HUMAN DEVELOPMENT INDEX REPORT FOR THE OROMIA REGION, ETHIOPIA: 2008 (2015/16) - 2013 (2020/21)

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To
Oromia Planning and Development Commission (OPDC)

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ACRONYMS AND ABBREVIATIONS

AFDB	African Development Bank
ANC	Antenatal Care
BOFED	Bureau of Finance and Economic Development
CSA	Central Statistical Agency
EI	Education Index
EYS	Expected Years of Schooling
EYSI	Expected Years of Schooling Index
GDI	Gender Development Index
GDP	Gross Domestic Product
GER	Gross Enrollment Rates
GNI	Gross National Income
HDI	Human Development Index
LEI	Life Expectancy Index
LMS	Labour Force and Migration Survey
MOFEC	Ministry of Finance and Economic Cooperation
MYS	Mean Years of Schooling
MYSI	Mean Years of Schooling Index
NER	Net Enrollment Rate
NIR	Net Intake Rates
OPDC	Oromia Planning and Development Commission
PPP	Purchasing Power Parity
RII	Relative Importance Index
TYDP	Ten-Year Development Plan
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
WAP	Working Age Population
WHO	World Health Organization

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EXECUTIVE SUMMARY

Against backdrop of traditional measures, a new approach to development that focus on people and their opportunities rather than economic growth alone was emerged. A National level Human Development Index (HDI) (composite index of income, education, and health) inevitably ignores sub-national differences. This call for the computation of HDI at sub-national level and it is with this background that Oromia region has initiated the computation of HDI in the region. The goal of this assessment is to develop and compute the HDI and the Gender Development Index (GDI); to introduce the indices as a new tool for measuring the socioeconomic development of region; and to strengthen regional public sector capacity in HDI development, computation, data collection, and analysis. To address these objectives, primary and secondary data were collected from multiple national and regional sources. The data was analyzed using various statistical techniques.

The findings presents that as of 2020/21, Oromia region's HDI value is 0.545 which put the region in the upper margin of lower human development category. Between 2015/16 and 2020/21, Oromia region's HDI value improved by 10%. The life expectancy (34.1%) and EYS (31.6%) indicators progress, on average, are higher than mean year of schooling (13.1%) and income indicator (21.2%). In 2020/21 the GDI value was 0.885. An overall 11.5% disparities are observed between male and female over the 6 years period entirely. Sustaining the HDI and GDI achievements so far and targeting the high development category of human development are required. Also, boost women role in policy formulation and implementation and economic activities are recommended.

The region has achieved sustained economic growth in recent years with Real Gross Domestic Product (GDP) growth at or above 7% since 2012. However, the dynamics of economic growth in the region is volatile where there has been co-movement of GDP and agricultural output. Reducing dependence of the regional economy on rain and maintain balanced sectoral growth is required. Despite notable achievements in access to education, challenges in quality of education and gap in Net Intake Rate (NIR) remains a challenge. Gross enrollment rate in upper primary and secondary schools requires alteration. Pupil to section ratio and student to faculty ratio are still low in the region which triggers hiring of qualified and competent professionals mainly at primary education. Creating conducive environment for participation of private sectors could potentially reduce NIR-gap. Functionalities of school facilities were lower than corresponding availability particularly in secondary schools which necessitates the establishment of a sustaining-system. The region's performance of 80% basic health service coverage is remarkable. However, access to improved sanitation facilities is limited to 58% (on average) of households, necessitates improvements. Providing incentive packages for health workers and creating conductive working environment are among the proposed actions to advance productivity and commitment and to improve the number of health worker density. Greater effort is also required to ensure sustained increases in inflation adjusted education and health expenditures.

Keywords: Oromia, Education, Health, Income, HDI, GDI

1. INTRODUCTION

The most conventional method of measuring an economic activity is Gross Domestic Product (GDP), which is the total value of all final goods and services produced in a country over a certain period of time. In literature as well as in development performance measurement, GDP was used in different forms (GDP, GDP per capita or national growth as percentage over time). However, GDP is questioned on a number of grounds ranging from its inability to measure social welfare to its exclusion of informal sectors and nonmarketable transactions. GDP also does not incorporate any measure of welfare, income distribution and externalities (Raphael, 2020). These limitations of GDP were realized by many economists and development practitioners and wanted to develop a system of analysis that paints a better accurate picture of an economy's well-being.

Against this backdrop, economist and development partners proposed an alternative measures nations' development. One the most widely known and used country's' measure of economic development the Human Development Index (HDI)[1]. HDI is a statistical composite index of life expectancy, education, and per capita income indicators. A country's score on HDI depends on their lifespan, education achievement, and GNI (as Purchasing Power Parity (PPP) per capita) are higher. The prime objective of developing HDI was to complement the focus of development economics with better measuring tools and by adopting it to change the focus from national income accounting to people-centered policies, and to stress that development should be evaluated not only by economic advances but also improvements in human well-being. Then, the tool was created to establish that a country's overall development is measured not only by its economic growth, but also by its people, their capabilities, and improvements in human well-being. The HDI is calculated using the normal indices of the three factors so that the country's social and economic dimensions consider people's health, education capabilities, standard of living, and Gross National Income (GNI) per capita. Furthermore, HDI is used to assess a country's national policy and compare regions with similar GNI per capita to determine why human development in these areas differs despite having similar GNI per capita.

The HDI is significant because it is an important indicator of a country's and its residents' overall socioeconomic conditions. It is an effective way to evaluate nation's performance because it takes into account various parameters to determine the development of those areas. HDI serves as a measuring tool, assisting in gauging the socioeconomic conditions of nations each year and keeping track of the same. The HDI is used to draw policymakers', the media, and non-governmental organizations' attention, as well as to shift the focus from general economic statistics to human outcomes. It was launched to re-emphasize the importance of people and their abilities in determining the country's development, rather than economic growth.

The HDI is also used to diagnose national policy alternatives and to determine how two countries/regions with similar per capita income can have disparities in human development outcomes. For example, two countries may have similar per capita incomes but differ in life expectancy and literacy levels, resulting in one country having a much higher HDI than the other. These differences encourage debate on government policies concerning health and education to determine what is achievable in one country but not in the other. The HDI is also

[1] HDI was first used by Pakistani economist Mahbub ul Haq in 1990 and was further used to measure a country's development by United Nations Development Program (UNDP)'s Human Development Report Office (Stanton, 2007; Economic Times, 2017)[1] and is considered as one of the tools to assess the country's development on the basis of its economic and social measurements.

used to represent disparities between countries, genders, states or provinces, ethnicities, and other socioeconomic groups. Promoting contradictions in this manner has sparked national debate in a number of countries. Social indicators of development should be considered when calculating a country's overall level of development. Some people believe that other factors, such as human rights and happiness, are extremely important. Some studies make use of political corruption and gender inequality. According to Lashmar (2018), the three human development indices together provide a broad picture of a person's capabilities and well-being. They paint a more complete picture of progress than GDP, which measures a country's wealth, or GDP per capita, which tells us something about a person's means but nothing about their life outcomes.

The HDI has the potential to provide a simple impression of development that can be unpacked to indicate progress toward the Sustainable Development Goals (SDGs). It can be used to supplement other forms of development measurement. While factors such as conflict may not be reflected in the HDI, their impact on wealth, access to education, and life expectancy may be. Just as the SDGs expanded on the relatively static targets of the Millennium Development Goals to reflect a more nuanced understanding of development, the HDI could serve as a starting point for new indices as we move toward a more comprehensive and capabilities-focused understanding of human development. With a focus on leaving no one behind, it is clear that the SDGs will necessitate a more in-depth understanding of development outcomes on the ground. However, as the framework becomes more complex - with 17 goals, 169 targets, and even more indicators - there is a need for a simple way to track progress, in which the HDI can be a potential candidate.

Ethiopia was the second poorest country in the world at the beginning of the century. However, the country has registered an encouraging continuous growth over the last decades, facing but standing various shocks and macroeconomic difficulties and moved to the 17th poorest in 2018 (World Bank, 2018). The country is one of the fastest growing economies in the world with an average growth rate of 10.5 percent from 2004-2018 (yet the average growth rate was 6.9 percent from 1991-2018), registering a record growth rate of 13.6 percent in 2004 (World Bank, 2020). However, Ethiopia's HDI and relative ranking have not changed significantly over the last few decades. Despite being one of the ten countries in the world with the greatest absolute gains in HDI over the last several years, Ethiopia is ranked 175th out of 191 in the latest UNDP Human Development Report of 2021/22[2].

Ethiopia's inequality adjusted HDI is 0.38 (2020)[3], which means that a child born today in Ethiopia will be 38 percent as productive as he or she could be if he or she received a full education and good health. This is lower than the Sub-Saharan Africa (SSA) region average but slightly higher than the low-income country average. Learning poverty affects 90 percent of children under the age of five, and 37 percent of children under the age of five are stunted.

This development challenge underscores why the regional HDI is so timely now, and why the report's focus on "fixing the macroeconomic imbalance for human development" is so appropriate. Even though poverty was and continues to be Ethiopia's most difficult development issue, the country's development challenges were markedly different a few decades ago. The threat of severe drought and famine weighed heavily on the national psyche at the time, as did the numerous challenges of overcoming decades of war, civil strife,

[2]UNDP. (2022). Human Development Report 2021/2022: Uncertain Times, Unsettled Lives Shaping our future in a transforming world. 1 UN Plaza, New York, NY 10017 USA.

[3]https://www.worldbank.org/en/publication/human-capital/brief/insights-from-disaggregating-the-human-capital-index

socioeconomic disruption, macroeconomic imbalance, debt burden, foreign currency shortages, and so on.

To address these development challenges, the government has implemented a new development framework that has resulted in fundamental changes in policies as well as institutional and administrative governance structures. In this context, the government prepared a number of strategic policy documents and national plans in an attempt to articulate the national policies and priorities that would put Ethiopia on a solid human development trajectory, with the overall goal of charting a path toward achieving Ethiopia's stated national vision:

> In a nutshell, prosperity can be measured by the capabilities we create to satisfy human needs, improvements in standard of living and people's perception of the levels of their wellbeing. Variables such as per capita income, equity in wealth distribution, life expectancy, various measures of standard of living, access to justice and overall public services through good governance as well as issues of freedom, and citizens' level of satisfaction are taken as measures of prosperity. Accordingly, a composite indicator composed of three major indices would possibly be used as measure of prosperity over the long term. These indices are human development index, multi-dimensional poverty index and perception of well-being index (MoPD, 2021).

The Ten-Year Development Plan (TYDP), which replaced the GTP II and integrated with the Home Grown Economic Reform Agenda (HGERA), will serve Ethiopia as a 'Pathway to Prosperity' for the coming 10 years starting from 2020/21. The national policy priorities set out in the HGERA and TYDP provides guidance and direction for the design and implementation of the United Nations sustainable development cooperation framework. The country's strategic plan has five strategic outcomes, which are aligned with the World Food Program Strategic with the people, peace, prosperity, and planet outcomes of the United Nations Sustainable Development Cooperation Framework (2020–2025) for Ethiopia, which, in turn, is aligned with the HGERA (MoPD, 2021).

The TYDP has six main strategic pillars that aim to be a prosperous country that provides a quality of life for all its citizens. It aspires to transform Ethiopia into a middle-income country by 2030. These are ensuring quality growth, improving productivity and competitiveness, undertaking institutional transformation, ensuring private sector leadership in the economy, ensuring equitable participation of women and children, and building a climate-resilient green economy. Out of the six strategic pillars, ensuring gender equity in economic and social sectors, women economic empowerment through the participation of women at all levels of education, asset ownership, fair participation of women and youth in leadership and decision-making positions, creating awareness among citizens about the role of women and youth in the country's overall development are the main agenda (MoPD, 2021).

The HDI is the world's most well-known indicator of a human level of development. The index focusses on people and opportunities rather than economic growth alone as compared to other gross measurements of economy. Moreover, many economy status measures are available at national level, whereas, particularly in poor countries, there can be a huge subnational variation. As one moves further away from towns and large cities, the educational and health facilities and economic opportunities tend to be varied. The problem is more pronounced in large countries such as Ethiopia, where there is a huge regional variation in socio-economic development. Individuals and regions within the country tend to differ in educational

attainment, health status and standard of living. This shows that the national average HDI inevitably ignore these differences. This calls for a sub-national HDI that takes these regional differences into account. The sub-national HDI and its underlying dimension indices provide a picture of human development with ten times the resolution previously available. The newly discovered within-country variation is especially pronounced in low- and middle-income countries. Education disparities explain the majority of sub-national HDI inequality within low-income countries, while standard of living differences is most significant within higher-income countries. Strong convergence forces operating both across and within countries have compensated for population growth's inequality-inducing force. These shifts will shape the agenda of scientists and policymakers concerned with global distributive justice in the twenty-first century.

Therefore, the objectives of this assessment report are to develop and compute HDI and GDI in for Oromia region; to assess socio-economic development; to introduce HDI and GDI as a new tool for measuring the socio-economic development of the Oromia region and to enhance regional public sector capacity concerning HDI development, computation, data collection, and analysis.

The development, computation, and reporting of HDI at the sub-national level would have the advantages of providing a better picture of a nation's development (primary social and economic factors); delivering sub-national HDI with specific attributes; strengthen policy intervention and state capacity; assisting to design policies, plans, programs, and strategies; assisting to make decisions based on people-centered benefits rather than gross measurements such as GDP; and increasing the capacity of the region's planning and development commission's staff and other relevant regional sectors on data collection methods and analysis on the computation of HDI and GDI and policy design in the Oromia regional state. This report, assessment of the HDI and GDI, covers the period between 2008[4] (2015/16)[5] to 2013 (2020/21) which is confined to the period when data is available in the Oromia region.

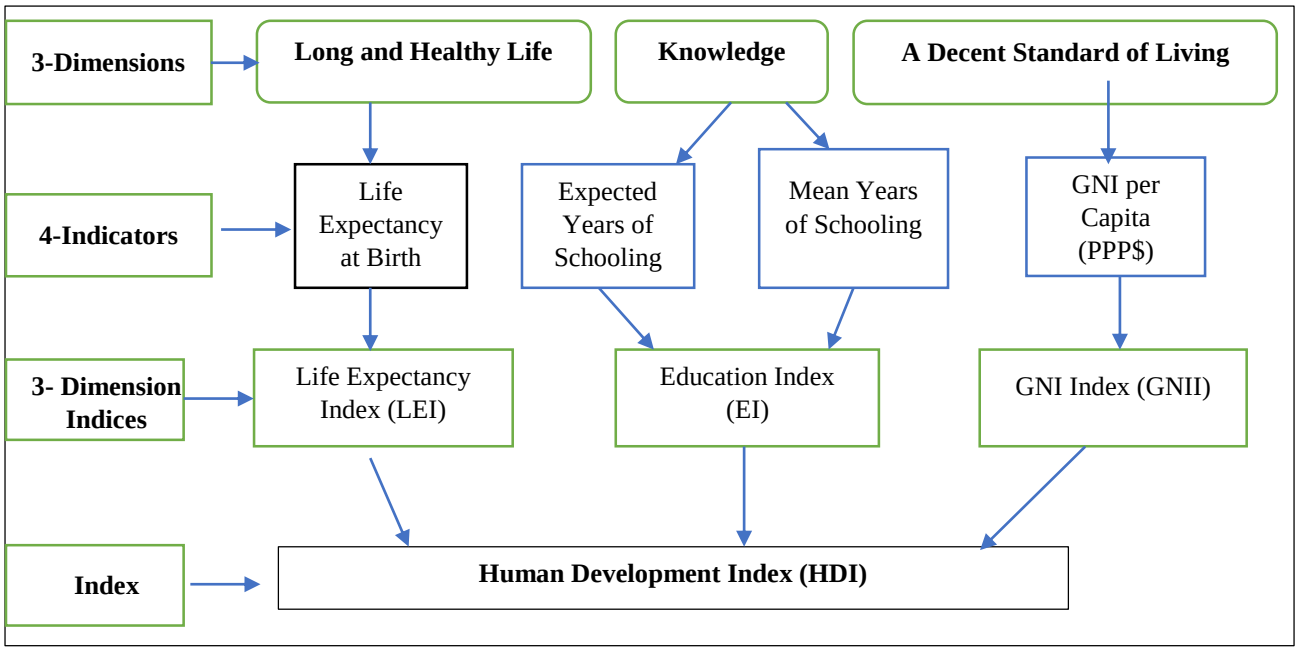
[4] Ethiopian Calendar

[5] Gregorian Calendar

2. CONCEPTUAL FRAMEWORK, DATA AND METHODS

2.1. Conceptual Framework

HDI has three dimensions (health, education, and standard of living), four indicators (life expectancy at birth, EYS, MYS, and GNI per capita), and a three-dimension index (Life Expectancy Index (LIE), Education Index (EI) and GNI Index (GNII)). HDI is computed as a geometric mean of the three-dimension indices. Figure 1 shows the dimension and indicators required for HDI computation.



Source: UNDP, 2022

Figure 1 Conceptual Framework of HDI

The HDI outlined above does not clearly consider the gender dimensions of human development. To overcome this limitation, the Gender Development Index (GDI) as a measure of socio-economic development in countries was proposed. Consequently, this assessment report for Oromia region incorporates the GDI dimensions of human development. GDI measures disparities in the HDI by gender. It contains HDI values estimated separately for women and men, the ratio of which is the GDI value. The closer the ratio is to 1, the smaller the gap between women and men. Values for the three HDI components, longevity, education, and income per capita, are also computed by gender.

2.2. Data and Methods

In this HDI assessment report, both primary and secondary data sources were used. The primary data that was used to support the secondary sources includes raw data that were gathered from various zones and districts of Oromia region by the perception assessment expert survey. The secondary sources of data include surveys data collected by Ethiopian Statistics Service (ESS), Oromia Planning and Development Commission (OPDC), Oromia Health Bureau (OHB), Oromia Education Bureau (OEB), datasets in Ethiopia such as Demographic and Health Survey (DHS), and National Labor Force Survey (LFS). The detail sources of the data sources are presented in Annex 1. The socio-economic analysis of the report covers more

than eleven years of data. The HDI computation contains thirty-one parameters, one hundred and eighty-six data points and six years.

The list of variables that will be used in the report is outlined in Annex 1. Furthermore, the details of the disaggregated indicators are given in Annex Table 2 while computation methods and procedures followed are presented under the technical note Annex 1.2.

For the perception survey, a descriptive method and RII (Relative Importance Index) were used to analyze data. RII is a weighted average method of data analysis in which average rank of each question is calculated and summarized. It was employed to rank the effectiveness of the regional state in improving people's lives and identify areas where the regional government has been successful in terms of tacking macroeconomic challenges. It is given by:

$$\boldsymbol{RII = \frac{1n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5}{AN}}$$

Where; RII=relative importance index

n_i= Frequency of response given by the respondent.

A =highest weight

N =total number of participants

The expert perception survey was conducted to assess their perception on human development, education-health-income quality and policy improvements assessments of Oromia region. The analysis aimed to survey a diverse (rather than representative) group of experts and related professionals from different offices in the region, with a wide range of experience with different types of health and education policy and with different perspectives. The survey included experts working at various national and regional institutions from lower level of work position to top management for more than last 10 years and covered experts from Universities, Research Institutes, Banks, Ministry of Civil Service, National, Regional and Zonal Finance Offices, Planning and Economic Offices, Education and Health Bureau/Offices, Ethics and Anti-Corruption Commission, Administration Offices/President Office, Bureau of Investment and Industry, Urban and Housing Offices, Bureau of Water and Energy, Bureau of Women and Children Affairs, OBM Construction Share Company, Oromia Broadcasting Service (OBS), European Union (EU), Oromia Development Association (ODA) and other offices related to education-health-income issues.

Inclusion criteria for survey participants included people responsible for service delivery in education and health sectors as well as engage in their decisions. and stakeholders with an interest in and experience with income, health, and education policies. This includes public officials, managers, Chief Executive Officers (CEO), health workers, people working in education, planning, development and finance offices, and representatives of banks, media, international organizations, non-governmental organisations, or the general public. The survey was revised after pilot testing in a small group of experts and professional who provided feedback on the content, length, clarity, and ease of use. Informed consent was obtained from survey participants prior to commencing the survey and results were de-identified when exported for analysis to protect confidentiality.

Participants were asked to rate the policy implementations in the Oromia regional state, Oromia regional state policy challenges and expected outcome and factors hastening growth, human development, education-health-income quality, and policy improvements in the Oromia

regional state based on a 5-point scale (Likert-Scale criteria) and yes or no type questions. The opportunity to make optional comments was also provided. Participants were also asked to rate whether the policy implementations in the Oromia regional state have been most effective ("A" being "Very High" to "E" being "Very Low"), with optional comments if desired. To identify respondent's perceptions on Oromia regional state policy challenges and expected outcome, participants were asked about the major policy challenges facing the regional government - and more generally the people of Oromia regional state - in the coming years. In this section, first the respondents were asked to identify top three challenges facing the regional government in the coming years. Next, they were asked to rate whether they feel the regional government has been successful in controlling inflation and the cost of living, unemployment, boosting sustainable economic, improving education quality, and improving health quality over the last 20 years on five-point Likert scale. In addition, they were also asked whether they feel that corruption in the public and private sectors is impeding the ability of region to achieve faster and more sustained social and economic development on five-point Likert scale.

To analyse respondent's perceptions on factors hastening growth, human development, education-health-income quality and policy improvements in the Oromia regional state, similar procedures were followed. In particular, participants first were asked to identify top three regional government capacity needs improvement if it will be able to address current and future development challenges that result in more opportunities and a higher quality of life for all residents of the region followed by questions demanding them rate how confident they are about overall human well-being in terms of available choices to improve the quality of life (such as access to education and health, job opportunities) so that all residents can engage in, and benefit from, the development process (with "A" being "highly confident" to "E" being "not at all confident"). In general, they were asked to reveal their perceptions about how they feel that today's youth and future generations will have a better life and more opportunities than they have now (with "A" being "highly likely to have a better life" to "E" being "highly unlikely to have a better life").

3. HDI AND GDI VALUES

The human development values in this report presents the HDI and GDI values for the Oromia National Regional State of Ethiopia between the period 2008 (2015/16) and 2013 (2020/21). Small changes in values, particularly those greater than the third decimal place, should be interpreted with caution because they may be statistically insignificant due to sampling variation. The HDI Technical Notes in Annex 1 can be referred for further information on how each index is calculated. This Human Development Report uses a time series data to analyses development in HDIs in the Oromia region from 2008 E.C. (2015/16 G.C.) to 2013 E.C. (2020/21 G.C.).

3.1. Human Development Index (HDI)

The HDI is a summary measure used to assess progress in three essential elements of human development: living a long and healthy life, having access to education, and a good standard of living. Life expectancy is a measure of how long and healthy a person lives. Access to learning and knowledge is measured by EYS for children of school-entry age, which is the total number of years of schooling a child of school-entry age can expect to receive if current patterns of age-specific enrolment rates remain constant throughout the school year. The GNI per capita is stated in international dollars and transformed using PPP conversion rates to measure standard of life[6].

3.1.1. Human Development Index (HDI) Values in Oromia Region

Oromia region's HDI value for 2013 (2020/21) is 0.545 which put the region in the upper margin of lower human development category. Furthermore, the highest achievement in the HDI value was found in 2012 (2019/20), i.e., 0.553. This was due to the higher primary school first cycle NER/NEI (1-6) that in turn improves the EYS (Table 1). The HDI value in the region declined by -1.4 percent in 2013 (2020/21) from its value in 2012 (2019/20) mainly due to a decline in the primary first cycle NER/NEI, decline in income and rise in exchange rate (depreciation of ETB) (Table 1).

Table 1: Oromia Region's HDI value (2008 (2015/16) – 2013 (2020/21))

Year	Life Expectancy at Birth	Expected Years of Schooling	Mean Years of Schooling	GNI per Capita (2017 PPP$)	HDI (Oromia Region)	HDI (Ethiopia)
(2008) (2015/16)	0.656	0.627	0.265	0.416	0.496	0.470
(2009) 2016/17)	0.677	0.630	0.268	0.425	0.506	0.480
(2010) (2017/18)	0.697	0.609	0.271	0.443	0.514	0.489
(2011) (2018/19)	0.717	0.669	0.273	0.442	0.531	0.498
(2012) (2019/20)	0.738	0.719	0.276	0.459	0.553	0.498
(2013) (2020/21)	0.758	0.675	0.279	0.448	0.545	0.498

Source: Own computation based on Oromia region data

Between 2008 (2015/16) and 2013 (2020/21), Oromia region's HDI value improved from 0.496 to 0.545, an increase of more than 10 percentage points. Table 2 reviews Oromia region's progress in each of the HDI indicators. Between 2008 (2015/16) and 2013 (2020/21), life

[6] More information can be found in Technical Notes in Annex 1.

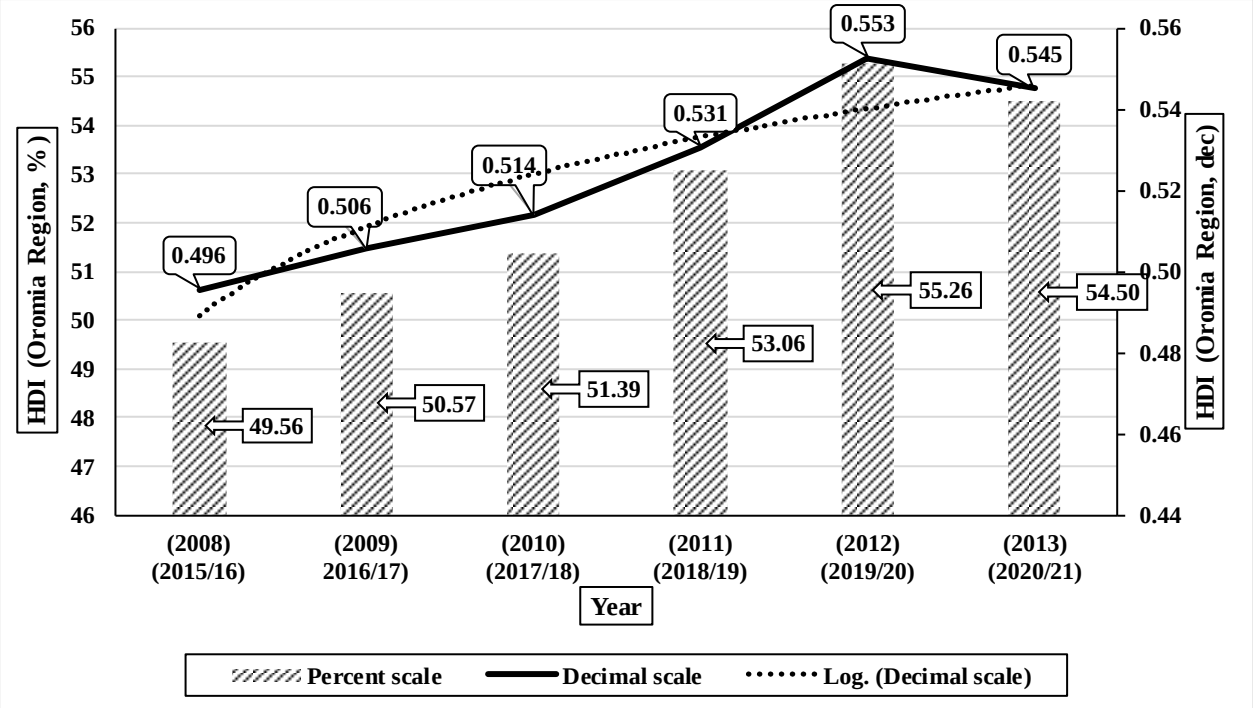
expectancy at birth in the region has increased by 15.5 percent (7 years), MYS increased by 5 percent (0.2 years) and EYS increased by 7.8 percent (0.9 years). In the same vein, the region's Oromia region's GNI per capita increased by about 7.6 percent between 2008 (2015/16) and 2013 (2020/21) (Table 2).

Table 2: Life expectancy at birth, expected and mean year of schooling and GNI per capita in Oromia region (2008 (2015/16) – 2013 (2020/21))

Year	LEB	EYS	MYS	GPC
(2008) (2015/16)	62.7	11.3	4.0	1569.3
(2009) 2016/17)	64.0	11.3	4.0	1671.8
(2010) (2017/18)	65.3	11.0	4.1	1875.3
(2011) (2018/19)	66.6	12.0	4.1	1865.8
(2012) (2019/20)	67.9	13.0	4.1	2094.1
(2013) (2020/21)	69.3	12.2	4.2	1934.8

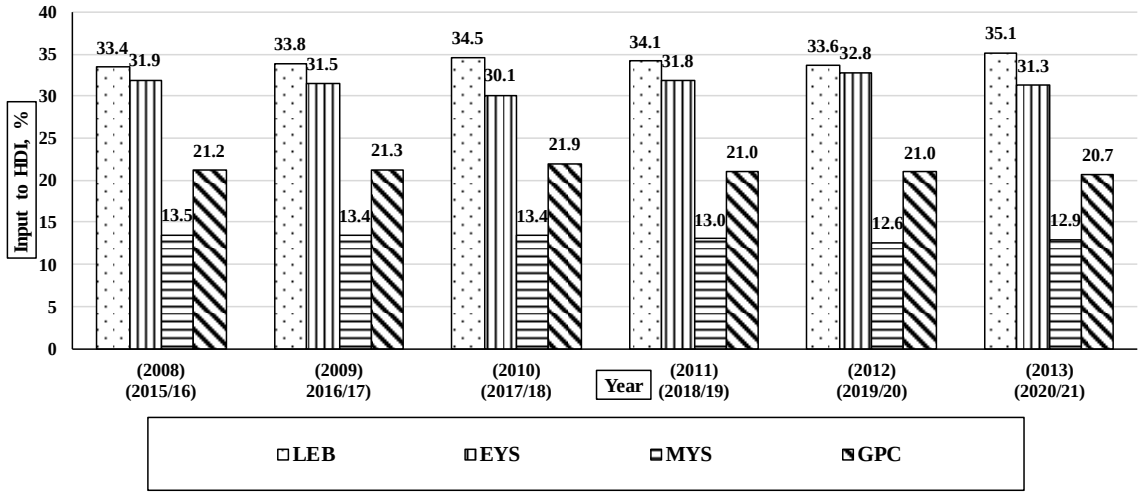
Source: Own computation based on Oromia region data

Figure 2 presents the trend of HDI in Oromia region over the six years. By the human development indicators, the region has shown overall progress of 10 percent. The life expectancy, education and income indicators also has shown progresses over the period considered.



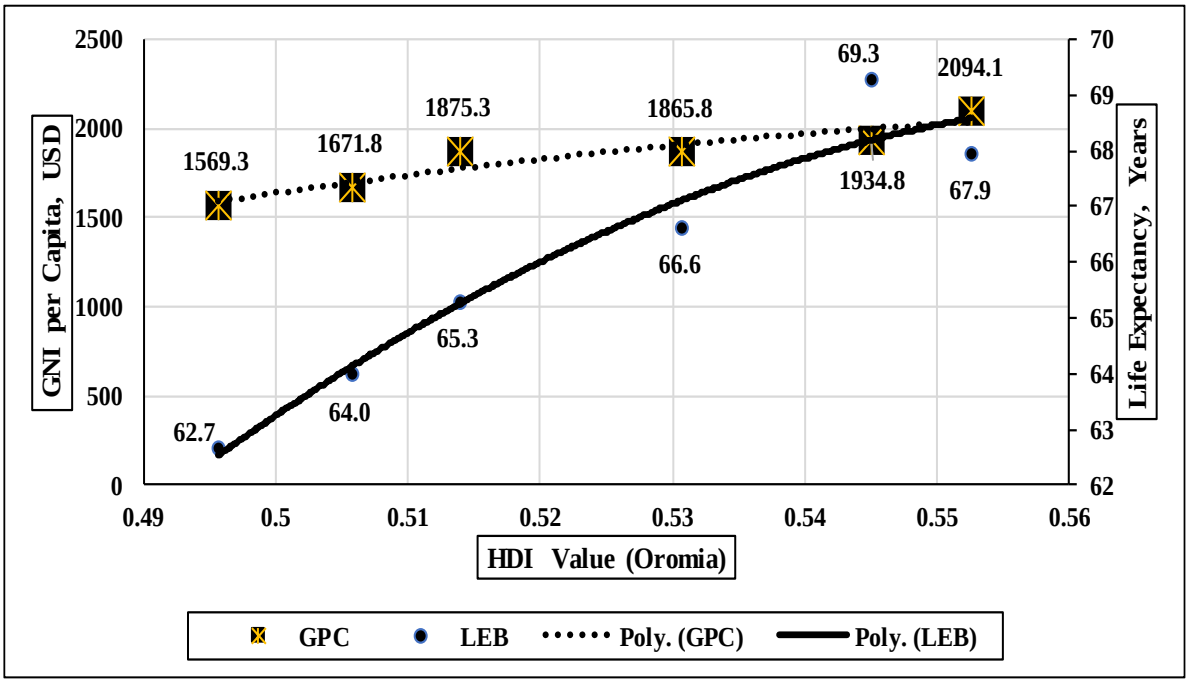
Source: Own computation based on Oromia region data
Figure 2: Trend in Oromia region's HDI value (2008 (2015/16) – 2013 (2020/21))

The life expectancy (34.1 percent on average) and EYS (31.6 percent on average) indicators progresses are higher than mean year of schooling (13.1 percent on average) and income indicators (21.2 percent on average) (Figure 3). The development initiative, reforms, policies, and better implementation capacities could be singled out as a cause for such rises in human development.



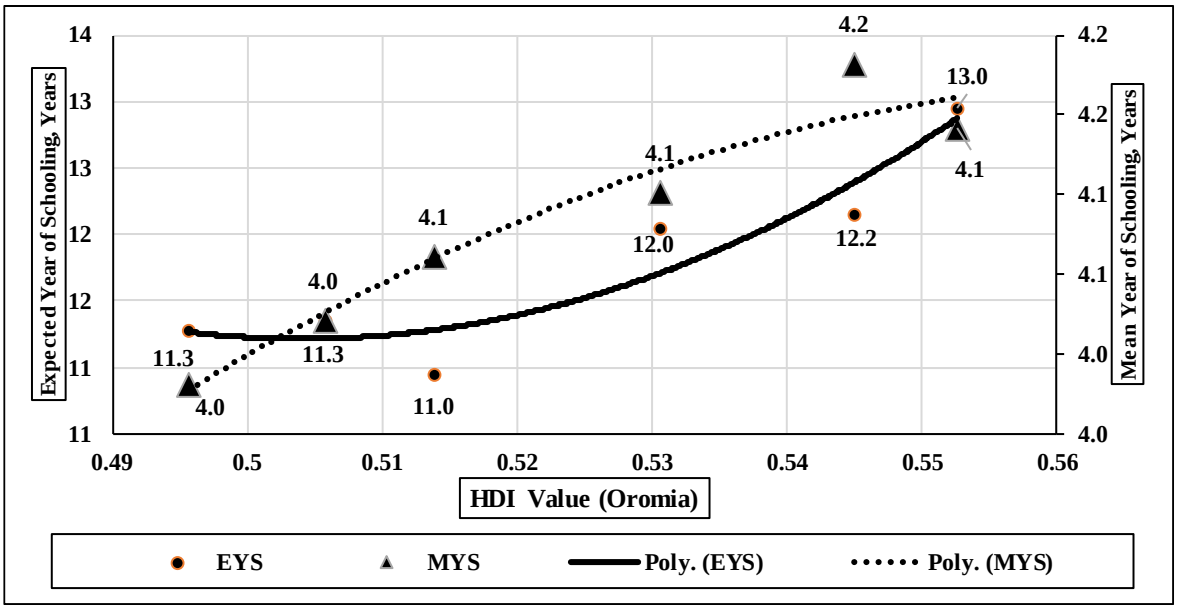
Source: Own computation based on Oromia region data
Figure 3: Relative Input of the three Indices to the HDI Value

Figure 4 and 5 below shows the scatter diagram presentation of HDI value and its association the HDI indicators. In Figure 4 the HDI has shown to have a positive association with the life expectancy and GNI per capita. The HDI's value association with the life expectancy is higher than its association with the GNI per capita.



Source: Own computation based on Oromia region data
Figure 4: HDI, income and life expectancy values association

Figure 5 shows the HDI's value association with the MYS and EYS. The association HDI value has with the EYS is stronger and increasing than its association with the MYS implying the low achievement rates in terms of MYS.

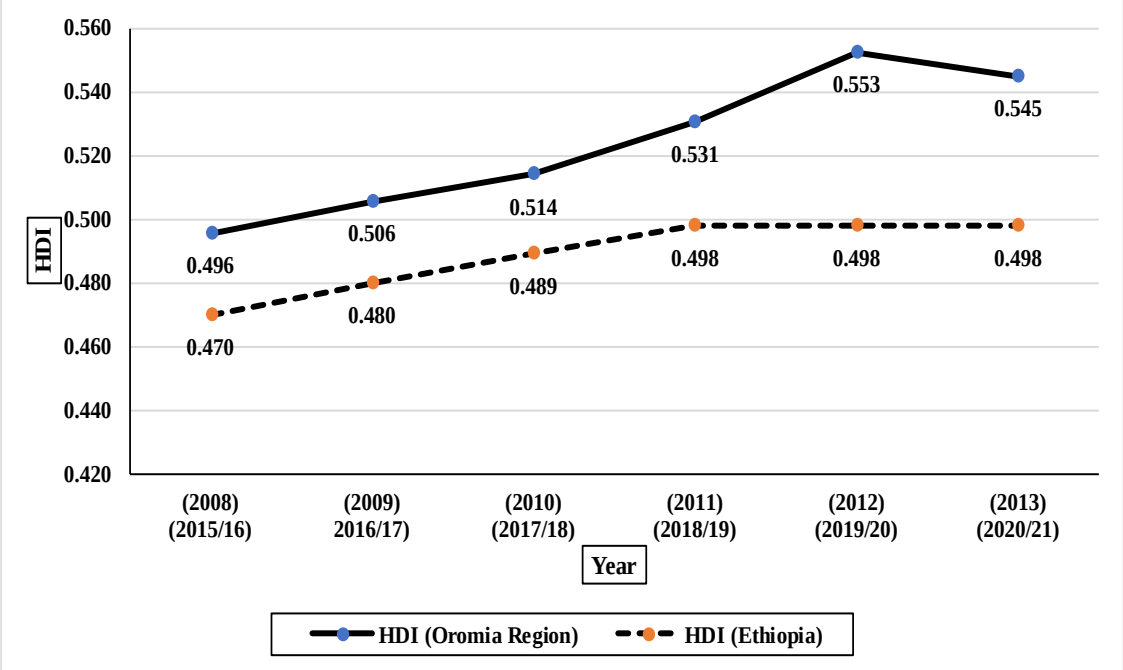


Source: Own computation based on Oromia region data

Figure 5: HDI, EYS and MYS values association

3.1.2. Comparing Oromia Region's HDI Value with the National Level Values

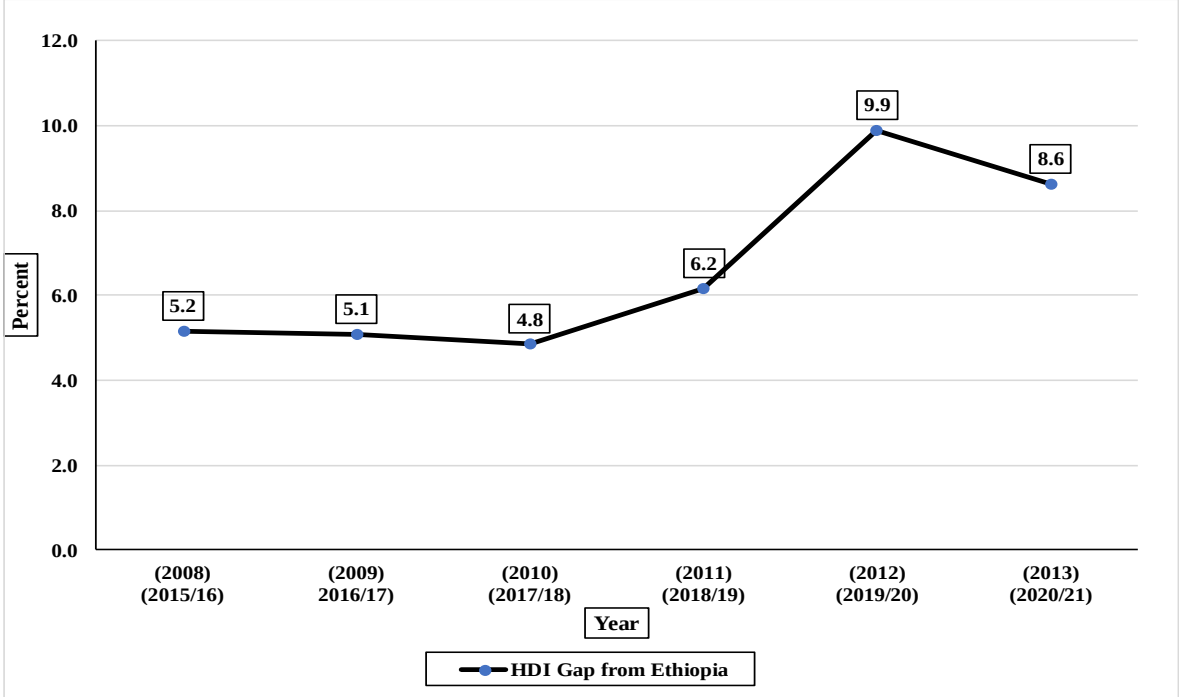
The HDI, which measures human development progress, is valuable for comparing different scopes. For example, between 2008 (2015/16) and 2013 (2020/21) Oromia region and Ethiopia made varying degrees of success towards achieving their HDI values (see Figure 6).



Source: Own computation based on Oromia region data

Figure 6: Oromia region and Ethiopia HDI values trend (2008 (2015/16) – 2013 (2020/21))

The HDI value of Ethiopia and Oromia region has shown progresses over the last six years between 2008 (2015/16) to 2013 (2020/21) by 6 percent and 10 percent, respectively. The gap of HDI value between Oromia region and Ethiopia reach 6.6 percent on average (Figure 7). As reported in figure 6, the HDI value for Oromia is 0.545 while that of Ethiopia is 0.498. This puts Oromia in the upper margin of the lower HDI category range while the national figure for Ethiopia remains in the lower human development category.



Source: Own computation based on Oromia region data
Figure 7: Oromia region and Ethiopia HDI values gaps (2008 (2015/16) – 2013 (2020/21))

3.2. Gender Development Index (GDI) Value in Oromia Region

The GDI is defined as a ratio of the female to male HDIs based on the sex disaggregated Human Development Indices. The GDI assesses gender disparities in three basic dimensions of human development: health (measured by female and male life expectancy at birth), education (measured by female and male EYS for children and mean years for adults aged 25 and older), and command over economic resources (measured by female and male estimated GNI per capita)[7].

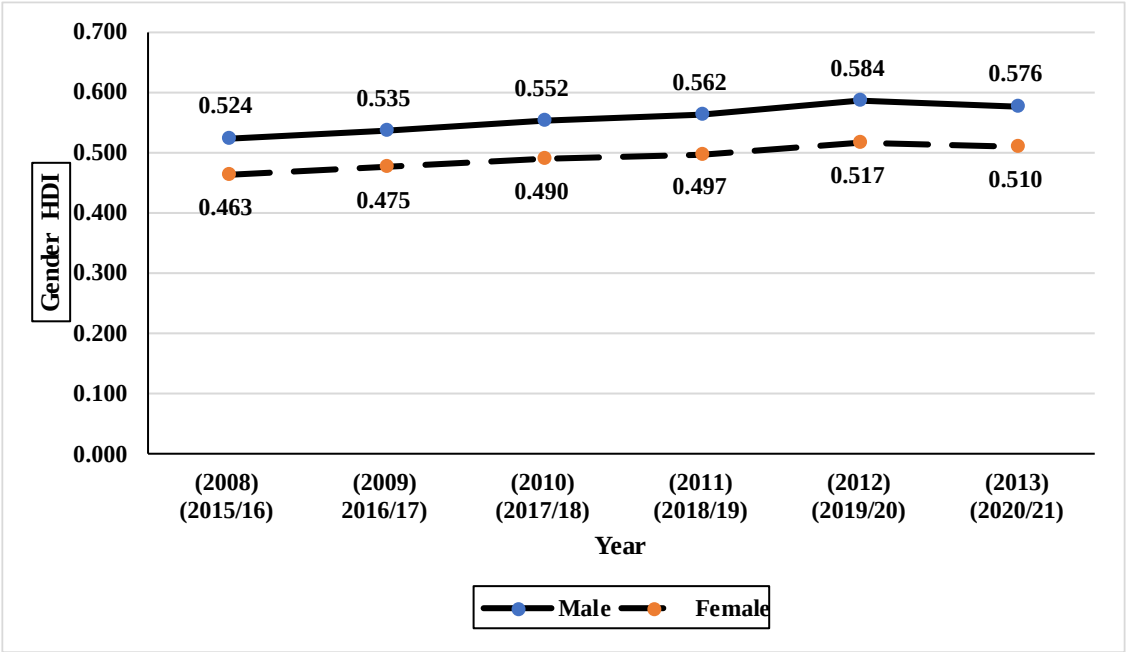
[7] More on this can be found in Annex 1

Year	F-M Ratio	HDI values		Life expectancy at birth		Expected years of schooling		Mean years of schooling		GNI per capita	
	GDI Value	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
(2008) (2015/16)	0.884	0.463	0.524	0.655	0.657	0.597	0.656	0.206	0.325	0.378	0.446
(2009) 2016/17)	0.888	0.475	0.535	0.675	0.678	0.609	0.664	0.207	0.329	0.388	0.455
(2010) (2017/18)	0.887	0.490	0.552	0.695	0.698	0.624	0.688	0.209	0.333	0.406	0.472
(2011) (2018/19)	0.883	0.497	0.562	0.715	0.719	0.634	0.715	0.210	0.337	0.406	0.470
(2012) (2019/20)	0.884	0.517	0.584	0.735	0.740	0.672	0.767	0.212	0.341	0.424	0.487
(2013) (2020/21)	0.885	0.510	0.576	0.755	0.761	0.632	0.718	0.213	0.344	0.415	0.474

Source: Own computation based on Oromia region data

Table 2: Female and male HDI values and F-M Ratio in Oromia region's (2008 (2015/16) – 2013 (2020/21))

The (2013) (2020/21) female HDI value for Oromia region is 0.510 in contrast with 0.576 for males, resulting in a GDI value of 0.885 (see Table 3). The men HDI values are higher in the three dimensions compared to their female counterparts (Figure 8). The contributors for the disparities according to their order of importance are life expectancy ratio (99.3 percent), EYS ratio (88.1 percent), GNI ratio (87.7 percent) and MYS ratio (61.9 percent).

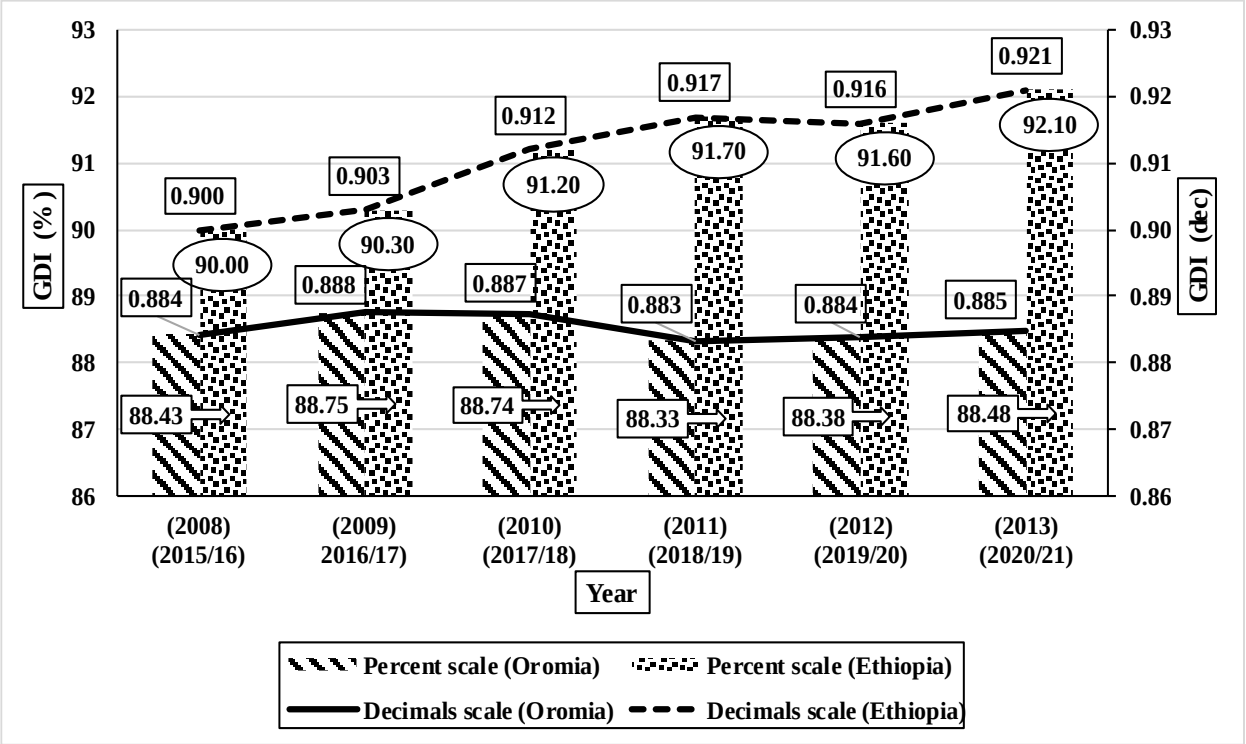


Source: Own computation based on Oromia region data

Figure 8: Female and male HDI values trends in Oromia region's (2015/16) – (2020/21)

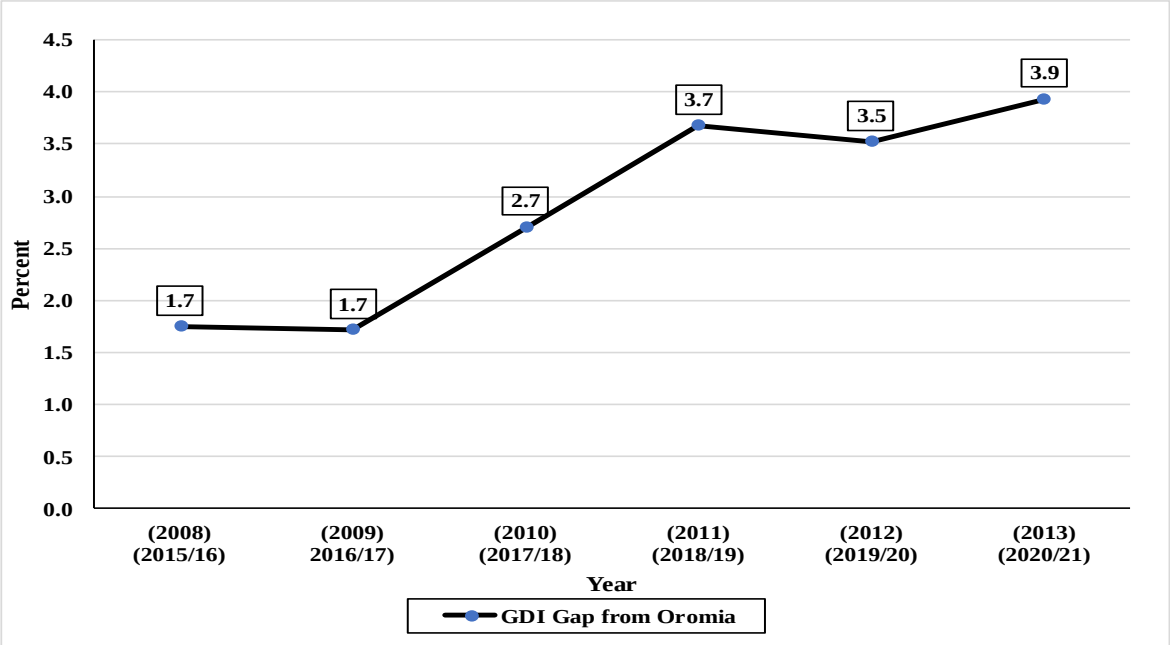
Figure 9 presents the gender disparity measured by GDI in Oromia region is slightly rising in 2009 (2016/17) and shows a tendency of declining then after over the period between 2010 (2017/18) and 2013 (2020/21) (Figure 9). An average 11.5 percent disparities are observed between male and female over the 6 years period. Ethiopia loses an estimated USD 3.7 billion in economic cost each year as a result of gender gaps in agriculture, business earnings, and employment wages. This cost reflects the effort required to close the gender gap within the

economic system (WB, 2019). The slight decline value of GDI over the period from the 2010 (2017/18) onwards was primarily due to the drop of the life expectancy and EYS.



Source: Own computation based on Oromia region data
Figure 9: Oromia region and Ethiopia GDI Values trend (2008 (2015/16) – 2013 (2020/21))

The GDI, which measures gender development progress, is valuable for comparing different scopes. For example, between 2008 (2015/16) and 2013 (2020/21) Oromia region and Ethiopia made varying degrees of success towards achieving their GDI values (see Figure 10). The GDI value of Ethiopia shows progresses (2.3 percent) but Oromia region's GDI value remain stagnant over the years between 2008 (2015/16) to 2013 (2020/21). The gap of GDI value between Oromia region and Ethiopia reach 2.9 percent on average (Figure 10).



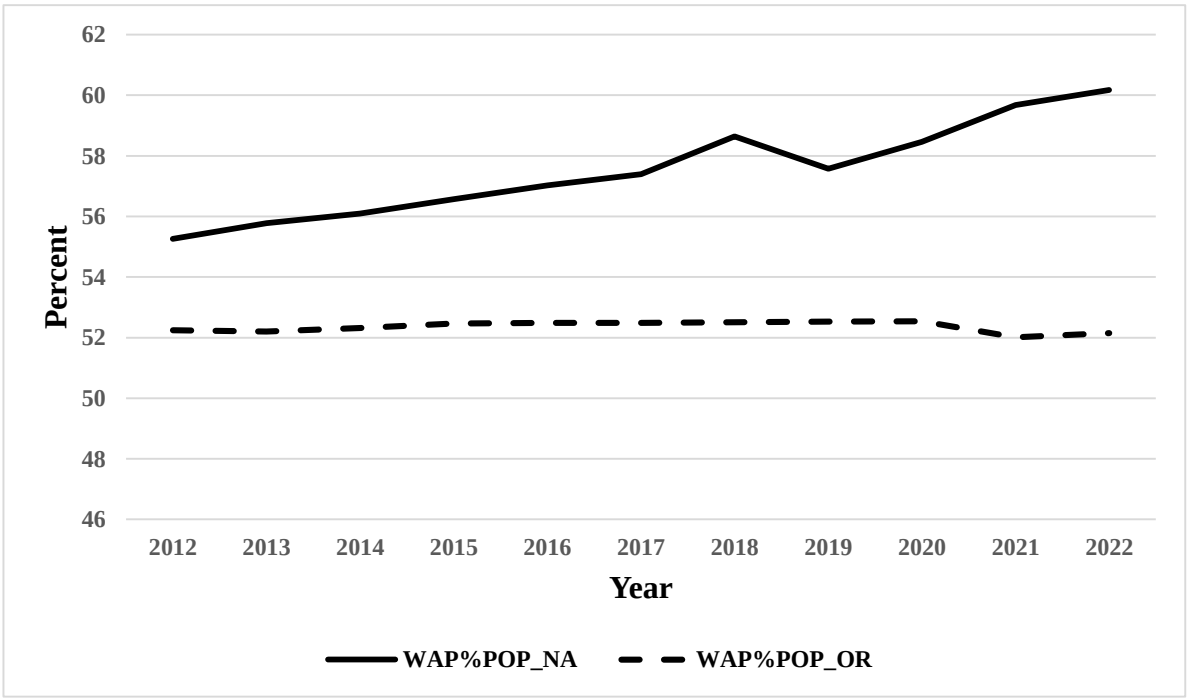
Source: Own computation based on Oromia region data

Figure 10: Oromia region and Ethiopia GDI values gaps (2008 (2015/16) – 2013 (2020/21))

4. SOCIO-ECONOMIC DEVELOPMENT OF OROMIA REGION

The overall level of socioeconomic development in Oromia region measured in a number of dimensions is still low. For instance, poverty and social inequality is high, gender disparity persists. Furthermore, the region is characterized by widespread poverty along with low-income level of the population, low educational level, inadequate access to clean water and sanitation facilities, high population growth, and poor access to health services (Oromia Planning and Economic Development Commission [OPDC], 2014). However, there has been immense improvement particular in the health sector as presented in section 4.4. Unemployment rate in the region is also very high which is the reflection the national situation. For instance, according to the recent national Labour Force and Migration Survey, Ethiopian Statistical Service (ESS, 2021), unemployment rate in Oromia region stood at 6.9 percent with the highest unemployment rate registered in Burayu towns with about 27.8 percent.

Figure 11 presents some of the socio-economic indicators of Oromia regional state. It depicts the working age population as percentage of the total population (WAP%POP), the contribution of agriculture, industry, and service sectors to Gross Domestic Product (GDP), Nominal GDP (NGDP), Real GDP (RGDP) and RGDP per capita growth rates for Oromia regional state and for Ethiopia (National hereafter)[8]. To start with, the working age population to the total population in the region has been almost stagnant which might be due to the rise in working age population is lower than the rise in total population (Figure 11). As of the data obtained from the Ethiopian Statistical Service (ESS, 2022) and Oromia Planning and Development Commission (OPDC, 2022), one can see that the growth rate of working age population for Oromia region (below 2.9 during the study period) is lower than the population growth rate of Oromia region (which had been 2.9 on average).

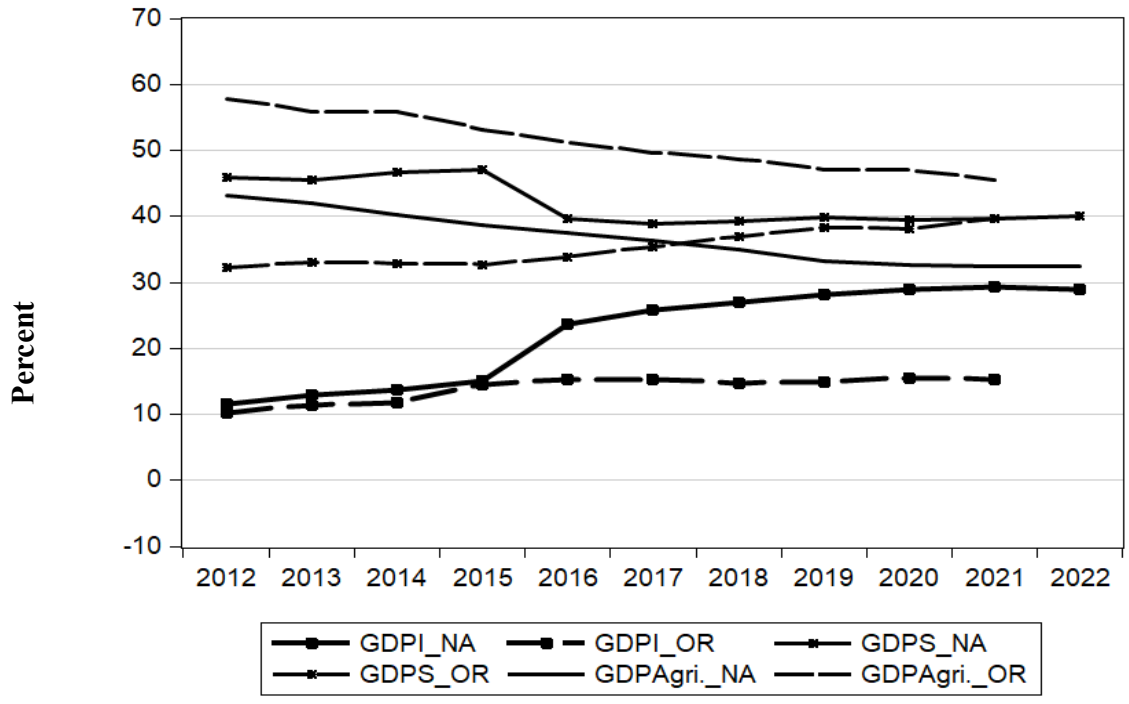


Source: Oromia Planning and Development Commission (2012-2022) and Ethiopian Statistical Service (2012-2022).
Figure 11: Social and Macroeconomic Indicators (Ethiopia vs Oromia Region).

[8] The values for Ethiopian case are brought here for comparison purposes.

Hence, the decline in portion of working age population to total population since 2020 is not surprising. The trends in the ratio of working age population to the total population for Oromia region is lower than the national level value. This is due to two reasons. First, while the population growth rate of Ethiopia has been slightly declining since 2014, based on the ESS (2021), the population growth rate of Oromia region is relative constant at the rate of 2.9. Second, unlike for Oromia region, the growth rate of working age population for Ethiopia is higher than the population growth rate.

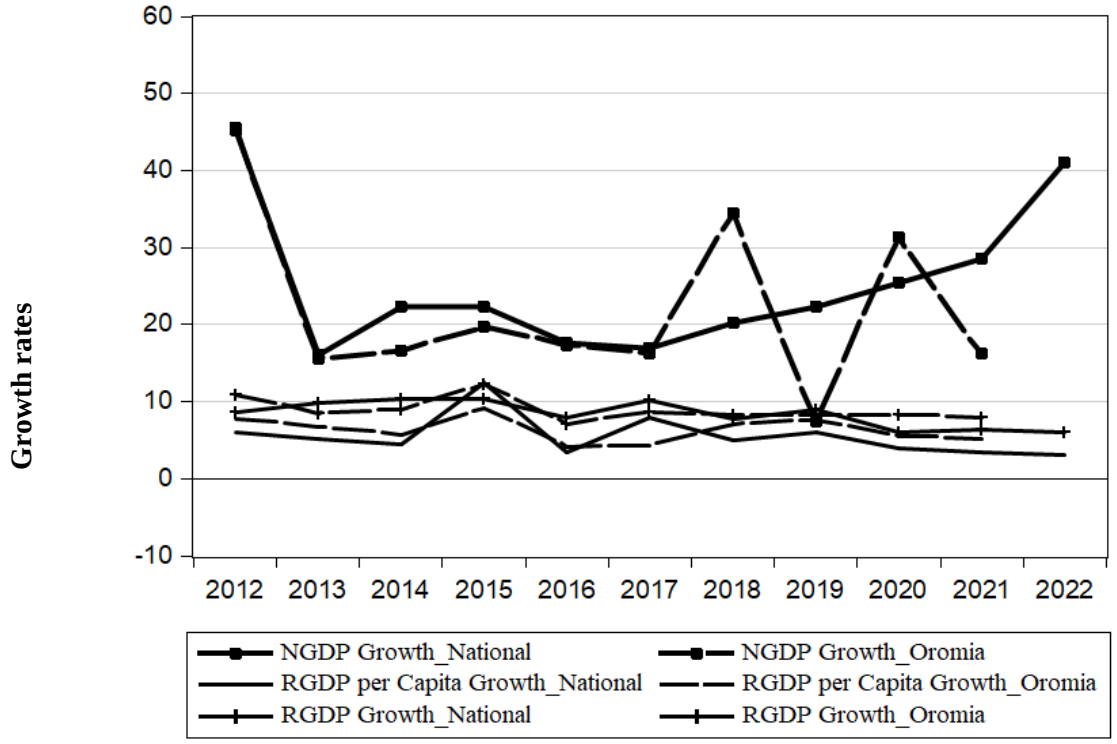
Figure 12 below depicts the contribution of the three economic sectors (agriculture, industry, and service sector) to GDP at regional and national levels. While the contribution of industrial sector to the regional GDP is stagnant (which is less than 15 percent since 2015) and below the sector's contribution to national GDP, the contributions of services sector to regional GDP is rising at alarming rate and coincides with the sector's contribution to national GDP since 2020. Similar to industrial sector contribution to regional GDP, the contribution of service sector to regional GDP is below the sector's contribution to the national GDP. However, the contribution of agriculture sector to regional GDP is by far higher than the contribution of the sector to the national GDP. One can also observe from Figure 12 that there is strong linkage between the contribution of agriculture to regional and national GDPs. In particular, its contribution to both GDP has been continuously declining over the study period. The higher the agricultural GDP to the Oromia regional state's GDP, the higher is the sector's contribution to the national GDP. This is not surprising as the Oromia region encompasses larger area of agricultural land in Ethiopia.



Source: Oromia Planning and Economic Development Commission (2012-2022) and Ministry of Planning and Development (2012-2022).
Figure 12: Sectoral contributions to GDP (Ethiopia vs Oromia Region).

The region has achieved sustained economic growth in recent years with real GDP growth above 7 percent since 2012, registering double digit levels in 2012 and 2015 (Figure

13). The average annual real GDP growth rate from 2012 to 2021 was around 8.65 percent, placing region among the top growing regions in Ethiopia. The average RGDP growth rate of Ethiopia during the same period was 8.05 percent[9]. This suggests that the average RGDP growth rate of Oromia region is higher than the national RGDP growth rate. However, the dynamics of RGDP growth rate in the region is volatile during the study period, particularly since 2017.



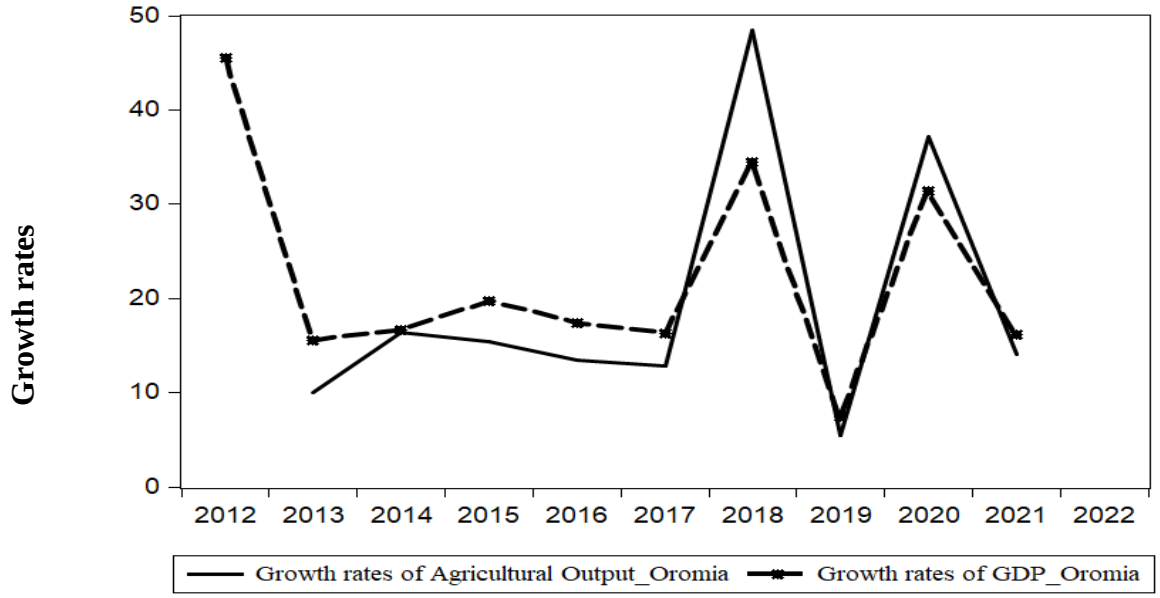
Source: Oromia Planning and Development Commission and Ethiopian Statistical Service (2012-2022).
Figure 13: Macroeconomic Indicators (Ethiopia vs Oromia Region).

Figure 14 shows the co-movement and erratic nature of GDP and agricultural output in Oromia region, where the growth rate of GDP and the growth rate of the agriculture is strongly and significantly associated. The correlation coefficient between the growth rate of GDP and growth rate of agriculture is 96.95 (0.000)[10]. Even if the contribution of the agriculture to the GDP growth rate is declining over time (Figure 14), the sector is still the significant contributor of the GDP growth in the region and most of the variation in the GDP growth rate is partly due to the performance in the agricultural sector, which in turn depends on the nature of weather conditions.

Performance in the agricultural sector determines evolution of major macroeconomic variables in the region and in Ethiopia in general, mainly inflation dynamics and real GDP

[9] The average growth rates are estimated by regressing natural logarithms of the RGDP on time using OLS based on data from Planning and Economic Development Commission (2012-2022) for Oromia region and from Ministry of Planning and Development (2012-2022).
[10] The number in the parenthesis is P-value.

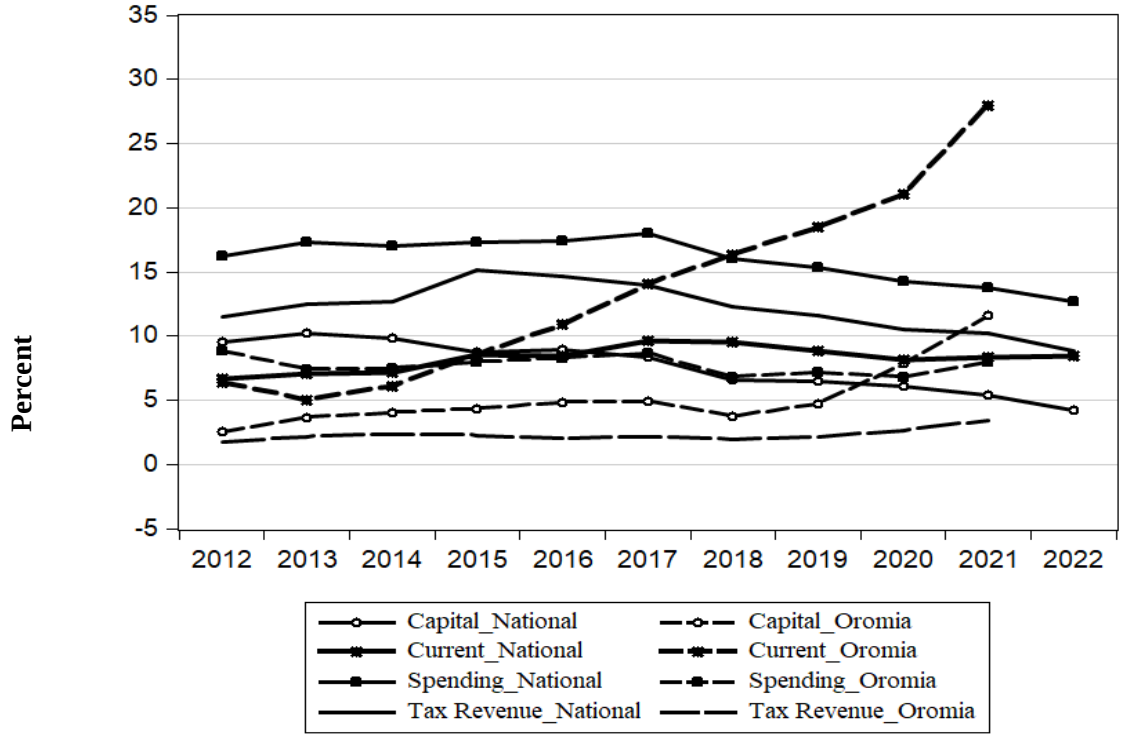
growth where agriculture is a major source of food for domestic consumption, and of raw materials for the domestic manufacturing industries. For instance, the slowdown in GDP growth rate in 2018/19 in Oromia region was a result of fall in growth rate of agricultural output and associated fall in the contribution of the agriculture to the GDP. In this period, based on data obtained from OPDC (2012-2021), the growth rate of agriculture was 5.40 percent, which is twice lower than its growth rates from 2012 to 2021. According to the African Development Bank (AFDB, 2017) estimates, a one percent change in average annual rainfall results in a 0.3 percent change in GDP growth the following year. It is also worthwhile to note that the contribution of the industry to the real GDP growth was almost constant overtime, which is one of the challenges for ensuring structural transformation in the in the region. On the other hands, the contribution of service sector to the real GDP growth is on the way to dominate that of the agricultural sector due to rapid expansion in financial intermediation, public administration, hotel and retail business activities.



Source: Oromia Planning and Economic Development Commission (2012-2022).
Figure 14: Growth rates of agricultural output and GDP in Oromia region (2012-2021).

4.1. Fiscal Policy Performance in Oromia Region

Figure 15 presents the performance fiscal policy of Oromia regional government in terms of regional government expenditures (current, capital, and total government expenditures) and the tax revenue. The fiscal policy stance aims to achieve macroeconomic stability while supporting economic growth (both regional and the national). In this section, focus is given to trends and patterns of government expenditure including its components and tax revenue since 2012. The aggregate spending as a share of GDP was almost higher and stable between 2012 and 2017 and slightly declining after 2017 for both Oromia region and Ethiopia (Figure 15) partly because of the privatization of government enterprises and thus government withdraw from direct involvement in production and service. Ethiopian government has been prioritizing public spending on pro-poor and growth enhancing sectors and improving revenue mobilization (African Development Bank [AFDB], 2017).



Source: Oromia Planning and Economic Development Commission (2012-2022).
Figure 15: Trends in expenditure and tax revenue (% of GDP) (Ethiopia vs Oromia Region).

The same has been true for Oromia region. For example, between 2012 and 2017, the share of regional government spending on pro-poor[11] and growth-enhancing sectors was more than 70 percent of the total regional government spending, which is indeed above the national pro-poor spending share of 60 percent on the above sectors. Between 2013 and 2021, the proportion of spending on the above sectors on average is 61.75 percent. When we look at the structure of government expenditure, capital spending as a percentage of GDP was remained stable (at or near 10 percent of GDP) for both Ethiopia in general and Oromia region in particular. This suggests that the structure of regional government spending in Oromia region follow the pattern of national spending which is not surprising due to the fact that the magnitude of regional government spending in Ethiopia depends largely on the amount of budget they receive from the national government.

On the other hand, while the share of current expenditure in GDP was below 10 percent for Ethiopia during the period under consideration, its share to GDP in Oromia region started to rise in 2015 at alarming rate and reached around 28 percent in 2021 partly due to Coronavirus (COVID-19) incidence and associated social burden. It is also worthwhile to compare the current expenditure to GDP of the Oromia region with national spending. Accordingly, one can observe that the current expenditure share in GDP for Oromia region is above the national spending since 2018. This implies that the region is spending largest share of its income on current expending as compared to the national value. The main sources of expenditure financing for the region are budget allocation from the central or national government sources and regional sources (such as tax and non-revenue collected within the region). On the revenue

[11] The pro-poor sectors include roads, education, health, agriculture, and water and sanitation.

side, regional government tax-revenues has been stagnant, but parallel with government expenditures.

4.2. Employment and Unemployment

The level of employment and unemployment of a country and region can be used as overall indicators in evaluating the current performance of both national and regional economy. The capacity of the regional economy in absorbing the labour force needs to be monitored regularly and an appropriate employment policy need to be consequently adopted at both rural and urban areas of the region. However, data on employment-unemployment dynamics is only available for urban areas and data on the rural area of the region is either limited or non-existent for majority of period. Hence, the discussion in this section focuses on the unemployment problem in urban area of the Oromia region[12].

Table 3: Employment to Population Ratio by Sex (Urban, Oromia vs Ethiopia)

Year	Employment to Working Age Population Ratio					Proportion of persons Who Work in the Informal Sector				
	2014	2015	2016	2018	2020	2014	2015	2016	2018	2020
Ethiopia										
Male	63.1	63.7	64.2	61.5	60.6	18.7	21.7	19.8	17.1	10.5
Female	43.4	43.6	42.8	40.5	39.9	33.6	36.5	35.6	28.2	24.4
Total	52.6	52.9	52.6	50.1	49.7	24.9	27.8	26.5	21.7	16.1
Oromia										
Male	63.7	65.1	65.0	60.6	60.5	24.4	27.3	24.7	22.3	13.2
Female	42.0	43.7	42.5	38.4	37.3	41.1	43.5	42.0	36.0	27.9
Total	52.3	53.9	53.0	48.8	48.3	31.2	33.9	31.8	27.8	19.0

Source: The 2020 Urban Employment Unemployment Survey (UEUS).

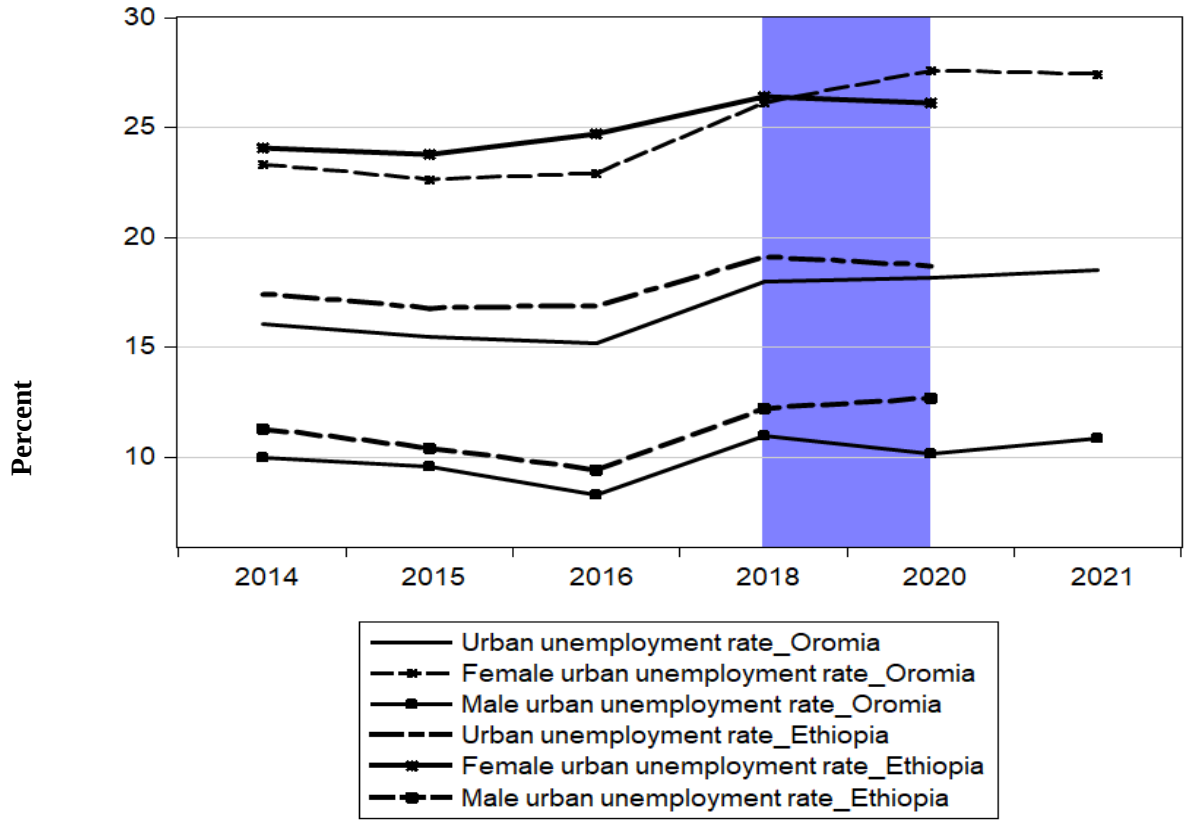
One of the labour market performance indicators is employment to population ratio. It is calculated as the percentage of total employed persons to the total working age population, whose age is 10 years and above. It provides information on the extent to which the population is engaged in productive activities. A high employment to population ratio implies large proportion of the population is employed, while low employment to population ratio reflects large share of the population is not involved in productive activities due to unemployment or being out of the labour force (ESS, 2020). The employment to population ratio in urban area of the region has been slightly declining since 2015, reaching 48.3 in 2020. This implies that about 48.3 percent of the total urban population of the region age ten years and above are employed (Table 4). Multiplying this proportion by the total number of urban populations of the region aged ten years and above gives 2, 93,6270 employed urban population.

[12] Since the dynamics and the problem of unemployment rates in rural and urban area are not similar, the result in this section should be taken with caution.

The employment to population ratio of Oromia region followed trends of employment to population ratio for Ethiopia and lower than the ratio for Ethiopia during the recent years. When compared with 2014, the employment to urban population ratio of Oromia region declined by 7.65 percent in 2020 and higher than the decline in the ratio for Ethiopia (5.51 percent). Similar to the national ratio, the employment to population ratio of males is higher than females. The highest proportion of employed persons were found working in the informal sector in Oromia Region than in Ethiopia regardless of sex. In 2020, for example, 19 percent of employed persons were working in the informal sector.

4.3. Trends in Urban Unemployment Rate in Oromia Region

Unemployment rate is the most commonly used indicator of the labour market, is defined as the proportion resulting from dividing the total number of unemployed persons aged ten years and above by the corresponding labour force, which itself is the sum of the total persons employed and unemployed (ESS, 2020). According to the 2020 Urban Employment Unemployment Survey (UEUS), as depicted in Figure 16, the unemployed population in urban areas of the Oromia region was 1,255,476 with unemployment rate of 18.2 percent, which is comparable with the unemployment rate of Ethiopia (18.5). This means that out of 100 economically active persons aged ten years and above about 18 them are unemployed.

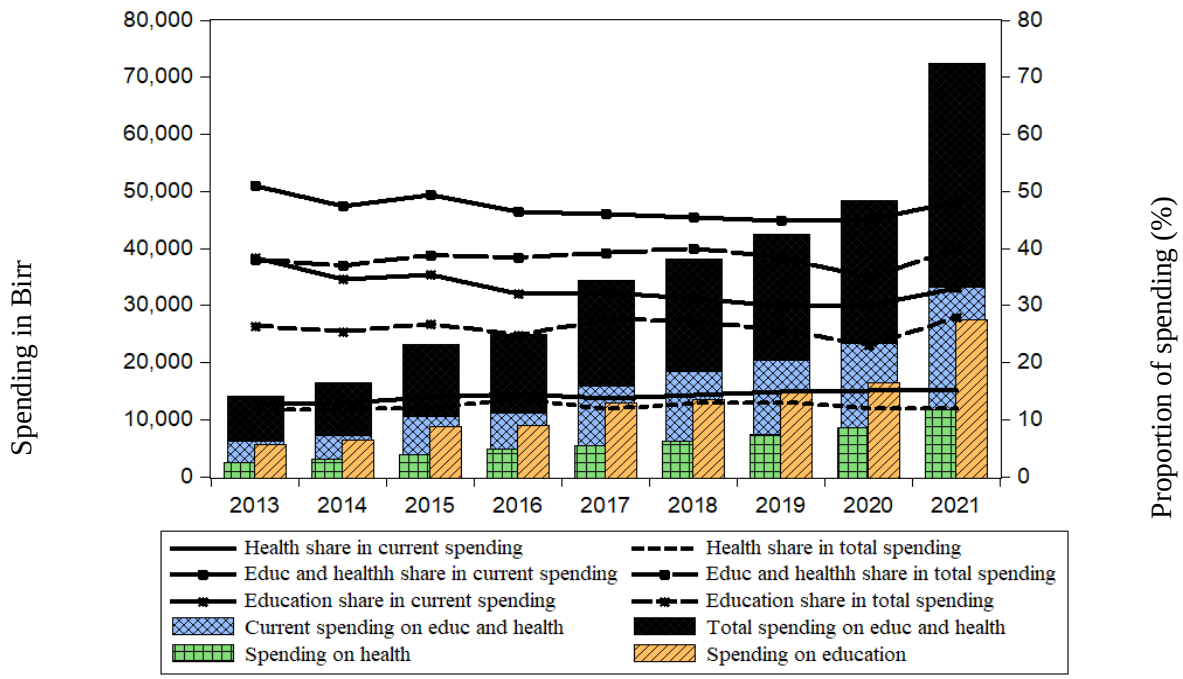


Source: The 2020 Urban Employment Unemployment Survey (UEUS).
Figure 16 Trends in Urban Unemployment Rate (% of GDP) (Ethiopia vs Oromia Region).

Similar to the difference in unemployment rate at the national level, the female unemployment rate (27.6 percent) in Oromia region is more than twice the male unemployment rate (10.2 percent) in 2020. The total unemployment rate in Ethiopia is higher than the rate in Oromia region due to higher urban unemployment rates in Amhara and Tigray regions since 2014. Similar to other comparable regions in Ethiopia, the female unemployment rate in Oromia region is higher than the national average since 2018.

4.4. Education and Health Sector Expenditure in Oromia Region

The magnitude of regional government spending on education and health (on average 12723.82 and 5957.81 million birr between 2013 and 2021, respectively) accounts for significant proportion of regional government spending on pro-poor sectors (education, health, agriculture, road, water, and sanitation). The average proportion of spending on health and education out of spending on pro-poor sectors in Oromia region between 2013 and 2021 is 63.25 percent. This suggests that spending on the above two sectors take lion shares out of the regional government spending in pro-poor and growth enhancing sectors.



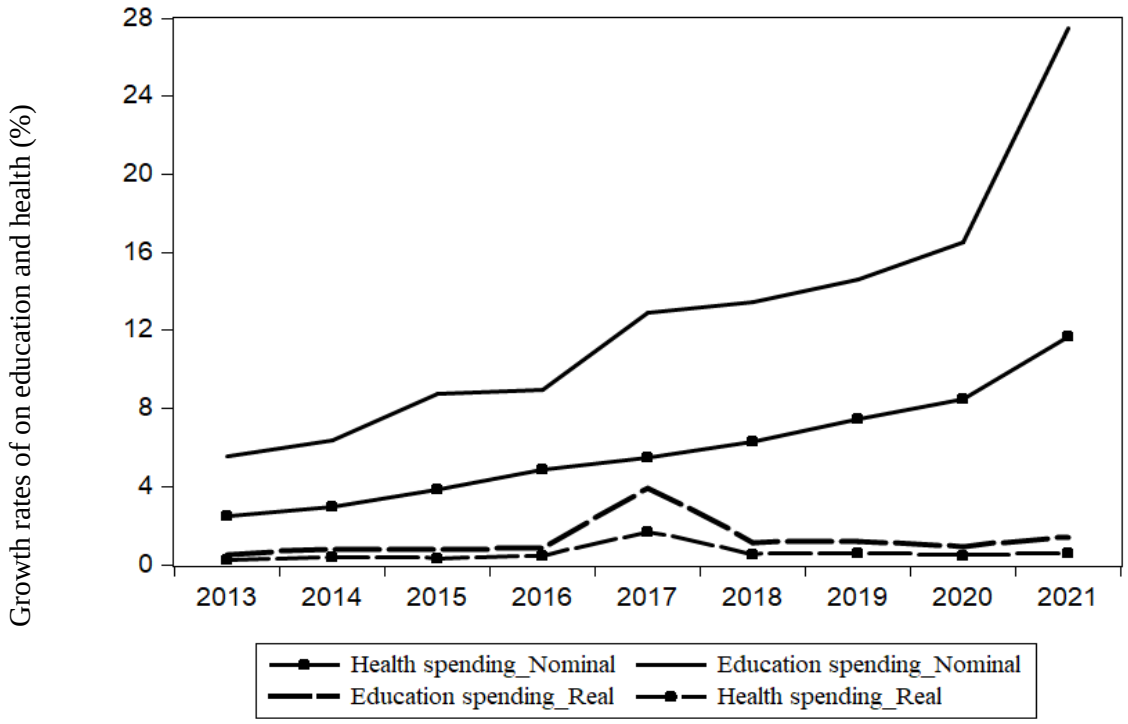
Source: Oromia Planning and Economic Development Commission (2012-2022).
Figure 17 Expenditure on education and health in the Oromia region.

The education and health sectors also account for the largest proportion of the regional government spending, accounting, on average, for 38.24 percent of total regional expenditure between 2013 and 2021, reflecting the strong commitment of the Oromia regional government to educational and health development (Figure 17). This share is even higher than the national government spending on education, which was 24.2 percent of total expenditure in 2015/16

and even higher than the Abuja declaration in 2001 between African countries[13] (UNICEF, 2017).

Key Takeaway

- The regional government of Oromia has achieved remarkable progress in sustaining nominal increases in education and health spending. In 2013, the aggregate expenditure in the education and health sectors were ETB 7.99 billion in nominal terms, which increase to 39.17 billion birrs in 2021. However, the expenditure on education and health in real terms has been decreasing due to high inflation challenges in the regional economy.
- Thus, in light of the pressure of providing quality education to a growing child population and improving health services, greater effort is required to ensure sustained increases in education and health expenditure.



Source: Bureau of Finance and Economic Development (2012-2022).
Figure 18 Expenditure on education and health in the Oromia region (Real vs Nominal).

It should be noted that due to linkages across sectors, spending in sectors such as health and road construction (especially rural roads) has spillover effects that positively affect education outcomes. For instance, healthier children are more likely to have higher school attendance rates, while rural roads facilitate access to education services (UNICEF, 2017). When we look at the regional expenditure on education and health separately, the expenditure on the former is higher than on the latter. In particular, the average proportion of spending on education between 2013 and 2021 is 26.02 percent and 32.95 percent of total and current regional expenditure, respectively, which is higher than that of average spending on health (average

[13] In April 2001, heads of state of African Union countries met and pledged to set a target of allocating at least 15% of their annual budget to improve the health sector at Abuja.

proportion of spending on health during the same period is 12.22 percent and 14.13 percent of total and current regional expenditure, respectively). Compared to the spending levels in 2013, expenditure on education and health in nominal grew at an average rate of 17.84 percent and 18.25 percent respectively (Figure 18)[14]. In terms of composition, expenditure on education and health in the region is predominantly recurrent expenditure.

The above discussion on education and health expenditure focused on the nominal terms without taking into account the changes in general price level. Given the current reality of the country in general and the region in particular, the nominal values do not reflect the real commitment of the regional government and as result the real expenditure on education and health need to be considered. Accordingly, in 2020/21, the aggregate education expenditure was ETB 27.27 billion in nominal value and ETB 1.67 billion in real terms (Figure 16). Compared to the spending levels in 2013, education expenditure in nominal and real terms grew at an average rate of 17.84 percent and 9.43 percent respectively. Similarly, the aggregate expenditure in the health sector was ETB 11.7 billion in nominal value and ETB 582 million in real terms (Figure 17).

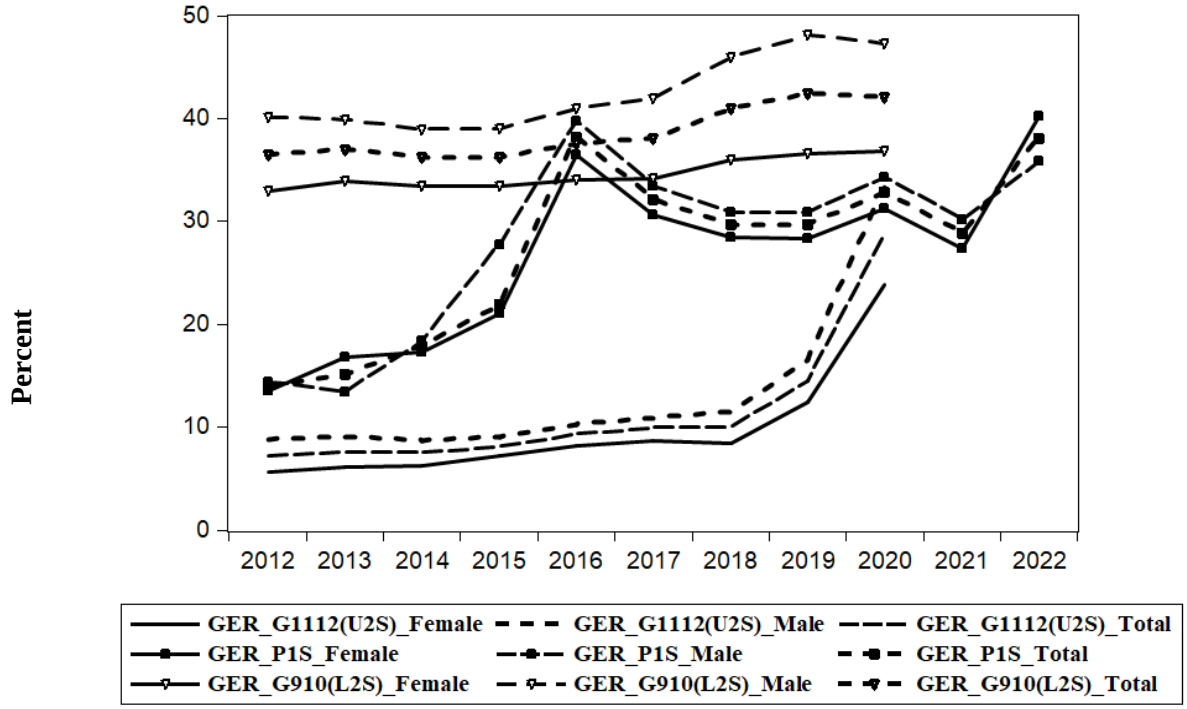
In terms of comparing the growth rates of health spending in 2013, it has grown, in nominal and real terms, at an average rate of 18.25 percent and 9.84 percent respectively. It is also worthwhile to note that aggregate expenditure in the education and health sectors have been increasing particularly high for health sector in 2020/21, as more expenditure has been flowing into the health sector as part of the COVID-19 response. However, the expenditure in the education and health sectors has been either constant or decreasing for most periods due to the high level of inflation currently challenging the regional economy and the country in general.

4.5. Education Sector Indicators Performances

Education is one of key sector that received due attention of Ethiopian government as pro-poor and growth enhancing sector. The Ethiopian government has been investing heavily in education sector. The education sector received 24.2 percent of on-budget total national expenditure and 4.4 percent of GDP in 2015/16, meeting the global benchmark of 20 percent of the national budget spent on education as put forth by the education for all. This is an impressive achievement which begs the call for maintaining the share of government expenditure being spent on education (UNICEF, 2017). Figure 17 presents the Oromia regional expenditure on health and education as well as their proportion in total and current regional government expenditure. In terms of types of expenditure, spending in the education and health sectors remained predominantly recurrent in nature. Between 2013 and 2021, over 85 percent was on average allocated to finance recurrent education and health expenditures. Less than 15 percent was on average absorbed by capital education and health expenditures (Figure 17).

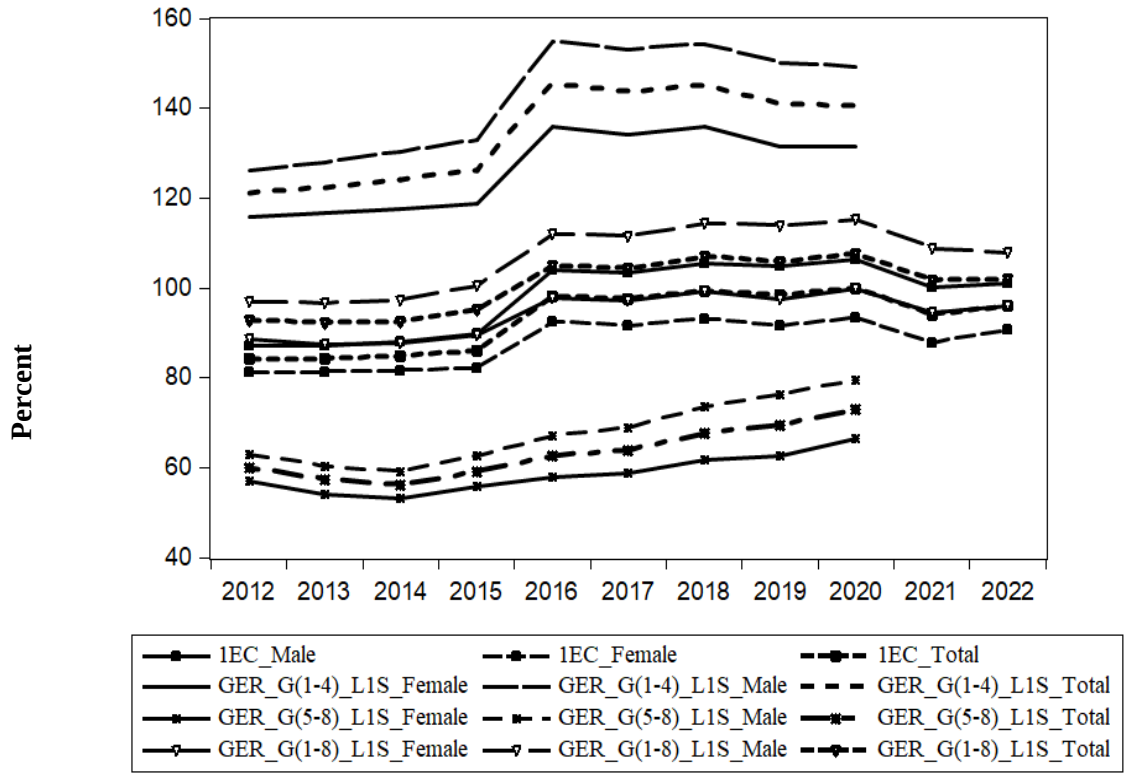
[14] The average growth rates are statistically significant at 1 percent. As usual, we have estimated the average growth rate by running natural logarithm of expenditure on education and health on the time period.

4.5.1. Enrolment trends by levels of education



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 19 Gross Enrollment Rates (GER) by Gender in Oromia Region.

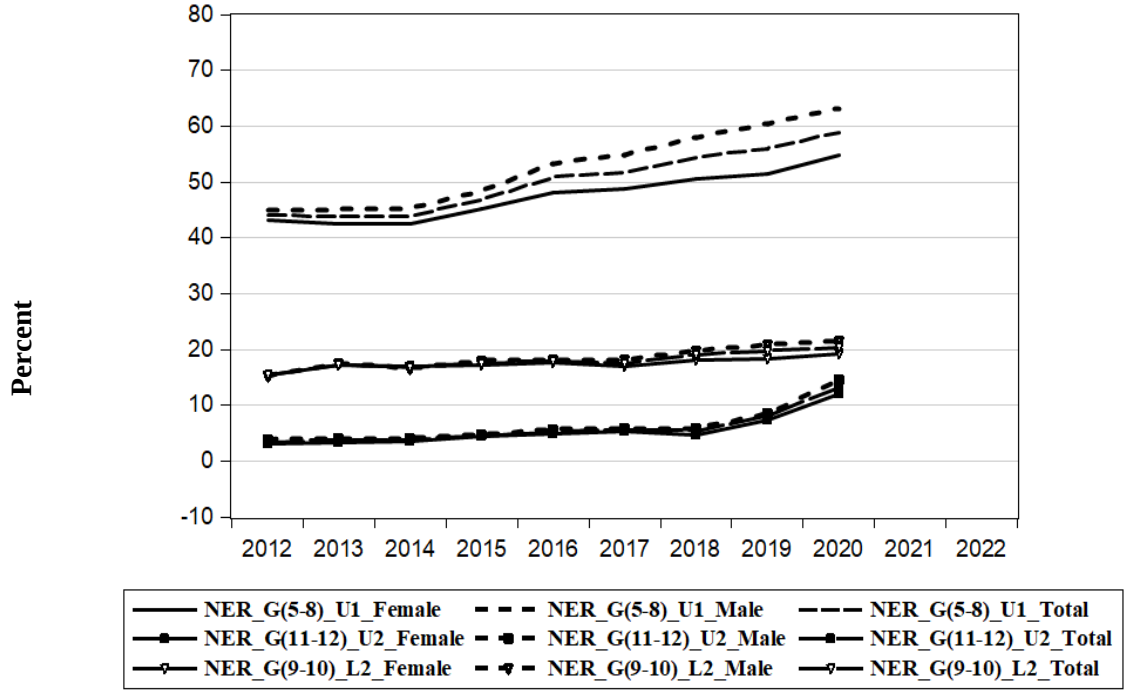
Ethiopia, as a country, achieved universal primary education ahead of the 2015 Millennium Development Goal mark; however, national achievements at the primary school level are still not matched at the pre-primary and secondary levels (UNICEF, 2017). Oromia region is not an exception, and most preschools and secondary schools are located in urban areas both at national level and in the region, and access is limited to children whose parents can afford to pay school fees. Apart from pre-primary enrolment, the gross enrolment rates significantly lower at the upper primary and secondary schools and start to increase in 2018 (Figure 19). The rates are significantly lower for female students. However, the gross enrollment rates (GER hereafter) are higher for lower primary and secondary schools. The GER at the pre-primary reached 40 percent in 2016 and started to decline thereafter. One of the challenges with regard to GER is that the gap between female and male GER is still wide and does not show any slowdown. The GER rates at primary schools are higher than the secondary schools for both male and female (Figure 19 and Figure 20).



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 20 Gross Enrollment Rates (GER) in Oromia Region (Primary Schools only).

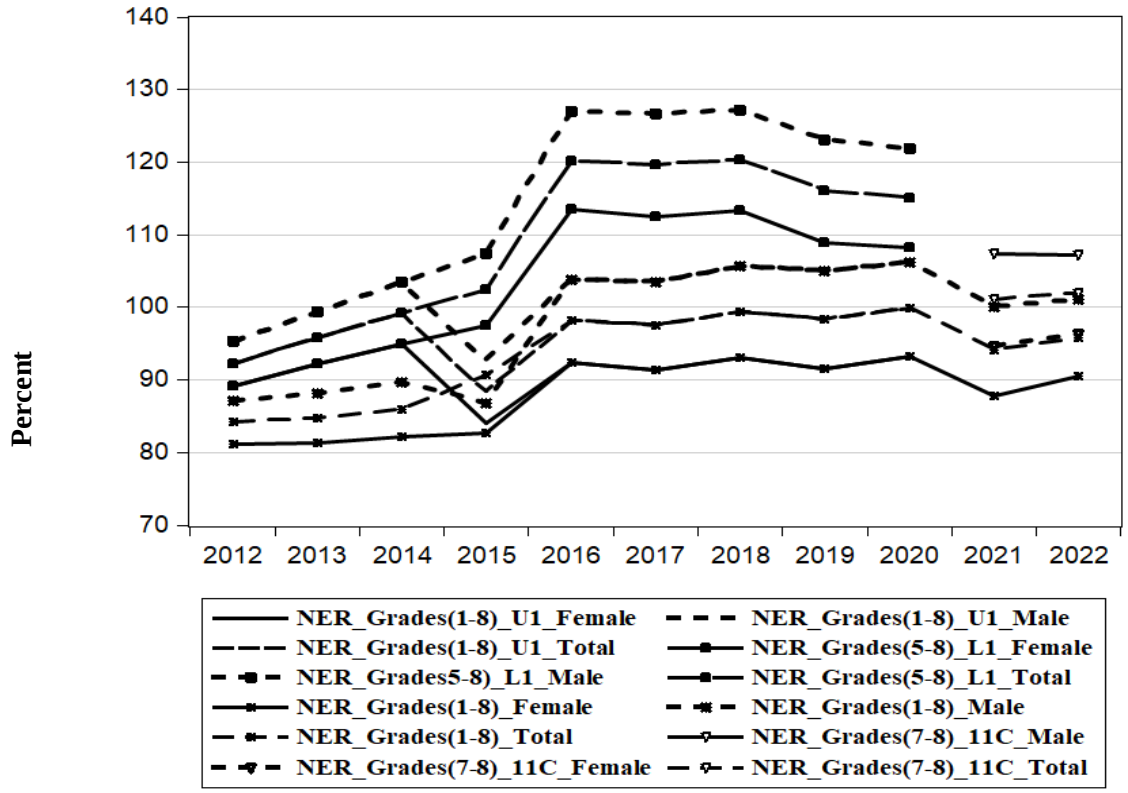
In the same token, as presented in Figure 21, Net Enrolment Ratios (NER) for upper primary and secondary schools are still low (below 5 percent) until 2018 and 12 percent most recently in the case of upper secondary schools. NER for upper primary schools is significantly larger. Though there is huge gap between male and female students in terms of GER, particularly, at lower primary and secondary schools, the gap between them in terms of NER is small. The NERs at the upper primary schools is relatively lower than the value for primary school, but both of them coincided with each other since 2018 (Figure 22). NER greater than 100 percent bring to light the issues in data quality and challenges faced in obtaining it.

According to UNICEF (2017), schools in Ethiopia have a tendency to inflate and over-report on their enrolment rates due to enrolment rates being tied to the amount of school grants that schools receive for quality improvement purposes. The case in Oromia regional state's education sector is no exception. These demands check and balance measures to ensure that data quality and dependability are maintained while assessing the performance and achievements of education in human capital.



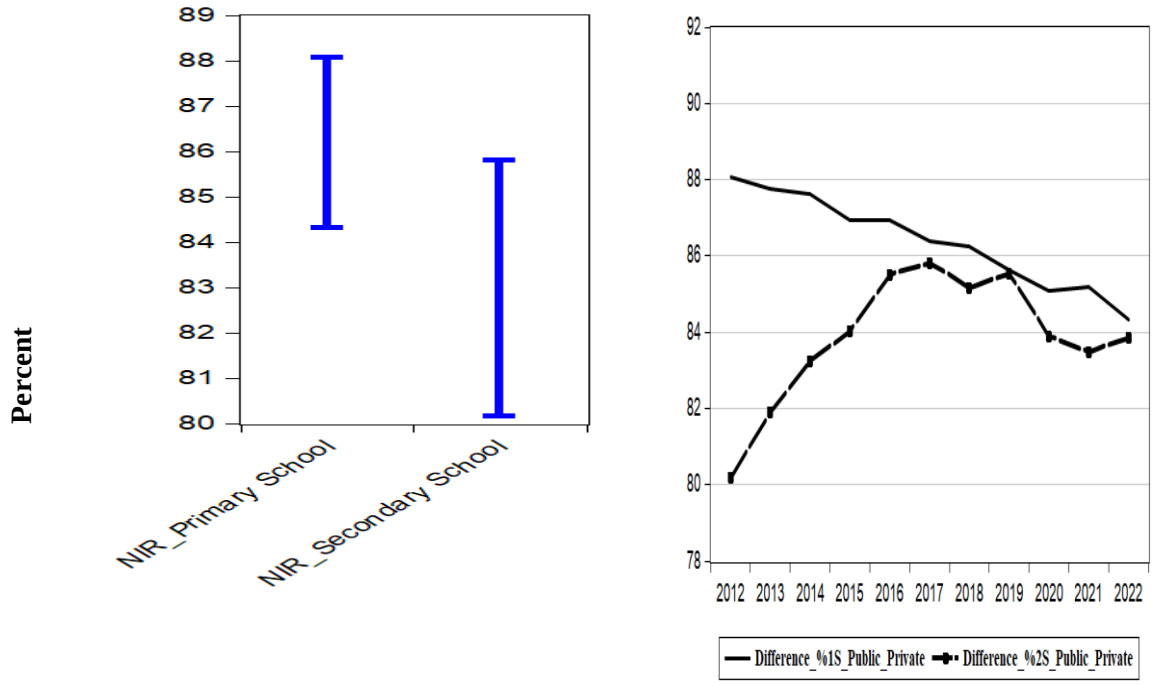
Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 21 Net Enrollment Rates (NER) by Gender in Oromia Region.

One of the challenges facing the regional state's education sector is the gap in Net Intake Rates (NIR) between private and public schools, particularly at the secondary school (Figure 23). The left panel of Figure 23 depicts the peak mean difference in NIR between private and public primary and secondary schools. The peak difference between the two types of schools is higher for secondary schools than primary schools. This suggests that most secondary schools in the region have been public schools and the participation of private sectors in this level of education has been relatively low when compared with their participation in primary schools.



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 22 Net Enrollment Rates (NER) in Oromia Region (Primary Schools only).

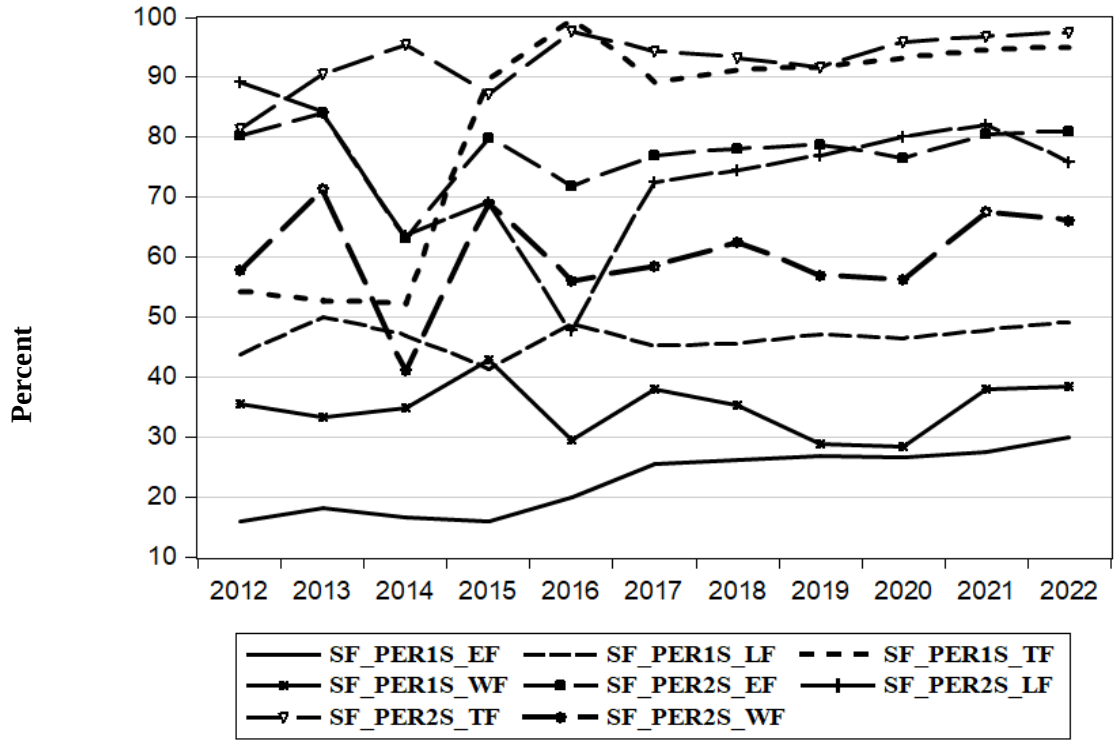
These differences have been significantly large between the periods 2012 and 2015 (right panel of Figure 23). One can also see hopes with regard to the difference. Since 2016, the differences in school intake rates between private and public schools has been declining continuously for both primary and secondary school levels of education. This is a good opportunity for the regional government in terms of reducing the gaps and allowing further participation of the private sectors in the education sector. It also calls for introducing check and balance measures to ensure that the quality education is maintained as increase in participation of private sectors and associated increase in net intake rates may not necessarily bring increase in quality of education for increasing young population of the region, which indeed are issues need to be planned for greater attention in the future.



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 23 Net intake rates (NIR) between public and private schools in Oromia region.

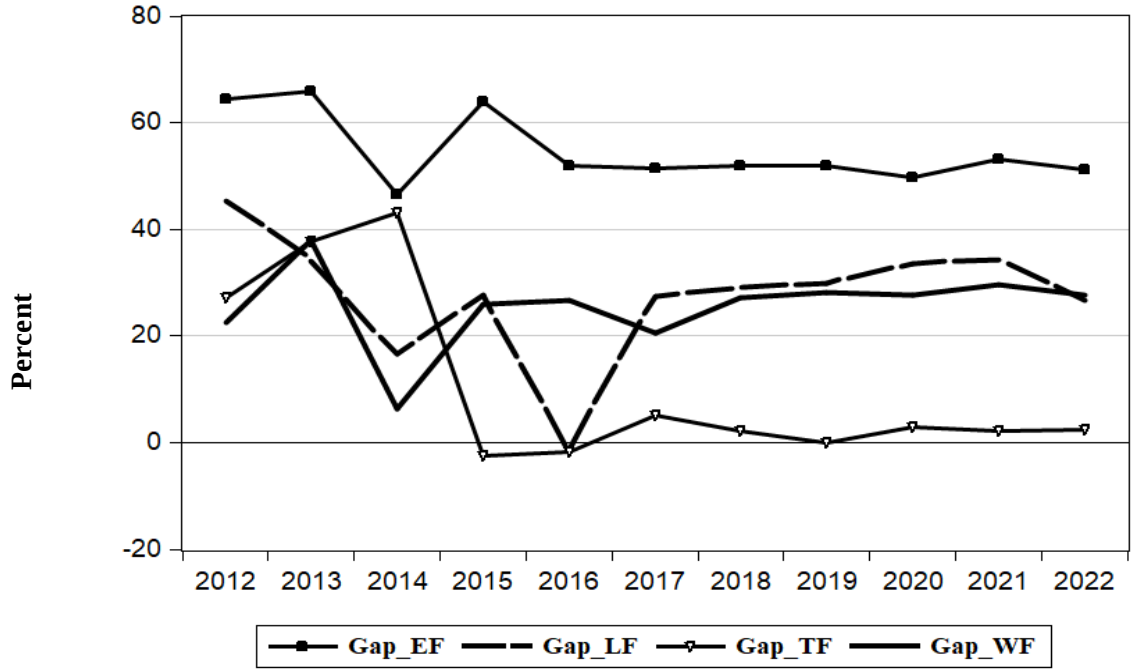
4.5.2. Availability and Functionality of School Facilities

The quality of education crucially depends on the availability of school facilities and their functionality, availability and competence of teachers, the student-teacher and student-section ratios. The electricity, water, toilet, and library facilities at primary schools are by far poor as compared to the secondary schools (Figure 24). The problem is worse when it comes to electricity facilities at primary schools in the regions, also representing a huge gap when compared with the same facility at secondary school (Figure 25). The difference in school facilities between primary and secondary schools is larger for electricity facility than other facilities, reaching 66 percent and persistent since 2016. This suggests that few primary schools in Oromia region are covered with electricity facilities and the electricity facility in secondary schools is higher than the primary school by up to 66 percent, which is a significant gap. However, one should keep in mind that improving school facilities at primary and pre-primary schools improve attendance and quality of education in secondary and tertiary levels, while contributing to efforts in improving the quality of education and learning outcomes.



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 24 Availability of school facility at primary and secondary schools in Oromia region.

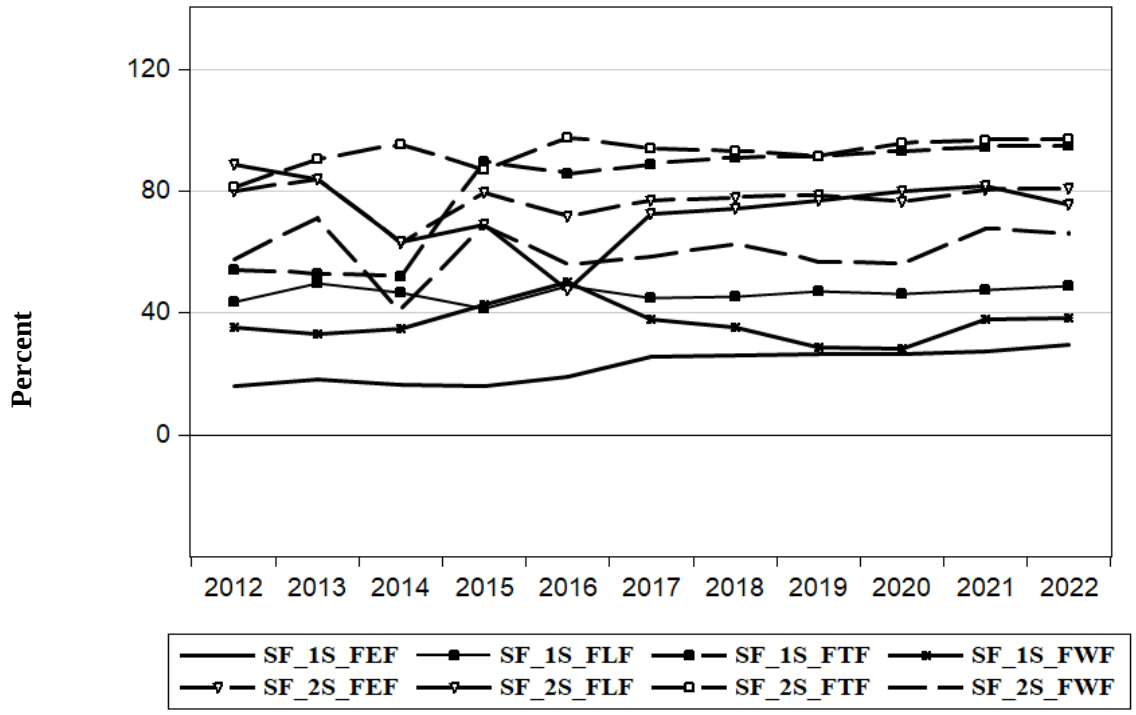
The regional state has achieved remarkable progress in terms of reducing the gaps in toilet facilities between primary schools and secondary schools consistently since 2015 though there are quite modest and persistent gaps when we look at the difference in access to library and water facilities (Figure 25). Since 2017, the percentage of secondary schools with water facilities is higher than the primary schools by at least 21 percent and the value for library facilities is even higher. In light of the pressure of providing quality education to a growing child population (approximately 18.66 million below 15 years of age in 2021), greater effort is required to improve school facilities at primary schools.



Source: Own Computations based on Data from Oromia Education Bureau: Education Statistics Abstracts (2012-2022).

Figure 25 Gaps in availability of school facilities in Oromia region.

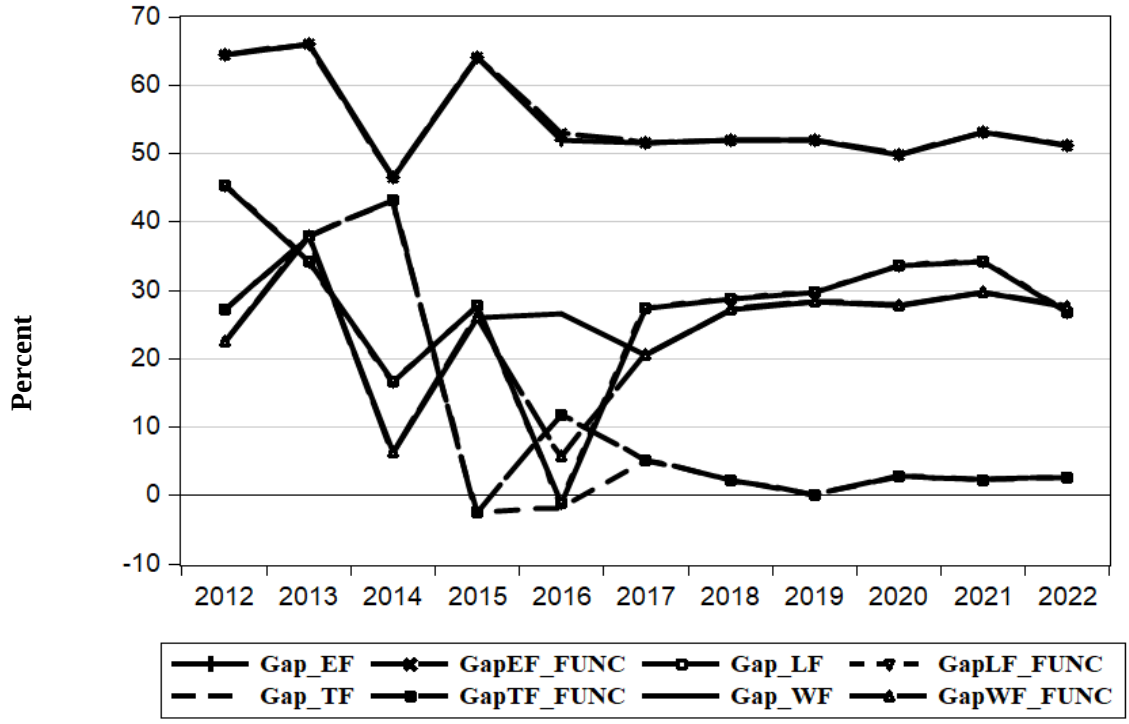
Availability of school facilities does not mean that those facilities are functional, and it is worthwhile to look at whether those numbers has been contributing to the quality of education. The trends in functionality of school facilities at primary and secondary schools (Figure 25) are similar to the availability of school facilities (Figure 24). For example, the percentage of primary schools with the electricity facilities (below 30 percent in most cases) are poor when compared with the secondary schools (above 65 percent).



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 26 Functionality of school facility in primary and secondary schools.

The percentage difference in the functionality of school facilities also follow the same trend as the percentage difference in the availability of school facilities except in the year 2016 for functionality of toilet and water facilities (Figure 26). While there is no gap in availability of toilet facilities between the primary and secondary schools, the functionality of toilet facility is higher in secondary schools than in primary schools by 12 percent in 2016 (Figure 27).

On the other hand, while the percentage of secondary schools with water facility is higher than the percentage of primary schools with water facility by 27 percent in 2016, the percentage difference in functionality of water facilities between primary and secondary schools is only 6 percent in the same year. This suggests that the available water facilities are relatively more functional in primary schools than in secondary school, indicating relatively proper utilization of available water facilities in primary schools. This is a good achievement and can be considered as lessons in secondary and higher education centers as availability itself cannot ensure functionality.



Source: Own Computations based on Data from Oromia Education Bureau; Education Statistics Abstracts (2012-2022).

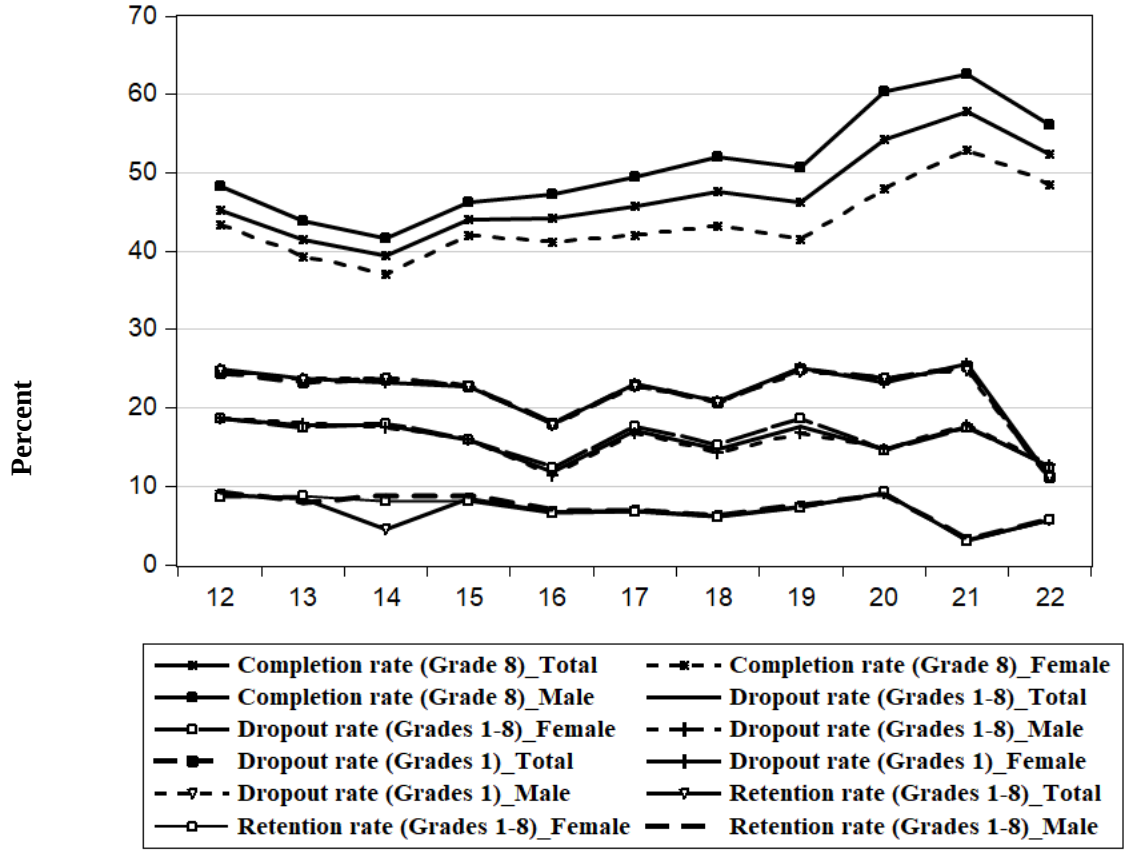
Figure 27 Gaps in functionality of school facility in primary and secondary schools.

4.5.3. Challenges and Opportunities of Education Sector in the Region

Despite notable achievements in access to education (intake and enrollment rates), and availability and functionality of school facilities in secondary schools, challenges in the quality of education remain. First, as mentioned above, there is the large gaps in net intake rates (NIR) between private and public schools, particularly the NIR within the secondary schools. Second, there also significant differences in the availability and functionality of school facilities between primary and secondary schools. Hence, providing equal facilities and ensuring well functionality of all facilities in both primary and secondary schools for increasingly young population of the region demand attentions from all stakeholders.

Third, challenges in student retention, such as a high Grade 1 and primary schools dropout rates of 26 percent and 18 percent, respectively, in 2021 and low school completion rates of Grade 8, which is 58 percent in 2021 (upper panel of Figure 25) that result in the inability to achieve higher levels of education, reinforce the need for greater investment in primary schools. It is worthwhile to note that while the Grade 1 dropout rate in Oromia regional state is higher than the national value of 17.9 percent, the school completion rates is significantly lower than the nation value of 71.2 percent[15]. Moreover, the school completion rate for female students is significantly lower than the male counterparts and persistent since 2016.

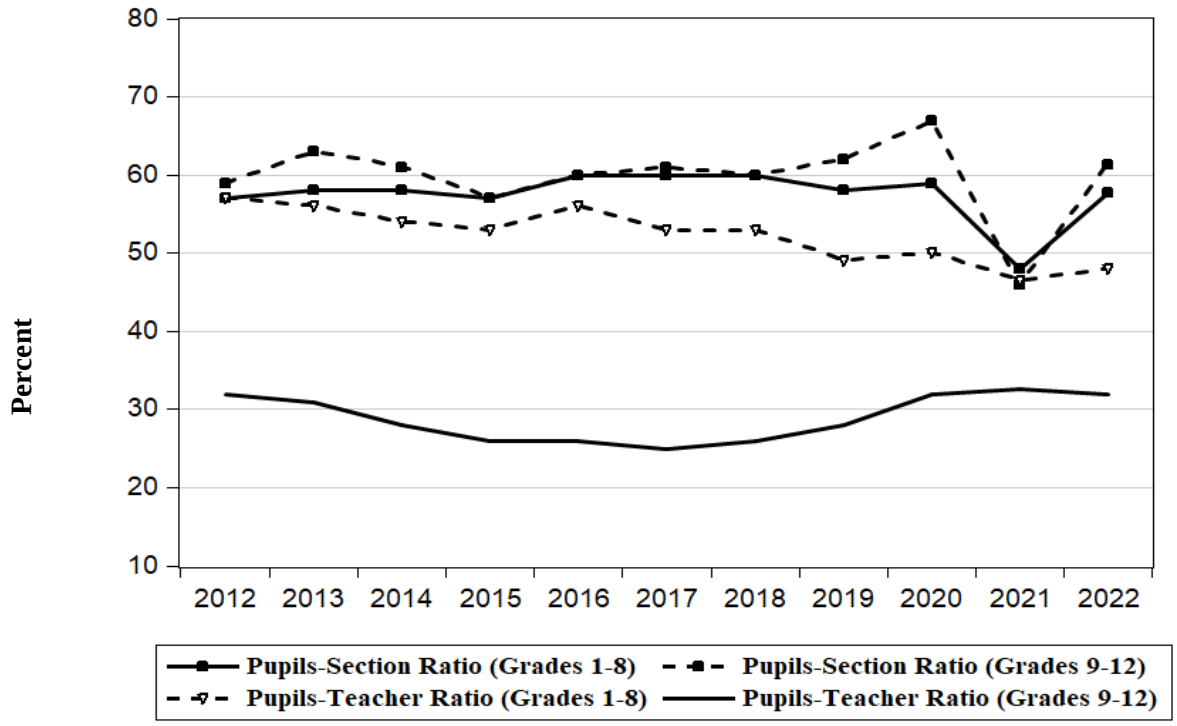
[15] Ethiopia Federal Ministry of Education; Education Statistics Abstracts for 2015/16.



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 28 Completion, Retention and Dropout Rates in Oromia Region.

Even though the completion rate is low and dropout rates are high compared with national rates and in absolute terms, one can see that the completion rates has shown an increment for both female and male participant (Figure 28). The Grade 1 and primary schools dropout rates also shown a declining trend since 2021. Proportion of students who enrolled in the primary schools and who study in the same grade in the following school year is also relatively low. That is, the retention rates from 2021 up until 2022 is extremely below 10 percent and only 6 percent in 2022, which is good progress.

The other issues which could affect the quality of education are pupil-teacher and pupil-section ratios. Unlike the primary schools (grades 1 to 8), the student-teacher ratio in secondary schools (grades 9-12) is consistently below 30 for most periods between 2012 and 2022, which is 28 on average (Figure 29). The ratio of for primary school (grades 1-8) is above 50 students until 2019 and 48 in 2022. This implies that there are, on average, approximately 50 students per teacher in the primary school and only 28 students per teacher in secondary schools. This might have compromised quality of education in primary schools. Indeed, one could expect direct linkage between quality of education in primary schools and secondary schools.



Source: Oromia Education Bureau; Education Statistics Abstracts (2012-2022).
Figure 29 Student Proportions in Oromia Region.

The student-section ratios are also significantly large in both primary and secondary schools, reaching 60 or above 60 students per section in most cases. While the student-teacher ratio of 48 for Oromia region is relatively comparable to the national average ratio of 46 in 2016, the student-section ratio in primary school for the region (60 in most cases) is higher than the student-section ratio of 55 for Ethiopia in the same year[16]. On average, between 2012 and 2022, there has been 57 and 61 students per section in primary and secondary schools, respectively. This number is also significantly large to ensure quality of education and can potentially impose challenges in the education sector of regional state.

4.6. Health Sector Indicators Performances

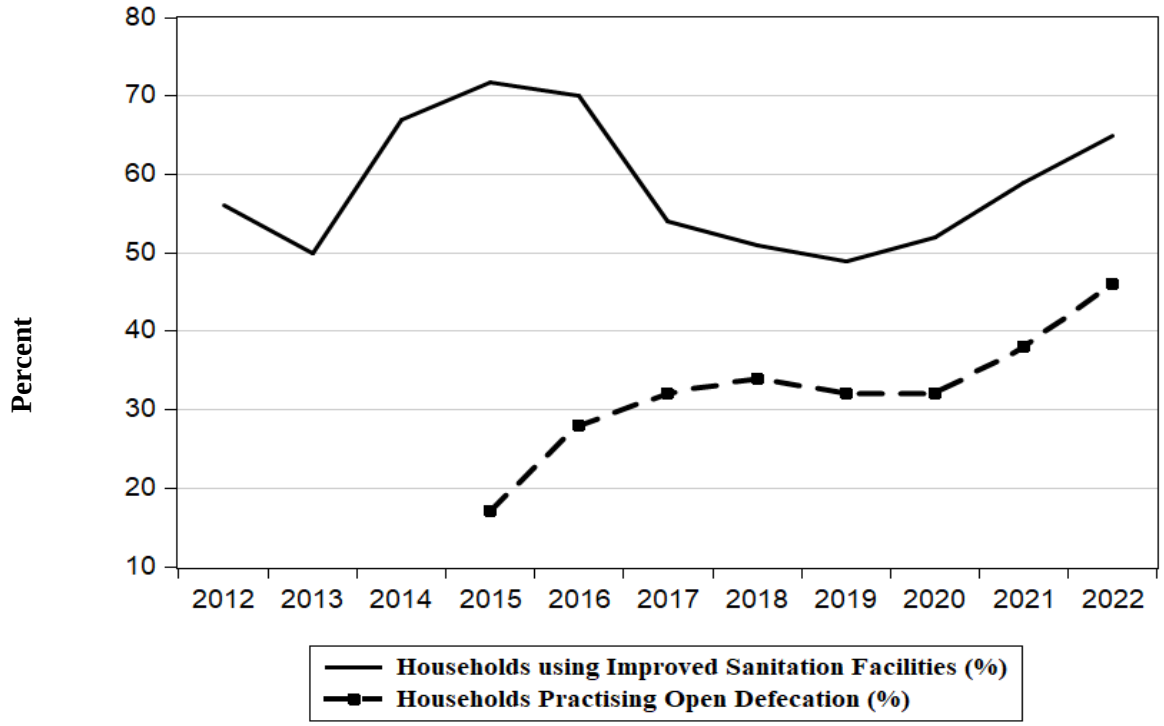
Health improvement has become a significant social priority since a moderately good human capital condition improves the workforce's abilities, efficiency, and quality of life. A rapid increase in healthcare expenditure is a trend in major developing and developed countries; however, healthcare expenditure widely varies among most Asian countries (Wu et al., 2021). Health service is one of the crucial components of basic social service that has a direct linkage to the growth and living standard of the society. The health problems are largely attributed to preventable infectious ailments and nutritional deficiencies. Oromia regional government has been constructing a number of health facilities since its establishment with the objective of improving the health status of its citizens. Because of the intensive efforts made by the regional government, the health coverage of the region is exhibiting a sort of improvement from year to year. The health policy of the country as well as the regional governments emphasize on the achievement of access and basic package of quality primary health care services, which include

[16] Ethiopia Federal Ministry of Education; Education Statistics Abstracts for 2015/16.

preventive and basic curative health service delivery. There is great commitment to implement health extension program throughout rural kebeles (BOFED, 2014).

4.6.1. Health Facilities, Diseases, and Vaccinations

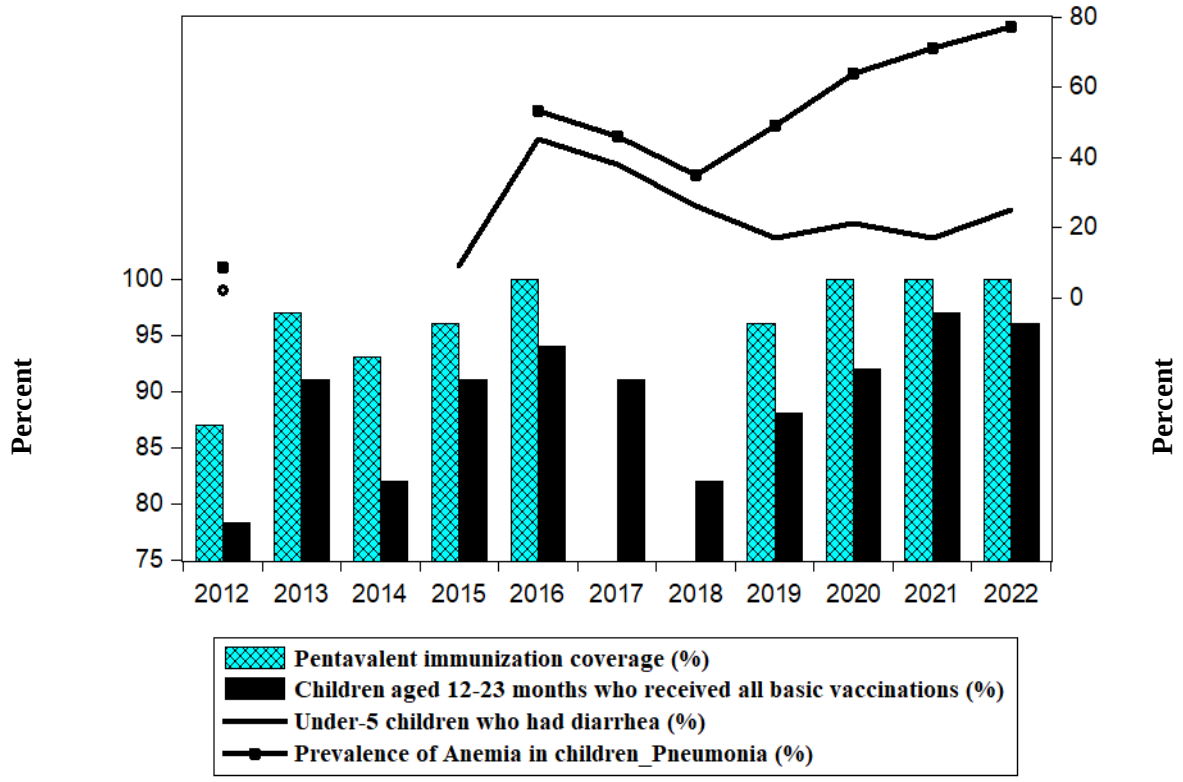
Figure 30 and 31 present health facilities, diseases, and vaccination services for Oromia region since 2012. Access to improved sanitation facilities is limited to 58 percent of households, on average; and the other households (42 percent), on average, do not have access to improved sanitation facilities (Figure 30). The health facility at health center is also poor when compared with hospitals in the region. Among health centers, more than 75 percent do not have any drinking water services, handwashing facilities, and toilet facilities, and only 24.77 percent of them have drinking water services, handwashing, and toilet facilities in 2012 (Table 5). Though there has been a progress in water infrastructure, studies also suggested that 28 percent of households spend more than 30 minutes bringing water to their houses compared to the national average of 32 percent in Oromia (UNICEF, 2020]. Only 11 percent of women and 10 percent of men in Oromia knew that hands should be washed before breastfeeding/feeding a child, while 13 percent and 8 percent of women and men, respectively, knew that hands needed to be washed after cleaning a child's bottom after defecation (Ethiopia Demographic and Health Survey [EDHS], 2016; United Nations Children's Fund [UNICEF], 2020). However, there has been improvement in terms of covering the health centers in Oromia region with the improved drinking water services, handwashing facilities, and toilet facilities. For example, health centers with drinking water services and hand-washing facilities increased to around 80 percent while the health centers with toilet facilities increased to 77 percent in 2021.



Source: Oromia Health Bureau (2012-2022).
Figure 30 Health Facilities in Oromia region.

The regional government has shown a great commitment in terms of covering the hospitals with the above health facilities. Except the slowdown during the recent years, the percentage

of hospital with the improved drinking water services, hand-washing facilities and toilet facilities has reached 100 percent. Due to the lack of improved health facilities, mainly at health centers and health posts, most of the people in the region are deprived from modern sanitation facilities and then they suffer from various contagious diseases (Figure 29). Limited access to basic sanitation and poor hygienic practices lead to childhood diseases, such as diarrhoea (UNICEF, 2020). While percentage of those children aged below five years who had diarrhea has shown slow down during the recent years, peaking 38 percent in 2017, the prevalence of anemia (Pneumonia) in children is relatively high and never shown decline in recent years. For example, 71 and 77 percent of children had Pneumonia in 2021 and 2022, respectively.



Source: Ethiopian Demographic and Health Survey (EDHS, 2016).
Figure 31 Diseases and Vaccinations in Oromia region.

The region has performed well in terms of percentage of pentavalent immunization coverage and children aged 12–23 months who received all basic vaccinations. In particular, the percentage of pentavalent immunization coverage and children aged 12–23 months who received all basic vaccinations, on average, was 96.6 percent and 89.3 percent, respectively between 2012 and 2022. The percentage of children aged less than 5 years with the wasting prevalence is relatively low. On average, only 8 children aged less than 5 years out of 100 had wasting prevalence during the aforementioned periods (Table 6). However, the children aged less than 5 years with the stunting prevalence is still relatively high. On average, approximately 37 children out of 100 had a stunting prevalence between 2012 and 2019, though there has been slightly fall in the prevalence rate, reaching 35.5 percent in 2019. The percentage of children under five years of age with the problem of underweight is not also too low and has shown no decline between 2012 and 2014. The percentage of children aged less than 5 years is low (16.1 percent in 2019).

Table 4: Health outcome indicators and health status of children aged below 5 years

Indicators, %	2012	2013	2014	2019	2021
Health Centers with Drinking-Water Service	24.77	33.17	45.92	62	80.52
Health Centers with Hand Washing Facilities	24.77	33.17	45.92	62	80.52
Health Centers with Toilet Facility	24.77	33.17	45.92	86	76.99
Hospitals with Drinking-Water Service	100	100	100	93	98.10
Hospitals with Hand Washing Facilities	100	100	100	93	98.10
Hospitals With Toilet Facility	100	100	100	97	98.10
Stunting Prevalence (Children < 5 Years)	41	37.5	36.5	35.5	
Wasting Prevalence (Children < 5 Years)	9.6	6.8	10.6	4.7	
Underweight Prevalence (Children < 5 Years)	26	22.2	22.5	16.1	

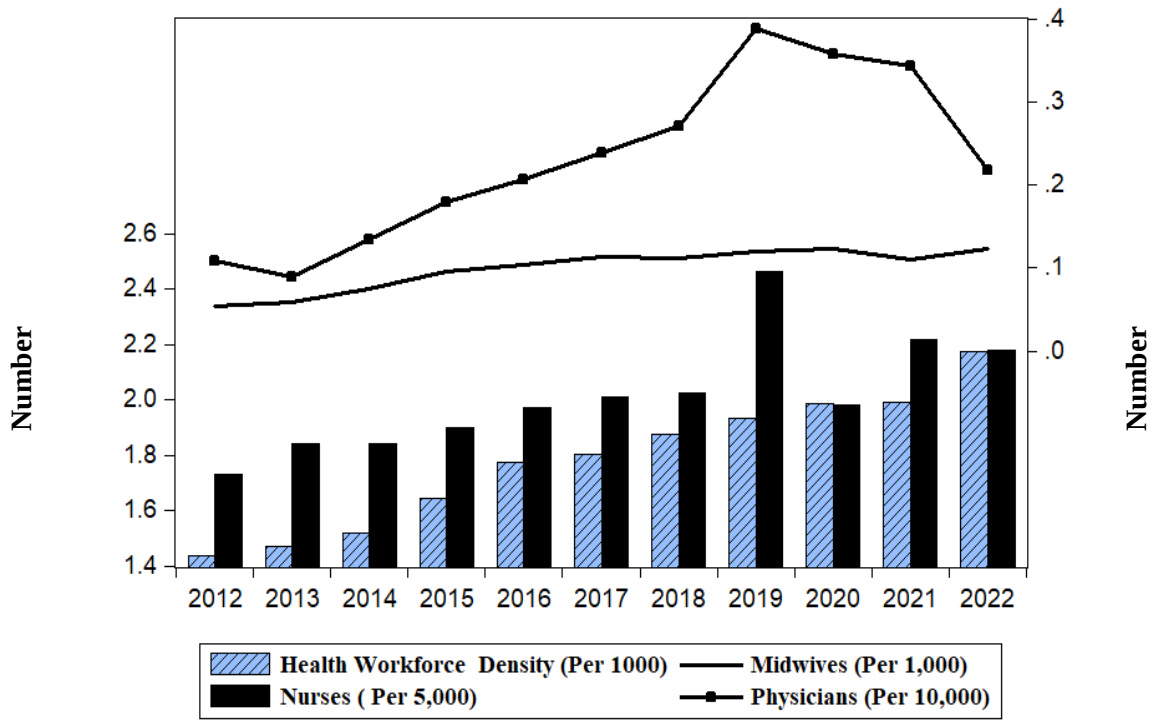
Source: Oromia Health Bureau and Ethiopian Demographic and Health Survey (EDHS, 2016).

4.6.2. Health Work Force and Health Services

Health systems can only function with health workers; improving health service coverage and health outcomes depends on a fit-for purpose and fit-to-practice health workforce. A minimum health worker density of 2.3 skilled health workers (physicians and nurses/ midwives) per 1000 population was considered generally necessary to attain high coverage (80 percent) of skilled birth attendance. For nearly 10 years, the 2.3 workers per 1000 threshold have enabled policymakers and advocates to push for goals and countries to measure their progress (WHO, 2016)[17]. When assessed according to this threshold, the health workforce for the Oromia region is by far less than the required amount for most periods, which is 1.78 on average between 2012 and 2022 (Figure 32).

In terms of disaggregated components of health workforce, the region performed very poor in terms of physicians per 10,000 population and midwives per 1000 population, which on average are 0.41 and 0.10, respectively, between 2012 and 2022. However, there has been slight improvement in terms of number of physicians per 10,000 population and midwives per 1000 population. One can also see relatively improved nurses per 5000 population over the sample period. The health workforce has been consistently below 2.0 and the WHO's threshold of 2.3 due to the low performance of the region in terms of number of physicians per 10,000 population and midwives per 1000 population.

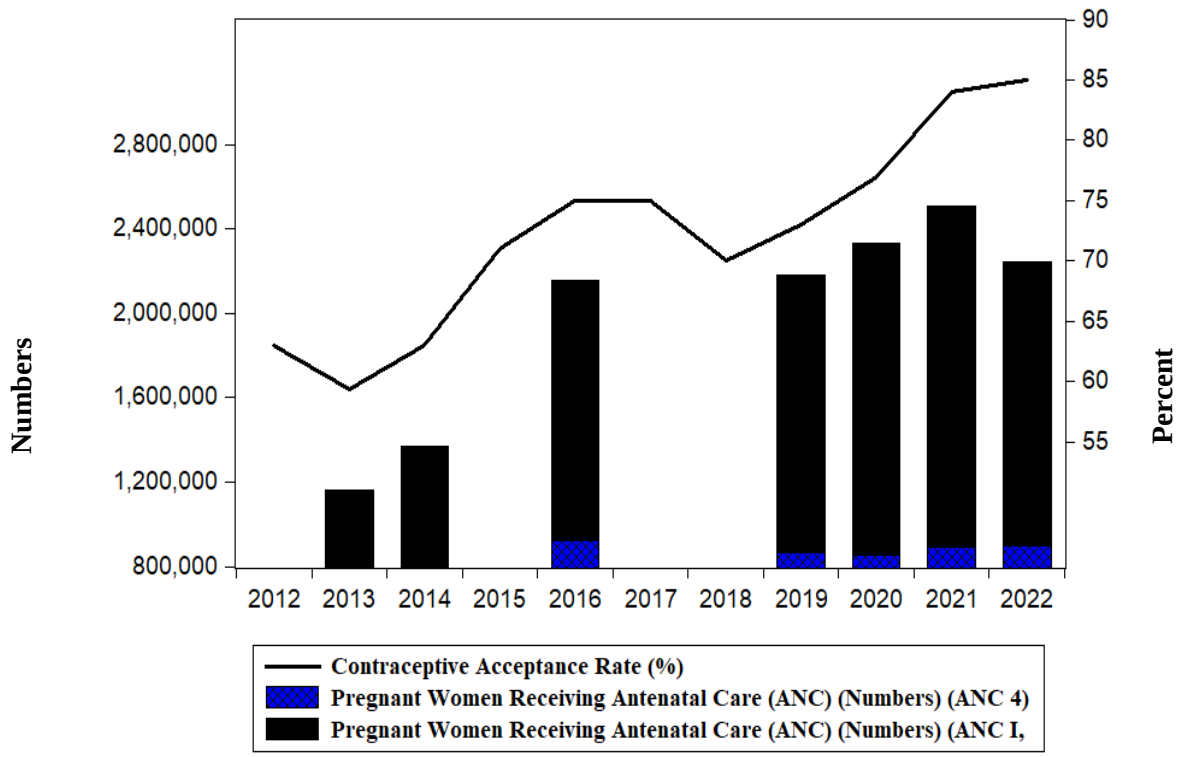
[17] However, the drawback of this threshold is that it is based on a single health service (assisted deliveries) and its focus is on maternal and newborn health, whereas the Sustainable Development Goals (SDG) agenda is based on broader range of services, including noncommunicable diseases. For this purpose, the ILO has developed an alternative method to identify a minimum threshold of health worker availability of 3.4 skilled health workers per 1000 population, which has been updated to 4.1 per 1000 (WHO, 2016).



Source: Ministry of Health (2012-2022).
Figure 32 The Number of Health Workforce in Oromia region.

One of the twelve key population health indicators identified by WHO and the World Bank as proxies of health needs for universal health coverage is antenatal care coverage. The antenatal care threshold of 2.97 skilled health workers per 1000 population was selected as the value for the threshold, given the weak theoretical and empirical link between health worker availability and sanitation coverage. When compared with this value, the region has achieved relatively high antenatal care during the available sample period. The number of pregnant Women Receiving Antenatal Care (ANC), particularly ANC I, has been increasing in the recent period (Table 6 and Figure 34).

The regional government has also shown a great commitment in terms of contraceptive acceptance rate, which has been continuously increasing since 2012 (Figure 33). As defined by WHO, the contraceptive acceptance rate is the percentage of women aged 15-49 years, married or in-union, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used. Contraceptive prevalence rate is an indicator of health, population, development and women's empowerment. It also serves as a proxy measure of access to reproductive health services that are essential for meeting many of the Millennium Development Goals, especially those related to child mortality, maternal health, HIV/AIDS, and gender equality.



Source: Oromia Health Bureau and Ethiopian Demographic and Health Survey (EDHS, 2016).
Figure 33 Contraceptive Acceptance Rates and Antenatal Care in Oromia region.

The average contraceptive acceptance rate of the Oromia region is 72.3 between 2012 and 2022, which is even higher than the national average of 51.6 (Belachew, Negash, Bitew, and Asmamaw, 2023). The region's performance in terms of basic health service coverage is also relatively high, registering more than 80 percent health service coverage in each of last four years (Table 6).

Table 5: Basic Health Service and Antenatal Care Coverage

Indicators, %	2019	2020	2021	2022
Basic Health Service Coverage (%)	93.5	80.95	90	89
Antenatal Service Coverage (%, ANC1)	71	71	71	97

Source: Oromia Health Bureau and Ethiopian Demographic and Health Survey (EDHS, 2016).

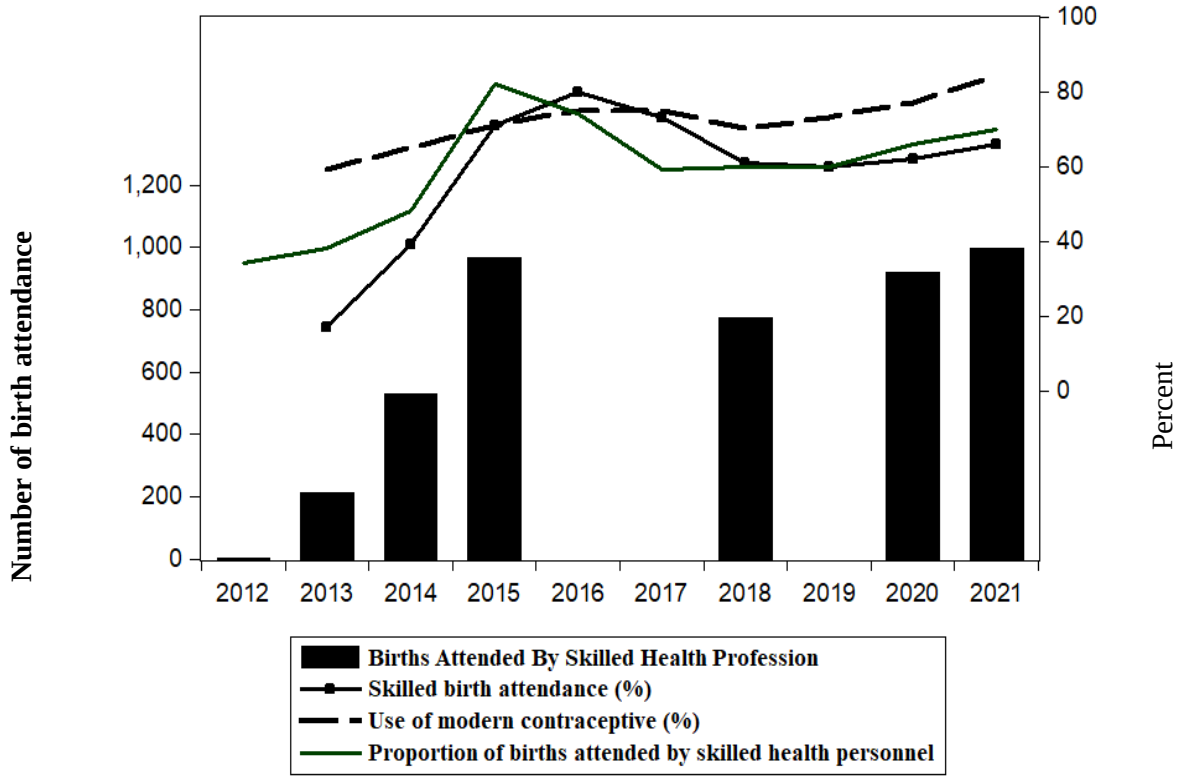
4.6.3. Trends in Fertility and Mortality Rates in Oromia Region

The key health performance indicators as indicated by WHO various reports are infant mortality rate per 1,000, under-5 mortality per 1,000, child mortality per 1,000, maternal mortality rate per 100,000 and total fertility rate. There has been improvement in various health outcome indicators in Oromia region when one look at the available data. For instance, the under-5 mortality rate reduced from 88 to 55 per 1000 live births and infant mortality declined from 59 to 43 deaths per 1000 live births between 2012 and 2019 (Table 7). Despite these progresses, mortality rates associated with maternal and child health conditions remain high, with the child mortality rate showing no improvement in recent years, reaching at 30 per 1,000 in 2019. The maternal mortality rate per 100,000 mothers is also high reaching more than 600.

Table 6: Child and Maternal Mortality Rates in Oromia Region (with available data)

Indicators	2012	2013	2016	2017	2019	2021	2022
Infant Mortality Rate (Per 1,000)	59	40	48	60	43		
Under-5 Mortality (Per 1,000)	88	64	67	79	55		
Child Mortality (Per 1,000)	37	21	20		30		
Maternal Mortality Rate (Per 100,000)	676	44	412		46	700	664
Total fertility rate (%)	6			5			
Birth occurred in health facility (%)		8			19	41	

Source: Ethiopian Demographic and Health Survey (EDHS, 2016 and 2019).



Source: Ethiopian Demographic and Health Survey (EDHS, 2016 and 2019).
Figure 34 Selected health outcome indicators in Oromia region.

The percentages of births attended by skilled health workers increased from 17 percent in 2013 to 66 per cent in 2022 (Figure 34). This is a significant improvement despite showing a slowdown in recent years. There has also been a significant improvement in terms of proportion of births attended by skilled health personnel and use of modern contraceptive. For example, proportion of births attended by skilled health personnel and use of modern contraceptive grew at an average rate of 6 percent and 3 percent, reaching 82 percent and 84 percent in 2015 and in 2022, respectively. This is reflected by the number of births attended by skilled health profession, which significantly increased in recent years (Figure 34). For example, the number of births attended by skilled health profession (at health centers, hospitals, and health posts) increased from 919,115 in 2013 to 997,974 in 2022, which is more than 8 percent improvement.

Key Takeaway

- The Oromia regional state has achieved remarkable progress in terms of reducing the gaps in toilet facilities between primary schools and secondary schools consistently since 2015 though there are quite modest and persistent gaps when we look at the difference in access to library and water facilities.
- While the Grade 1 dropout rate in Oromia regional state is higher than the national value of 17.9 percent, the school completion rates is significantly lower than the nation value of 71.2 percent.
- The region performed very poor in terms of physicians per 10,000 population and midwives per 1000 population, which on average are 0.41 and 0.10, respectively, between 2012 and 2022.
- Despite these progresses, mortality rates associated with maternal and child health conditions remain high, with the child mortality rate showing no improvement in recent years, reaching at 30 per 1,000 in 2019.
- The percentages of births attended by skilled health workers increased from 17 percent in 2013 to 66 per cent in 2022. This is a significant improvement despite showing a slowdown in recent years.

5. PERCEPTION OF POLICY MAKERS AND STAKEHOLDERS

This section presents the perception responses of the policy makers and concerned stakeholders participated in the survey. These responses were summarised using frequencies and percentages and collated provided comments. Moreover, to rank the importance of the factors hastening growth, human development, education-health-income quality and policy improvements in the Oromia regional state, relative importance index was employed. The analysis primarily focused on implications for the main evidence to HDI in Oromia regional state. The potential differences in responses were also explored across participants from different positions and across groups with different types of experience.

5.1. Survey Results

A total of 110 questionnaires were distributed to experts, professional, practitioners, researcher and university professors mostly based in region. Of these, 90 responses (81.82 percent) were complete and 20 (18.18 percent) were not returned. There were 20 responses (86 percent response rate) from the regional bureau and zonal offices, 67 responses (82 percent response rate) from the NGO and international organizations, and five responses (60 percent response rate) from ministry offices.

Table 7: Respondents Response Rate

Offices	Distributed Questionnaire	Returned Questionnaire	Percentage (%)
Regional bureau and zonal offices	23	20	86
NGO and international organizations	82	67	82
Ministry offices	5	3	60
Total	110	90	81.82

Source: Own computation based on Survey Data (2023)

5.2. Demographic Characteristics of Respondents

Table 8 describes the characteristics of survey participants who provided background information (n = 90). Most (97.77 percent) of the respondents had at least a university degree or had postgraduate education such as a Masters' degree or PhD. The majority of these were male (94.44 percent), and most (86.67 percent) had over ten years' experience in education, health and government revenue related sectors. In terms of sex segregation, 80 percent and 98.83 percent of female and male participants had at least a first-degree education level, where 100 percent and 85.88 percent of them had at least 10 years of working experience, respectively, in the region. Respondents had worked as practitioners', most frequently in regional governments (90.0 percent), of which 55 percent of them were experts, engineers, farmers, heads, team leaders, coordinators, and officers (Table 8).

Table 7: Sex, education level and years of experience of the respondents

Sex	Education level				Total	Year of experience				Total
	Primary	Secondary	University	Post-graduate		3-10	11-20	21-30	>30	
Female	0	0	1	3	4	0	2	1	1	4
	0.00	00.00	25.00	75.00	100	0.00	50.00	25.00	25.00	100
	0.00	0.00	4.35	4.62	4.44	0.00	3.85	6.25	10.00	4.44
Male	1	1	22	62	86	12	50	15	9	85
	1.16	1.16	25.58	72.09	100	13.95	58.14	17.44	10.47	100
	100.00	100.00	95.65	95.38	95.56	100	96.15	93.75	90.00	95.56
Total	1	1	23	65	90	12	52	16	10	90
	1.11	1.11	25.56	72.22	100	13.33	57.78	17.78	11.11	100
	100	100	100	100	100	100	100	100	100	100

Note: The first value in the cell is the number of observations for each category. The second value in the cell is the row percentages for the first variable for each category. The third value in the cell is the column percentages for each category of the second variable.
Source: Own computation based on Survey Data (2023)

The demographic characteristics and socio-economic status of the respondents crucially influence the effective policymaking and the human development index of the region. Educated and experienced people tend to consider what will provide the most benefit in the future when they make policy decisions. Educated citizens earn more, pay higher taxes over a lifetime, and cost less for their governments (national or regional) in terms of social welfare policies and facilitate the formulation and implementation of regional government policies for social and economic development.

Table 8: Characteristics of survey respondents in terms of position held in the institution.

Total (completed entire survey)	Survey participants, n (%) (90)
Current Position at the Organization	
Experts, Engineers, and farmer	20(22.22)
Head, Team leader, Coordinator and Officers	35(38.89)
Director	18(20.00)
Researcher, Lecturer, Ass. Professor	8(8.89)
Advisor and deputy commissioner	4(4.44)

Source: Own computation based on Survey Data (2023)

The sex composition and education status, among other socioeconomic and demographic characteristics, are also expected to improve the human development index of the nation or region. One of the main components of human development is improvement in human capital which depends crucially on the education status of the region. The education status of the respondents is also key to improving the status and capabilities of humans and hence human development, social and economic development of the region, policy formulation, and implementation. The education status of the respondents also has a major impact on health outcomes and other components of human development. Hence, improvement in education improves the human development status of the country and the region. The human development index also makes use of the composition and differences in male and female achievements in three basic dimensions of human development: health, education, and income. Increases in differences in these three components of human development are expected to deteriorate the human development index of the region.

5.3. Involvement in formulating or implementing the government's policy.

We also asked participants to describe their opinions/perceptions on Oromia regional state's socio-economic development with which they had been involved in formulating or implementing the government's policy for socio-economic developments (See Table 10). While the majority of them (52.22) had no such experience in formulating or implementing the government's policy for economic development, 47.78 percent of them had experience in formulating or implementing the government's policy for social development. Most female respondents involved in formulating or implementing the government's policy for economic development (75 percent) and equally to social developments (50 percent). However, while less proportion of male participants involved in formulating or implementing the government's policy for economic development (only 46.51 percent), large proportion of them involved in formulating or implementing the government's policy for social (58.14 percent) development.

Out of those who involved in formulating or implementing the government's policy for social developments, 88.46 percent had more than 10 years relevant experience in education-health-income related issues. Similarly, 86.05 percent of those participants who were involved in formulating or implementing the government's policy for economic developments had more than 10 years of such relevant experience. This suggests that female respondents, though few in number (5), had involved in formulating or implementing the government's policy for socio-economic developments than their male counterparts. Moreover, out of those who involved in the formation of the regional government's policy for social and economic developments, more than 90 percent were male and had more than 10 years of experience. In general, in response to our question on whether involved in formulating or implementing the government's policy for socio-economic developments, the majority of them said that they don't. This suggests that there is lack of decentralization of regional government's policy formulation and implementation, especially for economic development.

Table 9: Involvement in formulating or implementing the government's policy

	Sex	Economic Development			Social Development		
		NO	**Yes**	**Total**	**NO**	**Yes**	**Total**
Sex of the respondent	Female	1	3	4	2	2	4
		25.00	75.00	100	50.00	50.00	100
		2.13	6.98	4.44	5.26	3.85	4.44
	Male	46	40	86	36	50	86
		54.49	46.51	100	41.86	58.14	100
		97.87	93.02	95.56	94.74	96.15	95.56
	Total	47	43	90	38	52	90
		52.22	47.78	100	42.22	57.78	100
		100	100	100	100	100	100
Experience in years	3-10	6	6	12	6	6	12
		50.00	50.00	100	50.00	50.00	100
		12.77	13.95	13.33	**15.79**	11.54	13.33
	11-20	29	23	52	29	23	52
		55.77	44.23	100	44.23	55.77	100
		61.70	53.49	57.78	60.53	55.77	57.78
	21-30	6	10	16	6	10	16
		37.50	62.50	100	37.50	62.50	100
		12.77	23.26	17.78	15.79	19.23	17.78
	Over 30	6	4	10	3	7	10
		60.00	40.00	100	30.00	70.00	100
		12.77	9.30	11.11	7.89	13.46	11.11

Source: Own computation based on Survey Data (2023)

5.4. Oromia Regional State Policy Challenges and Expected Outcome

Table 11. shows the major policy challenges facing the regional government in the coming years. According to the Table 11, 49 percent (44), 48 percent (43), 35 percent (31) and 35 percent (31) suggested, respectively, that support to smallholder farmers and agricultural production, addressing macroeconomic imbalances (low economic growth, high inflation, high unemployment, foreign exchange reserve shortage, debt, deficit, etc.), provision of basic infrastructure such as roads, water, electricity, telecommunications, and access to potable water and famine relief and prevention are the major challenges facing the regional government - and more generally the people of Oromia Regional State - in the coming years. In terms of gender disaggregation, more than 90 percent of the male respondents also predicted that the above challenges will be the major ones facing the Oromia region in ensuring a higher quality of life for all residents in the region.

Table 10: Major policy challenges facing the regional government

Challenges	Male	Female	Total (% out of total respondents)
Support to smallholder farmers and agricultural production	40	4	**44 (49%)**
	90.91	9.09	100
Encouragement and support to woreda-level organizations and village associations	16	2	18**(20%)**
	88.89	11.11	100
Support to private sector development including small and medium size enterprises	15	1	16**(18%)**
	93.75	6.25	100
Provision of basic infrastructure such as roads, water, electricity, telecommunications, and access to potable water	30	1	**31(35%)**
	96.77	3.23	100
Protection of the vulnerable and handicapped, women and disadvantages communities	18	2	20**(22%)**
	90.00	10.00	100
Famine relief and prevention	30	1	**31(35%)**
	96.77	3.23	100
Providing improved health services for all income levels	11	1	12**(13%)**
	91.67	8.33	100
Providing improved educational opportunities at the primary and secondary levels for all income groups	14	0	14**(16%)**
	100	0.00	100
Providing jobs and skills training for those entering the labour market	27	1	28**(31%)**
	96.43	3.57	100
Simplifying the ease of conducting transactions or interactions with the government, such as obtaining business licenses, paying taxes, applying for benefits	8	1	9**(10%)**
	88.89	11.11	100
Addressing macroeconomic imbalances (low economic growth, high inflation, high unemployment, foreign exchange reserve shortage, debt, deficit, etc.)	42	1	**43(48%)**
	97.67	2.33	100

Source: Own computation based on Survey (2023)

To tackle the above challenges and related potential problems facing the region, the surveyed respondents indicated areas for improvement. Table 12 presents areas that the surveyed respondents suggested regional government to enhance its capacity if it will be able to address current and future development challenges that result in more opportunities and a higher quality of life for all residents of the region. Accordingly, the most demanding three areas for improvement are ensuring better working conditions and a better incentive structure for civil servants based on job performance (76 percent), allowing greater flexibility in adapting and modifying regional government programmes at the regional and zonal level to address local conditions and problems (60 percent) and expanding education and training opportunities for civil servants (59 percent). In terms of gender, more than 90 percent of male respondents believe that the above areas are the most demanding areas for improvement in the region.

Table 11: Major areas for improvement in the Oromia Region

Areas for improvement	Male	Female	Total (%)
Streamlined processes and procedures (less "red tape")	20	2	22 (24.5)
	90.91	9.09	100
Expanded education and training opportunities for civil servants	50	3	**53 (59%)**
	94.34	5.66	100
Better working conditions and a better incentive structure for civil servants based on job performance	65	3	**68 (76%)**
	95.59	4.41	100
Greater flexibility in adapting and modifying regional government programs at the regional and zonal level to address local conditions and problems	51	3	54 (60%)
	94.44	5.56	100

Source: Own computation based on Survey Data (2023)

Moreover, the Relative Importance Index (RII) was used to rank the responses from participants to identify the areas in which the regional government has been most effective over the last 20 years in improving people's lives. Table 13 presents the survey results based on the RII analysis. This method was employed by ranking the highest and lowest areas showing the effectiveness of the regional state in terms of improving people's life over the last 20 years, with the highest rank indicating the ones that the regional state has been most effective, and vice versa. According to the result, from those mentioned areas, the four areas in which the regional government has been most effective in improving people's lives over the last 20 years are providing jobs and skills training for those entering the labour market (with RII value of 0.71), addressing macroeconomic imbalances such as low economic growth, high inflation, high unemployment, foreign exchange reserve shortage, debt, deficit, etc. (with RII value of 0.71), famine relief and prevention (with RII value of 0.67) and simplifying the ease of conducting transactions or interactions with the government, such as obtaining business licenses, paying taxes, applying for benefits (with RII value of 0.66).

Table 12: Effectiveness of the regional state in improving people's lives

No	Description	RII	Rank
1	Support to smallholder farmers and agricultural production	0.57	6
2	Encouragement and support to woreda-level organizations and village associations	0.61	5
3	Support to private sector development including small and medium size enterprises	0.56	7
4	Provision of basic infrastructure such as roads, water, electricity, telecommunications, and access to potable water	0.56	7
5	Protection of the vulnerable, handicapped, women and disadvantages communities	0.64	4
6	Famine relief and prevention	0.67	2
7	Providing improved health services for all income levels	0.56	7
8	Providing improved educational opportunities at the primary and secondary levels at all groups	0.51	8
9	Providing jobs and skills training for those entering the labour market	0.71	1
10	Simplifying the ease of conducting transactions with the government, such as obtaining business licenses, paying taxes, applying for benefits	0.66	3
11	Addressing macroeconomic imbalances (low economic growth, high inflation, high unemployment, foreign exchange reserve shortage, debt, deficit, etc.)	0.71	1

Source: Own computation based on Survey Data (2023)

On the other hand, providing improved educational opportunities at the primary and secondary levels for all groups (with RII of 0.51), providing improved health services for all income levels (with RII of 0.56), support to private sector development including small and medium sized enterprises (with RII of 0.56) and provision of basic infrastructure such as roads, water, electricity, telecommunications, and access to potable water (with RII of 0.56) were the areas in which the regional state has been less effective. This suggests that it will not be surprising if the HDI of the region is low over last 20 years and suggests a room for improvement in terms of improving people's life over the last 20 years.

5.5. Progress in improving overall well-being, education and health quality

The participants in the survey were also asked to reveal how successful the Oromia regional state was in improving overall well-being of the society in the region, and in terms of improving the quality of education and health services over the last 20 years. Table 14 shows the successfulness of the Oromia region in improving education and health quality. According to Table 14, 5.56 and 94.44 percent of the respondents are female and male, respectively. One can also observe from Table 14 that the majority of female (60 percent) and male (61.1) respondents said that the region was not successful in improving education quality over the last two decades. On average, 61.1 percent of them also concluded that the region was not successful in terms of the education status. Only 5.6 percent of them indicated that the region has been highly successful in improving education quality over the last 20 years. This suggests that the education sector has been facing significant challenges in terms of providing quality education to the students.

Table 13: Successfulness of the region in improving education and health quality.

Sex	Education					
	Highly Successful	**Successful**	**Neutral**	**Unsuccessful**	**Not at All Successful**	**Total**
Female	0	1	1	2	1	5
	0.00	20.00	20.00	40.00	20.00	100.00
	0.00	11.00	4.17	6.67	4.00	5.56
Male	2	8	23	28	24	85
	2.35	9.41	27.06	32.90	28.20	100.00
	100.00	88.89	95.83	93.30	96.00	94.40
Total	2	9	24	30	25	90
	2.22	10.00	26.67	33.30	27.80	100.00
	100.00	100.00	100.00	100.00	100.00	100.00
	Health					
Female	0	1	2	1	1	5
	0.00	20.00	40.00	20.0	20.0	100
	0.00	4.35	5.56	5.00	11.1	5.56
Male	2	22	34	19	8	85
	2.35	25.88	40.00	22.40	9.41	100.00
	100.00	95.65	94.44	95.00	88.80	94.40
Total	2	23	36	20	9	90
	2.22	25.56	40.00	22.20	10.00	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Note: The first value in the cell is the number of observations for each category. The second value in the cell is the row percentages for the first variable for each category. The third value in the cell is the column percentages for each category of the second variable.

Source: Own computation based on Survey Data (2023)

The respondent's perception towards health quality is slightly different from their responses to education status. In particular, though the proportion of participants who said that the regional state has been either unsuccessful or not successful at all (32.2 percent) is relatively higher than that of those who agreed with the performance (27.78 percent), majority of them were not sure about the quality of health services in the region over last 20 years (40 percent). The same proportion of both female and male were also neutral about the performance of regional states

in ensuring quality health services over the last 20 years. But no female respondent and only 2.22 percent of male participants (2) concluded that the Oromia regional state was highly successful in improving the quality of health services over the last 20 years. This suggests that the performance of the regional state in improving the quality of health services is also relatively poor.

Table 14: Successfulness of the regional state

No	Description	RII	Rank
1	Controlling inflation and the cost of living	0.84	1
2	Controlling unemployment	0.82	2
3	Boosting sustainable economic development	0.75	3
4	Improving education quality	0.74	4
5	Improving health quality	0.62	5

Source: Own computation based on Survey Data (2023)

To determine whether the Oromia regional government has been successful in controlling inflation and the cost of living, unemployment, boosting sustainable economic development, improving education and health quality over the last 20 years, the relative importance index was employed, and the results were presented in Table 15. Respondents asked to rate the above performance measures as highly successful, successful, neutral, unsuccessful, and not successful at all and consistently rated them. One may infer from Table 15 that the regional government has been relatively more successful in terms of controlling inflation and the cost of living (with RII of 0.84), controlling unemployment (with RII of 0.82) and boosting sustainable economic development (with RII of 0.75) over the last 20 years. However, the regional state has performed poor in terms of improving education and health quality. In particular, the regional government has been relatively less successful in improving health quality (with RII of 0.62) and education quality (with RII of 0.74) over the last 20 years.

Table 15: Successfulness of the region in improving overall human well-being of current and future generation.

Sex	Overall human well-being					
	Highly Successful	**Successful**	**Neutral**	**Unsuccessful**	**Not at All Successful**	**Total**
Female	0	0	1	3	1	5
	0.00	0.00	20.00	60.00	20.00	100
	0.00	0.00	3.23	11.11	14.29	5.56
Male	5	19	30	24	7	85
	5.95	22.6	35.71	28.57	7.14	100
	100	100	96.77	88.89	85.71	94.4
Total	5	19	31	27	8	90
	5.62	21.4	34.83	30.34	7.87	100
	100	100	100	100	100	100
Sex	**Today's youth and future generations**					
	Highly Likely to Have a Better Life	**Likely to Have a Better Life**	**Neutral**	**Unlikely to Have a Better Life**	***Highly Unlikely***	**Total**
Female	0	2	0	1	2	5
	0.00	40.0	0.00	20.0	40.0	100

	0.00	7.14	0.00	4.35	12.5	5.56
Male	7	26	16	22	14	85
	8.24	30.6	18.8	25.9	16.5	100
	100	92.9	100	95.7	87.5	94.4
Total	7	28	16	23	16	90
	7.78	31.1	17.8	25.6	17.8	100
	100	100	100	100	100	100

Source: Own computation based on Survey Data (2023)

Participants were also asked to reveal their perception on the improvement of overall human well-being in terms of available choices to improve the quality of life (such as access to education and health, job opportunities) are available now, so that all residents can engage in, and benefit from, the development process and whether today's youth and future generations will have a better life and more opportunities than they have now. Their responses were summarized in Table 16. Regarding the improvement of overall human well-being in terms of available choices, while most (60 percent) female participants agreed that the regional state has been unsuccessful in improvement of overall human well-being, 35.71 percent of male respondents failed to conclude about the performance of Oromia regional state in improvement of overall human well-being. On average, however, majority of participants (38.21) revealed that the regional government has been either unsuccessful or not successful at all in to improve the quality of life (such as access to education and health, job opportunities) are available now, so that all residents can engage in, and benefit from, the development process.

When it comes to the responses of the survey participants in terms of whether they feel today's youth and future generations will have a better life and more opportunities than they have now, the majority of them feel that today's youth and future generations will have a better life and more opportunities than they have now. This is true regardless of gender differences. In particular, 40 percent of female and 30.6 percent of male respondents feel that it will be likely that today's youth and future generations will have a better life and more opportunities than they have now. On average, over 31 percent of them agreed on the above conclusion. This suggests that the participants were optimistic about future prospects of the Oromia regional state.

6. CONCLUSION AND POLICY IMPLICATION

6.1. Conclusion

The objective of this report is to develop and compute Human Development Index (HDI) and Gender Development Index (GDI); to introduce HDI and GDI as a new tool for measuring the socio-economic development of the Oromia region and to enhance regional public sector capacity concerning HDI development, computation, data collection, and analysis. The report also aimed at assessing the perceptions and viewpoints of key stakeholders and policymakers about the region's progress in supporting inclusive growth and improving the quality of life.

For this purpose, secondary data on income, education and health outcome indicators were collected from multiple national and regional sources and were analyzed using various statistical techniques. We have also conducted expert perception survey to assess their perception on human development, education-health-income quality and policy improvements assessments of Oromia region. The analysis surveyed a diverse (rather than representative) group of experts and related professionals from different offices in the region, with a wide range of experience with different types of health and education policy and with different perspectives. We received 90 responses (93% responses rate) out of 110 questionnaires distributed to experts, professional, practitioners, researcher, and university professors mostly in regional states.

The Human Development Index (HDI) value for the Oromia region in 2013 (2020/21) is 0.545, putting it in the upper margin of the lowest human development category. Oromia region's HDI value increased by 10 percent between 2008 (2015/16) and 2013 (2020/21), rising from 0.496 to 0.545. The average life expectancy (34.1 percent) and EYS (31.6 percent) indicator advancements are higher than the average year of schooling (13.1 percent) and income indicators (21.2 percent). The female HDI value for the Oromia region in 2013 (2020/21) is 0.510, while the male HDI value is 0.576, resulting in a Gender Development Index (GDI) value of 0.885. According to their order, the factors to the differences are life expectancy ratio (99.3 percent), EYS ratio (88.1 percent), GNP ratio (87.7 percent), and MYS ratio (61.9 percent). The men's HDI ratings are greater in all three dimensions than the women. Over the entire 6-year period, an 11.5 percent disparity between male and female is seen.

The analysis based on the secondary data on income-education-health indicators also obtained following results. First, in terms of the income components of HDI, while the contribution of industrial sector to the regional GDP is stagnant (which is less than 15 percent since 2015) and below the sector’s contribution to national GDP, the contributions of services sector to regional GDP is rising at alarming rate and coincides with the sector’s contribution to national GDP since 2020. The region has achieved sustained economic growth in recent years with real GDP growth at or above 7 percent since 2012, registering double digit levels in 2012 and 2015. However, the dynamics of RGDP growth rate in the region is volatile during the study period due to strong and statistically significant association (96.95 with p-value of 0.000) between growth rate of GDP and the growth rate of the agriculture where there has been co-movement and erratic nature of GDP and agricultural output in Oromia region.

Second, the regional government of Oromia has achieved remarkable progress in sustaining nominal increases in education and health spending. In 2013, the aggregate expenditures in the education and health sectors were Ethiopian Birr (ETB) 7.99 billion in nominal terms, which increase to 39.17 billion birrs in 2021. However, the expenditure on education and health in real terms has been decreasing due to high inflation challenges in the regional economy. In terms of education, the region has achieved universal primary education ahead of the 2015

Millennium Development Goal partly due to the commitment of the region in allocating higher proportion of pro-poor expenditure on education sector. However, the gross enrolment rates significantly lower at the upper primary and secondary schools when compared with the lower primary and secondary schools. Most secondary schools in the region have been public schools and the participation of private sectors in this level of education has been relatively low when compared with their participation in primary schools. The regional state has also achieved remarkable progress in terms of reducing the gaps in toilet facilities between primary schools and secondary schools. However, the functionalities of school facilities were lower than the corresponding availability particularly in secondary schools. Moreover, student to teacher ratio has been still high in the region, which need hiring of qualified and competent teachers mainly at primary education.

Third, in terms of health, Oromia regional government has been constructing a number of health facilities since its establishment with the objective of improving the health status of its citizens. Because of the intensive efforts made by the regional government, the health coverage of the region is exhibiting a sort of improvement from year to year. There has been great commitment to implement health extension program throughout rural kebeles. However, access to improved sanitation facilities is limited to 58 percent of households, on average; and the other households (42 percent), on average, do not have access to improved sanitation facilities. Indeed, there has been improvement in terms of covering the health centers in Oromia region with the improved drinking water services, hand-washing facilities and toilet facilities. For example, health centers with drinking water services and hand-washing facilities increased to around 80 percent while the health centers with toilet facilities increased to 77 percent in 2021. The region's performance in terms of basic health service coverage is also relatively high, registering more than 80 percent health service coverage in each of last four years. Moreover, the number of health workforce density per 1000 population for the Oromia region (1.78 on average between 2012 and 2022) lower than the minimum health worker density of 2.3 skilled health workers (physicians and nurses/ midwives) per 1000 population recommended by WHO in 2016.

6.2. Policy Implications

- The regional government and other stakeholder need to sustain the HDI achievements so far and target to achieve the high category of the human development in 2030. Women disparities leads to an 11.5 percent of human development losses. Furthermore, less proportion of female participants involved in formulating or implementing the government's policy for economic & social development. These findings alert the increase of women role in policy formulation, implementation and other areas.
- Despite notable achievements in access to education (intake and enrollment rates), and availability and functionality of school facilities in secondary schools, challenges in the quality of education remain. There are the large gaps in net intake rates (NIR) between private and public schools, particularly the NIR within the secondary schools. Creating conducive environment for the participation of private sectors could potentially reduce the NIR between private and public secondary schools.
- There also significantly percentage differences in terms of availability of school facilities and their functionality. Hence, ensuring well functionality of all facilities in both primary and secondary schools for increasingly young population of the region demand attentions from all stakeholders. This could help students and staff working at their best, improving the quality of education. Hence, regular and continuous follow up and maintaining out-of-

use facilities need to be given due attention as availability of school facilities may not ensure their functionality.

- The regional government of Oromia has achieved remarkable progress in sustaining nominal increases in education and health expenditure. However, the expenditure on education and health in real terms has been decreasing due to high inflation challenges in the regional economy. Hence, in light of the pressure of providing quality education to a growing young population in the region, greater effort is required to ensure sustained increases in inflation adjusted education expenditure.
- Student to teacher ratio is still high in the region, which need hiring of qualified and competent teachers mainly at primary education. Reducing the current high turnover of teachers is also another strategy to improve the student to teacher ratio and hence quality of education. This could be done by providing different incentive packages for teachers.
- Improving health service coverage and health outcomes crucially depends on the availability and commitment of health workforce. According to the WHO (2016) recommendation, a minimum health worker density of 2.3 skilled health workers (physicians and nurses/ midwives) per 1000 population was considered generally necessary to attain high coverage (80 percent) of skilled birth attendance. When assessed according to this threshold, the health workforce for the Oromia region is by far less than the required amount for most periods, which is 1.78 on average between 2012 and 2022. Hence, the regional government need to work on increasing number of health worker density. This could be done by providing different incentive packages for health workers and creating conductive working environment for them so as to improve their productivity and commitment.
- To sustain development and reduce volatility in the region, reeducation of the dependence of the regional economy on rain and boosting irrigation are required. The maintenance of the unbalanced growth of the sectors are also essential.
- This report assessment suggests the following for future endeavors (inflated & missing data corrections, setting up of central database and preparing a working system for interventions).

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8. APPENDIXES

Annex 1: Human Development Index (HDI) Technical Notes

The HDI is a summary measure of progress in three major elements of human development: living a long and healthy life, having access to information, and having an acceptable standard of living. The HDI is the geometric mean of the normalized indices for each dimension. This technical note outlines the important variables used, data sources, and the methods involved in generating HDI values.
The following data sources were primarily consulted for acquiring information and computation.

1. Life expectancy at birth:
    - CSA (The Central Statistics Authority of Ethiopia, the now Ethiopian Statistics Service (ESS)). (2013). Population Projections for Ethiopia (2007-2037). Addis Ababa (Finfinnee), Ethiopia.
2. Expected years of schooling:
    - Oromia Education Bureau. (2004-2014 E.C.). Education Statistics Annual Abstract. Addis Ababa (Finfinnee), Ethiopia.
3. Mean years of schooling:
    - Oromia Education Bureau. (2004-2014 E.C.). Education Statistics Annual Abstract. Addis Ababa (Finfinnee), Ethiopia.
    - Central Statistical Agency (CSA) and DHS Program (ICF). (2016). Demographic and Health Survey (DHS), Ethiopia. Addis Ababa, Ethiopia and Rockville, Maryland, USA.
4. GNI per capita:
    - CSA (The Central Statistics Authority of Ethiopia, the now Ethiopian Statistics Service (ESS)). (2013). Population Projections for Ethiopia (2007-2037). Addis Ababa (Finfinnee), Ethiopia.
    - Central Statistics Agency of Ethiopia [CSA, the now Ethiopian Statistics Service (ESS)] (2005; 2013; 2021). Statistical Report on the National Labor Force Survey. Addis Ababa (Finfinnee), Ethiopia.
    - Oromia Planning and Development Commission (OPDC). (2012-2022). Regional Government of Oromia Statistical Abstract from 12th-22nd Edition, OPDC, Addis Ababa (Finfinnee), Ethiopia.
    - Population Census Commission. (2008). Summary and Statistical Report of the 2007 Population Housing Census, UNFPA, Addis Ababa (Finfinnee), Ethiopia.

Annex 2: Variable Descriptions

Table 16: List of Key Variables

Variable		Description	Measurement Unit
LEI[18]		Number of years a person can expect to live. It is based on an estimate of the average age that members of a particular population group will be when they die.	Years
EI[19]	MYS[20]	Number of years a child of school entrance age is expected to spend at school, or university, including years spent on repetition. It is the sum of age-specific enrolment ratios for primary, secondary, post-secondary non-tertiary, and tertiary education.	Years
	EYS[21]	Average number of completed years of education of a country's/region's population aged 25 years and older, excluding years spent repeating individual grades.	Years
GNII[22]		GNI per capita at PPP[23][24]$	Currency (PPP$)

[18] Life Expectancy Index or Longevity or Long and Healthy Life
[19] Education Index
[20] Mean Year of Schooling
[21] Expected Year of Schooling
[22] Gross National Income Index. The GDP value in the Oromia region us used as a proxy for the GNI value.
[23] Purchasing Power Parity
[24] The Ethiopian national values of the conversion rates were used as reflection to Oromia region.

Annex 3: Method of Computation

HDI: In this HDI assessment, we will adopt the *new method of computing HDI* being used by UNDP since 2010. Published on 4 November 2010 (and updated on 10 June 2011), the 2010 Human Development Report calculated the HDI by combining three dimensions (UN, 2010; UNDP, 2013). The section follows presents the approach for computing the HDI and related indices.

HDI is a summary index measure of long-term progress in a country/region along three key dimensions: a long and healthy life, access to knowledge, and a decent standard of living. The HDI is the geometric mean of normalized indices measuring achievements in each of these three dimensions. Methods of tracking and measuring progress along the dimensions have been evolving through time, depending on availability of data and changes and on improvements in the way progress in human development are generally measured. The HDI then represents the uniformly weighted sum with 1⁄3 contributed by each of the factor indices:

In general, to transform a raw variable, say x, into a unit-free index between 0 and 1 (which allows different indices to be added together), the following formula is used:`

$$c = \frac{x-a}{b-a} \quad (1)$$

Where a and b are the lowest and highest values the variable x can attain, respectively. Minimum and maximum values (goalposts) are defined to convert indicators represented in different units into indices ranging from 0 to 1. These goalposts serve as "the natural zeros" and "aspirational targets," from which component indicators are standardized.

a) Life expectancy index: LIE was computed using the minimum value set (i.e., 20 years) and the maximum observed value (i.e., 85 years) for the period under consideration.

$$Life\ Expectancy\ Index\ (LEI) = \frac{LE-20}{85-20} \quad (2)$$

Where LE is the maximum observed value for the period under consideration; 20 and 85 are the minimum and maximum life expectancy at birth set.

b) Education index: the two indicators of EI are EYS and MYS.

Expected Years of Schooling (EYS): According to UNESCO[25], EYS refers to the number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life. Following the UNDP's approach, we will compute EYS based on Net Enrollment Rates (NERs) of primary, secondary and tertiary education.

$$EYS = \sum x_i y_j \quad (3)$$

Where x_i is NER for each category, y_j is the maximum attainable grade in each grade (i.e., 8 years for primary, 10 years for lower secondary, 12 years for upper secondary and 14 for tertiary).

Having defined the EYS, the EYS Index (EYSI) can be computed as follows:

$$EYSI = \frac{actual\ value - \min value}{\text{Max.}\ value - \min value} = \frac{EYS}{18} \quad (4)$$

Where EYSI is Expected Years of Schooling Index; 18 is equivalent to achieving a master's degree in most countries.

Mean Years of Schooling (MYS): A country's/region's stock of human capital is commonly measured by the average number of completed years of education of its population. According to UNESCO, MYS is the average number of completed years of education of a country's/region's population aged 25 and older, excluding years spent repeating individual grades. For MYS, this report uses the latest Demographic Health Survey (DHS) (2016). The DHS survey gives the educational attainment of the population according to the categories as follows: no education, some primary, completed primary, some secondary, completed secondary and more than secondary.

$$MYS = \sum x_i y_j \quad (5)$$

Where x_i is educational attainment in percent and y_i is the maximum number of grades in each category. Maximum grade in primary school is 8 years, maximum grade in secondary school is 12 years and maximum grade in more than secondary is 16 years.

The MYSI can also be computed using the formula in equation (6):

$$MYSI = \frac{actual\ value - \min value}{\text{Max.}\ value - \min value} = \frac{MYS}{15} \quad (6)$$

Where MYSI is Mean Years of Schooling Index; 15 is the projected maximum of this indicator for 2025.

Finally, the EI is the arithmetic mean of MYSI and EYSI as follows:

$$EI = \frac{MYSI + EYSI}{2} \quad (7)$$

c) GNI Index (GNII): For computation of the GNII, there are many options. The first is to use the regional GDP for computing regional income per capita and then adjusting using national PPP. The second is using consumption/expenditure per capita or other variables as a proxy for income per capita. The

[25] United Nations Educational, Scientific and Cultural Organization. https://uis.unesco.org/en/glossary.

consumption/expenditure data was obtained from the survey data in Oromia region. The GNII could be computed on the equation as follows:

$$GNII = \frac{\ln(GNIpc) - \ln(100)}{\ln(75{,}000) - \ln(100)} \quad (8)$$

GNII is 1 when GNI per capita is $75,000 and 0 when GNI per capita is $100.

Once the indices are identified, the HDI is computed as a geometric mean of the three normalized indices.

$$HDI = \sqrt[3]{LEI * EI * II} \quad (9)$$

Where LEI is life expectancy index, EI is education index and GNII is income index.

Gender Development Index (GDI): In the 2014 Human Development Report, UNDP introduced a new measure, the GDI, based on the sex-disaggregated HDI, defined as a ratio of the female to the male HDI. The GDI measures gender inequalities in achievement in three basic dimensions of human development: health (measured by female and male life expectancy at birth), education (measured by female and male EYS for children and mean years for adults aged 25 years and older) and command over economic resources (measured by female and male estimated GNI per capita).

Steps to calculate Gender Development Index values: The steps to calculating GDI values are four. The steps to calculate the GDI are largely adopted from the UNDP standard reports.

Step 1. Estimating female and male earned incomes

To calculate estimated earned incomes, the share of the wage bill is calculated for each gender. The female shares of the wage bill (S_f) is calculated as follows:

$$S_f = \frac{W_f/W_m \,.\, EA_f}{W_f/W_m \,.\, EA_f + EA_m}$$

Where W_f/W_m is the ratio of female to male wage, EA_f is the female share of the economically active population and EA_m is the male share?

The male share of the wage bill is calculated as: $S_m = 1 - S_f$.

Estimated female earned income per capita ($GNIpc_f$) is obtained from GNI per capita ($GNIpc$), first by multiplying it by the female share of the wage bill, S_f, and then rescaling it by the female share of the population, $P_f = N_f/N$): $GNIpc_f = GNIpc \,.\, S_f/p_f$.

Estimated male earned income per capita is obtained in the same way: $GNIpc_m = GNIpc \,.\, S_m/p_m$. Where $p_m = 1 - P_f$ is the male share of population.

Step 2. Normalizing the indicators

To calculate the female and male HDI values, the indicators in different units are first converted into indices, and then the dimension indices for each sex are aggregated using the geometric mean. The indicators are converted into indices on a scale of 0 to 1 using the same goalposts as the HDI, with the exception of life expectancy at birth, which is modified for women's average five-year biological advantage over males.

Goalposts for the Gender Development Index in this report: the life expectancy at birth (years) for female is set to 22.5 (and for male 17.5) minimum and 87.5 (and 82.5 for male) maximum.

Step 3. Calculating the female and male Human Development Index values

The female and male HDI values are the geometric means of the three-dimensional indices for each gender:

Step 4. Comparing female and male Human Development Index values

The GDI is simply the ratio of female HDI value to male HDI value:

$$GDI = \frac{(HDI_f)\ HDI\ values\ Female}{(HDI_m)\ HDI\ values\ Male} \quad (10)$$