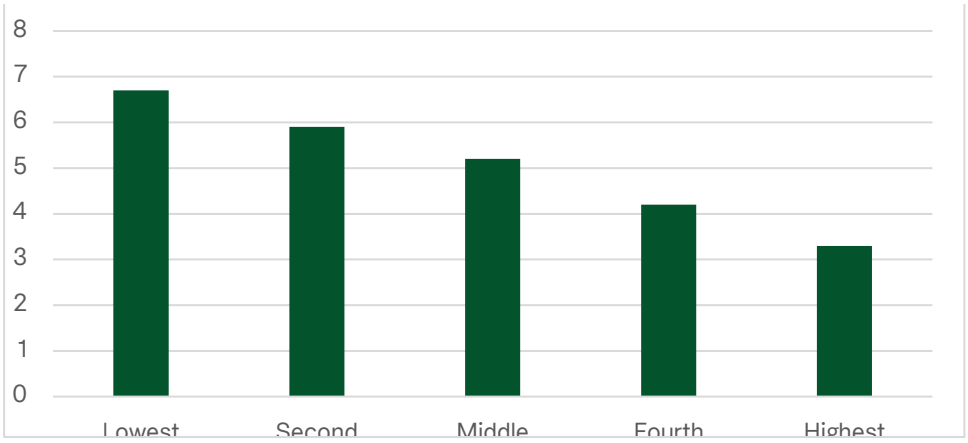
While a study of large number of countries in the period 1870-2000 indicated that primary education is a central factor for fertility reduction (Murtin, 2013), a study of 44 developing countries (including Tanzania), based on recent DHS and almost ½ million observations, show that per year of education, higher education for women has a stronger effect than primary education on reduction in TFR (de la Croix & Gobbi, 2017). This result did hold even when adjusting for cofounding factors such as GDP per capita, religion, ethnicity, and indicators for wealth and income. The relationship between education attainment and fertility observed in Tanzania and in many poor countries may reflect:

- Females that stay in school are less likely to become young mothers.
- Poor quality in primary education compared to secondary, and that a large portion of primary school pupils do not learn to read and write. Literacy may be more important for fertility than is completed primary education.
- It is not random who attends higher levels of education, progression also depends on abilities and family background.

A study based on DHS from 31 African countries, show that a large share of women with completed primary education are not literate, but that in some countries a limited share of women without formal education are literate (Smith-Greenaway, 2015). According to the study, Tanzania is among the countries with highest correlation between primary school attainment and reading, but the correlation has declined between birth cohort 1975 and birth cohort 1990.

It has been pointed out that structural adjustment programs in Sub-Saharan Africa in the 1980s and 1990s gave "a notch" in the positive development in enrollment in schools. This is reflected in women's fertility many years later (Kebede, et al., 2019).

Figure 3. Fertility by Wealth quintile. TFR for the 3 years before the survey



Source: Tanzania Demography and Health Survey (DHS) (Tanzania Ministry of Health et al., 2022)

The last Tanzania DHS also shows that the poorest fifth of women have much higher fertility than the wealthiest fifth. Women in the lowest wealth quintile have 3.4 more children than women in the highest quintile, 6.7 children vs 3.3 children (figure 3). This contributes to reproducing inequality and poverty.

Schooling, marriage and first birth

In Tanzania women that become mothers in their teens are more likely to drop out of school. There is also a strong relationship between education and first birth. In the last DHS for Tanzania 53 per cent of women aged 15-19 with no education have ever had a live birth, compared to 9 per cent in the same age group with secondary education or higher.

6.1 per cent of women were married at age 15, and 31.3 per cent at age 18. 22 per cent of women 15-19 years have been pregnant, 25 per cent in rural areas, 16 per cent in urban.

In the study of 44 developing countries (including Tanzania) it was found, as one could expect, that a higher average age when marrying was associated with lower fertility (de la Croix & Gobbi, 2017).

Population density, land pressure and family planning

There is a body of literature showing the importance of population density for fertility, for instance (de la Croix & Gobbi, 2017). Female literacy is estimated to be the most important variable for explaining fertility in developing countries, followed by population density (Lutz & Qiang, 2002).

Low population density and good access to arable land make it easy to establish a family and receive income from children while they are young. Having many children also contributes to security for old age. With increasing land scarcity these opportunities are reduced. It becomes more profitable to invest in education so that children can succeed in other jobs. Saving for old age also must happen in other ways than having many children.

Population density also affects cost for infrastructure and schooling. Higher population density lower costs per capita for infrastructure and schooling. Both schooling and access to electricity reduces fertility.

While there is almost universal access to electricity in Latin-America and Asia, in Sub-Saharan Africa 52 per cent and in Tanzania only 46 per cent of the population had access in 2022. This first and foremost reflects a low income level, but population density is also a factor. For a general analysis of what explains access see (Aklin, et al., 2018).

In 1950 the population density in Sub-Sahara Africa was 8 people per km^2. In East Asia and South Asia, the numbers were 58 people and 73 people per km^2. In 2023 the numbers were 55 per km^2 in Sub-Sahara Africa, 141 in East Asia, and 319 in South Asia (United Nations Population Division, 2024).

In Asia there has been substantial land pressure, and extensive family planning programs. The low population density in Tanzania and many other countries in Sub-Sahara Africa may be one of the factors to explain the low emphasis on family planning despite high population growth. But now we see increasing land pressure.

In Tanzania population density was below 9 people per km^2 in 1950, increasing to 75 per km^2 in 2023. The UN projects that population density will reach 146 people per km^2 by 2050 and 209 people per km^2 by 2070. Such a development poses challenges.

Tanzania is an exporter of agricultural products, and arable land has been expanding rapidly, from less than 10 per cent of land area in 2000 to more than 15 per cent in 2022 (World Bank Group, u.d.). Population pressure, use of firewood and increase in arable land, has contributed to that forest in Tanzania has decreased from 60.6 per cent to 50.6 per cent of land area between 2000 and 2022.

Family planning has low priority

Contraceptive prevalence in Tanzania has been increasing over time but has recently seen a slight decline. In 1991-92 7 per cent of women 15-49 years in a union or marriage, used modern methods. In the 2015-2016 DHS 32 per cent used modern methods. In the 2022 DHS it was only 31 per cent.

The unmet need for modern family planning for women 15-49 years in union or marriage, was 27.4 per cent in Tanzania in 2020 (United Nations, 2025). This compares to (measured as median of countries) 14.1 per cent in Latin America, and 16.2 per cent in Asia. The low contraceptive prevalence and high unmet need in Tanzania indicates that there is a quite large potential to increase contraceptive prevalence by an increase in information and by an increase in supply of contraceptives.

The last recorded year of the Family Planning Effort Index (FPE), in 2014, Tanzania scored 46.7 (scale 0-100), quite typical for a country in Sub-Saharan Africa. Among countries with a high score were Rwanda at 73.5 and Bangladesh at 65.9 (Family Planning Effort Index (FPE), 2014).

The family planning budget in Tanzania has been quite stable over time measured in (nominal) USD. The level was 25 million USD in FY 2020. This is the same nominal level as in 2012 (USAID, 2021).

In Tanzania Economic Update, with subtitle “Overcoming demographic challenges while embracing opportunities”, the World Bank points out that a three per cent population growth rate is in line with population doubling within 23 years, making it more costly to build human capital (World Bank Group, 2024). It points out that reduction in fertility is a precondition for harnessing demographic dividend resulting in lower dependency ratios, an expanded labor force and increase in savings.

The World Bank recommends:

- expanding and strengthening access for completion of secondary education for girls
- raising minimum marriage age to 18 years

- increasing access to affordable family planning services.

While the former president, John Magufuli advised against measures to reduce fertility several times, for instance reported by (Al Jazeera, 2018), the current president Samia Suluhu Hassan has a positive view on family planning, pointing out the pressure on education, health care and food supply from high number of births (The Guardian, 2022). It has been reported that the government now has given new priority to family planning (The Guardian, 2024).

Outlook

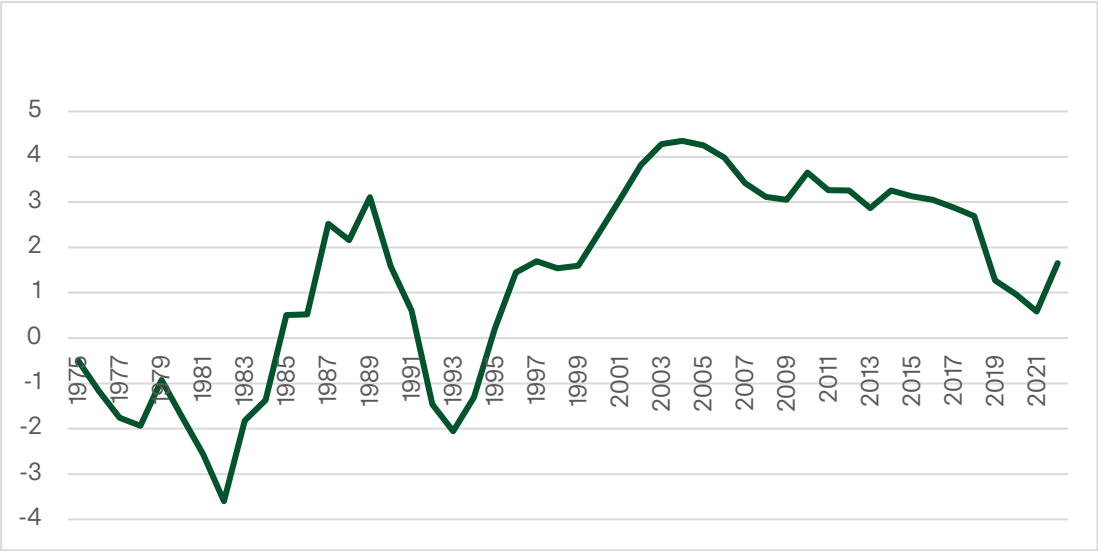
The UN medium variant assumes that TFR in the future is going to decrease at the same slow rate as since 2000, TFR reaching 3.2 in 2050. However, a combination of increasing land scarcity, a high priority of education and of family planning could contribute to a much more rapid decline in TFR the coming years, something that could produce a substantial demographic dividend.

Economy

Historical background

From the early 1970s to 2000, the GDP growth fluctuated significantly, with periods of negative growth in GDP per capita (figure 9). In 1975 GDP per capita (constant 2015 USD) was 570 USD. This level was only reached again in 2001.

Figure 9. Annual growth in GDP per capita. Three year moving average



Source: World Development Indicators (World Bank Group, u.d.)

The weak performance in GDP in the last quarter of the 20th century has had effects on the future quality and quantity of education, and on fertility and population growth.

At independence Tanzania was an agricultural economy. Tanzania increasingly focused on statist policies, giving parastatals a central role in economic development. There were extensive price and currency controls.

Tanzania benefitted from increasing official aid, and access to cheap international credit during the 1970s, and borrowed extensively, increasing government debt. It has been pointed out that manufacturing industry in developing countries at this time was too capital intensive, as countries had abundant labor but little capital (Lin, et al., 2003). This was also the case in Tanzania.

In the early 1980s industrial capacity utilization in Tanzania was only 20-30 per cent (Gibbon & Raikes, 1995).

To reduce the high US inflation the US federal funds rate[3] around 1980 was set at high levels, peaking at 20 per cent in the summer of 1981 and leading to that 10-year US government bonds reached a yield of more than 15 per cent in the autumn of 1981. For US bond yield see ((St. Louis Federal Reserve , 2025)

The high rates spread in the global financial market and contributed to governments defaulting on loans. The situation was exacerbated as high interest rates contributed to a reduction in global growth and a decline in commodity prices.

The domestic challenges in the economy in Tanzania, coupled with a combination of increasing oil prices, declining terms of trade (export prices divided by import prices), a major increase in international interest rates, and the war with the Idi Amin-led Uganda in 1978, led to a major deterioration in the economic situation in the early 1980s.

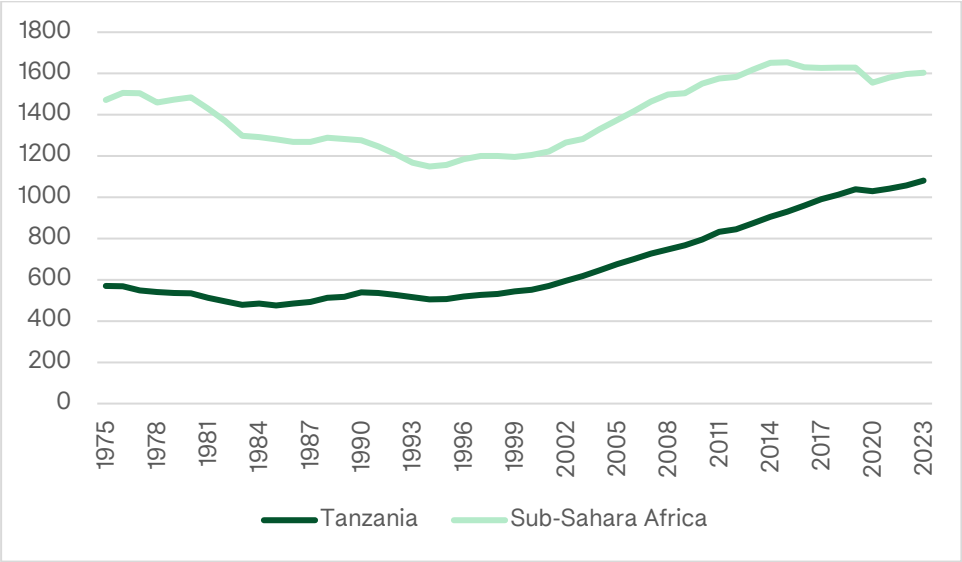
The donors cut back on ODA before Tanzania in 1986 accepted an extensive structural adjustment program (SAP), liberalizing the economy, and tightening government finances. The SAP did not solve the debt situation. Among negative factors affecting the Tanzania economy were that the terms of trade were weak. Tanzania was given extensive debt relief under the Highly Indebted Poor Countries (HIPC) initiative and the Multilateral Debt Relief Initiative (MDRI) after 2000.

Tanzanian Economy after 2000

GDP has on average increased by six per cent since 2000, while population growth has been three per cent per year. Thus GDP per capita has been increasing by a modest three per cent per year. GDP per capita was about twice as high in 2023 as in 2000 (figure 10).

[3] The federal funds rate is the target interest rate range set by the Federal Open Market Committee (FOMC), the policymaking body of the Federal Reserve System.

Figure 10. GDP per capita 1975-2023 Tanzania and Sub-Sahara Africa (constant 2015 USD)



Source: World Development Indicators (World Bank Group, u.d.)

Since 2000 Tanzania has had a better performance than the Sub-Sahara Africa average. In Sub-Sahara Africa GDP per capita has been growing at 1.2 per cent per year on average. GDP per capita in Tanzania (constant 2015 USD) has increased from 47 per cent of the average in Sub-Sahara Africa in 2000 to 69 per cent in 2023. Measured in purchasing power it has increased from 54 per cent to 84 per cent of the average.

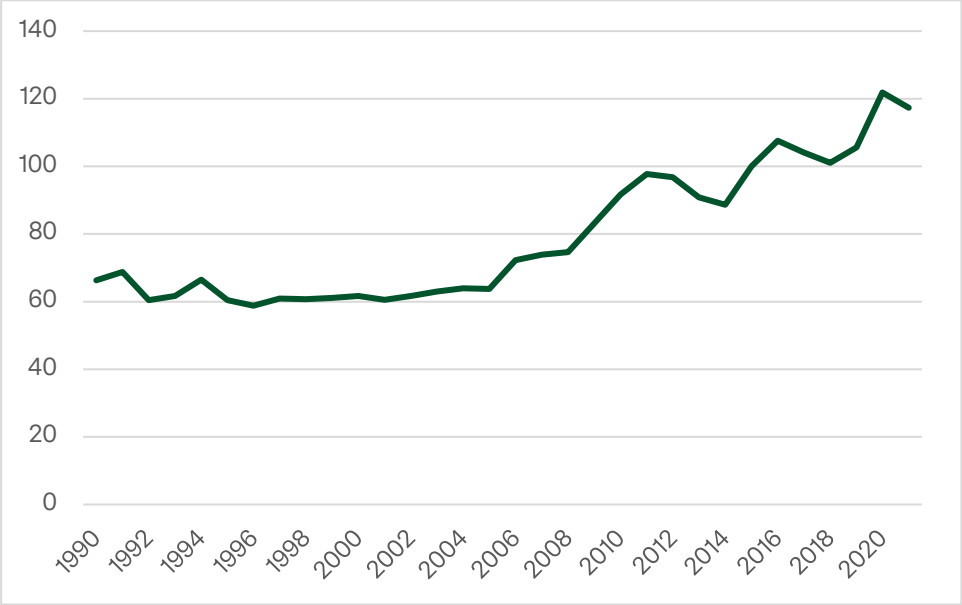
Between 2000 and 2014, GDP per capita in Sub-Saharan Africa (constant 2015 USD) increased by 37 per cent, in Tanzania by 65 per cent. GDP per capita declined by three per cent from 2014 to 2023 in Sub-Sahara Africa but increased by 20 per cent in Tanzania. The first period, seen as a start of a more positive development for Africa, was often taken as a sign of "Africa rising". But much of the development reflected debt relief and strong improvement in the terms of trade, and not an industrial takeoff.

Terms of trade further improved in Tanzania after 2014. Tanzania is an exporter of agricultural products, mainly consisting of cash crops, and has had good increase in agricultural production, while Africa on average is a large food importer. Also, Tanzania has experienced a high degree of economic and political stability. It has increased its investments substantially and has had budget policies focused on limiting budget deficits to avoid debt distress. Tanzania largely has managed to contain government and external debt, but also in Tanzania debt service has increased.

The period 2000-2012

In the period 2000 to 2012-2014 the growth in Tanzania was much driven by debt relief and large improvements in terms of trade (figure 11).

Figure 11. Tanzania Net barter terms of trade 1990-2021. 2015=100



Source: World Development Indicators (World Bank Group, u.d.)

In the period 2000 to 2012 extreme poverty in Tanzania was reduced from 84 per cent to 45 per cent. Terms of trade improved by 57 per cent, increasing income. This also increased demand for industry and services. There was rapid growth in GDP through structural change out of agriculture, into informal services and industry. In 2000 83 per cent of employment was in agriculture. In 2012 it was reduced to 69 per cent.

At roughly 4 percent per annum, labor productivity in Tanzania grew more rapidly between 2002 and 2012 than at any other time in recent history. Roughly 80 percent of this productivity growth is accounted for by structural change as employment shares in agriculture declined while employment shares in services and manufacturing rose. Although employment in the formal sector increased, the bulk of employment growth is accounted for by firms in the informal sector (Diao, et al., 2018) and (Diao, et al., 2021).

The period 2012-2024

After 2012-2014 economic growth has been driven by capital intensive infrastructure projects, reflecting increase in investments by government (figure 12).

Figure 12. Gross capital formation. Per cent of GDP

Source: World Development Indicators (World Bank Group, u.d.)

Projects in the annual national development plan 2022/23 included the Julius Nyerere Power Plant, the Standard Gauge Railway, and 15 other projects including power plants and oil and gas projects. For a full list see (TanzaniaInvest, 2024).

Employment in capital-intensive construction increased from about 1 per cent of total employment to above 2 per cent in the period 2014-21. Labor productivity here is about 20 times higher than in agriculture. The large use of capital here may have crowded out both investment in other, more labor-intensive sectors as well as recurrent budget expenditure, such as education.

In the period 2014-2021 there was little structural change, and its contribution to GDP was negative (World Bank Group, 2024). In 2022 employment in agriculture still was 65.5 per cent of total (World Bank Group, u.d.).

The last years the growth in Tanzania declined to below 5 per cent due to covid and other external shocks, but in June 2024 the IMF assumed that the growth would increase from 5.3 per cent in 2023/24 to 6.5 per cent in 2027/28 (International Monetary Fund, 2024).

Small and large firms

Analysis of Tanzania identifies a dichotomy between larger firms with superior productivity performance that did not expand employment and small firms that absorb employment but do not experience much productivity growth (Diao, et al., 2018) and (Diao, et al., 2021).

The authors point out that large, more productive firms use highly capital-intensive techniques, and are significantly more capital intensive than what would be expected based on the country's income

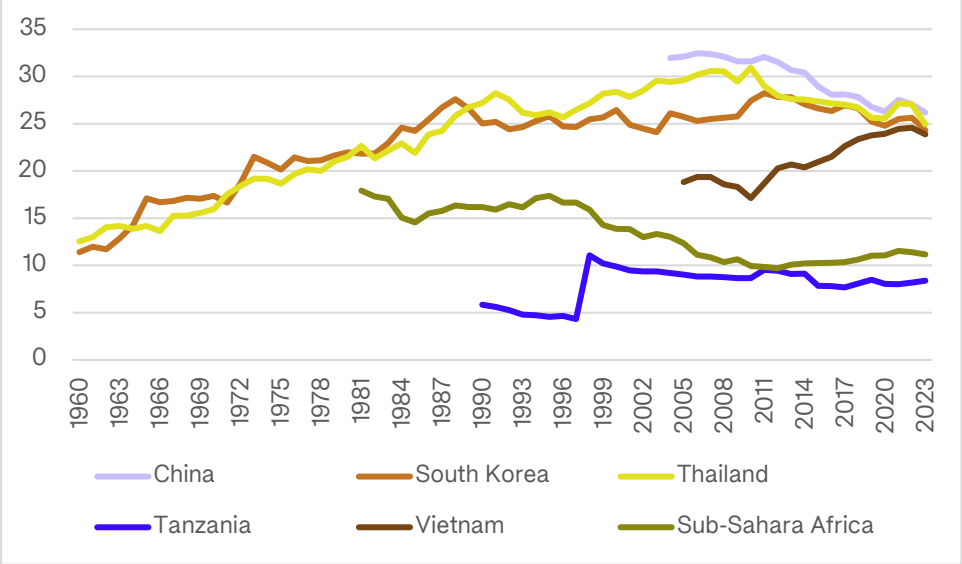
levels or relative factor endowments. The lack of expansion of these firms may reflect that international technological developments and the increasing importance of global value chains have made it more difficult for such firms to expand.

The same phenomenon has been found in other parts of sub-Saharan Africa. The increase in income after 2000 due to improved terms of trade and debt relief increased the demand for services and industry. Employment moved from agriculture to services, with higher productivity than agriculture further increasing income. But productivity growth in the individual sector was low (de Vries, et al., 2015). This was in stark contrast with historical experiences in East Asia, where growth was largely driven by high productivity growth in manufacturing industry (Diao, et al., 2019).

Insufficient industrialization

The labor productivity in manufacturing in Tanzania is about 8 times higher than in agriculture (World Bank Group, 2024b). Thus, a rapid growth in manufacturing, as envisaged in the Development Vision 2025 could have been important for demand for labor in manufacturing and services, structural change and productivity growth, increase in formal sector and tax income.

Figure 13. Manufacturing value added as share of GDP



Source: World Development Indicators (World Bank Group, u.d.)

However, the manufacturing share in GDP is lower in 2023 at 8.4 per cent, than in 2000 at 9.9 per cent (figure 13). The share in Tanzania is below the average in Sub-Saharan Africa, at 11 per cent.

In comparison, in many East- and Southeast Asian countries manufacturing share of GDP is about 25 per cent (figure 6). Thailand (128 billion USD) and Vietnam (103 billion USD) combined has higher value added in manufacturing than Sub-Saharan Africa at 227 billion USD (with Nigeria 55 billion USD and

South Africa 49 billion USD) in 2023, even though the population in Sub-Sahara Africa is more than seven times higher.

There are different factors that has contributed to the low manufacturing share in Tanzania. Below I only point at factors identified by manufacturing enterprises in the formal sector.

The cost of finance is high in Tanzania, and the savings of the private sector is low, partly due to the very high dependency ratio, and lack of "demographic dividend". In many Asian countries improvements in the dependency ratio have substantially contributed to increasing human capital and an increase in overall savings, low cost of finance and increase in investments in manufacturing.

There has been low security of electricity supply and frequent power outages. Countries that have given high priority to manufacturing, such as Vietnam, China, Thailand and Malaysia have given high priority to excellent security of supply (table 4).

Table 4. Security of supply for electric power for manufacturing enterprises in the formal sector

	Per cent of firms experiencing electrical outages	Number of electrical outages in a typical month	If there were outages, average duration of a typical outage (hours)	If there were outages, average losses due to electrical outages (% of annual sales)	Per cent of firms owning or sharing a generator
Sub-Saharan Africa	76	8.5	6.5	8.1	52
South Africa (2007)	45	0.9	4.5	1.6	18
Tanzania (2013)	86	8.9	6.3	15.1	43
Ghana (2013)	89	8.4	7.8	15.8	52
Nigeria (2014)	78	32.8	11.6	15.6	71
Vietnam (2015)	26	0.2	7.5	2.2	25
China (2012)	34	0.1	5.0	1.3	8
Thailand (2016)	9	0.2	1.7	4.1	0.4
Malaysia (2015)	19	0.1	3.8	1.8	11

Source: World Bank Enterprise Surveys (World Bank, 2020).

The numbers for Tanzania in table 4 are from 2013. In 2023 there were substantially fewer outages, but still 38.7 per cent of firms owned or shared a generator and 42.2 per cent identified electricity as a major or very severe constraint.

In the World Bank Enterprise Surveys, manufacturing enterprises in the formal sector can choose from fifteen alternatives for "biggest obstacle" for the enterprise. Based on the latest enterprise surveys in different countries, the two biggest obstacles in Sub-Saharan Africa were access to finance, and electricity, with 27 per cent and 11.5 per cent of the answers. Both these shares are higher than for other regions. Table 5 show results from the surveys conducted in Tanzania.

In 2006 73 per cent of enterprises identified electricity as "biggest obstacle", followed by access to finance at 9.8 per cent. In 2013 access to finance had the highest percentage, followed by electricity and tax rates.

In 2024 the four top "biggest obstacle" were access to finance, electricity, tax rates and tax administration. There has been a clear improvement in electricity. Access to finance and tax (rates and administration combined) are now chosen by almost 2/3 of respondents as "biggest obstacles".

Table 5. Biggest obstacle for manufacturing enterprises in the formal sector in Tanzania. Per cent

	2006	2013	2023
Access to finance	9.8	37.8	39.7
Electricity	73.4	24.9	12.9
Tax rates	4.0	8.3	12.8
Tax administration	0.7	1.3	9.4

World Bank Enterprise Surveys (World Bank, 2025) and DataBank Enterprise Surveys (World Bank, 2025b)

Relationship between quality of electricity supply and economic growth

Lack of security of supply of electricity reduces manufacturing value added through different channels: by reducing sales, by a need for high-cost electricity generation from generators (with high CO_2-intensity per kWh), by incurring damage to electrical equipment, by lowering productivity growth, and through less manufacturing industry with high requirement for stable electricity, less manufacturing exports which require dependability, and less FDI. These channels, and other, combined contribute to lower investments and employment, a smaller formal sector, slower economic growth and less tax revenue.

The lack of secure electricity supply has been an important factor in holding both Tanzanian manufacturing and the overall economy back. One observer has commented: "Manufacturing is not a good option in Tanzania. Electricity supply is not regular and sometimes it isn't in the right phase which breaks the machines" (Brautigam, 2009). But as we see from table 4, Tanzania has not historically been very different from the rest of Sub-Saharan Africa.

It is difficult to estimate the relationship between quality of electricity supply and economic activity, and estimates should be treated with caution.

A study assessed the effect of security of supply and power outages on enterprises in 14 countries in sub-Saharan Africa, which make up most of the region's economy. It found that if the security of supply of electricity had been as it was in South Africa in 2007 (which was much better than now), production would have been 85 per cent higher in enterprises with a generator and 117 per cent higher in those without a generator (Cole, et al., 2018).

It has been studied how power outages affected GDP per capita in 39 countries in the region in the period 1995-2007. If security of supply had been as in South Africa, annual GDP growth per capita in the region (excluding South Africa) could have been 2 percentage points higher. The authors stress the importance of resolving the power crisis in Africa (Andersen & Dalgaard, 2013). A similar approach was used to study GDP-growth in 152 countries in the period 2016-2020. The study found similar negative effects on GDP-growth from unreliable power supply (Chen, et al., 2023).

In December 2023 the Tanzanian president replaced the board of the Tanzanian electricity company TANESCO after frequent power outages (Afful, 2024). Hopefully, better management, and increased electricity supply from new plants may improve the situation.

Outlook

There are substantial increases in electricity supply in the pipeline. The 2,115 MW Julius Nyerere power plant is near completion and has started to produce. This together with other projects may over a few years double electricity generation capacity. This may contribute to increased supply with higher security of supply, and a more rapid economic growth.

After a period of capital-intensive infrastructure projects there could be a shift towards more labor-intensive activities, again speeding up structural transformation, as was the case 2000-2012. A more rapid growth may also give a substantial increase in tax rates and contribute to an increase in funding for education that would also contribute to long-term growth.

With good economic policies a GDP growth rate of above 7 per cent is not out of reach. Longer term growth will depend on the development of skills and human capital. Family planning is an important contributor to this. Climate change may have clear negative effects on future development, as pointed

out by (World Bank, 2024b). Structural change out of agriculture may make the economy more resilient to climate change.

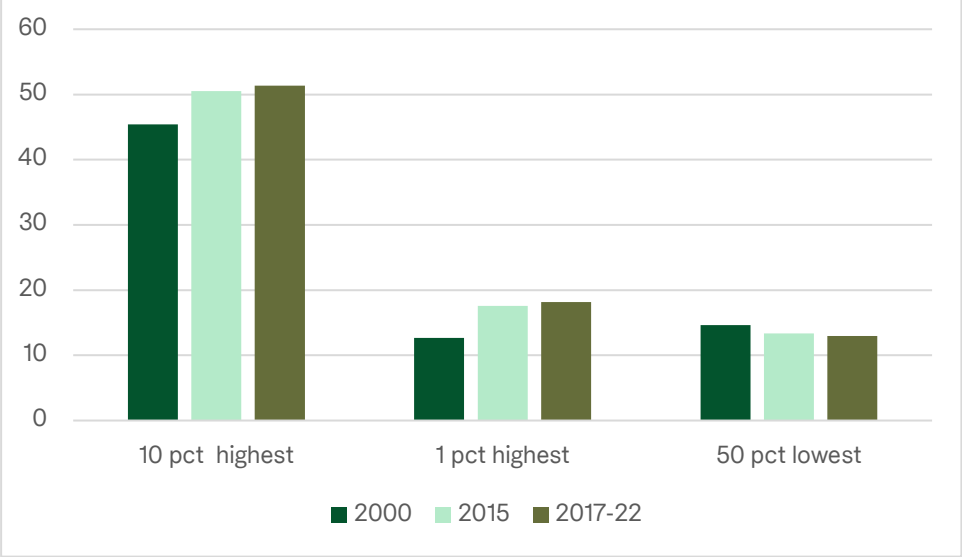
Increasing inequality

The type of growth with high capital intensity projects has contributed to increasing inequality and to that growth in GDP per capita has almost no effect on the poverty level (World Bank Group, 2024b).

The share of population in extreme poverty was stable between 2011 and 2018, at 44.7 and 44.9 per cent respectively (World Bank Group, u.d.). The working poverty rate (share of employed above 15 years living below 2.15 USD PPP), was 43.5 per cent in 2014. In 2024 it was 39.8 per cent (ILO, 2025).

Income inequality has been increasing. The top one per cent of the population with highest income increased its share of total income from 13 to 18 per cent from 2000 to 2017-22, while the 10 per cent of population with highest income increased its share from 45 per cent to 51 per cent (figure 14). The half of the population with the lowest income had its share of total income reduced from 15 per cent to 13 per cent.

Figure 14. Income inequality. Share of pre-tax income by group

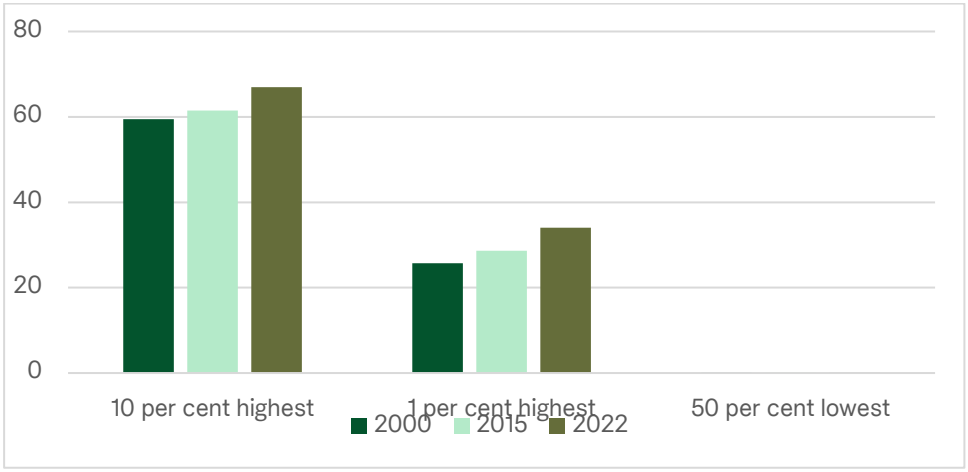


Source: (World Inequality Database, 2024)

In 2000 Tanzania had a more equal income distribution than Kenya, Uganda and Rwanda. In these three countries the income distribution improved between 2000 and 2022, with a slight reduction in the income share of the one per cent and 10 per cent with highest income, and an increase in the share of income of the bottom half of the distribution. The current income distribution in Tanzania is now similar to other countries in East Africa.

Wealth inequality has also increased in Tanzania over time (figure 15). The 10 per cent with the highest wealth increased their share of total wealth from 59 per cent in 2000 to 67 per cent in 2022. The one per cent richest increased their share from 26 per cent to 34 per cent.

Figure 15. Wealth Inequality. Share of Wealth by group

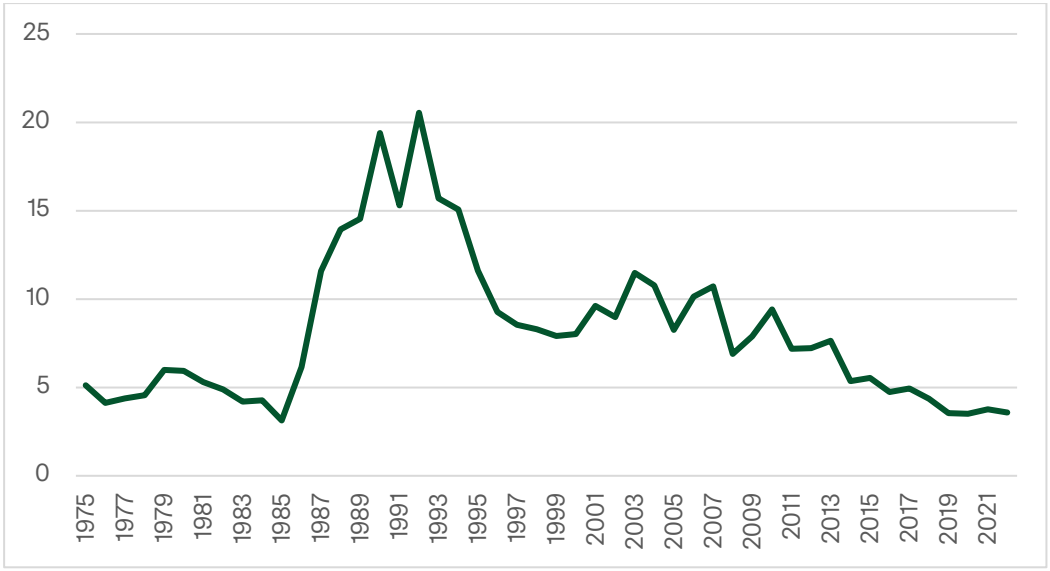


Source: (World Inequality Database, 2024)

Reduction in aid dependency, and moderate debt

Official Development Assistance (ODA) to Tanzania increased from less than two per cent of Tanzania's Gross National Income (GNI) in 1970 to almost six per cent of GNI in 1980. ODA as share of GNI peaked at 20.5 per cent in 1992, (figure 16).

Figure 16. Net ODA as percent of Tanzania Gross National Income (GNI) 1975-2022



Source: World Development Indicators

In 1990, ODA was about double the income from exports. In 2022 ODA was at 3.6 per cent of GNI, at 2,662 billion USD, which was less than a quarter of export earnings.

Especially budget support has declined. In 2004/2005 the aid financed 44 per cent of government budgets. In 2015/2016 aid financed just 7 per cent of government budgets. Most aid now flows through off-budget individual projects or program support for specific sectors (Eriksen, 2018).

External debt peaked at 166 per cent of GNI in 1994, but after debt relief, debt was reduced to 22 per cent of GNI in 2008. As in other African countries external debt has increased after debt relief but has since 2016 been kept at about 40 per cent of GNI.

For African countries debt has become more expensive, as a larger share is by government bonds and new bilateral debt, and there has been an increase in global interest rates and risk premiums. Debt service for Tanzania has increased from about one per cent of GNI in 2015 to about three per cent of GNI in 2023 (World Bank Group, u.d.).

Tax revenues in 2023 were only 11.5 per cent of GDP. This was like in 2009 (World Bank Group, u.d.). According to the IMF total government revenue was 15.5 per cent of GDP in 2023, and 15.1 per cent in 2009 (International Monetary Fund, 2024b). The budget deficit was 3.5 per cent of GDP in 2023. The general government's gross debt increased from 40 per cent of GDP in 2015 to 47 per cent in 2023.

Difference between budget and actual expenditure

The last assessment of the public finance management system in mainland Tanzania under the Public Expenditure and Financial Accountability (PEFA) program was undertaken by the Ministry of Finance and Planning, with financial support and technical guidance from Norway (Ministry of Finance and Planning, 2022).

While the overall report was positive, and underscored several improvements since the 2017 assessment, the report noted that: "**The lack of a reliable, credible annual budget remains the biggest threat to the Tanzania PFM system (bold letters in the report)**. The continuing weaknesses in core aspects of PFM – budget credibility, cash management, commitment control – threaten to undermine the value of the improvements achieved in other areas. High levels of expenditure arrears and weaknesses in the monitoring of arrears have been persistent problems in Tanzania, reported in the 2010 and 2013 PEFA assessments, as well as the 2017 assessment. Although there is evidence that procedures to control new arrears and clear past arrears have improved, the stock of payment arrears continues to hover at around 10 - 11% of total expenditure."

The report also points out: "**The primary obstacle to prudent monitoring of arrears and accounts payable is the cash rationing system** and the way MUSE (the government payment system) is set up to restrict payments, as the system rejects any expenditure entries – including entries for commitments - that go above the monthly payment ceilings, or beyond the current month. As a result,

the commitment function in MUSE is rendered effectively useless because it is only possible to make commitments for payments which will be paid in the same month, and which fall within the available payment ceiling.

The cash rationing system has created a situation where the budget is not credible, and arrears build up: aggregate fiscal discipline is maintained but the strategic allocation of resources is undermined, and service delivery suffers" (Ministry of Finance and Planning, 2022) .

Numbers from an IMF-report on Tanzania (International Monetary Fund, 2024) can be used to elucidate these points. The expenditure planned in the budget for FY2023/4 Q1-Q3 was at 28.8 trillion shillings, with a budget deficit of 4.5 trillion shillings. However, actual domestic revenue turned out to be 22 trillion, 6.4 per cent less than the budget of 23.5 trillion shillings. Also, external grants were lower than budget assumptions, 0.45 trillion shillings compared to 0.88 trillion shillings. Shortfall in total revenue was about 1.9 trillion shillings compared to the budget.

The government decided to keep up development spending (investment), it even increased from 11.4 trillion shilling in the budget to 11.5 trillion. They protected priority social spending, increasing it from 10.3 trillion in the budget to 10.6 trillion shilling. The overall recurrent expenditure was reduced from 17.5 trillion to 15.5 trillion, taking a large hit compared to the budget. The actual overall balance was equal to what was stipulated in the budget, at 4.5 trillion shillings.

While securing budget balance and avoiding unsustainable debt is fiscally prudent, current practice in Tanzania creates difficulties and uncertainty in planning in the government sector. Not least for education.

The Labor market

Low formal employment

Tanzania has a very high level of informality. In 2020 the share of employment that was informal was 92.2 per cent, with a level of 89.6 per cent for men and 95 per cent for women (ILO, 2025).

The high share of informality partly reflects the large size of the agricultural sector, which is informal, but it is also linked to a general slow development of the formal sector outside agriculture.

The extent of informal employment typically declines with a country's increasing level of economic and social development. Sub-Saharan Africa has significantly higher informal employment than other regions. 89 per cent of employment is informal compared to 67 per cent in North Africa and 54 per cent in developing and emerging markets in the Americas, and 71 per cent in Asia and the Pacific (ILO, 2018).

Outside agriculture, the proportion of informal employment was 77 per cent in Sub-Saharan Africa compared to 56 per cent, 50 per cent and 63 per cent in the three regions mentioned above. In Tanzania the share was 69.3 per cent.

Informality also creates unwanted competition with companies in the formal sector and undermines their profitability. Formalization is important both to increase productivity and tax revenue.

Amin and Okou compared the formal and the informal sector in developing countries. For the same country and industry, labor productivity was four times higher in the formal than in the informal sector. They did not have the opportunity to find out to what extent this is due to differences in education (Amin & Okou, 2020).

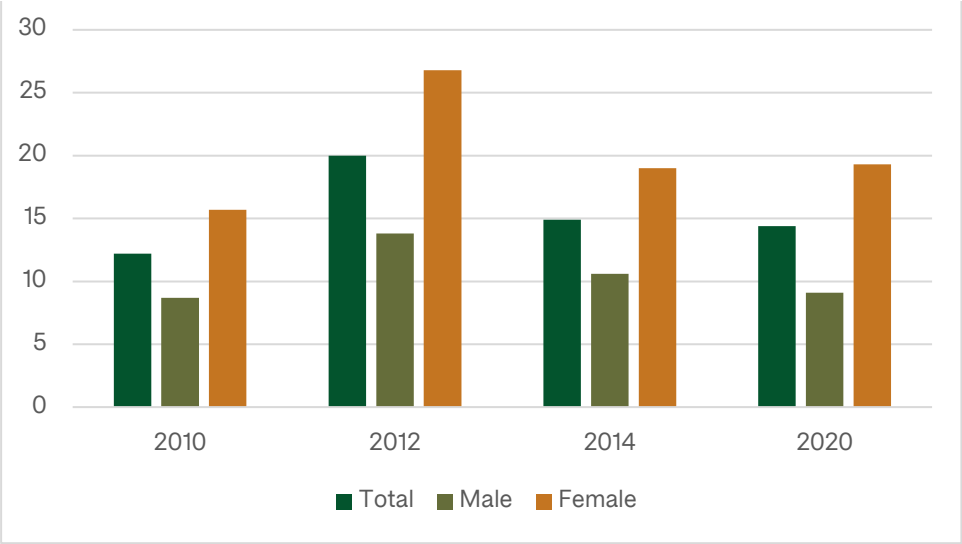
Lack of good jobs for young people

Of the about two million people in annual increase in the population in Tanzania, half is youth entering the labor marked. The agricultural sector and the rest of the informal economy acts as a "sponge" for those not getting employed in the formal economy. While the overall working poverty in 2019 (below 2.15 USD PPP) by ILO was estimated at 42.4 per cent, the rate for youth 15-24 years was 46.1 per cent.

REPOA which is a Tanzanian NGO doing research on poverty reduction, and the Organization for Social Science research in Eastern and southern Africa (OSSREA) has made a report about transition from school to work in Tanzania. (Mihyo, et al., 2020). Only 50 000 to 60 000 youth annually manage to secure jobs in the formal sector.

Figure 17 presents the share of youth not in employment, education or training (NEET), according to the old ILO-definition.

Figure 17. Share of youth not in employment, education or training (old definition)



Source: (ILO, 2025)

We see that the share of females is higher than the share of males. The share of NEET increased from 2010 to 2012 but has since declined. In 2020 the share was 14.4 per cent according to the old definition.

The ILO revision, 19th ICLS excludes people from being counted as employed who are mainly producing for own consumption. The change in definition has largest impact in countries with a large share of subsistence farmers, such as Tanzania. According to this new definition, in 2020 23.8 per cent of youth were NEET of which 17.7 per cent among males and 29.5 per cent for females. The revision has largest effect for females, which to a larger extent than men are engaged in subsistence farming producing for own consumption.

The rapid increase in the labor force contributes to that Tanzania has a major challenge with labor underutilization. The composite rate of labor underutilization was 39.5 per cent for the age group 15-24 years in 2020. For the age group 25+ it was 27.3 per cent (ILO, 2025).

Skills, education, and labor market

ILO's State of Skills report point out that 59 per cent of young workers (15-29 years) are undereducated, while 9 per cent are overeducated (ILO, 2019).

The youth entering the labor market have a low skill level, and there is a skill mismatch. One reason is that education to build relevant skills for the labor market is more infrastructure, materials, and teacher intensive than more general and theoretical oriented education. The insufficient skills education reflects general massification and limited budgets.

The Skills development Levy (SDL) is the main funding for vocational education and training (VET). According to ILO the levy is 4.5 per cent of the payroll of formal firms with four or more employees. It is reported that it now is down to 4 per cent. Only one-third of the levy is channeled to VETA. The rest is diverted to Higher Education Student's Loan Board rather than VET trainees.

Skills and higher education

Skills mismatch is a common problem in Sub-Sahara Africa

A report from the Inter-University Council of East Africa (IUCEA) referred by (Nganga, 2014) polled employers across East Africa. The report concluded that graduates lacked employability skills, technical mastery and basic work-related capabilities. Uganda had at least 63 percent lacking necessary job market skills, followed by Tanzania 61 per cent, Burundi 55 per cent, Rwanda 52 per cent and Kenya 51 per cent.

The secretary of the IUECA expressed that: “Employers said most graduates lacked self-confidence, could not express themselves properly and lacked technical mastery required in the jobs they are seeking”. “It is a time-bomb. What we have are very theoretical graduates.”

The report blames falling quality on universities admitting more students than they can handle and lacking adequate teachers. Education experts and university administrators have argued that additional enrollment can only be handled if the governments insert more funds into higher education, so institutions can afford to expand infrastructure and hire extra tutors.

Barriers to employment include the field of study, job-skill mismatch, ineffective career guidance, lack of confidence and poor communication skills, ineffective Labor market information system (LMIS) and gaps in employment policy. Data from UNECA 2008-2010 show that 44 per cent of students Sub-Saharan Africa graduated in Social science, business and law, 26 per cent in education, humanities and art, and 12 per cent in sciences, three per cent in ICT, three per cent in engineering, five per cent in health and welfare and two per cent in agriculture (Amani, 2017) .

A World Bank appraisal

The appraisal document for the project for Eastern and Southern Africa higher education centers of excellence, involving 8 countries, including Tanzania, stated that to sustain growth and transform the economy to be globally competitive, ESA requires higher order skills in Science, Technology, Engineering and Mathematics (STEM) (World Bank , 2016). The required human capital, especially at the higher level, is insufficient across the ESA countries.

Gaps are most acute in Science and Technology. There are not enough skilled graduates required for the economy. In Tanzania percentage enrollment in art and social sciences at 45 per cent was substantially higher than that of science and engineering at 9 per cent.

Challenges for skills and higher education in Tanzania

The discussion on HE in Tanzania has long focused on employability. The role of university practices in promoting employability has been less studied.

Mining has coexisted with HE for decades, and Tanzania produces some expert graduates. But investment is dominated by foreign companies, and foreign employees occupy key positions because local experts lack required skills. The same is the case in the petroleum sector. Other sectors such as tourism and manufacturing has encountered the same problems (Mgaiwa, 2021).

In Tanzania partnerships between academia and industry seem to be weak, and this has consequences for the use of university research and leading to less consultancy work provided by universities and fewer internships by students. Similarly, it is difficult for universities to gain insights into the need of industry for skills (Mgaiwa, 2021). University-industry partnerships, aligning university

educational programs with the country's development plans and having regular curriculum reviews and strengthening quality assurance systems are critical to nurture employable candidates.

Tanzania's universities and their degree program has not been supportive of the country's development plans. A large majority of the workforce is employed in agriculture. But apart from the new university in Butiama only one agricultural university has been established since independence (Mgaiwa, 2021).

Programs at other universities have not been able to meet the broader need of agriculture. It is also pointed out that degree programs in gas and oil only have been established a few years earlier. The government's aim is to build an industrial-led economy. When a country aspires to develop an industry-led economy, HE emphasis should be on technical and technological programs.

A meeting with REPOA gave a picture of higher education much in line with what was reported from other sources: That there is limited contact between universities and business, also in general limited contact between the education sector and business. There is a lack of technicians, too much focus on theory in universities, and too little focus on practical orientation. Universities are underfunded.

At MoEST it was pointed at important areas for education: Support for ICT-backed education, agricultural science, math and statistics, and energy. It was expressed interest for that donors should supports vocational training.

UNESCO pointed out that the 2023-revision of Education and Training Policies gives a gradual change in school curriculum towards practical and problem-solving issues.

Education – an overview

Tanzania's education system is defined around a structure of two years of preprimary, seven years of primary, four years of ordinary secondary, two years of advanced secondary and at least thtee years of higher education. In between this structure the education system accommodates post primary vocational training and post-secondary nontertiary education (UNESCO National Commisssion with MoEST and TCU, 2022).

There has been progress in the average numbers of years of education among the adult population. In 2002 the population above 25 years on average had 4.3 years of education, in 2022 this was 6.1 years, of which 5.5 years for females and 6.7 years for males, according to UNESCO.

As in many other Sub-Saharan countries, the combination of rapid increase in youth population and increasing enrollment rates, combined with limited finance has created serious problems with quality.

The quality of tertiary education is impeded by poor learning outcomes in primary and secondary education, particularly in mathematics and science (World Bank , 2016).

Table 6 reports development in funding of education.

Table 6. Financing of education

	1990	2004	2010	2014	2018	2023
Expenditure on education % government expenditure		19,5	19,8	17,3	20,6	13.7
Government expenditure on education % of GDP	2,1	3,6	4,5	3,4	3,7	3.3
Primary education % of expenditure on education	42	62		49		
Secondary education % of expenditure on education	18	19	28	21		
Tertiary education % of expenditure on education	33	9	11	18		

Source: World Development Indicators

In 1990 government expenditure on education was only 2.1 per cent of GDP. At the same time, GDP was depressed. In the early 2000s when free for fee (FEE) primary education was reintroduced, the share of GDP used for education increased substantially, and in 2004 it was at 3.6 per cent, and the share of expenditure for primary education in total education increased to 62 per cent.

The share of tertiary education has increased from 9 per cent of total to 18 per cent from 2004 to 2014, reflecting the rapid increase in enrollment at this level.

Recent years the share of education spending in GDP has decreased, reaching 3.3 per cent of GDP in 2023, and 13.7 per cent of the government budget. A combination of moderate government revenues, large infrastructure projects, increasing debt service and strict deficit control may have crowded out expenditure on education.

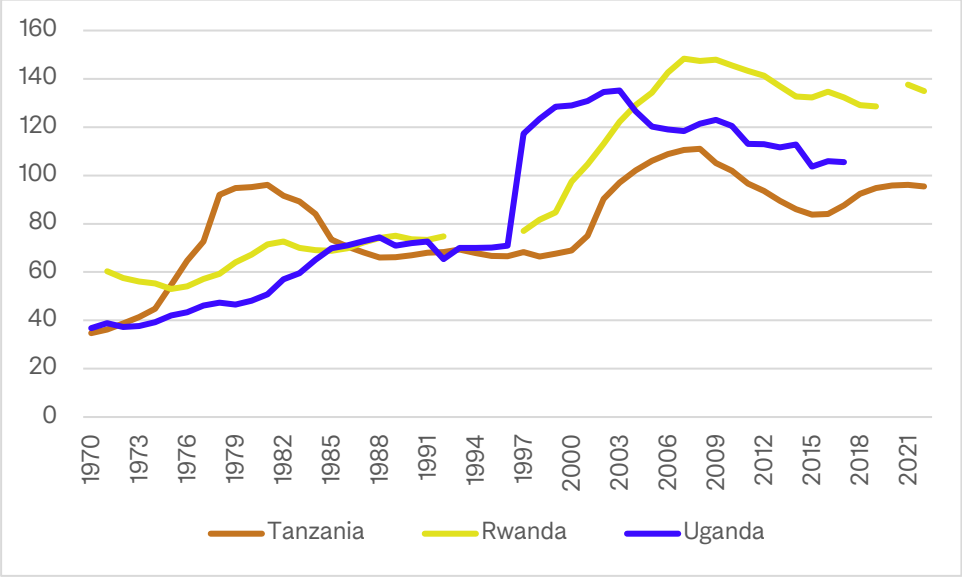
The Education Sector Development Plan 2025/26-2029/30 reports lower spending than the World Bank/UNESCO: 2.5 per cent of GDP in 2023, with a share of the budget of 12.9 per cent (Ministry of Education, Science and Technology, 2024). Between 2018/19 and 2022/23 *nominal* recurrent expenditure in education, which cover operational costs, declined from 3,97 billion shilling to 3.42 billion shilling. Investments in the sector increased from 1.20 billion shilling to 1.57 billion shilling.

Basic Education

In the 1970s Tanzania gave high priority to primary education and increase in literacy. There was a rapid increase in gross enrollment in primary education, from about 35 per cent in 1970 to 96 per cent in 1981 (figure 4). At the same time the pupil-teacher ratio declined.

During the 1980s and 1990s the enrollment rate declined and reached a low of 66 per cent in 1998. When the government reintroduced FEE in 2002 there was a rapid increase in gross enrollment which reached 111 per cent in 2008, reflecting pent-up demand. Even lager increases were seen after introduction of FEE in Uganda in 1997 and Rwanda in 2003.

Figure 4. Gross enrollment rates in primary education



Source: World Development Indicators

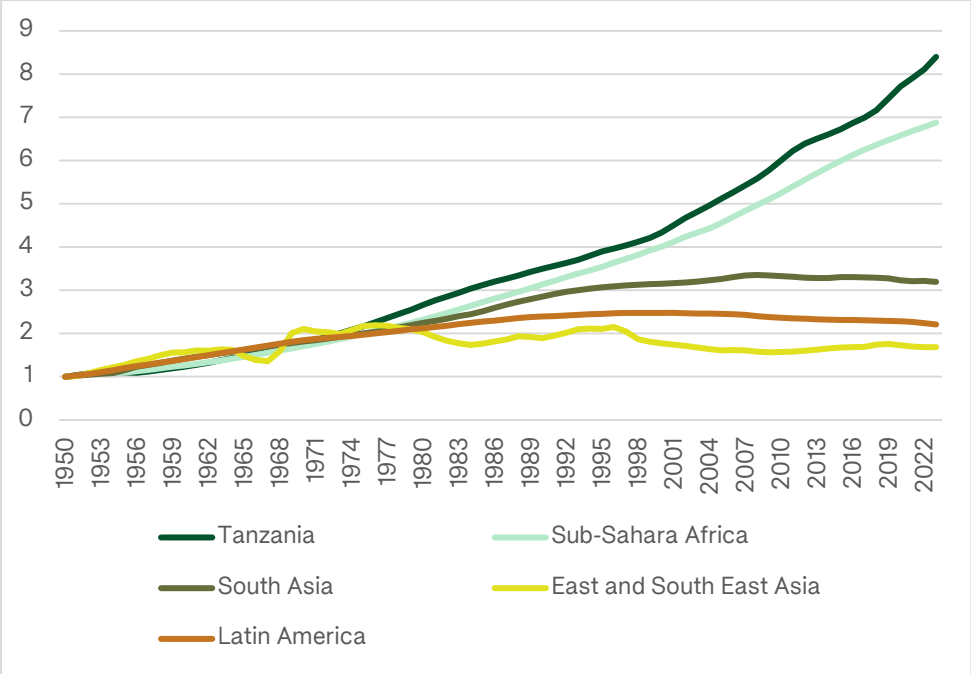
The pupils in primary schools are older than the target group for the education. GER in Tanzania in 1981 was at 96 per cent, while net enrollment (enrollment in the target population) was at 69 per cent. In the 1990s net enrollment fluctuated around 50 per cent. In 2018 it was 81 per cent while GER was 92 per cent.

Rapid increase in number of children

The growth rate in the number of children in different developing regions was quite similar until 1980. Then the growth slowed except for Sub-Saharan Africa, where the number continued to grow at a high rate.

This has contributed to overwhelming the school system, leading to very large classes and high out-of-school rates. Tanzania has had even larger growth rate in number of children than the average for Sub-Saharan Africa (figure 5).

Figure 5. Number of six-year-old children in the population. 1950 =1.

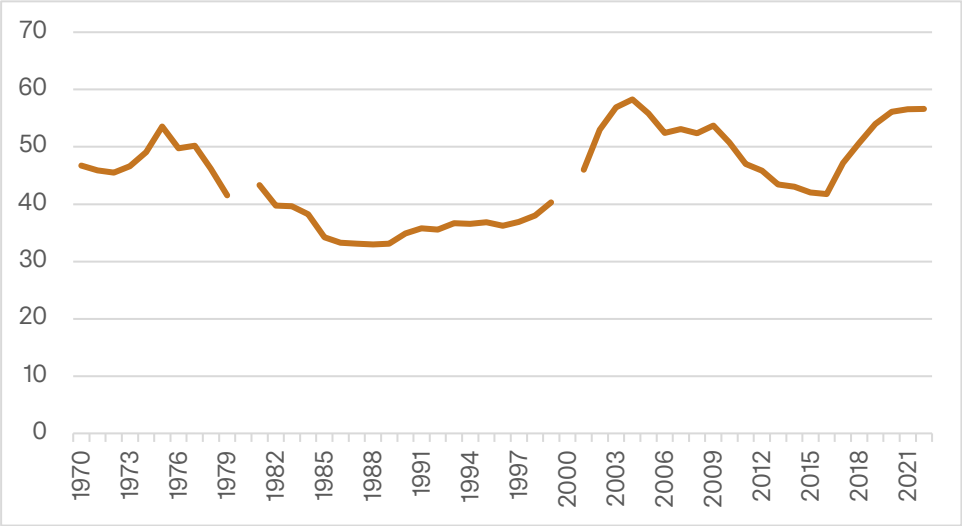


Source: (United Nations Population Division, 2024)

Resources in primary education have not kept pace with the increased number of pupils. This is reflected in the ratio of pupils to teachers, the educational level among teachers, and insufficient funding for infrastructure, materials and research.

Despite increasing budgets after reintroduction of FEE in 2002, there was a rapid increase in pupil-teacher ratio (figure 6), before a gradual decline. With a tightening of the educational budgets in the last years, the pupil-teacher ratio has again increased.

Figure 6. Pupil-teacher ratio in primary education in Tanzania 1970-2022

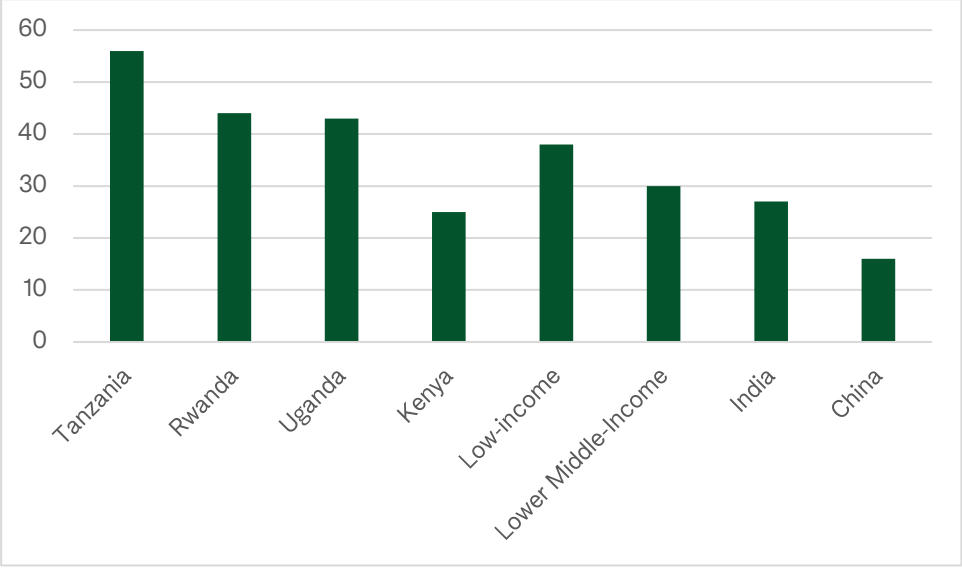


Source: World Development Indicators

The current pupil-teacher ratio is 56, very high compared to other countries in the region (figure 18). In other countries in East Africa the pupil-teacher ratio has been on a downward trend.

The ratio in the classroom is even higher than the pupil-teacher ratio. Based on Public Education Statistics for Tanzania for 2018, the pupil-classroom ratio was 76:1 against the public set standard of 45:1 (Ndibalema, 2019). Despite free primary education, out-of-school rate in primary education reported by UNESCO was 16.4 per cent in 2023.

Figure 18. Pupil-teacher ratio in primary education. Selected countries



Source: World Development Indicators

Tanzanian experiences with free for fees elementary education

Tanzania has made significant progress exhibited by high enrollment rates, which are above the average of sub-Saharan Africa. (Oicheng & Yeonsung, 2021). Nonetheless, major failures exist regarding quality. Among other things, the authors point out:

There are critical deficiencies in forms of poor pedagogy, demotivated teaching workforce, less instruction time, minimal teacher student interaction, and inadequately resourced schools. There is a lack of teachers in mathematics and natural science. That teachers seek part-time jobs outside schools contribute to high teacher absenteeism.

The elimination of school fees and other mandatory parent's contributions led to a rapid increase in enrollment, especially from poor families, and for females. (Kambuga, 2013). Large classes led to teacher-centered teaching, and limited teacher-pupil interactions. The class size may contribute to more disciplinary problems.

The average pupil-latrine ratio was 54:1 for male pupils against the standard of 25:1, for females it was 51:1 against the standard of 20:1. (Ndibalema, 2019)

A later study, interviewing head teachers and other school officials, found that FEE led to improvement in retention rates and attendance, but that there was a shortage of teachers, and of infrastructure such as classrooms, toilets, desks, and that the available ones were in poor condition. The head teachers reported that their schools were underfunded. Introduction of FEE also led to a reduction in contributions from parents (Lucumay & Matete, 2024).

A study of seven Sub-Saharan countries (Kenya, Mozambique, Nigeria, Senegal, Tanzania, Togo, and Uganda) found that at random visits, teacher's absence from class on average was 44 per cent, and absence from school 23 per cent. For Tanzania the numbers were 53 per cent and 23 per cent (Bold, et al., 2017). The report also found low numbers of literacy and numeracy among pupils, and low numbers also for teachers reaching "minimum thresholds" on knowledge assessment.

Measures of quality

Due to quality differences in learning, differences in education and human capital are much greater than the standard measures, such as educational attainment suggest. There are different ways of adjusting the years of schooling for quality. One recent and popular measure is Learning-adjusted years of schooling (LAYS), using internationally comparable tests to adjust for the quality of years of education (Filmer, et al., 2020).

The World Banks' estimate of Tanzania's expected years of schooling, by summing up specific enrollment rates between ages 4 and 17 was at 7.2 years in 2020. On internationally comparable test scores, in TIMMS equivalent units, Tanzania was at 389 where 300 is minimal attainment and 625 is

advanced attainment, contributing to that Learning adjusted years of schooling in Tanzania was estimated at 4.5 years, 2.8 years less than the expected years of schooling (World Bank, 2025c).

Singapore has the highest expected years of schooling at 13.9 years, and a LAYS of 12.9 years. LAYS in some African countries: Angola 4.2, Botswana 5.1, Burundi 5.2, Cameroon 5.3, CAR 2.7, Chad 2.8, Ethiopia 4.3, Ghana 6, Niger 2.7, Nigeria 5 and Rwanda 3.9.

Low enrollment in secondary education reduces LAYS by reducing expected years of schooling. On the other hand, low enrollment in secondary education may increase test scores at that level, something that increases LAYS.

Secondary education

There is a much lower pupil-teacher ratio in secondary education than in primary education. In the period 1970-late 1990s the ratio was about 20 or slightly below. It reached 24 in 2014, before declining to 16 in 2016, before again increasing to 21 in 2018 (World Bank Group, u.d.). It has been pointed out that the period 2006-2015 saw a lowering of standard for teacher qualifications as access increased (Opalo, 2022).

Students transit from Kiswahili to English from primary to secondary school. The inadequacy in English is an important factor for why only 52 percent of eligible students enroll in lower secondary education.

In 2015 fees were removed for lower secondary education. However, there has seemingly been no clear upward trend in gross enrollment numbers. Gross enrollment in lower secondary education increased from 36.5 per cent in 2015 to 37.7 per cent in 2021, while the numbers for upper secondary decreased from 6.3 per cent to 5.9 per cent.

In lower secondary education gross enrollment was 35.9 per cent for males and 37.9 per cent for females in 2021. In upper secondary education gross enrollment was 6.8 per cent for males and 5.1 per cent for females (UNESCO Institute of Statistics, 2024).

That only a comparatively low share of pupils moves from lower to higher secondary education has consequences for the recruitment to tertiary education. Seemingly there is a financing gap for higher secondary education, it is caught between lower secondary education which is free, and tertiary education that can be financed by student loans.

Enrollment in upper secondary school seems to be a bottleneck for higher education. The share of girls, which is higher than boys in lower secondary education is substantially below the ratio of males in upper secondary.

Overview of Higher education and research

Upon gaining independence Tanganyika had only one higher education institution, today known as the University of Dar es Salaam (UDSM). It started as an affiliated college with the University of London.

Later it became an affiliated college of the East African University together with Nairobi University College and Makerere University.

UDSM has the most extensive collaboration of all Tanzanian universities with universities in other countries. With over 40 000 students UDSM is the largest university in Tanzania today.

Private universities started to emerge in Tanzania from 1996 following liberalization of higher education. This reflected strained government finances, a more positive view on the use of markets combined with an ambition to develop higher education.

In 2018 there were 34 full-fledged universities, 15 university colleges, and 11 university campuses and institutes. 12 of the full-fledged universities were public, 22 were private, the first established in 1996.

Three of the 15 university colleges were public (The Tanzania Commission for Universities, 2019). While most universities are private, they are on average small compared to public institutions. A majority of university students are in public institutions.

Long term development in students and teachers

The enrollment in tertiary education increased from 4 400 in 1982 to 85 000 in 2010 and further to 182 000 in 2015[4] (table 7).

The share of women has also increased significantly over time from about 20 per cent in the 1980s and 1990s and was about 40 percent in 2019.

The enrollment in higher education institutions further increased to 214 000 in 2017/2018, of which 178 000 in universities, and to 335 000 of which 254 000 in universities in 2023/2024. In 2023/24 162 000 (64 per cent) were in public universities, while 91 000 were in private universities (36 per cent).

[4] The student numbers reported by the World Bank past 2015 are seemingly too low and they are not reported here. See numbers from TCU.

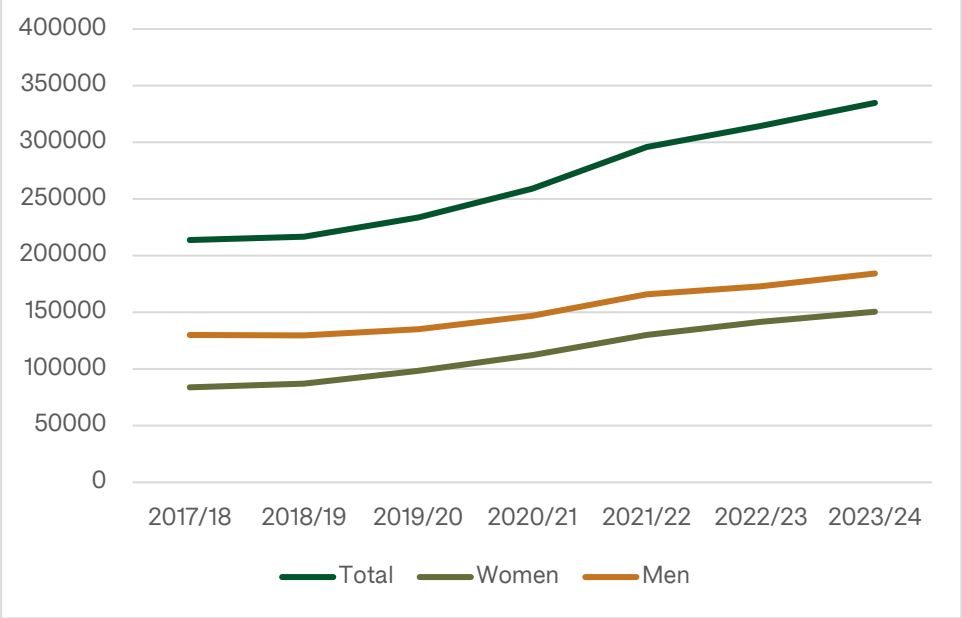
Table 7. Development in tertiary education in Tanzania 1982-2015

	1982	1999	2010	2015
Total enrollment	4389	18867	85113	182404
- of which women	784	3970	38392	63557
Gross enrollment rate[5]	0,3	0,6	2,1	4,0
Teachers in tertiary education	914	2064	4497	

Source: World Bank (World Bank, 2024)

Figure 7 reports on total number for HEIs and on women and men separately. The share of women increased to 45 per cent in 2023/24.

Figure 7. Enrollment of students in Higher Education Institutions

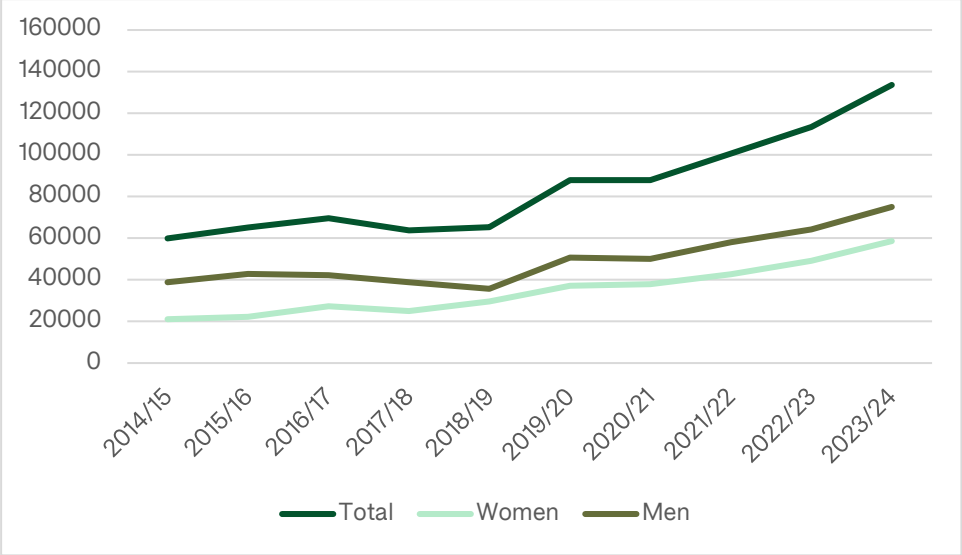


(The Tanzania Commission for Universities, 2024)

[5] Gross enrollment rate is total enrollment in tertiary education (International Standard Classification of Education, ISCED 5 to 8), regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving.

The increase in enrollment reflects a rapid increase in annual admissions. Figure 19 reports on admissions to bachelor programs at higher education institutions for the period 2014/15 to 2023/24. In 2014/15 admissions were 60 000 of which 48 000 in universities. In 2023/24 it was 134 000 of which 105 000 in universities. The share of women in admissions has increased from 35 per cent in 2014/15 to 44 per cent in 2023/24.

Figure 19. Admission trends in bachelor's degree programs in HEI



Source: (The Tanzania Commission for Universities, 2024)

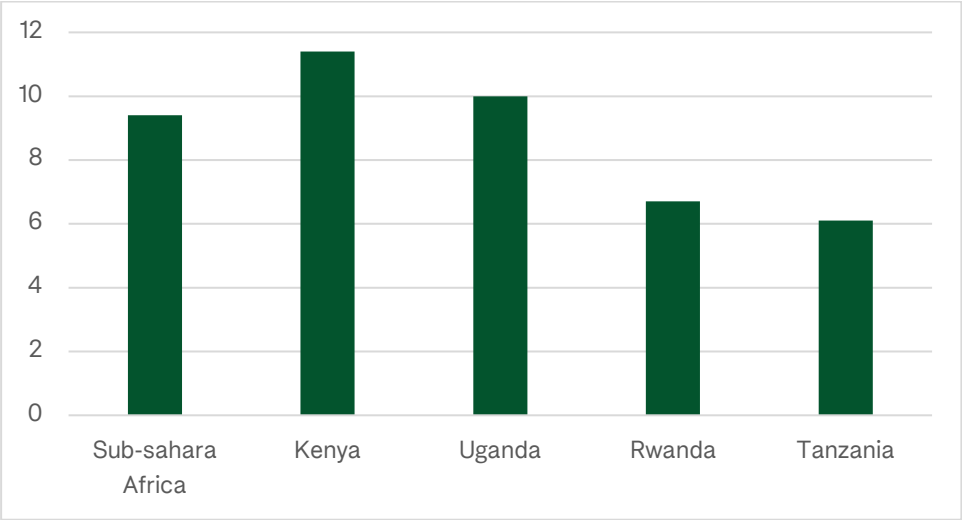
There was a decline in admissions during the 2017/2018 admission cycle which reflected a special academic audit by TCU in 2016. A total of 19 institutions were forbidden to admit new students (Johansson & Ander, 2021).

The growth in the number of tertiary students reflects a combination of high population growth and an increase in enrollment rate. Below is figure 20 for gross enrollment[6].

With a gross tertiary enrollment of 6.1 per cent Tanzania is below the Sub-Sahara average, and below the levels in Kenya, Uganda and Rwanda.

[6] Different sources give very different estimates for enrollment. Both The World Development Indicators and UNESCO report 3 per cent gross tertiary enrollment in Tanzania in 2019, 7.5 per cent in 2020, 3.7 per cent in 2021 and 5.4 per cent in 2022. UNESCO reports 5.2 per cent in 2023 and 4.0 per cent in 2024. These numbers contrast with the steadily increasing numbers of students reported by TCU. Also, for Kenya there has been large variation in numbers reported in WDI. GER was 18.1 per cent in 2018, 10.6 per cent in 2019, and above 19 per cent in the three years 2020-2022. This is not credible. The numbers have been around 6-7 per cent for Rwanda since 2011 according to WDI. In Uganda the WDI numbers were 4.8 per cent in 2016.

Figure 20. Gross enrollment rate in Tertiary Education



Source: (World Bank Group, 2021)

TCU-statistics is divided into 17 fields of education. The most popular study in 2023/24 was business with 83 000 students, with a majority outside universities, followed by education 75 000, social science 38 000, medical and health science 32 000, and engineering 23 000 students. There were 3000 students focusing on science and math. Compared to 2017/18 there is an increase in the percentage of engineering students.

The share of graduates within STEM has increased from 9.3 per cent in 2021 to 13.7 per cent in 2023 (UNESCO Institute of Statistics, 2024).

The number of graduates in university institutions has increased from 46 000 in 2017 to 57 000 in 2023. In 2023 women constituted 49 per cent of graduates. Graduation by award level is presented in table 8.

The share of graduates taking a bachelor's degree has been quite stable above 70 per cent. The total number of graduates increased by 10 000 from 2017 to 2023. This reflected an increase in bachelor's degrees by 8000, and a combined increase in certificates and diplomas of about 6000. The increase in the number of graduates first and foremost reflects a shift towards putting more students through shorter studies.

The number of graduates with PhD and master's degrees was very low in 2023. But this is not a trend. According to TCU annual vital statistics, in 2020 88 took a PhD, and 1927 a master's degree, in 2021 302 and 3324, and in 2022, 230 and 2872.

Table 8. Students' graduation by award level

	2013		2017		2023	
	Total	Percent	Total	Percent	Total	Percent
Certificate	4440	9.5	2715	5.9	5444	9.6
Diploma	2845	6.1	4753	10.3	7832	13.9
Bachelor's degree	34108	72.7	33260	71.8	41284	73.0
Postgraduate Diploma	422	0.9	265	0.6	48	0.1
Master's degree	4991	10.6	5118	11.1	1848	3.3
Doctorate Degree	86	0.18	183	0.4	64	0.1
Grand Total	46892		46294		56520	

Sources: (The Tanzania Commission for Universities, 2019) table 43 and (The Tanzania Commission for Universities, 2024) table 31.

Given the rapid increase in enrollment in universities and other HEIs over the last years, and a shift towards shorter studies, one could have expected a more rapid increase in the number of graduates.

Staff in university institutions

In 2018 76 per cent of private university institutions and 19 per cent of public university institutions had at least one unqualified top management staff (The Tanzania Commission for Universities, 2019). The public institutions had better governance tools, along several dimensions, than the private institutions, including admissions and examination regulations.

The rules and regulations in the TCU guidelines apply both to public and private institutions. The requirements for hiring at different levels are listed in Annex 5.1 in the guideline's handbook (Tanzania Commision for Universities, 2019b).

In June 2018 there was a total of 8307 academic staff, including 660 (7.9 per cent) technical staff in public and private university institutions. This meant that 7647 were teaching staff. One quarter of the teaching staff, 1881 were females, 2815 were PhD holders (28.6 per cent), 3875 master holders (50.7 per cent) and 1587 were personnel with bachelor's degrees (20.8 per cent). The fully fledged universities accounted for 87.4 per cent of the PhD holders (The Tanzania Commission for Universities, 2019).

In fully fledged universities there were 1927 PhD-holders out of 6883 academic staff (28 per cent), in university colleges 208 out of 1096 (19 per cent) and in university campuses centers and institutes 62 out of 328 (19 per cent).

Table 9 shows that the share of doctorate holders in the academic staff is higher at 29 per cent in public universities than in private universities with 23 per cent. Academic staff per student is quite similar between public and private universities, as public universities have 64 per cent of total enrollment and 63 per cent of total staff.

Table 9. Academic staff (teaching and technical) in university institutions by level of education and ownership. June 2018

	Ownership of institution				
Educational level	Public numbers	Percentage of public	Private numbers	Percentage of private	Total numbers
Doctorate Degree	1499	29 %	698	23 %	2197
Master's degree	2335	45 %	1627	53 %	3962
Bachelor's degree	1109	21 %	645	21 %	1754
Other	302	6%	92	3%	394
Total	5245		3062		8307

Source: (The Tanzania Commission for Universities, 2019)**,** table 14

For 2023/24 it is not reported a separate number for technical staff. In 2023/24 the academic staff in university institutions was 8625, of which 2617 (30 per cent) were female (The Tanzania Commission for Universities, 2024). This is an improvement from 2018.

The share of PhD-holders was somewhat increased compared to 2018, and was 30.6 per cent of academic staff, master holders 50.6 per cent, and people with bachelor's degree was at 18.8 per cent.

Funding and the student-teacher ratio

The numbers of teachers have not kept up with growth in the student body. In 1982 the student teacher ratio in HEIs was about 5:1. The ratio increased to 19:1 in 2015. After this the ratio has been increasing rapidly.

The ratio of students to staff in university institutions was 253 000/ 8625 or 29:1 in 2023/2024. Taking account of that there is a certain percentage of technical staff, the student-teacher ratio has surpassed 30. The increasing student-teacher ratio should be of great concern.

Funding for universities is strongly linked to the number of students, giving universities incentives to enroll more students, and keeping the number of staff down. The financing system also gives universities incentives to establish new courses similar to the ones that already exist to reduce costs.

Funding

Public universities have many sources of funding: tuition fees, monthly government payment of salaries, annual subsidies and donors. The private universities depend mainly on tuition fees. They have more financial constraints and challenges with quality.

50 per cent of Tanzania's higher education budget goes to The Higher Education Student's Loan Board (HESLB) (Fussy, 2018). Tanzanian higher education sector operates under a homogenous university model wherein all public universities are prescribed as research universities.

The government gives priority to teaching and learning functions of HEIs, and its funding to universities principally covers infrastructure development and labor (salary) costs, amounting to roughly 60-70 per cent of the universities' overall funding need. Research tends to be funded by foreign donor support supplemented to some extent by commercialization of research (Sida, 2022:17).

Direct university funding is mainly block grants, where a sum is allocated from the Ministry of Education, Science and Technology to the country's public universities based on the number of students enrolled, multiplying with student unit cost by the total number of students. There are two types of block grants, development and recurrent. The development fund is strictly allocated for investment in physical infrastructure.

The recurrent fund is used for carrying out teaching, research, and public service. Research is not allotted to a special fund.

Since research is part of the ordinary block grant recurrent fund, research is not sheltered from expenses such as electricity etc. Donors have been important for funding research. An increasingly important funder of research is The Tanzania Commission for Science and Technology (COSTECH), with grants based on applications, and competition for grants.

The status of research has been low due to different factors, such as inadequate research funds, inadequate knowledge of new technology, insufficient research coordination, weak links between private actors and research centers, that research activities does not provide sufficient and valuable outcomes to stakeholders, inadequate number of postgraduate trainees, weak links between training and research highly valuated by communities, and insufficient capacities of universities to

commercialize R&D products. Low level of wages, and general low funding give teachers and researchers incentives to try to get funding from outside their institution (Kadikilo, et al., 2024).

Barriers to research

Tanzania's research output is limited to only 30.3 publications per million people. 83 per cent of papers published by Tanzanian researchers are the result of international collaboration, which helps to explain the relatively high number of citations per paper. However, the impact of international research collaborations does not seem to extend much beyond academia. Only one patent application was filed in Tanzania by residents in the last 10 years, and no patent was granted (Fosci, et al., 2019).

Recent research found that productivity has become one of the most critical measures of quality in HEIs. HEIs comprise 66 per cent of the research institutions in Tanzania and employ 71 per cent of researchers (Kadikilo, et al., 2024).

Institutional barriers include inadequate research funding, heavy workloads, weak collaboration, fragmented research policies, lack of researchers with impeccable credentials, weak databases, weak mentorship, rewards and incentives.

According to (Fosci, et al., 2019) Tanzania's research system is underdeveloped and would benefit from initiatives that support research capacity among research organizations and national research bodies. Three areas of importance:

- Create research training opportunities for women. The number of women pursuing a career in research is lower than in other African countries.
- Support research infrastructure. One major hurdle in retaining qualified and experienced researchers is lack of adequate research infrastructure, both physical and digital.
- Support capacity and coordination among national institutions. Strengthening the role of COSTECH for coordination.

Lack of private funding for research a limitation

While developing countries' R&D relies heavily on government support, something that reflects a lack of a large formal private sector, most industrialized countries' R&D activities rely heavily on support from the private sector.

The EU spent 355 billion euros, 2.24 per cent of GDP on R&D in 2022. (Eurostat, u.d.). 57.7 per cent of the total R&D expenditure in the EU in 2021 was funded by business enterprises, 30.3 per cent was funded by the government and 9.7 per cent was funded by the rest of the world.

Tanzania has seen a rapid increase in the number of universities, but most of them perform little research. Much of Tanzania's research happens in research institutes and non-profit organizations.

Gross expenditure in research and development is only 0.5 per cent of GDP and the country relies on foreign aid for over half of its research expenditure (Fosci, et al., 2019).

The World Bank reports 35.97 researchers per million inhabitants in 2010 and 19.15 in 2013. In 2013/2014 Tanzania reported to Africa Innovation Outlook that the number was 73 per million inhabitants (AUDA-NEPAD, 2019).

Research and development expenditure as percentage of GDP was reported by UNESCO at 0.37 per cent of GDP in 2010, and 0.51 per cent in 2013. Tanzania reported in 2013/2014, referred to in Africa innovation Outlook, that expenditure by government was 0.27 per cent of GDP and by higher education 0.43 per cent of GDP, no expenditure from business was reported.

Partnerships

A low level of government funding for research means that universities in Tanzania have depended heavily on donors. North-South Partnerships has been a strategy for resources for research and development funds for mitigating constraints as results of state underfunding.

While funding for research directly into the government budget has been extremely low by international donors, a significant amount of donor and international funding has been used for STI and research activities, through universities and COSTECH.

Several studies reported in (Kot, 2016) indicate that institutional cooperation contributes to cost effectiveness as participants in various ways get access to academics and researchers. They contribute to human and institutional capacity building.

A study of the University of Dar es Salaam (UDSM) and the University of Lumumbashi (UNILU) in DRC, questioning a broad group of stakeholders at the universities, found that international partnerships resulted in three institutional benefits (institutional capacity, academic effectiveness, and internationalization (Kot, 2016). There were four personal benefits to the researchers (academic, cultural, economic and strategic).

The article assessed that partnerships enhanced institutional capacity by making institutions more responsive to social needs, improving infrastructure, increasing revenues, improving management and attracting academic staff and diversifying academic programs. Partnerships enhanced academic effectiveness by strengthening research, improving quality of higher education and introducing innovative teaching methods. Partnerships fostered internationalization by making staff and students more internationally oriented and attracting foreign students.

The establishment of North-South partnerships has also coincided with the dominance and heavy dependence on external donors in a majority of Tanzania public universities. It is a concern that partnerships have not focused sufficiently on strengthening institutions. Using UDSM as an example,

although North-South partnerships are instrumental in capacity building, they have not significantly contributed to strengthening of the higher education space and other universities because of the inherent structural imbalance (Ishengoma, 2016).

From 2007 to 2014 the UDSM established over 69 university -wide international partnerships and links. Almost 80 per cent of these focused on staff and student exchange. The author points out that there are few research publications despite collaborative relationships.

The article points at lack of reciprocity, and that institutions in the South have little to offer institutions in the North when it comes to financial, technological and human resources, something that exacerbates the inequalities in these partnerships. It is a risk of brain-drain both externally and internally. Academics may be lured into the world of NGO consultancy and working for the government and donors.

The article points out that there is lack of focus in strengthening higher education space, and that donor-funded partnerships have resulted in uneven development among public universities, creating "rich" donor darlings and poor universities.

Tanzanian institutions in higher education and research

The Tanzania Commission for Universities

The Tanzania Commission for Universities (TCU) was established on July 1 2005 (The Tanzania Commission for Universities, 2019). The TCU succeeded the Higher Education Accreditation Council (HEAC) which had a narrower mandate to regulate the establishment and subsequent accreditation of private university institutions only.

The HEAC was established in 1995 under the 1995 Education Act, as it opened for private universities. TCU regulates both public and private institutions. The establishment was to ensure a harmonious higher education system (UNESCO National Commisssion with MoEST and TCU, 2022).

The TCU legal mandate consists of three parts: i) conducting periodic evaluations of universities, their systems, and programs, ii) advising the government on public matters related to higher education, and iii) it supports the universities in conduct of university operations.

New courses at a higher education institution must be approved by TCU, and universities have separate quality assurance units.

In 2019 TCU launched its third edition of Handbook for Standards and Guidelines for University Education in Tanzania (Tanzania Commision for Universities, 2019b). It is a comprehensive work of 260 pages, very much a "one stop shop" in the field.

The handbook requires every university to conduct tracer studies periodically as part of quality assurance processes, with results informing program reviews. The objective is to improve education and training content. TCU is responsible for the guidelines for these studies (Tanzania Commisssion for Universities, Jan-Dec 2023)

TCU conducts extensive seminars with university staff to improve quality assurance and has an extensive module-based training program for new leaders in universities. The policy is that teachers can teach courses on the level below their own level of degree.

At the meeting with the unit for quality assurance (QA) at the university of Dodoma it was pointed out that QA is under the purview of the vice chancellor, directors are coordinators. There is a meeting at the board for QA each quarter. All programs must be accepted by TCU. The university has a process with TCU, where they send a proposal to TCU, that is adjusted after discussion with TCU.

Challenges of quality assurance – the implementation

While there now is a good system in place for QA, the big challenge lies in the implementation.

Challenges in private higher education institutions

The quality of education in private institutions has been questioned due to lower qualifications of academic members of staff, and lower levels of financing.

A study based on interviews with staff, students and QA officials identified inadequate financing, lack of capacity in the form of qualified and experienced human resources to undertake quality assurance functions, lack of clear and viable QA policies, lack of awareness of QA issues and lack of academic leaderships (Mgaiwa & Ishengoma, 2017)

Another study pointed out that private universities have a lack of capacity to undertake quality assurance functions (Mgaiwa, 2021b).

Despite efforts, non-compliance cases are still found at various universities stakeholders (Mrma, et al., 2023). Various QA enforcement initiatives have been employed, including quality monitoring and evaluation, students' evaluation of courses and instructors, examination moderation, strict examination invigilation, internal independent examiners, external examiners, university self-assessment, academic audits and accreditations. There have been administrative initiatives increasing awareness and capacity (number and competence) and establishing effective QA leadership.

In the period covered, about 28, 12 and 34 university institutions were deregistered, closed and barred from admitting new students. Admission of 832 students were disapproved for lack of passes in their secondary education certificate.

TCU revealed in 2019 that universities' QA systems have been lacking in adequate awareness of conducting institutional self-assessment. Most universities were not conducting self-assessment as required by TCU. In response the TCU has been conducting training for members of QA systems.

The problem of inadequate funds is dominant in the private universities, but this study found that financial problems exist in all four universities studied (two public and two private) to varying degree (Mrma, et al., 2023).

The TCU record reveals that public universities are less reported compared to private ones. But it is hard to conclude that the compliance level of public universities is satisfactory.

QA sensitization programs are a less expensive approach and have positive returns on improving the HE quality compared to external audits. Despite all the measures taken by TCU, from 2015 to 2019 TCU acknowledged receiving voluntary requests from universities to suspend and deregister about 33 academic programs and more than 6 academic institutions, following capacity building or internal QA work (Mrema, et al., 2023b).

The study has not recorded public reports on extensive quality audits or suspension or closure of institutions or their academic program since the TCU punitive measures of 2020.

Regional cooperation on QA

Norad has commissioned a report which is a follow up on an online course of internal quality assurance in 2021 (Martin, 2022). The author conducted interviews with representatives of Muhimbili University of Health and Allied Sciences (MUHAS) and the State University of Zanzibar (SUZA).

There has been inter-university collaboration in East Africa, spearheaded by Inter-University Council of East Africa (IUCEA), established in 1980. 136 public and private universities from Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda are members. There is also a QA network in East Africa, a network of QA practitioners, and national networks. IUCEA has a strong mandate, and it works in collaboration with national institutions to harmonize the QA systems across the region.

There is a shortage of academic staff, shortage of qualifications, and inadequate adoption of ICT as challenges for QA.

The director of quality assurance and qualifications frameworks at IUCEA pointed out to the report that countries in East Africa are at different levels in establishing their QA systems. There is also an absence of systematic approach to monitor the effects of IUCEA QA measures across countries. He pointed out that "We have developed so many-i.e. handbooks, the benchmarks, other policies, and guidelines, but monitoring how this is being implemented at the institutional and country level is

missing. This is something that we have not done and it's a challenge for us. (..). In a way, we have not been able to carry out further research on quality assurance matters in the region."

He also pointed out the limited awareness of the role of QA in increasing the quality of graduates. He and others pointed out that resources were scarce. He also pointed out that the diversified standards used by HEIs across East Africa are an obstacle to Harmonized IQA at the regional level.

The Higher Education Student's Loan Board (HESLB)

The austerity in the 1980s and 1990s affected the public funding of tertiary education. This is a background for the establishment of private tertiary institutions from 1996.

Education is an investment in human capital, where the most important part is the time and effort the student puts in. It is difficult to finance loans for education in the private market because of the lack of collateral. Thus, student loans have been the domain of the state. This has also been the case for Tanzania. The idea is to increase access to higher education, and letting the students contribute to the financing.

In 1992 Tanzania reintroduced a cost-sharing program for higher education. Before that the government had subsidized the entirety of the costs. The reason for reintroduction was to increase access and to put more of the burden on the beneficiaries of higher education.

In the first phase of cost sharing 1992/93, students had to pay for transport costs, in 1994/95 students also had to pay for accommodation and meals though the loans from the government. In 2004/2005 students also had to pay through loans to cover tuition fees, books and stationaries, faculty requirements, field training and research.

HESLB was established in 2004 and started operations in 2005. HESLB is a parastatal under the Ministry of Education, Science and Technology (Higher Education Student's Loan Board, 2024).

The objective of the board is to assist, on a loan basis, needy students who secure admission in accredited higher learning institutions but do not have economic power to pay for the cost of their education.

The higher education student's loan board act from 2008 states that: the Board shall provide, on a loan basis, financial assistance to any eligible student who is in need and has applied for such assistance as is required to meet all or any number of the students' welfare costs of Higher Education.

Financial assistance may cover meals and accommodation charges, books and stationery expenses and special faculty requirements, practical work expenses, research expenses, tuition fees, and special needs for students with disabilities.

Eligibility factors in general is that the applicant must be Tanzanian, must pass exams continuously, and must not receive other funding. Neediness is linked to if a person is disabled, poor, orphan, or belong to a marginalized community. Education priority 1: Science teacher, health science, engineering. Priority 2: Basic sciences (Math, physics), and architecture. Priority 3: Other.

The board is also entrusted with the task of collecting due loans from previous loan beneficiaries to have a revolving fund in place to make the loan mechanism sustainable.

Referring to that TCU has reported that in 2019/2020 190 000 students were enrolled in higher education, 145 000, about 75 per cent of them had some form of support from HESLB (Johansson & Ander, 2021).

There is a grace period of two years, the amortization is 15 per cent of gross salary each month, the interest rate is 6 percent and there is a onetime administration fee of 1 per cent. The level of 15 per cent of gross income is considered high.

Failure to make payment for a year is a 10 per cent penalty fee for the amount due. If the loan taker defaults, the guardian is responsible, and the HESLB may take legal action. Few guardians to defaulters have been contacted, and no amount had been collected from guardians by 2017.

Even if the loan scheme has significantly expanded higher education access, it has failed to provide adequate and equal access (Mgaiwa & Ishengoma, 2023). Most students are from the top 20 per cent of Tanzania's income distribution.

In 2017/2018 of the 61 000 applicants, 30 000 got loans. This functions as a rationing mechanism for access to higher education. At the meeting with TCU it was stated that the number of new beneficiaries now is at 70 000 and would be raised to 80 000.

Sustainability of HESLB

Rapid increase in the number of beneficiaries, and insufficient collection of debt, has raised concerns about the sustainability of HESLB.

Over 754 000 Tanzanians have received loans since its establishment in 2004. 7.2 trillion in loans has been disbursed. The increase in recipients has led to an increase in outstanding loans. The Controller and Auditor General (CAG) has revealed poor loan recovery methods by HESLB.

The HESLB matured loans since 2006/2007 were 2.1 trillion shillings. By June 2023 only 62 per cent had been collected. HESLB then improved collections and increased the rate to 71 per cent. HESLB is improving data sharing with key institutions. The CAG recommended stronger cooperation between institutions, and better identification of beneficiaries, using the National identification Number (NIDA) (Mosenda, 2024) and (Mosenda, 2024b).

The Tanzania Commission for Science and Technology (COSTECH)

The Commission for Science and technology (COSTECH) was established in 1986.

COSTECH is the main regulatory body for all STI-related activities in Tanzania, including coordination and monitoring of scientific research, innovation and technology development activities, registration of research institutions, advice to government, allocation of SDI funds, generation of and dissemination of research output, preparation and enhancement of technology transfer.

Its strategic plan 2021/2022-2025/2026 (Tanzania Commission for Science and Technology (COSTECH), 2021) is aligned with the National Five Year Development Plan 2021/22 - 2025/26 and with documents on National STI-policy, National R&D Policy and National Research priorities. COSTECH has set priority research areas in STI to enhance transformation, mainly through industrialization.

The Development Objective in the COSTECH strategic plan is "Inclusive and competitive economy through STI." The vision is a nation driven by Science, Technology and Innovation. The mission: Coordination and Promotion of Science, Technology and Innovation for rapid Socio-Economic Development. One of the targets in the plan is to increase research to one per cent of GDP, as is the target in the National Five Year Development Plan.

Financing of research

COSTECH allocates funding to research projects after applications and competitive processes.

It starts with design and issuing research calls, followed by submission of proposals, internal screening of proposals, external review and meeting of a COSTECH panel. There is a thorough process for approvals, followed by due diligence and initial training before award and fund disbursement.

COSTECH also helps researchers to improve in writing papers, publishing, and writing applications. Cooperation with SIDA has led to an improvement in guidelines and systems which seem to be of good quality, but it is difficult to assess the adherence (see below).

The presentation at COSTECH showed that COSTECH supports 400 projects/programs, 38 infrastructure improvements, and 559 postgraduate students. In COSTECH there is a staff of 117, of which 27 have PhDs, and 51 master's degrees.

ODA has been a main source of financing of COSTECH. COSTECH has had several research and innovation partnerships with grants, numbers in parenthesis are funds 2018-2023: Sida (48 million SEK), Norad (40 million NOK), NRF-SA (2 million USD), IDRC (almost 1 million CAD with partners),

UKAID (1.6 million GBP), World Bank (HEET 8 million USD), SGCI, EU, USAID, UNICEF and UNDP, and in addition co-funding models with several countries. There is multilateral research cooperation with several countries, with 11 funders.

An update of case studies of the political economy of Science Granting Councils in Sub-Saharan Africa, (Daniels, et al., 2022) referred below, point out that most of the funding comes from donor organizations. This has now probably changed.

There is a need for higher funding, and COSTECH is trying to increase funding and the use of science in decision-making by being transparent, and by presenting briefs on important research. COSTECH has earlier been "too scientific to get traction". It is important to make the benefits of research more visible.

COSTECH has increasingly tried to have a coordinating role in research. Strong universities had been favored when it came to funding, but COSTECH has tried to be inclusive.

TCU is a board member at COSTECH, but TCU has responsibility for education, not research.

MoEST want that ODA-funds goes to COSTECH rather than to individual universities. At the meeting with Moussa, director of research and publication at UDSM, it was pointed out that finance for research increasingly comes from COSTECH. COSTECH covers a broader field than universities.

Evaluation by Sida

Sweden has evaluated its research cooperation with Tanzania in the period 2015-2022 (Sida, 2022:17). The evaluation covered COSTECH and three universities.

Sweden's cooperation is in context of broader donor cooperation for research, innovation, and higher education. Among donors are EU, Denmark, Sweden, Germany, UK, Norway, USAID and the World Bank.

That COSTECHs mandate is to govern research governance and practice, as it relates primarily to Research and Development institutes, while TCU holds the mandate to regulate universities was seen as a complication.

The research cooperation program with Sida was consistent with the cooperating institution's priorities for development of institutional capacity. Also, the selected research areas (Food Security, Agriculture, Tourism, Environment etc.) have remained relevant to the development needs of Tanzania.

The extent of impact achieved by the programs and sub-programs has not been possible to measure because in shortcomings in monitoring and reporting on impact. There is too much focus on reporting activities and insufficient reporting on results, outputs and impacts.

It is recommended that Embassy of Sweden and Sida introduce more rigorous procedures for identification and formulation of proposals and sub-programs, more rigorous monitoring and reporting, and sustainability plans developed at all programs. Capacity strengthening support should be provided to research communication.

Sida in its support has focused on building appropriate systems, and COSTECHs capacity to operate them. On average, relevance and ownership is regarded as excellent, effectiveness mostly good, sustainability medium, and impact fair.

By suggestions from stakeholders, there have been developed frameworks, guidelines, and tools for higher efficiency. Since a major body of research is funded and supervised by other bodies, the gains at COSTECH may fail to translate to real gains for STI unless the instruments are adopted by other bodies. Support is needed to popularize them.

The evaluation recommends that COSTECH should hasten popularization of framework and guidelines to all universities to harmonize approach. Our meeting with COSTECH did confirm that this is a priority.

Science Granting Councils in East Africa including Tanzania

The consensus is that research excellence must include focus on addressing societal challenges and national development goals, in addition to publishing in journals (Daniels, et al., 2022).

A narrative promoting narrow conceptions of innovation, and a linear science push may raise expectations among policy makers in the region. There is a limited private sector that can contribute to financing research, many are SMEs operating in the informal sector.

Regarding Tanzania the study points out: “For example changes in the structure of education sector in Tanzania have led to an under-supply of technicians, with impact on human resources, funding and policies. In terms of human resources, more graduates and fewer technicians weaken support for the work of graduates and weakens “the system”. With respect to funding, more financial resources flowing to Higher Education (universities in particular) may be at the expense of funds available for Technical and Vocational Education and Training. And, on policies, care needs to be taken to ensure that the focus of interventions does not unduly favor universities to the detriment of colleges and polytechnics.”

One of the findings from stakeholder interviews is that there is a lack of political will to fund research. But the report also points out that actors in the STI system themselves have failed to demonstrate usefulness. A main idea could be: STI contributes to development.

There is a lack of PhD holders in the research sector and among those with technical skills. These gaps are blamed on poor levels of technical and vocational training and poor education standards. There are few people with the technical skills required by industry.

Despite its mandates it has been noted that COSTECH does not have enough resources to efficiently execute its duties. Insufficient resources are a major hindrance for R&D in Tanzania.

Because much of the research is funded by donors, research must be in line with their priorities. There is a need for improvement in donor cooperation with ministries.

The future of higher education

The number of students is likely to continue to increase substantially, reflecting growth in the youth population and ambitious goals for increasing enrollment in the five-year development plan. This may increase the already very high student teacher ratio (STR).

There is likely to be a substantial shift towards shorter, more skill-oriented and STEM-studies. The Higher Education for Economic Transformation (HEET) project, supporting the building of 14 satellite campuses, will contribute to this.

Medium term: The five-year plan 2021/22-2025/26

The five-year development plan 2021/22-2025/26 "Realizing Competitiveness and Industrialization for Human Development" was presented in 2021 (Ministry of Finance and Planning, 2021). It continues efforts in achieving the goals set in the National Development Vision 2025.

It is a broad plan with a focus on industrialization linked to agriculture and natural resources. Of special relevance are interventions to promote industrialization, driven by STI capabilities for value addition in manufacturing and productive sectors.

It states that it is an urgent need to address the mismatch between the level of skill employers look for in job seekers, and the level they possess. The number of individuals entering the workforce with tertiary education has increased from one per cent in 2007 to three percent in 2016. There is a mismatch between the output of higher education and labor market needs according to the plan.

It has ambitious targets for tertiary education, research and skills and to increase the number of STEM candidates, researchers, and students (table 10). It mentions the importance of increasing skills in STI, and that universities and technical colleges and R&D institutions should re-orient the curricula around STEM subjects with more fieldwork/practical themes.

Table 10. The National Development Plan 2021/22-2025/26. Selected numbers and targets

	2019/2020	Target2025/26
Share of R&D expenditure in GDP (%)	0.8	1
R&D expenditure by public sector (%)	68.3	72
Number of qualified researchers	9556	12639
Share of engineers in total tertiary government disbursements for training programs	1567	2660
% science and mathematical graduates among all university graduates	26	30
Tertiary gross enrollment rate (%)	4.5	6.0
Students graduating from tertiary/higher education of whom science and engineering students (%)	36	40
Annual numbers that graduate from technical education	70000	150000
Of whom science and engineering students (%)	24.2	40
Number of teaching staff	10555	15000

(Ministry of Finance and Planning, 2021)

The Higher Education for Economic Transformation Project (HEET)

Background

The objective of the Higher Education for Economic Transformation Project (HEET) is to strengthen the learning environment and labor market alignment of priority programs at higher education institutions and improve the management of the higher education system (World Bank, 2021). The project is financed by an IDA-credit of 425 million USD, being disbursed in the period 2022-27.

The program appraisal document points out that despite impressive GDP-growth between 2012 and 2018, growth has become less inclusive, and inequality has risen during the period.

Tanzania's enrollment in higher education is below the SSA-average. 40 per cent of Tanzanian firms identified inadequate relevant workforce skills as a key business constraint, compared to a SSA

average of 23 per cent. In over 45 per cent of high-skill firms, skill shortages constitute major operational difficulties.

800 000-1000 000 young have been entering the labor market annually since 2015, and the number is expected to increase to 1.6 million in 2030.

Projections in Tanzania Public Expenditure review FY19 estimates that the number of students will double from 2021 to between 483 000 and 580 000 in 2030. Without investments across the sector there will be a lack of infrastructure, teaching equipment, and staff with proper training.

Even though there is a need for higher skilled workers in the economy, many university-graduates struggle to find jobs, partly due to skills mismatches. There is a lack of different types of engineers. There is a weak learning environment, and funds for research are inadequate, so is equipment. There is a lack of well-trained lecturers.

Development partners support about 7 per cent of funds for the whole education sector in Tanzania, the level in higher education is only 1 per cent.

HEET will contribute to SDGs on education: a) Target 4.3 – ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university; b) Target 4.4 - increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship; and c) Target 4C- increase the supply of qualified teachers.

The project

The project has 3 components:

Component 1 Strengthening the Learning Environments and Labor Market Alignment of Priority Programs (USD 329 million).

14 higher education institutions will be strengthened, 11 are central universities that have competed. In addition, the two agricultural universities and the state university of Zanzibar will benefit. Focus:

1.1 is to expand the capacity of existing public universities to offer quality priority programs (USD 219 million).
1.2 is to support higher education in underserved areas within fields of health and agriculture (USD 110 million).

Both parts will lead to the establishment of new campuses in areas lacking academic institutions. The focus is on infrastructure and ICT, but also on training.

The relevant areas are sectors that are aligned with goals in Tanzania education, skills, and development strategies, among others engineering, ICT, material science and health science.

2.1 is on strengthening the management of the sector with a total of: MoEST USD 42.9 million, TCU USD 5.0 million, HESLB USD 4 million, and COSTECH USD 8 million.

2.2 is on promoting quality improvements in select universities (USD 18.1 million).

The idea is to secure expansion, and an increase in quality.

The HEET project will create 14 satellites to public universities, as college campuses. The campuses will be situated in areas that do not have universities. The curriculum will focus on themes that are especially relevant to the geographical area. It will be practical, and with a technical focus. The aim is for students to obtain a diploma based on 1 year study, not bachelor's degrees. There is an aim to achieve cooperation with business.

The HEET project was discussed in our meetings with the University of Dodoma and UDSM.

At UDSM, it was pointed out that people that finish school should be easier to employ. Tracer studies show that stakeholders ask for more practical education. The focus on employability is not confined to tertiary education, it shall be easier also on secondary level to choose more practical subjects.

At the university of Dodoma it was pointed out that ICT-mediated education will be very important for reaching more students. The university will establish a campus in Jombe, that will focus on agriculture and mining.

TCU is positive to focus on development of skills in the 14 new campuses and support the expansion. There will need to be staff from the universities lecturing, but it is sufficient that the lecturers have an exam at one level higher than in the subject being taught.

Student- teachers' ratios and projections

Among guiding principles in the Handbook for standards and guidelines for University Education in Tanzania (Tanzania Commision for Universities, 2019b) are that:

a) Universities have the primary responsibility to ensure and assure the quality of their institutions and the education they provide.

f) The Standards and Guidelines provide minimum parameters to be adhered to in the provision of university education in the country while encouraging universities to exceed them as they aspire for a competitive edge in quality and excellence.

The guidelines state: "Every University shall strive to establish affirmative strategies for the achievement of at least 50% gender parity."

There are no enrollment norms, personnel norms or financial norms. But the TCU has in some disciplines, recommendations for a teacher-student ratio. Minimum requirements are presented in table 11.

Table 11. Staff-student ratios per subject and program

Item	Conventional University	Open and distance learning university
Arts, Social Sciences and Humanities	1:50	1:120
Science and Technology	1:30	1:50
Health Science	1:25	1:30
Health Science (Clinical Sciences)	1:10	1:10
Engineering	1:25	1:30

Source: (Tanzania Commision for Universities, 2019b)

There are also standards for technical staff/student ratios, and there are guidelines for 5 PhD holders per institution and program, 5 masters' holders, and 10 with bachelor's degree.

Projections

There has been conducted a study of demographics of faculty in East-African countries: Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda, including teacher student ratios, and projections of student body, and the requirement for academic staff (Inter-university Council for East Africa, 2023). The study found shortages of faculty and of gender equality within the partner states.

Only Tanzania and Kenya had policy norms for student teacher ratios (STR) though the STRs for Tanzania is not aggregated in a way that is comparable with UNESCOs division of subjects. Kenya is also the only one setting gender ratios for faculty.

Table 12. Policy norms vs. realities for student-teacher ratios (STR) in Tanzania in 2021

	Student enrollment	**Number of faculty**	**Actual STRs**	**Policy goals for STRs**
a) Arts & Humanities/Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	106,910	2,938	36:1	18:1
b) Education	56,183	835	67:1	18:1
c) Health & Welfare	26,574	1,285	21:1	7:1
d) Natural Sciences/ Mathematics & Statistics/Engineering/ Manufacturing/ Construction/ ICTs	30,863	2,157	14:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	8,519	603	14:1	10:1

Source: (Inter-university Council for East Africa, 2023) Table 6.4

In the projections Kenya is used as benchmark by (Inter-university Council for East Africa, 2023). Table 12 present the present situation, and the Kenya policy goals for student teacher rations (STR).

The projection has its starting point in 2021 and assumes that the number of students follow the projections of growth in the population 18-21 years (thus implying constant enrollment rate), but that one achieves the STRs from Kenya.

Number of students in Tanzania is assumed to increase from 229 000 in 2021 to 298 000 in 2030.

To keep current student teacher ratios, staff must increase from 7,979 by 2,418. If one is to reach the (Kenyan) STR one would need additional 11,614 academic staff on top of this. Reaching such a target, and taking account of the teachers' turnover, new recruitment needed to be 18,868. The total number of new staff would then be 33 000.

The assumptions underlying the projections made by IUCEA seem to be unrealistic. A more realistic projection would include assumptions regarding an increase in enrollment rates.

It is difficult to meet a rapid increase in student body and to improve STR at the same time. As pointed out earlier, projections in Tanzania Public Expenditure review FY19 estimates that the number of students will double from 2021 to between 483 000 and 580 000 in 2030.

This means that it will be demanding to avoid a further increase in the number of students per teacher.

References

Afful, M. C., 2024. *energy news africa.* [Online]
Available at: https://energynewsafrica.com/tanzania-president-samia-dissolves-tanzania-electricity-supply-company-board-over-frequent-power-outages/
[Accessed 13 October 2024].

Aklin, M., Harish, S. & Urpelainen, J., 2018. A global analysis of progress in household electrification. *Energy Policy,* Volume 122, pp. 421-28.

Al Jazeera, 2018. *Al Jazeera.* [Online]
Available at: https://www.track20.org/pages/data_analysis/policy/FPE.php
[Accessed 9 October 2024].

Amani, J., 2017. Prevalence of, and factors assocoated with, unemployment among graduates: Evidence from Tanzania. *Africa Education Review,* 14(3-4), pp. 230-44.

Amin, M. & Okou, C., 2020. Casting a Shadow: productivity of formal firms and informality. *Rev. Dev. Econ.,* pp. 1-21.

Andersen, T. B. & Dalgaard, C.-J., 2013. Power outages and economic growth in Africa. *Energy Economics,* Volume 38, pp. 19-23.

AUDA-NEPAD, 2019. *African Innovation Outlook III.* [Online]
Available at: https://www.nepad.org/publication/african-innovation-outlook-iii

Bold, T., Martin, G., Stacy, B. & Svensson, J., 2017. *What Do Teachers Know and Do? Does it Matter? Evidence from Primary Schools in Africa,* Washington DC: World Bank.

Brautigam, D., 2009. *The Dragon's gift The real story of China in Africa.* 2011 Paperback edition ed. s.l.:Oxford University Press.

Chen, H. et al., 2023. How will power outages affect the national economic growth: Evidence from 152 countries. *Energy Economics,* Volume 126.

Cole, M. A., Elliott, R. J., Occhiali, G. & Strobl, E., 2018. Power outages and firm performance in Sub-Saharan Africa. *Journal of Development Economics,* Volume 134, pp. 150-59.

Daniels, C. et al., 2022. *Updating the Case studies of the Political Economy of Sience Granting Councils in Sub-Saharan Africa,* s.l.: Science Policy Research Unit (SPRU) Univerity of Sussex, UK, African Centre for Technology Studies (ACTS) Kenya.

de la Croix, D. & Gobbi, P. E., 2017. Population density, fertility, and demographic convergence in developing countries. *Journal of development Economics,* Volume 127, pp. 13-24.

de Vries, G., Timmer, M. & de Vries, K., 2015. Structural Transformation in Africa: Static Gains, Dynamic Losses. *The Journal of Development Studies,* 51(6), pp. 674-88.

Diao, X., Kweka, J. & McMillan, M., 2018. Small firms, structural change and labor productivity growth in Africa: Evidence from Tanzania. *World Development,* Volume 105, pp. 400-418.

Diao, X., McMillan, M. & Rodrik, D., 2019. The Recent Growth Boom in Developing Economies: A Structural Change Perspective. In: M. Nissanke & . J. A. Ocampo, eds. *The Palgrave Handbook of Development Economics.* London: Spinger Link, pp. 281-334.

Diao, X., McMillan, M. & Rodrik, D., 2021. *Africa's Manufacturing Puzzle: Evidence from Tanzanian and Ethiopian Firms,* s.l.: s.n.

Eriksen, S. S., 2018. *Tanzania: A Political Economy Analysis,* Oslo: Norwegian Institute of International Affairs.

Eurostat, n.d. *Statistics explained.* [Online]
Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_expenditure&oldid=645219
[Accessed 5 July 2024].

Family Planning Effort Index (FPE), 2014. *Track 20.* [Online]
Available at: https://www.track20.org/pages/data_analysis/policy/FPE.php
[Accessed 9 October 2024].

Filmer, D., Rogers, H., Angrist, N. & Sabarwal, S., 2020. Leraning-adjusted years of schooling (LAYS): Defining a new macro measure of education. *Economics of Education Review,* Volume 77.

Fosci, M., Loffreda, L., Chamberlain, A. & Naidoo, N., 2019. *Assessing the needs of the research system in Tanzania,* London: UK Department for International Development.

Fussy, D. S., 2018. Policy directions for promoting university research in Tanzania. *Studies in Higher Education,* 43(9).

Gibbon, P. & Raikes, P., 1995. *Structural Adjustment in Tanzania,* Copenhagen: Centre for Development Research, Copenhagen on behalf of Danish MFA.

Higher Education Student's Loan Board, 2024.
https://www.heslb.go.tz/Publications/HESLB_Annual_Reports?lang=english. [Online]
[Accessed 3 June 2024].

ILO, 2018. *Women and Men in the Informal Economy: A Statistical Picture,* Geneva: International Labour Office.

ILO, 2019. *State of Skills Tanzania,* Geneva: ILO.

ILO, 2025. *ILOSTAT Data Country Profiles.* [Online]
Available at: https://ilostat.ilo.org/data/country-profiles/
[Accessed 19 March 2025].

International Monetary Fund, 2024b. *World Economic Outlook Database October 2024.* [Online]
[Accessed 23 February 2025].

International Monetary Fund, 2024. *Third Review under the Extended Credit Facility Arrangment,* Washington D.C.: IMF.

Inter-university Council for East Africa, 2023. *Demographics of African Faculty in the East African Community,* Kampala: Inter-university Council for East Africa.

Ishengoma, J., 2016. Strenghtening Higher Education Space in Africa through North-South Partnerships and Links: Myths and Realities from Tanzania Public Universities. *Comparative and International Education,* 45(1).

Johansson, C. & Ander, J. L., 2021. *Financing higher education in Tanzania: Exploring challenges and potential student loans models,* Lund: Division of Innovative Engineering, Department of Design Sciences, Faculty of Engineering, Lund University.

Kadikilo, A. C., Naykar, P. & Sahay, A., 2024. Barriers to research productivity of academics in Tanzania higher education institutions: the need for policy interventions. *Cogent Education,* 11(1).

Kambuga, J., 2013. The Impact of Teacher-Pupil Ratio on Teaching-Learning Process in Primary Schools: Excperiences from Tanzania. *International Journal of Education and Practice,* 1(2), pp. 14-25.

Kebede, E., Goujon, A. & Lutz, W., 2019. Stalls in Africa's fertility decline partly result from disruptions in female education. *PNAS,* 116(8), pp. 2891-96.

Kot, F. C., 2016. The Perceived Benefits of International Partnerships in Africa: A Case study of Two Public Universities in Tanzania and the Democratic Republic of Congo. *Higher Education Policy,* Volume 29, pp. 41-62.

Lin, J. Y., Cai, F. & Li, Z., 2003. *The China Miracle: Development Strategy and Economic Reform.* Hong Kong: The Chinese University Hong Kong Press.

Lucumay, L. S. & Matete, R. E., 2024. Challenges facing the implemenatation of fee -free education in primary schools in Tanzania. *Heliyon,* Volume 10, p. e24172.

Lutz, W. & Qiang, R., 2002. Determinants of human population growth. *Phil. Trans. R. Soc. Lond. B,* Volume 357, pp. 1197-1210.

Martin, M., 2022. *Quality Assurance in Ugandan and Tanzanian Higher Education: Follow up on the 2021 IIEPP-NORHED online course on Internal Quality Assurance (IQA),* s.l.: UNESCO International Institute for Educational Planning.

Mgaiwa, S. J., 2021b. Leadership initiatives in response to institutional quality assurance challenges in Tanzania's private universities.. *Journal of further and higher education,* 45(9), pp. 1206-23.

Mgaiwa, S. J., 2021. Fostering Graduate Employability: Rethinking Tanzania's University Practices. *Sage Open,* pp. 1-14.

Mgaiwa, S. J. & Ishengoma, J. M., 2017. Institutional Constraints Affecting Quality Assurance Processes in Tanzania's private universities. *Journal of Higher Education in Africa,* 15(1), pp. 57-67.

Mgaiwa, S. J. & Ishengoma, J. M., 2023. Financing higher education in Tanzania through students' loans scheme and its impact on equitable access. *Heliyon,* 9(3).

Mihyo, P. B., Mmari, D. E. & Msami, J. B., 2020. *Youth transition from school to work in Tanzania - a case study of the vocaltional education and training in Tanzania (VETA).* Addis Ababa: OSSREA REPOA.

Ministry of Education, Science and Technology, 2024. *Education Sector Development Plan 2025/26-2029/30,* Dodoma: MoEST.

Ministry of Finance and Planning, 2021. *National Five Year Development Plan 2021/22 - 2025/26,* s.l.: Ministry of Finance and Planning.

Ministry of Finance and Planning, 2022. *Assessment of The Public Management Systems of the Central Government Applying the PEFA 2016 Framework,* s.l.: Ministry of Finance and Planning.

Ministry of Finance and Planning, 2024. *Ministry of Finance and Planning.* [Online]
Available at:
https://repository.mof.go.tz/bitstream/handle/123456789/802/Draft%20Tanzania%20Development%20Vision.pdf?sequence=1&isAllowed=y
[Accessed 3 April 2025].

Mosenda, J., 2024b. *The Citizen.* [Online]
Available at: https://www.thecitizen.co.tz/tanzania/news/national/heslb-joins-forces-with-key-institutions-to-secure-loan-recovery-via-data-sharing-4758844
[Accessed 23 Sepetember 2024].

Mosenda, J., 2024. *The Citizen.* [Online]
Available at: https://www.thecitizen.co.tz/tanzania/news/national/poor-loan-recovery-methods-costing-heslb-billions-4592768
[Accessed 23 September 2024].

Mrema, D., Ndayambaje, I., Ntawiha, P. & Ndabaga, E., 2023b. Punitive Measures against Non-Compliance with Quality Mechanisms in East African Higher Education Institutions. *East African Journal of Education and Social Sciences,* 4(2), pp. 32-44.

Mrma, D., Ndayambaje, I., Ntawiha, P. & Ndabaga, E., 2023. Challenges Facing Enforcement of University Quality Assurance Standards in Fostering Compliance in Tanzania. *International Journal of Learning, Teaching and Educational Reserch,* 22(11), pp. 36-58.

Murtin, F., 2013. Long-Term Determinants of the Demographic Transition. *The Review of Economics and Statistics,* 95(2), pp. 617-31.

Ndibalema, P., 2019. Making Sense of Basic Education Statistics in Tanzania:: Emerging Issues and Implications for Future Practice. *International Journal of Elementary Education,* 8(1), pp. 26-37.

Nganga, G., 2014. *University World New.* [Online]
Available at: https://www.universityworldnews.com/post.php?story=20140523130246934
[Accessed 20 September 2024].

Norad, 2020. *NORHED II The Norwegian Programme for Capacity Development in Higher Education and Research for Development. Programme Document.,* Oslo: Norad.

Oicheng, H. K. & Yeonsung, C., 2021. Political Economy of Education: Assessing Institutional and Structural Constraints to Quality and Access to Education Opportunities in Tanzania. *SAGE Open,* July-September.pp. 1-15.

Opalo, K. O., 2022. *What is the Point of Schooling? The Politics of Education Policy in Tanzania since 1961,* Washington DC: Center for Global Development.

Planning Commission, 1999. *The Tanzania Development Vision 2025,* Dar es Salaam: Planning Commission.

Sida, 2022:17. *Performance Evaluation of Swedish Research Cooperation with Tanzania 2015 to 2022,* Stockholm: Sida.

Smith-Greenaway, E., 2015. Educational attainment and adult literacy: A descriptive account of 31 Sub-Saharan Afrrica countries. *Demogr Res.,* 11(33), pp. 1015-34.

St. Louis Federal Reserve , 2025. *Interest Rates: Long-Term Government Bond Yields: 10 -Ywear Main for the United States.* [Online]
Available at: https://fred.stlouisfed.org/series/IRLTLT01USM156N
[Accessed 14 April 2025].

Tanzania Commision for Universities, 2019b. *Handbook for Standards and Guidelines for University Education in Tanzania,* Dar es Salaam: TCU.

Tanzania Commission for Science and Technology (COSTECH), 2021. *https://costech.or.tz/Strategic-Plan.* [Online]
[Accessed 4 June 2024].

Tanzania Commisssion for Universities, Jan-Dec 2023. *TCU Magazine,* Dar es Salaam: TCU.

Tanzania Ministry of Health et al., 2022. *Tanzania Demographic and Health Survey and Malaria Indicator Survey 2022,* Dodoma Tanzania and Rockville Maryland: s.n.

TanzaniaInvest, 2024. *tanzaniaInvest.* [Online]
Available at: https://www.tanzaniainvest.com/economy/key-projects-2022-2023
[Accessed 17 October 2024].

The Guardian, 2022. *The Guardian.* [Online]
Available at: https://www.theguardian.com/world/2022/oct/19/tanzania-president-calls-for-more-birth-control-use-to-reduce-birthrate
[Accessed 9 October 2024].

The Guardian, 2024. *The Guardian.* [Online]
Available at: https://www.ippmedia.com/the-guardian/news/local-news/read/govt-for-aligning-family-planning-with-reproductive-maternal-plan-2024-09-26-211458
[Accessed 9 October 2024].

The Tanzania Commission for Universities, 2019. *State of University Education in Tanzania 2018,* Dar es Salaam: The Tanzania Commiasssion for Universities.

The Tanzania Commission for Universities, 2024. *VitalStats on University Education in Tanzania 2023,* Dar es Salaam: Tanzania Commission for Universities.

UNESCO Institute of Statistics, 2024. *UNESCO Institute of Statistics Data.* [Online]
Available at: https://data.uis.unesco.org/index.aspx?queryid=3812
[Accessed 22 October 2024].

UNESCO National Commisssion with MoEST and TCU, 2022. *Higher education report: United Republic of Tanzania,* Dar es Salaam: s.n.

United Nations Population Division, 2024. *World Population Prospects 2024.* [Online]
[Accessed 26 August 2024].

United Nations, 2025. *Data Portal Population Division.* [Online]
Available at: https://www.un.org/development/desa/pd/data/world-contraceptive-use
[Accessed 14 February 2025].

USAID, 2021. *Family Planning and reproductive Health in Tanzania,* s.l.: USAID.

World Bank , 2016. *Project appraisal document om proposed credits to .. Eastern and Southern Africa higher education centers of excellence project,* Washington DC: World Bank.

World Bank Group, 2021. *The Potential of Private Higher Education in Tanzania.* s.l.:World Bank Group.

World Bank Group, 2024b. *Pivatizing Growth A Country Economic Memorandum for the United Republic of Tanzania,* Washington DC: World Bank group.

World Bank Group, 2024. *Tanzania Economic Update Overcoming Demographic Challenges while Embracing Opportunities,* Washington DC: IBRD/WB.

World Bank Group, n.d. *World Development Indicators.* [Online]
Available at: https://databank.worldbank.org/source/world-development-indicators
[Accessed 2 July 2024].

World Bank, 2020. *Enterprise Surveys.* [Online]
Available at: https://www.enterprisesurveys.org/
[Accessed 6 October 2020].

World Bank, 2021. *Project appraisal document .. Higher Education for Economic Transformation Project,* s.l.: The World Bank.

World Bank, 2024b. *United Republic of Tanzania Country Climate and Development Report,* Washington DC: World Bank Group.

World Bank, 2024. *https://datatopics.worldbank.org/education/home.* [Online]
[Accessed 3 June 2024].

World Bank, 2025b. *DataBank Enterprise Surveys.* [Online]
Available at: https://databank.worldbank.org/source/enterprise-surveys
[Accessed 20 February 2025].

World Bank, 2025c. *Gender Data Portal.* [Online]
[Accessed 15 April 2025].

World Bank, 2025. *World Enterprise Surveys.* [Online]
Available at: https://www.enterprisesurveys.org/en/enterprisesurveys
[Accessed 20 February 2025].

World Inequality Database, 2024. *World Inequality Database.* [Online]
Available at: https://wid.world/data/
[Accessed 24 September 2024].

Norad

norad.no