ESTIMATING CARE DEFICITS, INVESTMENT COSTS AND ECONOMIC RETURNS FOR EARLY CHILDHOOD CARE AND EDUCATION (ECCE) IN ETHIOPIA

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ACRONYMS AND ABBREVIATIONS

CPI	Consumer Price Index
CSA	Central Statistical Agency
CSO	civil society organization
CTE	College of Teachers' Education
CTR	child-to-teacher ratio
DHS	Demographic and Health Survey
ECCE	early childhood care and education
ECD	early child development
EPR	employment-to-population ratio
ESAA	Education Statistics Annual Abstract
ESDP	Education Sector Development Program
ESS	Ethiopian Statistical Service
ETB	Ethiopian Birr
FMHACA	Food, Medicine and Healthcare Administration and Control Authority
GDP	gross domestic product
GEGI	Gender Employment Gap Index
GER	gross enrolment ratio
GO	government organization
HG	high growth
ILO	International Labour Organization
LG	low growth
LMS	Labor and Migration Survey
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoPD	Ministry of Planning and Development
MoTRI	Ministry of Trade and Regional Integration
MoWCY	Ministry of Women, Children and Youth
MoWSA	Ministry of Women and Social Affairs

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NCF	Nurturing Care Framework
NER	net enrolment ratio
NGO	non-government organization
PTR	pupil-to-teacher ratio
SAM	Social Accounting Matrix
TSR	target service ratio
USAID	US Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

Women and girls shoulder a disproportionately high responsibility for unpaid and paid care work that sustains all societies (ILO, 2018). However, the bulk of women's care work is often unaccounted for or undervalued, and occurs at the expense of their time and opportunities for paid work, education, public life and rest. The limited availability of good-quality and affordable care has led to high demand for women's unpaid care work, causing gender disparities in the labour market. On the other hand, previous studies indicate that investing in care services, e.g. education and health, has the potential to create decent jobs for women in particular, reduce gender gaps in economic participation, and engender broader social benefits.

The present study assesses the coverage gaps in early childhood care and education (ECCE) services in Ethiopia, the investments needed to eliminate the gaps, and the resulting economic returns by applying the UN Women/ International Labour Organization (ILO) (2021) Policy Tool on Care. It also estimates the growth benefits of eliminating the gender gap in employment. The study is conducted under two scenarios: Scenario 1, based on 50% and 74% target enrolment for daycare and preprimary, respectively; and Scenario 2, based on 50% and 100% target enrolment for daycare and preprimary, respectively.

In Ethiopia, the overwhelming majority (92%) of preprimary (ECCE) teachers are females, indicating a potential for decent employment through investing in ECCE. However, ECCE services are constrained by the lack of adequately trained teachers, teachers' low salaries, the lack of a standard curriculum, and the lack of accessibility and affordability on the part of rural communities and those with lower economic status (MoE, 2010).

In terms of ECCE enrolment, only 36.7% of the child population in the age 4–6 cohort (35.6% for girls and 37.7% for boys) are enrolled in preprimary classes, which is below the sectoral target of 46% and 47% for girls and boys, respectively, with regional disparities (MoE,

2021b). This leaves 63.3% of the child population of the relevant age cohort to informal and/ or family- and community-provided early childhood care. There is also a sizable gap between the pre-primary (age 4–6) gross enrolment ratio (GER) and net enrolment ratio (NER), indicating a lack of access to ECCE at the right time for the age.

The present assessment shows that the total ECCE coverage deficit is 8,330,347 in the low growth (LG) scenario, implying that over 8.3 million children below the age of 7 have no access to formal ECCE services. The figure is 10,403,684 for the high growth (HG) scenario. The ECCE gap is considerably higher in the case of daycare services, accounting for 64% and 51%, respectively, in LG and HG scenarios.

The total cost (salaries and overheads) of eliminating the ECCE deficit amounts to ETB 73,133,505,137 in the LG scenario (US$1.29 billion) and ETB 95,305,406,411 (US$1.69 billion) in the HG scenario. The cost due to the gap in daycare and preprimary amounts to 54% and 46%, respectively (in the LG scenario), which is consistent with the considerably larger coverage gap in access to daycare services than preprimary, with a base period enrolment status as low as 2.9% (compared to 36.7% for preprimary). In the HG scenario, where a full closure of preprimary service gap is assumed while daycare coverage remains at 50%, the costs due to daycare and preprimary are estimated to be 42% and 58%, respectively. This cost amounts to nearly 2.1% and 2.8% of the country's gross domestic product (GDP), respectively, in the LG and HG scenarios.

The estimates from this assessment demonstrate that investments to eliminate the ECCE deficit would have sizable returns, with an additional 4,963,140 and 6,086,403 new jobs (direct and indirect), respectively, created under the LG and HG scenarios, of which investing in daycare service contributes 65% and 53%, respectively, compared to 35% and 47%, respectively, by preprimary. All other factors remaining the same, women would be the prime beneficiaries of these investments,

benefiting from 3,325,816 (67%) and 3,882,609 (64%) of the new jobs created in the LG and HG scenarios, respectively. However, the returns from eliminating the ECCE gap transcend job creation: they also contribute to GDP growth through reducing gender disparity in the labour market. Applying the GEGI (basic) developed by Pennings (2022), the present assessment reveals that long-run GDP (or GDP per capita) would grow by nearly 16% in the case of full closure of the existing gender gap in employment and by 10% after accounting for the additional jobs created through investment in eliminating the ECCE deficit in the HG scenario. The additional jobs for women and men due to investing in ECCE imply that there will be a smaller gender employment gap to close in the future; hence, a smaller long-run GDP growth effect (10%) to be anticipated from full closure of the gender employment gap.

The findings of the present assessment indicate that investing in the care economy should be viewed as an opportunity to create decent jobs and close the gender gap in the labour market and human capital, with implications for wider economic and social benefits. In view of the data limitations, putting in place a national database is important to enable availability of up-to-date data and monitoring and support of ECCE services. Recommendations addressed to key stakeholders include:

- Ministry of Women and Social Affairs (MoWSA)/Ministry of Health (MoH): There is a need to work on a national coordinating body for daycare services, in particular with clarity of mandates regarding policy, standards, monitoring, support and data generation. Generating administrative data, building a database, and monitoring the quality and accountability of paid care services are important.

- Ethiopian Statistical Service (ESS): Indicators of access to and quality of daycare services should be incorporated in the data collection tools of ESS regular surveys, such as the Demographic and Health Survey, Time Use Survey and Labor Force Survey.

- Ministry of Education (MoE): Investment in school facilities, and advocacy and support with social policies, are required to help increase the GER and reduce the disparity across regions and between the GER (36.7%) and the NER (21.2%) through access to preprimary schooling at the appropriate time for the age. Investment to eliminate the ECCE gap must be accompanied by targeted training of staff on ECCE to match potential jobs to be created. In line with this, an ECCE curriculum and the development of educational materials, and targeted pre- and in-service training of female ECCE staff, are important.

- Ministry of Finance (MoF)/Ministry of Planning and Development (MoPD): Investment in the care economy and the implementation of a national policy on the care economy (paid and unpaid care work) are crucial for addressing gender inequality and supporting sustainable development. There is a need to identify macroeconomic policy options to increase the fiscal space needed to support these investments, in line with the country's growth trajectory and development targets. Exploring the potential complementarity of investing in the care sector with that of other government priority sectors, e.g. manufacturing, is useful to guide such decisions.

- Private sector: Strengthening private sector engagement in the care economy is key to improving job opportunities for women in the care sector and reducing barriers to economic participation of women seeking care services. In line with this, public private partnership in the care sector is crucial for availing quality care services and stimulating development-positive care business.

- Development partners: Support is required in the areas of generating daycare data and promoting investments in the care economy. This may involve conducting mapping; policy advocacy, capacity building for estimating gaps in other care services; enhancing network platforms for those in the care sector and earmarking Official Development Assistance (ODA) for the care economy. This support can be provided in a collaborative framework by GOs, NGOs, CSOs and the private sector.

1 INTRODUCTION

It has been long acknowledged that women and girls shoulder a disproportionately high burden of care work in many societies. However, the bulk of women's care time is often unaccounted for or undervalued, and occurs at the expense of time for paid work. Women's higher participation in care work is matched by their lower participation in formal employment (Bloom et al., 2009; MGI, 2015). Evidence shows a lower rate of female labour force participation among women of childbearing and rearing age, in comparison to those who are outside the age cohort (Eckstein & Lifshitz, 2011).

Women's unpaid care responsibilities also imply some occupational and sectoral sorting among those participating in the labour force (Chowdhury et al., 2018; Goldstein et al., 2019). Evidence further shows that women have a preference towards jobs that offer shorter work hours, paid leave, and lower penalties for adjusting to meet care needs (Chowdhury et al., 2018). This is because of their preference for jobs that offer some flexibility to accommodate their domestic care roles, although this may come at the expense of higher pay. Similar patterns of sorting towards jobs that offer flexibility to accommodate care roles are also observed among female entrepreneurs, who are often concentrated in informal employment sectors (IMF, 2018) exhibiting low growth (Buvinic & O'Donnell, 2016), and in roles which are more short lived than those of male entrepreneurs (Woldehanna et al., 2018).

The foregoing illuminates the interplay between the high demand for women's unpaid care time and a rigid labour market, causing women to make a compromise in terms of sectoral and occupational segregation and reduced labour force participation and earnings. Moreover, many care occupations are inaccurately viewed as unskilled, or an extension of women's perceived "natural" or "traditional" role as caregivers, a stereotype that contributes to their low status, low pay, and lack of representation. Both misconceptions

are indicative of some gap in access to formal care services, as well as in the valuation of care work in general.

In Ethiopia, the overwhelming majority (92%) of preprimary (ECCE) teachers are females (MoE, 2021b). This is indicative of the potential returns to investing in care services in terms of creating more jobs for women, thereby contributing to reducing gender gaps in economic participation and benefits. However, only 29.8% of female preprimary teachers are qualified, in terms of holding at least an ECCE diploma in accordance with the new Ethiopian Education Road Map, compared to 34.2% of their male counterparts (MoE, 2021b).

In terms of access to ECCE services[1] in Ethiopia, only 36.7% of the child population in the age group 4–6 (35.6% for girls and 37.7% for boys) are enrolled in preprimary classes, which is below the sectoral target of 46% and 47%, respectively, compared to the base year (2018/19) status of 40% and 41%, respectively, for girls and boys (MoE, 2021b). This leaves 63.3% of the child population of the relevant age cohort with no access to formal ECCE services. Added to this is the unpaid care work for the under-4-year-old child population, which is not accounted for in Education Statistics Annual Abstracts (ESAAs) or any other statistics for ECCE service delivery. Whereas the difference in target enrolment levels for girls and boys may be linked to the differences in the base period status, it still raises the question of why gender equality is not targeted. Moreover, the proportion is reported to have declined by 6.5 percentage points from the previous year (MoE, 2021b). The situation is even worse in some regions and cities, where wider disparities in ECCE enrolment rates are reported for the age 4–6 cohort, e.g. Somali (3.2%) and Afar (17%), compared to Addis Ababa (94%) and Gambella (67%).

Such high demand for unpaid care work has led to gender disparities in the labour market in Ethiopia, in terms of women's lower rate

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1   Measured in terms of number of current enrolments in ECCE.

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of labour force participation and earnings, as well as in terms of gendered sectoral and occupational segregation. For instance, urban unemployment is higher among youth females (38%) compared to 19% among youth males (CSA, 2020). In terms of job sector, nearly 53% of female employment and 41% of male employment in Ethiopia is in the informal sector (ESS, 2021).

Given this state of affairs, the present study is intended to assess the care deficit and the investments needed to eliminate this deficit and the resulting economic returns, with a focus on ECCE services in Ethiopia. It does so by applying a tool developed by UN Women/ILO (2021) in A guide to public investments in the care economy: Policy support tool for estimating care deficits, investment costs and economic returns, referred to as the "Policy Tool on Care" from here onwards, to the case of ECCE in Ethiopia. This initiative also concurs with three of the UN's Sustainable Development Goals (SDGs):

- SDG 4, Target 4.2: "By 2030, ensure that all girls and boys have access to quality early childhood development, care and preprimary education so that they are ready for primary education."

- SDG 5, Target 5.4: "Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate"; and

- SDG 8, Target 8.5: "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value."

The initiative is also consistent with various ILO Recommendations and Conventions, such as the Employment and Decent Work for Peace and Resilience Recommendation, 2017; Maternity Protection Convention, 2000; and Workers with Family Responsibilities Convention, 1981. In relation to these, the results of the present assessment enabled quantifying the investment needs for eliminating the ECCE gap and the returns from investing, as well as helping to stimulate policy discourse and potential interventions.

2 OBJECTIVE OF THE ASSESSMENT

2.1   General objective

The overall objective of the assessment is to apply the Policy Tool on Care to the case of Ethiopia, with a focus on early childhood care and (preprimary) education (ECCE) services.

2.2   Specific objectives

The assessment aims to achieve the following specific objectives:

1. To review the Policy Tool on Care and ensure necessary steps are undertaken to adapt it the country context.

2. To identify the coverage gaps in the care economy with a focus on ECCE services, and estimate the costs of public investments and expenditures for eliminating the coverage gaps.

3. To assess the various economic returns on investments in expansion of ECCE services in the short and the long run, with a focus on employment generation.

3 THE CARE ECONOMY AND POTENTIAL FOR INVESTMENTS

3.1   The care economy in the context of gender inequality and women's status

Feminist economists have long recognized the importance of the undervaluing and unequal distribution of paid and unpaid care work in explaining gender inequality, including in the labour market. Their argument stems from the fact that non-market institutions and structural constraints, including gender norms and power relations, are crucial in shaping women's unequal social and economic status (Becchio, 2020). For instance, women's economic dependency on wage-earner household members, brought about by women's exclusion from the formal sector, further reinforces women's lower economic status at the expense of their bargaining power and economic participation and earnings. The resulting power inequality structures unequal outcomes in the economic, social and political spheres.

Based on the foregoing, a two-way relationship between women's paid and unpaid work is noteworthy. On the one hand, unpaid care and domestic work is a key constraint on women's participation in decent paid employment. Long hours in poorly paid and often precarious employment, in turn, constrains women's ability to care, thereby perpetuating poverty in the short term and across generations. Hence, transformation of the processes and structures shaping women's status is at the core of women's empowerment (Berik & Kongar, 2021).

3.2   The potential for investments in the care economy

Evidence shows that gender inequality has an opportunity cost. For instance, if gender gaps in wages in Ethiopia are to be eliminated, Ethiopian GDP would increase by an estimated 1.9% (Buehren et al., 2019). To eliminate these gender employment and earnings gaps, it is necessary to alleviate the time constraints on women's labour supply. This can be done via investing in care.

Specific to the care economy, investments to eliminate care deficits and reduce the demand for unpaid care work has far-reaching economic and social benefits that transcend the individual. The economic returns on investment in the care economy can be seen in terms of supply-side and demand-side effects on women's labour, as well as in terms of impacts on growth and human development.

The bulk of the literature addresses the issue in terms of the supply-side effects by examining the impact of access to care services on female labour supply, basically through estimating the female wage offer curve and identifying the effect of the care service on the likelihood of female participation in the labour market (e.g. Del Boca & Vuri, 2007; Blau & Kahn, 2013; Kalb, 2018). The main policy instruments those studies consider for stimulating female labour force participation include access to (subsidized) care and paid parental leave. Access to care services has been shown to alleviate the time poverty of employed women (Ilkkaracan et al., 2021). Increased female labour force participation is also associated with an increase in expenditure on child education and health (Aguirre et al., 2012) and GDP growth (MGI, 2015). There is also evidence of the effect of access to better-quality childcare services in terms of enhancing human development in the longer term (Heckman et al., 2013).

Demand-side effects of investment in care service have received growing attention recently. A number of global and country-

specific studies indicate that investment in the care sector boosts economies in terms of job generation and fiscal sustainability (e.g. De Henau et al., 2016; Ilkkaracan et al., 2015; Ilkkaracan & Kim, 2019; ILO, 2018; UN Women, 2019). These studies show that investing in the care sector carries substantial potential for employment creation, as the sector is labour-intensive and has a very high employment multiplier. Job creation through care investments favours women in particular, as the sectoral employment is typically female concentrated. According to the ILO (2018), women represent two-thirds of paid care workers globally. To the extent that care employment is female concentrated, women are likely to be the prime beneficiaries from investment in the sector. Hence, investing in care services improves the situation of women not only by reducing the demand for unpaid work and women's time poverty, but also by generating jobs for women, increasing the demand for female labour and enhancing women's earnings (ILO, 2021). In addition, wider positive spillover effects are also likely to result from these investments, such as increasing the quality of those jobs, reducing the gender gap in the labour market, and enhancing future human capital, which has broader spillover effects for social and economic development.

4 THE ETHIOPIAN CARE ECONOMY FROM A GENDER PERSPECTIVE

4.1 Unpaid and paid care work in Ethiopia

Globally, it is established that unpaid care work is shared unequally, with women carrying out three-quarters of the work (ILO, 2018). Women's unequal care burden is even more pronounced in low-income economies such as Ethiopia, where entrenched gender norms undermine women's participation and benefits in the formal economy, and where access to affordable paid care services is limited. In the context of a rigid labour market that excludes care work, this situation leaves women with no choice but to compromise on their paid opportunities in terms of participation and choice of occupations based on non-monetary criteria. Women's role in the unpaid care sector is not only unrecognized and undervalued, but also constrains their time and mobility, thereby limiting their access to information on better economic opportunities (Mamo et al., 2021) while further undermining their bargaining positions. For instance, women who are not participating in the formal economy and the labour market, in particular, tend to become dependent on wage-earner household members for access to income and resources (Moos, 2021). This perpetuates women's limited bargaining power and financial vulnerability. ESS (2021) estimates show that the economic dependency ratio[2] is 177 for women compared to 105 for men.

Furthermore, the fact that women are engaged in formal or productive work does not necessarily imply that they are (fairly) remunerated, particularly in the case of family workers in family enterprises. The World Bank (2019) estimates that 58% of female workers in small-scale manufacturing businesses are unpaid family workers, compared to 40% of their male counterparts. Estimates further show that women constitute 45% of unpaid family workers in Ethiopia, compared to 30% for men, and 77% of those employed as unpaid family workers in non-agricultural sectors are women compared to 23% for men (ESS, 2021).

Apparently, even those women who are participating in self-employment and income-generating enterprises are not excused from assuming their unpaid care roles. Evidence shows that women engaged in loan-financed enterprises in various regions in Ethiopia are still expected and have continued to perform the bulk of the domestic care work (Haile et al., 2012; Bekele, 2016). Whereas this shows the limitations of women's empowerment interventions in influencing existing gender norms, it also shows the potential implications of such unequal sharing of unpaid care in terms of limiting women's time and opportunities.

The fact that the paid care sector mirrors the unpaid one in terms of demand for female labour has implications for enhancing women's economic participation and benefits. In Ethiopia, the paid care sector, mainly in relation to education and health, is predominantly female concentrated. Currently, females constitute an overwhelming majority (92%) of teaching staff in kindergarten (and in other levels, albeit at lower rates in primary, middle and secondary schools (36%) (MoE, 2021b)) and 60% of the population (age 10 and above) trained in various health professions (ESS, 2021). The Education Sector Development Program (ESDP) VI envisions increasing the proportion of female to male preprimary school teachers

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2   The ratio of employed people to unemployed people, and people in the inactive population (economically not active and age 0–9).

from 79.5%/20.5% in 2018/19 to 88%/12% in 2024/25 (MoE, 2021a). This is indicative of a higher potential for female employment through public investment in the care sector. However, only 29.8% (against a target of 81.5%) of female preprimary teachers are qualified, compared to 34.2% of males, in terms of holding an ECCE diploma. Accordingly, more needs to be done to provide training to female teachers in order to ensure the achievement of the plan.

4.2 ECCE services in Ethiopia

In Ethiopia, ECCE policy recognizes the need for targeted interventions to address the holistic needs of children from prenatal to 7 years of age (MoE, 2010; MoH, 2020). The policy provides for sectoral collaboration, with the MoH mandated to provide nurturing care for children from conception to 3 years of age, MoE from 4 to more than 6 years of age, and MoWCY (now MoWSA) for advocacy and mobilization (MoH, 2020). In line with this, ECCE that is considered for the study consists of services at preprimary (age 4–6)[3] and daycare (age below 4) levels.

4.2.1 Preprimary education

Preprimary education is offered in three modalities: kindergarten, 'O'-Class, and Child-to-Child (MoE, 2021b). Kindergarten school spans three years (ages 4 to 6) before children join primary school, and is mainly offered by NGOs, such as communities, private institutions and religious organizations, and reportedly has the potential to better prepare children for primary schooling compared to the other modalities. It is indicated that non-governmental kindergartens will continue to play a major role in the supply of ECCE under ESDP VI, targeting 77% enrolment in non-government kindergartens. On the other hand, both the 'O'-Class and Child-to-Child modalities involve a one-year stay (from age 6) before children join primary school at the age of 7 (MoE, 2021b).4 The 'O'-Class modality is based on government primary schools being annexed to Grade 1. On the other hand, the more informal Child-to-Child modality involves older children playing with younger siblings or children in the neighbourhood to help them prepare for primary schooling, under the supervision of qualified teachers.

In terms of enrolment share, 'O'-Class constitutes 76.5% of total preprimary enrolment, followed by kindergarten (21.2%) and Child-to-Child (2.3%) (MoE, 2021b). Geographic and regional disparities are observed in preprimary enrolment across the modalities. Kindergarten schools are mainly concentrated in the urban-based private sector, predominantly in Addis Ababa (95% share). Regional disparity is also observed in preprimary enrolment, with the highest enrolment in 'O'-Class and Child-to-Child modalities being reported for Oromia, constituting 31.2% and 25.9% of total 'O'-Class and Child-to-Child enrolment, respectively.

Gross preprimary (age 4–6)[5] enrolment was 36.7% (37.7% males and 35.6% females) in 2020/21, missing the target of 46% (47% males and 46% females), and showing a decline of 6.5% percentage points from 2019/2020 (MoE, 2021b). Enrolment shows some regional disparities, with the highest GER recorded for Addis Ababa (93%, albeit a decline from 105% in the preceding year) and the lowest for Somali (3.2%) and Afar (17%). ESDP VI targets a preprimary GER of 74% by 2024/25 through expanding kindergartens and 'O'-Class modalities (MoE, 2021a).

There is a gap between the preprimary NER (21.2%) and GER (36.7%), indicating that a sizable number of children are joining preprimary past the official age (4–6) or before it (MoE, 2021b). This shows a challenge in terms

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3 The mandatory primary school starting age is 7.

4 At the time of the present assessment, the ECCE policy was undergoing revisions, which may include upgrading of public ECCE into a two-year programme for children of age 5–6 years old by eliminating the existing 'O'-Class modality. The 'O'-Class modality accounted for 76.5% of total preprimary enrolment.

5 Published data on kindergarten enrolment and teachers represent the entire age 4–6 cohort, but not disaggregated by age groups 4, 5 and 6. Hence, the present assessment used aggregate data for ages 4– 6.

of ECCE access at the right time for the age, which warrants action.[6]

The ESDP VI (2020/21–2024/25) national target for the student-to-teacher ratio is 49:1 for kindergarten, 40:1 for basic education (Grades 1–8) and 24:1 for secondary education (MoE,

2021a). On the other hand, the national target number of children per carer[7] is three for the cohort below 1 year; four for the age 1–3 cohort; and five for the age 3–4 cohort, as given in the national standard protocol (MoWSA, 2022b).

4.2.2 Daycare services

Unlike the case of the preprimary education, there is no organized, comprehensive or up-to-date data on daycare (age <4) service providers and beneficiaries. Limited daycare services are offered by commercial daycare facilities, which are urban-based, and by public organizations. However, except for the scant and fragmented data available at the daycare regulatory and licensing organizations (for the registered daycare facilities), regular, up-to-date and well-documented data are lacking.[8]

In order to fill the data gap, a survey was conducted on a sample of commercial daycare facilities and supplemented by MoWSA's existing data on public employer-based daycare facilities. From these data, the results were extrapolated to the entire (actual and potential) population of daycare facilities in the country.

4.3 Labour market trends: participation, employment, occupational sorting and earnings

Limited access to ECCE services, norms shaping gender roles in care work and access to education, and less gender-responsive labour market trends, undermine women's participation in the labour market and in paid employment, as well as in their choice of occupations and sectors. In Ethiopia, the labour force participation rate[9] is about 56.8% among women and 72.6% among men (ESS, 2021). The proportion of the employed population in the formal economy is 75.9% among women and 84.4% among men. For instance, the employment-to- population ratio (EPR) – i.e. total employed people as a proportion of the total working-age population (age 10 and older) – is 50% among women

(and 50.6% among youth females), compared to 69% among men (and 64.9% among youth males) (ESS, 2021). Women constitute 35.9% of those in paid employment (age 10 and above) compared to 64.1% for men.

Informal sector employment (age 10 and older)[10] is 54% among women and 41% among men (ESS, 2021), which has increased from 23.1% and 14.7%, respectively, in 2013 (CSA, 2014). The widening gender gap in informal sector employment is alarming, given the vulnerability associated with informal employment. Women also constitute 65% of the unemployed population (age 10 and older) compared to 35% for males (ESS, 2021).

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6   There is a recent initiative to instate daycare facilities at public institutions in accordance with the *Ten Years Development Plan 2021-–2030* (Planning and Development Commission, 2020). A number of the federal-level public organizations, such as ministries, sectors, agencies and institutions, have started fitting some daycare facilities and cascading of this initiative is expected to the lowest level subordinate offices within the vertical structure of these organizations.

7   The term 'carer' is used instead of 'teacher' for those working at daycare (age below 4) facilities.

8   Data for unregistered daycare facilities, which are not uncommon, are not available; hence, they are not included in the present assessment.

9   The sum of all people of working age who are employed and those who are unemployed, expressed as a proportion of the working-age population (age 10 and older).

10 The informal sector is regarded as a group of production units that, according to the definitions and classification provided in the United Nation System of National Accounts (SNA Rev.4), form part of the household sector as household enterprises or, equivalently, unincorporated enterprises owned by households. The informal sector is defined irrespective of the kind of workplace where the productive activities are carried out, the extent of fixed capital used, the duration of the enterprise and its operation as main or secondary activity of the owner. In this survey, according to the 15th ICLS recommendations, employed persons who were engaged in subsistence farming and work in private households were exempt from the analysis of the formal and informal sectors of the economic activity (ILO, 1993; cited in ESS, 2021).

Married people constitute the majority (57.4%) of those unemployed, compared to those who have never been married (33.5%). Females constitute 73.7% of married unemployed people compared to 26.3% for males. This indicates the importance of unpaid care work in limiting women's participation in the labour market.

Where women participate in formal employment, they tend to concentrate in occupations and sectors that offer flexibility to help accommodate domestic responsibilities at the expense of high returns (Chowdhury et al., 2018).

The mean monthly total payment among paid employees in Ethiopia stands at ETB 3,360.5 for women compared to ETB 4,538.9 for men, with women receiving only 74% of men's total monthly payment (ESS, 2021).

The entrepreneurial landscape is no exception. Empirical evidence suggests that women business owners in Ethiopia tend to concentrate in sectors characterized by low growth (Alibhai et al., 2018) and informality (Buehren et al., 2019). Even where women participate in the formal sector, their participation is only partial, e.g. lower labour hiring, fewer hours of work.

4.4 The policy and legislative space on the care economy

4.4.1 National Policy Framework for Early Childhood Care and Education (ECCE)

Nationally, a number of laws and policies are in place that are relevant to early childhood development. The national strategy for Early Childhood Development (ECD) 2020/21–2024/25 defines early childhood as the period from conception to 6 years of age, classifying three distinct stages: 0–3 years, 3–5 years, and 5–6 years (MoH, 2020). It stipulates that children need access to good-quality ECD during the period 0–6 years old, as it is a critical period for brain development, pointing to the need for stage-sensitive care. The strategy indicates that the rapidly growing brain requires health, nutrition and stimulation at the first stage of ECD (0–3 years, when 80% of brain development occurs), whereas special preschool care and education are critical at the second stage, before the child is ready for school at the third stage (MoH, 2020; USAID, 2021).

The WHO's (2018) Nurturing Care Framework (NCF), which has components of access to responsive caregiving, adequate nutrition, good health, opportunities to early learning, and security and safety, recognizes the role of an enabling environment. The enabling environment consists of capable caregivers, empowered communities, supportive services and enabling policies in provisioning the nurturing care needed for effective ECD that matters for the child's entire life.

In addition, the National Policy Framework for ECCE consists of a number of key provisions for enhancing equitable distribution of good-quality ECCE services through addressing parental education, health and early stimulation, preschool, and informal school readiness programmes (MoE, 2010). The framework was revised in 2019 to the Early Childhood Development, Care and Education (ECD(C)E) Policy Framework by MoH, MoE and MoWCY (now MoWSA). Following this, the recent National Health Sector Strategic Plan for Early Childhood Development (ECD) 2020/21–2024/25 was developed to provide a roadmap for effective implementation of the national ECD(C)E framework in an integrated manner. It has adopted a multisectoral strategy, which is aligned to the NCF of the WHO (2018), and gives mandates to the health and education sectors, among others (MoH, 2020). Accordingly, the MoH is mandated to matters of health from conception to the age of 3 (via interventions for good health, nutrition, and responsive care for child development) and the MoE to provide education for children aged above 4 years (via interventions on care and education).

The strategic plan was developed in response to the strategic issues identified in the situational analysis, such as the lack of counselling and demonstration packages (on the importance of playing, reading and storytelling) in the health service; the lack of play with simple and non-hazardous items; and the need for good-quality daycare and preprimary education in the education service (MoH, 2020, p.13).

Among the guiding principles of intervention programmes for effective ECD outlined in the strategy are ownership of the intervention by the MoH; equity and accessibility of services to all children, their parents and communities; the provision of good-quality ECD services by trained and skilled professionals; respect for child rights; vertical integration within the health sector; and cross-sectoral collaboration and coordination to address the needs of young children in a holistic manner (MoH, 2020, p.18).

There are also laws requiring the registration of births (Negarit Gazette Civil Code Proclamation No. 165/1960); the implementation of a free public preprimary education service (MoE, 2010); a multisectoral ECD strategy with a ministry mandated to coordinate multisectoral ECD at national level (MoH, 2020); and laws to protect child rights.

Despite these policies and interventions to promote gender equality and child development, customary norms play a crucial role in shaping gender roles and various structural inequalities undermine women's participation and benefits in the economy.

Moreover, programmes targeted at children below the age of 4 seem to be limited to the conventional health and nutrition programmes, with no specific coverage targets. On the other hand, despite the official ECCE age being 4–6 (MoE, 2021b), the majority of the current government ECCE service is available for just one year, before children join primary[11] education. The limited availability and access to an affordable and formal ECCE service is indicative of the little attention paid to the unequal sharing of care work between men and women and boys and girls. The gross preprimary enrolment (37%) in 2021 was only a slight improvement from the baseline of 35% in 2014/15 and below half of the target of 80% to be reached by 2020, as stated in ESDP V (MoE, 2015). Such lack of access to a formal ECCE service also has implications for children's brain development and overall health and wellbeing in later life. Moreover, the limited access to ECCE services increases the demand for unpaid care by women and girls, who often shoulder the responsibility of covering the care needs of the child population excluded from the formal ECCE service.

4.4.2 Public spending on ECCE: fiscal space and social spending

Education has continued to be the government's priority area over the past two decades. This is manifested by the size of the education expenditure as a share of public expenditure, which grew from 22.9% in 2013/14 to 26.1% in 2016/17, averaging at 24.4% over the past five years[12] (MoE, 2021a). Education spending makes about 4.7% of GDP, which is more than double the next highest spending, i.e. road construction (2.2%). However, disaggregating public education spending by level of education, tertiary education, constituting 3% of the student population, appropriated the highest national investment in education (45.6%) in 2017/18 compared to general education (44%), which constitutes 94% of the student population. The share of general education in total government budget is set to increase from 9.7% in 2018/19 to 13.7%

in 2024/25, reaching 3% of GDP by end of the ESDP VI period.

By the end of the ESDP VI period, basic education (Grades 1–8) is targeted to take the largest share (55%) of general education spending, followed by secondary (35%) and preprimary (4%). The remaining 7% of the budget is allocated to teachers' education, non-formal education and system-wide expenses. If the same trend applies as in 2020/21, 74% of the general education student population will be in basic education, 14.2% in secondary education, and 11.8% in preprimary (MoE, 2021b). While a number of factors may explain the budget allocation not being proportional to the size of the student population at various levels, no sizable increase is observed to close the gap in preprimary enrolment.

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11 Discussions with MoE experts reveal that government schools are planning to adjust the existing public preprimary modality, mainly 'O'-Class and Child-to-Child, which used to last only one year, into a two-year programme. It was indicated that this came about in response to a currently increasing demand for the service.

12 Despite some impacts of the COVID-19 pandemic in terms of reducing resources available for education associated with downward revision of economic growth for the period 2020/21–2022/23.

5 THE POLICY TOOL ON CARE

The methodology of the present assessment adopts the Policy Tool on Care, based on Ilkkaracan & Kim (2019) in their assessment of care coverage gaps in the education sector, the costs of eliminating the gaps, and the ensuing impacts on job creation for women and men. The tool provides a methodology to enable estimating coverage gaps in care services (mainly early childhood care, education, health and long-term care), as well as the costs and returns associated with public investment in eliminating these gaps. While the tool is comprehensive in covering all sectors involved in paid care service provisioning, the focus of the present assessment is on ECCE services. This focus was chosen for Ethiopia because of the limited availability of good-quality and affordable formal ECCE services. The detailed considerations in indicator selections, parameterization, policy targeting and assumptions also follow the approaches of the Policy Tool on Care.

5.1 Estimating the national deficit in ECCE services

This section presents application of the Policy Tool on Care for estimation of the ECCE coverage gap based on data collected. The estimation involves a detailed assessment of the potential demand for and existing supply of ECCE services. Supply is indicated in the number children in the relevant age category with access to ECCE services, disaggregated by public and commercial services, plus any excess capacity within the institutions that provide these services.[13]

The potential demand for ECCE services is calculated based on specific policy targets, to serve as a benchmark in the analysis. The targets involve enrolment rates, salaries/wages, the child-to-teacher ratio (CTR)[14] obtained from sectoral targets, ILO estimates based on SDGs' criteria of universal access (denoting the maximum potential demand or at least demand in the long run). In turn, the ECCE coverage gap is computed by taking the difference between the estimated potential demand for ECCE services and its current supply, i.e. service outreach, as given in (1.1):

$$TECG = \sum_i^n (CP_i ter_i - EC_i) \qquad (1.1)$$

where:

i denotes the specific ECCE beneficiary age group;

total ECCE coverage gap, $TECG$, is the sum of ECG over all relevant ECCE age groups;

is the ECCE coverage gap for the relevant age group (measured in terms of the number of additional child population to be covered by the ECCE);

CP_i = child population per age group that qualifies for ECCE service;

ter_i = target enrolment rate (desired share of ECCE service beneficiaries in the total relevant child population) per relevant ECCE age group;

EC_i = currently enrolled ECCE beneficiary children per age group.

Expression (1.1) basically measures the additional number of ECCE service places to be created for the potential need to be met. ECG may as well be measured from the perspective of quality of available services, as specified as (1.2):

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13 The Policy Tool on Care states that any excess capacity in ECCE services needs to be further explored regarding the reasons, e.g. affordability, proximity.

14 In the case of daycare (age <4), CTR represents child-to-carer ratio.

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$$TECQG = \sum_i^n \left(\frac{ESB_i}{tsr_i} - ESP_i \right) \tag{1.2}$$

where:

i denotes the specific ECCE beneficiary age group;

total ECCE coverage quality gap, $TECQG$, is the sum of $ECQG$ over all relevant age groups;

$ECQG_i = \frac{ESB_i}{tsr_i} - ESP_i$ is the ECCE coverage quality gap (measured in terms of the number

of additional ECCE service providers or care workers to be employed) for the specific age group, i;

tsr_i = target ECCE service ratio (no. of ECCE service beneficiaries per service provider) per age group;

ESB_i = no. of current ECCE service beneficiaries per age group;

ESP_i = no. of current ECCE service providers per age group.

A common indicator of service quality is the ratio of care beneficiaries to care service providers, e.g. pupil-to-teacher ratio (PTR) (MoE, 2021b), such that a ratio below the desired policy target implies an ECCE coverage gap; hence, a potential demand for more service providers to fill the quality gap (ILO, 2021). Data on target ECCE service quality indicators, mainly PTR for preprimary levels and child-to-carer ratio (from MoWSA's standard protocol), are used for the estimation.

5.2 Costing public investment for eliminating the ECCE service deficit

The section outlines the method for estimating the costs of investments and expenditures in expanding the ECCE service (eliminating the coverage gap). The costs of public investment needed to close the identified gaps in the ECCE service are estimated by taking the unit cost per beneficiaries of ECCE and adjusting the unit cost for service quality criteria and employment quality criteria, as given in (1.3) to (1.5):

$$W_i = \frac{ECG_i}{Target\ CTR_i} * \overline{W}_i \tag{1.3}$$

where:

i denotes the specific ECCE beneficiary age group;

W is the total wage and salary expenditure for teaching staff;

$\overline{W}$ is the target annual salary per teaching staff;

CTR is target child-to-teaching staff ratio.

The necessary overhead expenditure is given by:

$$O_i = \frac{OE_i}{CPE_i} * ECG_i \tag{1.4}$$

where:

i denotes the specific ECCE beneficiary age group;

O is the total overhead expenditure;

OE is existing overhead expenditure;

CPE is the total number of children enrolled full time in ECCE.

Total cost of ECCE coverage gap, , is the sum of (1.3) and (1.4):

$$CECG_i = W_i + O_i \qquad (1.5)$$

5.3   Assessing employment returns to investment in ECCE services

This section presents the approach followed in the assessment of the magnitude of employment created, both in the education sector and the wider economy, due to investment in ECCE services. Direct employment is created in the activities of ECCE services, for both care workers and non-care workers in the facility, where the public investment takes place. In addition, there is an indirect employment effect, created in other sectors, due to the interdependence and trade between the education sector (or ECCE) and other sectors. The analysis also accounts for the induced effects in additional jobs created by the increased household spending due to the increase in income of the additional (or existing) childcare staff in existing ECCE facilities.

The total employment outcome is composed of direct, indirect and induced employment generated by gender, as given in (1.6):

$$TE = DE + IDE + IE \qquad (1.6)$$

where:

TE = total employment creation (no. of new jobs);

DE = direct employment, i.e. new jobs in the ECCE sector due to increased spending on expanding ECCE services in terms of both employed ECCE care workers (e.g. teachers and assistant teachers) and employed non-care workers (e.g. administrative staff, cleaners and security personnel);

IDE = indirect employment, i.e. new jobs in other sectors created through backward linkages;

IE = induced employment, i.e. new jobs in the education or other sectors created through increased household spending due to new labour earnings by newly employed ECCE workers.

The direct employment effect, DE, derives from the additional beneficiaries to be covered by ECCE services, $TECG/tsr$, in (1.1) and the care coverage quality gap, $TECQG$, in (1.2), as follows:

$$DE = (TECG/tsr) + TECQG \qquad (1.7)$$

The magnitude of indirect employment effects of investment in ECCE services is estimated by applying the Input-Output Table, which captures sectoral interaction through costs and returns. Injection of the estimated additional ECCE costs needed to eliminate

the deficit (i.e. (1.5)) in the education sector enables estimating the corresponding change in output in all other related sectors through the multiplier effects. It identifies the total employment response across all sectors due to the increase in the education sector output by the size of the cost of eliminating the ECCE coverage gap.

Input-Output (or Social Accounting Matrix, SAM) data available for 2015/16 (Mengistu et al. 2019) are used to estimate the indirect employment returns from investment to eliminate the ECCE deficit. The SAM is generally constructed with the assumption of the stable structure of the economy, which is tenable given the lack of major structural and technological changes in the economy since 2015. The present assessment considered two scenarios by taking variants of ECCE policy targets to identify any differential impacts. Scenario 1 (low growth, LG): daycare (age <4) target enrolment rate of 50%, by adapting the ILO target for age 0–2 for the entire under age 4 cohort, and preprimary (age 4–6) 74% based on ESDP VI. Scenario 2 (high growth, HG): daycare (age <4) target enrolment rate of 50% and preprimary (age 4–6) 100% based on the ILO (2018) target of 50% for the age 0–2 cohort and 100% for the age 3–5 cohort, with one-year adjustments to the upper and lower boundary to fit the mandatory start age for preprimary and primary, respectively.

5.4   Assessing GDP growth effects of eliminating the gender employment gap

Investment to eliminate the deficit in female employment is expected to have implications for reducing the gender disparity in the labour market, and, in turn, impact on GDP. The present assessment applied the Gender Employment Gap Index (GEGI) (Pennings, 2022) to get an indication of the potential gain in GDP (or GDP per capita) growth to eliminate the gender employment gap. The index is defined in terms of both employed people and EPR for a population of (nearly) equal male and female working-age populations. In terms of employed people, the basic GEGI is given by:

$$GEGI = \left(\frac{L_m - L_f}{L_m + L_f}\right) * 100\%$$

(1.8)

where:

GEGI is the gap between male employment, L_m, and female employment, L_f, as a share of total employment, $L_m + L_f$.

Equation (1.8) can also be expressed in terms of EPR, where l_m denotes employed males as a proportion of male population, i.e. $\frac{L_m}{Pop_m}$, and, l_f employed females as a proportion of female population, $\frac{L_f}{Pop_f}$, are used instead of L_m and L_f:

$$GEGI = \left(\frac{l_m - l_f}{l_m + l_f}\right) * 100\%$$

((1.9)

The index assumes that, in the long run, capital growth remains at a steady state (constant) in terms of the Solow growth model. Hence, with a constant long-run capital growth, any long-run GDP growth is attributed to the growth in labour (employment). The basic model generally implies that the higher the gender employment gap in an economy, the higher the potential to increase GDP by closing the gap.

6 METHODS OF DATA COLLECTION

The methods of data collection included desk review, mapping of gender-disaggregated statistics on ECCE services, a survey of daycare facilities and the labour market, an estimation of the care coverage gaps in ECCE services, as well as the costs and returns of public investment in eliminating the gaps. In what follows, a detailed discussion of methods is presented by linking them to the specific objectives.

6.1 Desk review

6.1.1 Review of literature

The desk-based review involved a review and synthesis of existing literature, documents and survey reports on topics of relevance to ECCE services. Beginning with a brief review of existing norms and practices regarding gender roles in care provisioning, the document analysis gave a systematic account of the current status of ECCE services. Specifically, it looked at the rate and quality of coverage, employment conditions, staffing and human resources development in the sector, and its relation to women's unpaid care work time and paid employment. It also documented labour trends in employment, unemployment and gender inequalities in the labour market, women's access to jobs and (un)employment, as well as macroeconomic policy environment, particularly recent fiscal spending patterns, social spending and fiscal space, and expenditures disaggregated by public and commercial services. In so doing, it yielded up-to-date information from existing sources by identifying the gaps, constraints, challenges and opportunities.

6.1.2 Mapping gender statistics on care work, the labour market and fiscal spending in Ethiopia

The mapping was focused on a review of existing gender-disaggregated statistics on unpaid care work (in particular, time allocated to childcare as part of unpaid work); enrolment in ECCE facilities; and employment in the ECCE sector (e.g. number of workers, salaries/wages, qualifications, cost structure of ECCE facilities, public expenditures on ECCE services). This entailed conducting a quantitative assessment of the current situation of ECCE services in Ethiopia, as well as identifying relevant data for the analysis of the ECCE deficit, cost of eliminating the deficit, and the employment effects of investment to eliminate the deficit.

6.1.3 Secondary data on preprimary service beneficiaries and providers

Secondary data, from the MoE's ESAA (2021b), were collected on indicators of relevance to preprimary (ages 4–6) beneficiaries and service providers to enable the estimation of the care gap, its costs, as well as the benefits of investment in eliminating the care gap.

6.2 Primary data on daycare service beneficiaries and providers

Unlike the case of preprimary levels, organized data are not available for daycare (age under 4) beneficiaries and service providers. Hence, a survey of sample daycare facilities was

conducted to estimate the care deficit, the cost of eliminating the deficit, and the associated employment returns. The procedure for sampling and sample size determination is described below.

6.2.1 Sample size determination for surveyed commercial daycare facilities

A proportional stratified random sampling procedure was employed to identify the sample daycare facilities to be included in the initial assessment, which, in turn, was used to extrapolate the population variables. This involved several steps. As a first step, the overall sample size was determined by applying Yamane's (1967) formula: a simplified formula for determining the minimum sample size, n, for a known (finite) population, N, with a margin of error, e, is given by:

$$n = \frac{N}{1+(N*e^2)} \qquad (1.10)$$

The overall population, N, of daycare facilities in our case was determined by taking the total number of commercial daycare facilities formally registered by either the Food, Medicine and Healthcare Administration and Control Authority (FMHACA) or Ministry of Trade and Regional Integration (MoTRI), by excluding the overlaps across the sources.

We considered a margin of error, e, of 0.05 in determining the minimum sample size.

The list of daycare facilities collected from both sources is 248. After removing the duplicates within and across sources (see Table 1) and with a margin of error of 0.05, the total sample size of daycare facilities was given by:

n = 248/(1+(248*0.05*0.05)) = 153.09 daycare facilities

Once the total sample size was determined, the next activity was to determine the distribution of the total sample size across the regions (Oromia, Amhara, Tigray, Harari), cities (Addis Ababa, Dire Dawa), towns and sub-cities. This was done through proportional sampling across the four regions and two city administrations for which data on daycare facilities were available at the time of the assessment. For instance, since Addis Ababa constitutes about 182 of the 248 (73.4%) total daycare facilities identified for the assessment, then by applying the proportion, 113 (of the 153) sample daycare facilities were drawn from Addis Ababa. The same proportional sampling procedure was followed to determine sub-samples for all sub-regions and sub-cities across the four regions and two city administrations.

Once the proportional sample size of daycare facilities to be drawn from each sub-region and sub-city administration was determined, the next step involved selecting the sampling units or the specific daycare facilities for interview, i.e. to collect primary data on coverage, quality and cost indicators (e.g. number of beneficiary children, number of carers, child-to-carer ratio, salaries/wages of workers and overhead expenses). To this end, random sampling technique was applied to each sub-regional and sub-city population of daycare facilities. In cases where the owners/managers of daycare facilities were not willing to participate in the research, a replacement was considered.

6.2.2 Extrapolation from the sample to the population of daycare facilities

The average number of daycare beneficiary children (age <4) per carer, average salary/wage and average overhead costs per child were determined from the sample and used to extrapolate for the entire population of daycare facilities nationwide based on certain assumptions. The assessment used the average estimates of those variables obtained from the sample to extrapolate the behaviour of the entire population. This is based on the assumption that, on average, the behaviour of the sample daycare facilities is a fair representation of the behaviour of the entire population of daycare facilities. Accordingly, the total number of commercial daycare service beneficiary children was obtained by multiplying the average number of children per daycare facility, obtained from the sample, by the total number of daycare facilities in the entire population. The same average number of carers, child-to-carer ratio, salary/wage, and overhead expenses generated from sample daycare facilities were applied for the entire population in estimating the care coverage gap and its costs and benefits. The same procedure was followed for the public employer-based daycare facilities based on MoWSA's data on federal-level public employer-based daycare facilities. These estimates were aggregated for the commercial and public employer-based daycare facilities.

6.3   Data sources

The mapping on gender-disaggregated statistics related to care, the labour market and fiscal spending made use of data from various surveys and reports, such as the Time Use Survey, Labor Force Survey, Population and Housing Census (projections), ESAA, and Input-Output data for Ethiopia. In addition, national plans, policies and laws pertaining to care work and ECCE service – such as ESDP VI, the new Education Road Map, the National Policy Framework for ECCE, and others – were consulted to identify national targets on some indicators of ECCE service coverage and quality.

Data on the current supply of ECCE services (i.e. number of service beneficiaries) and possibly unutilized potential can be obtained from the MoE's annual publication, ESAA (MoE, 2021b), and data on potential demand were obtained from the CSA population census (projection), reflected in the population size by age group. The determination of potential demand also made use of policy targets drawn, for example, from sectoral targets, the ILO and SDGs. For instance, the ILO sets a target of 50% for the age 0–2 cohort, and 100% for the age 3–5 cohort (age 3–7 in the case of Ethiopia, where primary attendance starts at the age of 7) to enable meeting the SDG target. The age-disaggregated data required for the analysis would be the 0–2-year-old population versus the 3–7-year-old population (or primary school starting age in Ethiopia).

Data needed to compute the cost of public investment needed to eliminate care deficits, i.e. expression (4.5), are the number of child population, CTR ratios and class/group size, enrolment rate, average/median wages and salaries in the overall labour market, government expenditure (recurrent and overhead) on education, and GDP per capita. These data were obtained from the Population and Housing Census (projections), ESAA, Labor Force Survey, National Income Accounts, and other relevant sectoral and national policies.

In addition, the indirect employment effects of investment to eliminate the ECCE deficit was estimated by using the Social Accounting Matrix (SAM) or the Input-Output Table for Ethiopia. The SAM representing 2015/16 was obtained from the Policy Studies Institute and the full dataset from the European Union.[15]

6.3.1 Preprimary service beneficiaries and providers

The assessment of the preprimary component of ECCE covered all demand and supply at preprimary levels, which consists of those at preprimary facilities (4–6 years old) and those at daycare facilities (under 4 years old), both at commercial and public employer-based daycare facilities. The sources and availability of data differed for each ECCE category and so did the approaches adapted for collecting the data.

Data on current preprimary beneficiaries, potential demand, and teachers was obtained from the MoE's annual ESAA, and that for daycare services were obtained from a survey of commercial daycare facilities conducted during January–February 2023 for the purpose of the assessment and from MoWSA's unpublished data on public employer-based daycare facilities. Data on preprimary teachers' salaries/wages, overhead costs, targets (e.g. enrolment, CTR) and government education expenditure were obtained from a model government school at Addis Ababa city administration (i.e. Genet Preprimary School),16 MoE's unpublished data (e.g. preprimary standards) and ESDP VI. In addition, the ILO's target enrolment rate of 50% for the age 0–2 cohort was adopted for the entire cohort below age 4; the ESDP VI target enrolment rate of 74% rate was adopted for the age 4–6 cohort.

Data on daycare beneficiaries are not available in the ESAA, as it only has data for the official preprimary age of 4–6 years. The assessment made use of data pertaining to daycare facilities from commercial daycare service providers, as well as from public employer-based ones. Primary data collection on commercial daycare facilities began with a series of consultations with relevant stakeholders. These included the regulatory institution, regional FMHACA, the licensing organization, MoTRI, MoWSA, MoE and Policy Studies Institute, among others.

Consultation with MoTRI and regional FMHACA enabled obtaining data on the list of licensed and/or registered commercial daycare facilities and their contact numbers, to serve as a sampling frame for the survey. The data from MoTRI represented four regions (Oromia, Amhara, Tigray and Harari), plus the city administrations of Dire Dawa and Addis Ababa, whereas that from FMHACA represents only Addis Ababa and Oromia, as other regional FMHACA, except Amhara region FMHACA,[17] indicated that there are no daycare facilities registered or regulated through their offices. In addition, public employer-based daycare data from the federal government institutions recorded by MoWSA were used to estimate the ECCE deficit and costing.

6.3.2 Sample commercial daycare facilities

Based on data from MoTRI and FMHACA, the total population of commercial daycare facilities – after excluding overlaps across the sources as well as those daycare facilities based at public employers that are treated separately – is 248 commercial daycare facilities (see Annex, Table A1). Hence, applying the procedure given in Section 5.4.1, an initial sample of 153 commercial daycare

facilities was drawn for the assessment. Addis Ababa accounts for 113 (73.9%) of the sample commercial daycare facilities, 18 (11.8%) in Amhara, 14 (9.2%) in Tigray, 5 (3.3%) in Oromia, 2 (1.3%) in Dire Dawa, and 1 (0.7%) in Harari. This is further distributed across the woredas and sub-cities of the selected regional states and city administrations proportionally.

6.3.3 Ethical considerations

A combined telephone and Telegram survey was pursued with some flexibility to complete the open-ended questionnaire. Research

participants, i.e. owners/managers of sample commercial daycare facilities, were first contacted via phone, informed about the

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16 The school was selected based on the recommendation of experts at the MoE and Addis Ababa Bureau of Education.

17 Amhara region FMHACA could not provide data on daycare facilities despite repeated attempts; hence, the present assessment relied on the data obtained from MoTRI.

objective of the project, and their consent was obtained before embarking on the interviews. Those who were not willing to participate were allowed to quit, and those who were not willing to disclose certain information were permitted to do so. In addition, participants who preferred to complete the questionnaire and return it via Telegram were allowed to do so, while the rest completed the questionnaire via phone interview.

6.3.4 Response status of sample commercial daycare facilities

Of the total sample daycare facilities selected, only 42.5% complete responses were returned (see Table 1). The main reasons for the low response rate were having the wrong number, phone not answered, or phone out of service area (33.3%), which includes 14 sample daycare facilities in Tigray.[18] Other reasons included closure of daycare facilities following the COVID-19 crisis (9.2%); unkept promise to call back or complete the questionnaire and return it during the specified period (9.8%); and lack of daycare service at the facility (5.2%).

Response status of sample daycare facilities

Status of sample daycare facilities contacted (identified) for survey	No.	%
Daycare facilities from which data were collected	65	42.5
Wrong no./out of service area/phone not answered or switched off	51	33.3
Daycare centre is closed mainly since COVID-19	14	9.2
Promised to call back or fill out questionnaire and return but failed	15	9.8
Not a daycare facility – only a kindergarten	8	5.2
Total	**153**	**100.0**

Source: Own survey (2023).

6.3.5 Public employer-based daycare facilities

In addition to commercial daycare facilities, data were also collected from public employer-based daycare facilities. As far as estimations of indicators of coverage, quality and cost of institutional daycare service are concerned, the assessment used MoWSA's data collected for public employer-based daycare facilities at federal-level government line ministries to get an average national estimate (see Annex, Table A2 for MoWSA data). Sample estimates were used to extrapolate for the entire population of public employer-based daycare facilities, with the assumption that the services are cascaded to the woreda-level administrative structures (for the entire 20 sector ministries, 13 regions, 5 zones per region, 10 woredas per zone). Based on this, access, quality and cost data from commercial and public employer-based daycare facilities were combined to obtain an aggregate average figure for daycare facilities. For overhead cost data that were missing from employer-based daycare data, data generated from commercial daycare facilities were used.

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18   The region where the recent civil war occurred.

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6.4   Limitations and approaches to overcome them

The attempt to estimate the ECCE deficit, and the costs and benefits associated with investing to eliminate the deficit, is constrained by the lack of organized data pertaining to daycare service beneficiaries and providers. Available national data pertains to annual ECCE enrolment for the age 4–6 cohort only (given in three modalities: kindergarten, 'O'-Class, and Child-To-Child) but not for the cohort below age 4. Moreover, data on quality indicators, such as the number of preprimary teachers, were available for kindergarten only, and some of the cost items (salaries and overhead costs) do not constitute the regularly published data. Such data gaps posed a challenge in estimating the ECCE coverage gap and costing for the cohort below age 4 in particular. While these data gaps have to do with the official minimum age of starting preprimary education (or ECCE) as indicated in ESAA (MoE, 2021b), considering the need for 6 months of exclusive breast feeding, an ideal assumption is that ECCE attendance would start from the age of at least 6 months.[19] In addition, underreporting and incompleteness of data on some of the preprimary quality indicators is also reflected in ESAA.

Another challenge pertains to the lack of sex-disaggregated employment data used in Ethiopia's SAM (I-O) 2015/16.[20] The fact that activity-specific employment data used to calculate job multipliers and returns are not sex-disaggregated constrained the estimation of the share of women and men in jobs created.

In order to address the above challenges, the assessment pursued a number of approaches. Primary data were collected from a sample of commercial daycare service providers to close the data gap on daycare (under age 4) service coverage and costs.[21] In an effort to get a fuller picture of the daycare landscape, data on public employer-based daycare facilities (representing federal-level government line ministries) obtained from MoWSA were used

with a generous assumption of cascading the facilities to the lowest, woreda-level organizational structures. That is, these data were used to extrapolate for the entire population of public employer-based daycare facilities instated in 20 line ministries, 13 regions, 5 zones per region, 10 woredas per zone. Estimates from commercial and public employer-based daycare facilities were, in turn, combined to obtain an aggregate national average figure for daycare (under 4 years old) access, quality and cost. For overhead cost data missing from employer-based daycare data, data generated from commercial daycare facilities were used.

As far as the target GER for daycare (age under 4) is concerned, the National Health Sector Strategic Plan for Early Childhood Development (ECD) in Ethiopia 2020/21–2024/25 (MoH, 2020) envisions universal access to high-quality ECD, which includes responsive care for children under the age of 4. However, adopting the underlying 100% ECCE coverage target for under-4-year-old children could be a bit far-fetched to attain in the foreseeable future, given the constraints related to, among others, the sizable number of unemployed women and those who opt to offer home-based childcare in its various forms. Hence, the present assessment adapted the ILO target of 50% (for the age 0–2 cohort) to the entire cohort below age 4 (ILO, 2018).

In addition, the MoE provided access to some unpublished data on preprimary staff salary scales and standard protocol, as well as a reference to the Addis Ababa Regional Bureau of Education for further data needs. Based on the latter, actual data were collected on the salaries of staff (teaching and non-teaching) and overhead costs per child at Genet Preprimary School. In addition, the missing data on the number of 'O'-Class teachers was computed by using ESAA (MoE, 2021b) data on the number of children in 'O'-Class (2,244,462)

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19 Note also the provision of 4 months' paid maternity leave in the national labour law, divided into one month of pre-natal leave and three months of post-natal leave.

20 Ethiopia SAM (I-O) 2015/16 was developed by the EU in collaboration with the Policy Studies Institute (Mengistu et al., 2019).

21 This was based on data obtained from the licensing/taxing organizations (MoTRI) and from the regulatory authority (FMHACA of the MoH), which has structures to the lowest administrative level, i.e. woredas.

and dividing it by the current PTR for primary (i.e. 50).[22] The resulting number of 'O'-Class teachers was added to the total number of kindergarten teachers (28,898) to obtain the total preprimary teachers.

The gap in sex-disaggregated data on activity-specific employment necessary for estimating the sex-disaggregated employment multiplier and employment returns was addressed by making use of sex ratio relating to major sectoral employment from the Labor and Migration Survey (ESS, 2021). This ratio was applied after estimation of a generic job multiplier and total indirect jobs created to compute the share of women and men in total indirect jobs created due to investment in ECCE.

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22 The use of primary-level PTR is because the modality is reportedly annexed to primary level.

Estimating care deficits, investment costs and economic returns for early childhood care and education (ECCE) in Ethiopia

7 RESULTS AND DISCUSSION

7.1   Description of current ECCE service beneficiaries, providers and costs

7.1.1 ECCE service beneficiaries

Preprimary (age 4–6) service beneficiaries: The national GER for preprimary (age 4–6) is 36.7% (MoE, 2021b), which implies that the rest (63.3%) of the child population, who have no access to formal preprimary education, receive informal and/or family- and community-provided early childhood care. A considerable regional variation in gross enrolment is observed, which ranges from 93.8% in Addis Ababa to 3.2% in Somali region. The national NER (21.2%) is lower than the GER (36.7%) by 15.5 percentage points, indicating a large number of children aged above or below the preprimary age of 4–6 being enrolled at preprimary level. This shows a limitation in access to preprimary education at the right time for the age,[23] with potential implications for adding a burden on unpaid care or home-based care. Regionally, the disparity between GER and NER is highest in Gambella (32.8 percentage points), followed

by SNNPR (24.6) and Amhara (22.9), and lowest for Somali (2.1) (MoE, 2021b). The situation is different for Addis Ababa, where the highest GER (93.8%) and NER (89.7%) and one of the lowest gaps between GER and NER (4.1 percentage points) are recorded. Here, the child population of the age 4–6 cohort with no access to preprimary schooling is lowest (6.2%)

Daycare (age under 4) service beneficiaries: As shown in Table 2, a total of 1,350 children are beneficiaries of commercial daycare services at the sample daycare facilities, of whom 65% are aged 3–4, and 35% are aged 0–2. Extrapolating based on average sample estimates to the entire population of 248 registered commercial daycare facilities nationwide, a total of 5,151 children are currently enrolled in commercial daycare facilities and 162,406 in public employer-based daycare facilities.

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23 Although the gap between GER and NER may be due to enrolment in preprimary grades by overaged or underaged children, late entry is a more appealing reason, considering the low national GER, indicating limited access to preprimary schooling in general.

TABLE 2

Daycare beneficiaries and service providers at sample daycare facilities

Item		Commercial daycare		Public employer-based daycare		Total
		No.	%	No.	%	
Daycare beneficiaries	Total beneficiaries aged below 4	1,350	89.8	153	10.2	1,503
	Age 0–2	468	34.7			
	Age [3–4]	882	65.3			
	Total beneficiaries for entire population of daycare facilities, based on sample averages[a]	5,150.8	3.2	157,255.7	96.8	162,406.5
Carers	Total carers for beneficiaries aged below 4	199	80.3	48.9	19.7	247.9
	Total carers for the entire population of daycare facilities, based on sample averages[b]	759.3	1.5	50,928.4	98.5	51,687.7
Child-to-carer ratio (average)		6.8:1		3.1:1		4.95:1

[a,b] Total beneficiaries and carers, respectively, for the entire population of 248 commercial daycare facilities and 14,580 public employer-based daycare facilities from federal to woreda levels. These are estimated based on average estimates from both sample commercial daycare estimations and MoWSA's federal-level public employer-based daycare data, with the latter offering an initial estimate of the current number of beneficiaries, carers and salaries/wages at federal public organizations. The present assessment made a generous assumption that all government institutions from federal to the lowest administrative structure, woreda, will instate daycare facilities, replicating current coverage rates by the federal-level organizations, some of which are only partially operational at federal levels at the time of the assessment. Carers consist of teachers and assistant teachers. It is common to see the same worker conducting several activities at daycare facilities, e.g. the facility manager/owner may engage in activities such as teaching, nursing and cleaning.

Source: Own survey (2023), MoWSA (2022a).

7.1.2 ECCE service providers

Preprimary service providers: In Ethiopia, women constitute the overwhelming majority of preprimary school teachers (91.9%) for the official school age of 4–6 (MoE, 2021b). This pattern is replicated in the regional distribution of preprimary school teachers, except in Somali region, where men constitute the majority (61%) of preprimary school teachers.

Daycare service providers: A total of 199 commercial daycare service providers (or carers) are at the surveyed daycare facilities (see Table 2). Based on the sample averages, the total number of carers across the entire population of 248 commercial daycare facilities is estimated to be 759. In addition, the public

employer-based daycare facilities provided 49 carers at federal government organizations (MoWSA, 2022a), which results in 50,928 carers if cascaded to the woreda level across all the regions and cities. If applied to the lowest level of the administration, employer-based daycare has a potential to supply the major proportion (96.8%) of daycare services, compared to 3.2% by commercial daycare services. All carers are females across the surveyed daycare facilities, indicating a potential employment opportunity in paid care work for women by investing in ECCE.

On average, the child-to-carer ratio (CTR) is estimated to be 6.8:1 at the sample commercial

daycare facilities and 3.1:1 at the public employer-based daycare facilities (see Table 2). The finding of a lower current CTR at employer-based daycare facilities is partly due to the fact that the employer-based daycare facilities were not working at full capacity at the time of the assessment because of the lack of necessary facilities, such as transportation, to enable use of the daycare facilities by potential beneficiary children. As far as age-disaggregated CTR is concerned, almost all the surveyed daycare facilities use carers to work interchangeably and rotationally across the various age cohorts of children, rather than assigning a distinct role for carers by beneficiary age cohort. They attribute this to the limited workspace daycare facilities have, such that all the children stay in common spaces, e.g. playground, for most of the day.

7.1.3 The cost of providing ECCE services

Preprimary service cost: Based on data from Genet Preprimary School, the average annual salary is estimated to be ETB 126,780[24] and ETB 87,978 for teaching and non-teaching staff, respectively (see Table 3). The annual overhead cost per student, which is estimated based on the annual non-salary budget allocated to the school in the 2023/24 academic year, is ETB 12,498.

Daycare service cost: The estimated average annual salary of carers at sample daycare facilities is ETB 25,988.43 (see Table 3). The average annual overhead cost per child is ETB 1,868.42.[25]

TABLE 3

Salary and overhead cost of existing ECCE services by facility

Cost item	Cost estimates (average in ETB)[a]	
	Preprimary	Daycare
Annual salaries/wages teaching staff	126,780.0	25,988.4
Annual salary of teaching staff, adjusted to 2019 price	65,704.6	13,468.7
Annual salaries/wages of non-teaching staff	87,978.4	–
Annual salaries/wages of non-teaching staff, adjusted to 2019 price	45,595.4	–
Annual overhead cost per student	12,498.1	1,868.4
Annual overhead cost per student, adjusted to 2019 price	6,477.2	968.3

[a] Preprimary cost estimates are based on a model government school, i.e. Genet Preprimary School in Arada sub-city, Addis Ababa. Cost estimates do not include costs associated with various forms of child support packages, such as school feeding and material support. Costs corresponding to daycare facilities are based on estimates from sample daycare facilities.

Source: Calculated based on data from own survey (2023), MoWSA (2022a; 2022b), Genet Preprimary School (2023).

7.2   ECCE coverage deficit

The total ECCE deficit in Scenario 1 (LG) is estimated to be 8,330,347, implying a total ECCE unmet demand of over 8.3 million of the eligible child population that needs to be covered given the existing child population, enrolment rates, and target rates (see Table

4). This is composed of daycare demand (both commercial and public employer-based), amounting to 5,333,189 (64%), compared to preprimary demand of 2,997,158 (36%). In Scenario 2 (HG), which considers 50% coverage for daycare and 100% coverage for preprimary, the total coverage gap increases to 10,403,684, with preprimary constituting 5,070,495 (49%) and daycare 5,333,189 (51%).

TABLE 4

ECCE coverage gap

Potential ECCE demand: Additional daycare and preprimary places required	Scenario 1 (low growth, LG)			Scenario 2 (high growth, HG)		
	Daycare (age <4) (%)	Preprimary (age 4–6) (%)	Total	Daycare (age <4)	Preprimary (age 4–6)	Total
Child population per age group (CP)[a]	10,991,191	8,005,163	18,996,354	10,991,191	8,005,163	18,996,354
Target enrolment rate (*ter*)[b]	50%	74%		50%	100%	
Currently enrolled beneficiary children (CE)[c]	162,406 (1.5)	2,934,668 (36.7)	3,097,074	162,406	2,934,668	3,097,074
Child population that qualifies for ECCE service to meet target: (CP*ter*)	5,495,596	5,931,826	11,427,421	5,495,596	8,005,163	13,500,759
ECCE coverage gap (measured in no. of additional child population to be covered): ECG = (CP*ter*)–CE	5,333,189 (64.1%)	2,997,158 (35.9%)	8,330,347	5,333,189 (51.3%)	5,070,495 (48.7%)	10,403,684

[a] MoE's data on child population (CP) of age under 4 for 2020/21 is 10,991,191 and for age 4–6 is 8,005,163 (MoE, 2021b). This source is used for CP instead of CSA's population projection because:

(i)   the same source has been used for other indicators such as GER, CE; and

(ii) the population projection represents children of age 0–4 (instead of under 4), which causes double counting for age 4 with that of the preprimary data for age 4–6.

[b] Using the ILO target of 50% for age 0–2 (adopted to the entire under 4-year-old population) and 74% for preprimary by 2024/25 from MoE's ESDP VI (MoE, 2021a).

[c] Daycare current enrolment (CE) of 162,406 is calculated based on sample daycare facilities (5,150 for commercial daycare facilities and 157,256 for public employer-based daycare facilities). In the case of preprimary (4–6), MoE (2021b) estimated GER of 2,934,668 for 2020/21 is used.

Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018), Genet Preprimary School (2023).

7.3   The cost of eliminating the ECCE deficit

The total cost of eliminating the ECCE gap is estimated to be ETB 73,133,505,137 in the LG scenario, of which daycare (commercial and public employer-based combined) constitutes ETB 39,563,410,995 (54%) and preprimary ETB 33,570,094,142 (46%) (see Table 5). This is consistent with the considerably larger coverage gap in access to daycare services than preprimary nationwide, i.e. base period enrolment status of 2.9% (compared to 36.7% for preprimary). This cost amounts to nearly 2.1% of the country's GDP. In the HG scenario, the costs rise to ETB 95,305,406,411 (2.8% of GDP), with daycare contributing ETB 39,563,410,995 (42%) and preprimary ETB 55,741,995,416 (58%).

TABLE 5

Cost of public investment to eliminate the ECCE gap

Cost items	Scenario 1 (LG)			Scenario 2 (HG)		
	Daycare (age <4)	Preprimary (age 4–6)	Total	Daycare (age <4)	Preprimary (age 4–6)	Total
1. Salaries/wages (in ETB): Teaching staff (TS)						
Annual salary per teaching or care staff (target wage)[a]	18,098	65,705		18,098	65,705	
No. of additional teachers or carers required (ECG/*tsr* + ECQG; from Table 4)	1,047,431	123,024	1,170,456	1,047,431	192,135	1,239,567
Total wage & salary expenditure for teaching staff (W = No. of additional teachers required* target wage)	18,956,172,061	8,083,253,700	27,039,425,761	18,956,172,061	12,624,179,677	31,580,351,738
2. Salaries/wages (in ETB): Non-teaching staff (NTS)						
Annual salary per NTS (target wage)[b]	18,098	45,595		18,098	45,595	18,098
NTS targets to cover the ECCE gap[c]	4.00	8.00		4.00	8.00	
No. of facilities required to cover the ECCE gap[d]	213,328	16,651		213,328	28,169	
Total annual NTS salaries/wages (Wn = TargetWn* NTS targets per facility*no. of facilities)	15,443,011,489	6,073,627,241	21,516,638,730	15,443,011,489	10,275,166,937	25,718,178,426
3. Overhead costs (in ETB)						
Annual overhead cost per child (adjusted to 2019 price) (OE)[e]	968	6,477		968	6,477	
Total overhead expenditure to cover the gap: O = (OE/CE)*ECG	157,261,259	19,008,453,903	19,165,715,162	157,261,259	19,008,453,903	19,165,715,162
Total cost of ECCE coverage gap: W + Wn + O	39,563,410,995	33,570,094,142	73,133,505,137	39,563,410,995	55,741,995,416	95,305,406,411
Total cost as % of GDP (GDP in 2021 = US$111.3 billion)			*2.1%*			*2.8%*

[a] For target wage, current annual salary average of ETB 126,780 for teaching staff (TS) and ETB 87,978 for non-teaching staff (NTS) are used, which are based on 2023 average estimates from Genet Preprimary School . In the case of daycare facilities, the annual average salary of ETB 34,920 (calculated based on sample averages) is used. In both cases, the 2021 salary is used (by deducting the estimated recent salary increase 47% based on ESDP VI) and then adjusted to the 2019 price (given the Consumer Price Index (CPI) for 2019 = 132.0 and CPI for 2023 = 254.7).

b The average annual salary for NTS is assumed to be the same as that of TS at daycare (age <4) facilities.

[b] The average annual salary for NTS is assumed to be the same as that of TS at daycare (age <4) facilities.

[c] Based on sample estimates, four NTS are required per daycare facility consisting of about 25 children (which is the maximum size for institutional daycare facilities at the time of the present assessment). In the case of preprimary, eight non-NTS are required per facility following the national standard for preprimary, mainly 'O'-Class (MoE, 2019).

[d] The number of daycare facilities required to cover the gap is calculated based on the sample maximum of 25 enrolled children at institutional daycare facilities and then taking the ratio of the number of additional child population to be covered (ECG) to the number of children per daycare facility. In the case of preprimary, a total of 180 students, i.e. six classes each consisting of 30 students (based on the standard) is assumed per facility. Then, the ratio of additional child population to be covered (ECG) to the number of children per facility is applied to estimate the number of facilities required to cover the gap.

[e] Annual overhead cost per child is calculated based on sample averages in the case of daycare (i.e. ETB 1,868) facilities, and based on estimates from 2023/24 budget allocated to Genet Preprimary School in the case of preprimary (i.e. ETB 6,477) facilities, where costs are adjusted to the 2019 price. A previous attempt to estimate overhead cost based on the ESDP VI (MoE, 2021a) budget plan produced very low per child overhead cost. Note also that these cost estimates do not include support packages, such as school feeding and material for children, which have recently been provided in government schools, mainly in cities.

Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018), Genet Preprimary School (2023).

7.4   Employment returns from investment to eliminate the ECCE deficit

7.4.1 Direct jobs created

The total direct jobs (both teaching and service personnel) created from investing to eliminate the ECCE gap amounts to 2,156,973 in the LG scenario, consisting of 1,900,742 (88%) new jobs at daycare and 256,231 (12%) at preprimary facilities, respectively (see Table 6). A total of 2,318,232 new direct jobs are created in the HG scenario, with daycare and preprimary facilities contributing 82% and 18% of the new jobs, respectively. The sizable gap in jobs created in preprimary (age 4–6) and daycare (under 4) is attributed to the differences in the additional number of children to be covered, given the very low base period enrolment status of 1.5% for daycare compared to 36.7% for preprimary (see Table 4).

TABLE 6
Direct employment required: teachers/carers and other service workers

Item	Daycare (age <4)	Preprimary (age 4–6)	Total
Scenario 1 (LG)			
No. of current teachers or service providers (ESP)	51,688	74,703[a]	126,391
Target ECCE service ratio (No. of children per teaching or care staff) (*tsr*)[b]	5:1	30:1	
No. of current teachers or carers required given the target beneficiary to service provider ratio (CE/*tsr*)	32,481	97,822	130,304
Excess or gap in current employment of teachers or carers: ECQG = (CE/*tsr*)–ESP	–19,206[c]	23,119	3,913
Additional teachers or carers required to cover the additional child population (TECG = ECG/*tsr*)	1,066,638	99,905	1,166,543
No. of current service personnel (NTSc) or staff not directly involved in teaching/caring (NTSr = CE/No. of NTS)	25,985 (6.25)[d]	130,430 (22.5)[e]	156,415
No. of service personnel to be employed in the facility: NTS = ECG/NTSr	853,310	133,207	986,517
Direct jobs (DE = ECQG + TECG + NTS)	1,900,742	256,231	2,156,973
Scenario 2 (HG)			
No. of current ECCE service providers (ESP)	51,688	74,703[a]	126,391
Target ECCE service ratio (No. of children per teaching or care staff) (*tsr*)[b]	5:1	30:1	
No. of current teachers or carers required given the target beneficiary to service provider ratio (CE/*tsr*)	32,481	97,822	130,304
Excess or gap in current employment of teachers or carers: ECQG = (CE/*tsr*)–ESP	–19,206[c]	23,119	3,913
Additional teachers or carers required to cover the additional child population (TECG = ECG/*tsr*)	1,066,638	169,017	1,235,654
No. of service personnel to be employed in the facility: NTS = ECG/NTSr	853,310	225,355	1,078,666
Direct jobs (DE = TECG + ECQG + NTS)	1,900,742	417,491	2,318,232

[a] The total number of preprimary teachers is calculated as the sum of the current number of kindergarten (28,898) and 'O'-Class teachers. Since data on the number of 'O'-Class teachers was not accessible, it was estimated by dividing the number of 'O'-Class students (2,244,462) and the target PTR for primary (i.e. 49:1), as the modality is annexed to Grade 1.

[b] Target ECCE service ratio for preprimary are targets set by the MoE as national standards, i.e. PTR of 1:30 (MoE, 2019). On the other hand, for daycare facilities, the national standard protocol (MoWSA, 2022b) is used. It stipulates a target of four children per carer (nanny) for age group 1–3 and five children per carer for age group 3–4, based on which the present assessment used an average of five children per carer for the entire age cohort below 4 (daycare).

[c] The negative number for excess current employment at daycare facilities is because some of the institutional daycare facilities were serving below capacity at the time of the assessment, not only because institutional daycare is a recent phenomenon but also due to issues such as lack of transportation services for the potential beneficiary children. At the time of the assessment, working parents had a benefit package in the form of a free public transportation service, but not

for children. As a result, not all the potential beneficiary children were using the facility. Arguably, there also seems to be more incentive to adhere to quality standards in the case of employer-based daycare facilities than in commercial ones.

[d] The current service personnel employed (not directly involved in teaching or caring, consisting of managers, accountants, nurses, cooks, security guards, janitors) at daycare facilities are calculated based on an average of 25 children per daycare facility (maximum number of children at a public employer-based daycare facility at the time of the survey), each having four non-teaching service personnel with a possibility of multiple roles (drawn from sample estimates at daycare facilities). This gives rise to a student-to-non-teaching staff ratio of 6.25:1 at daycare facilities.

[e] The calculation of the number of current service personnel (not directly involved in teaching) at preprimary school is based on the assumption that the average preprimary school consists of three levels (ages 4, 5, 6), two classrooms for each level, and an average class size of 30 students, which is the national standard class size for preprimary (MoE, 2019). This implies an average of 180 students per preprimary facility (Addis Ababa has an actual average of 200 students per preprimary facility). Based on current trends, the majority (76.5%) of preprimary enrolment is covered by 'O'-Class, which is basically annexed to primary schools. This means, except for teaching staff and carers/nannies and the administrator, the protocol does not require 'O'-Class facilities to have independent non-teaching staff as such. Rather, many of these support staff, e.g. security guards, janitors, messengers and finance personnel, are shared with the primary school to which the 'O'-Classes are annexed. Hence, each preprimary school is assumed to have eight non-teaching service personnel (including a total of six carers, with each class having one carer beside the teacher and a facility administrator/facilitator). This gives rise to a student-to-non-teaching staff ratio of 22.5:1 at preprimary. Adequate support staff is assumed at existing facilities.

Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018), Genet Preprimary School (2023).

7.4.2 Total jobs created

The total jobs created due to investment to close the ECCE deficit is estimated to be 4,963,140 in Scenario 1, given 50% and 74% target enrolment rates for daycare and preprimary, respectively. This is composed of 2,156,973 (44%) direct jobs in ECCE and 2,806,167 (57%) indirect jobs created in the rest of the economy (see Table 7).[26] The contribution of investment in daycare (under 4) services stands at 3,250,355 (65%) and in preprimary at 1,712,785 (35%). In the HG scenario, which has a 100% target enrolment rate for preprimary education (4–6) and 50% for daycare, the total jobs generated from investment to eliminate the ECCE deficit is estimated to be 6,086,403, composed of 2,318,232 (38%) direct jobs and 3,768,171 indirect jobs. Investment in daycare services contribute 3,250,355 (53%) of the total jobs and that of preprimary 2,836,048 (47%). The total jobs created under the LG and HG scenarios amount to 11.9% and 14.6%, respectively, of total national employment.

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26 The SAM job multiplies imply a larger indirect job effects (>60%) through intersectoral transactions than the direct ones, which may indicate that the returns from investment in education and health are higher for other sectors.

TABLE 7

Total jobs created (direct and indirect) from investment in ECCE

Item	Daycare (age <4)	Preprimary (age 4–6)	Total
Scenario 1 (LG)			
Cost of additional investment needed to eliminate care gap (from Table 5)	39,563,410,995	33,570,094,142	73,133,505,137
Indirect jobs created (IDE)	1,349,614[b]	1,456,553[a]	2,806,167
Direct jobs (DE = TECG + ECQG + NTS) (from Table 6)	1,900,742	256,231	2,156,973
Total jobs (DE + IDE)	3,250,355	1,712,785	4,963,140
Jobs created as a share of current national employment (Total national employment = 41,637,071 (ESS, 2021))			11.9%
Scenario 2 (HG)			
Cost of additional investment needed to eliminate care gap (from Table 5)	39,563,410,995	55,741,995,416	95,305,406,411
Indirect jobs created (IDE)	1,349,614[b]	2,418,557[a]	3,768,171
Direct jobs (DE = TECG + ECQG + NTS) (from Table 6)	1,900,742	417,491	2,318,232
Total jobs (DE + IDE)	3,250,355	2,836,048	6,086,403
Jobs created as a share of current national employment			14.6%

[a] The SAM (2015–16) job multipliers are based on data and computation by the EU (Mengistu et al., 2019). Accordingly, an additional government expenditure (investment) on education of ETB 1 million in SAM base year would generate a total of 49.72 jobs in the economy (both in the education and in other sectors). Of the total 49.72 jobs created due to investment in education, 6.33 jobs would be created in the education sector, and 43.39 jobs created in sectors other than education (61 activity sectors).

[b] An additional government expenditure (investment) on health of ETB 1 million in SAM base year would generate a total of 41.84 jobs in the health and in other sectors. Since daycare service is the mandate of the Ministry of Health (MoH, 2020), the job multiplier due to the additional investment in daycare (age under 4) service is calculated based on aggregate SAM job multiplier for the health commodity, unlike that of additional investment in preprimary (age 4–6), which is calculated based on aggregate SAM job multiplier for the education commodity. Of the total 41.84 jobs created due to investment in the health sector, 7.73 jobs would be created in the health sector, and 34.11 jobs created in sectors other than health.

Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018), SAM (2015/16) (Mengistu et al., 2019), ESS (2021), Genet Preprimary School (2023).

7.4.3 Women's share of new jobs

Results show that women's share of total new jobs created amounts to 3,325,816 (67%) and 3,882,609 (64%) in the LG and HG scenarios, respectively (see Table 8). These findings show the potential employment returns, particularly for women, associated with investment to

eliminate the ECCE deficit. Also, from a policy perspective, investing in eliminating the ECCE gap is in line with the Ten Years Development Plan 2021–2030 (Planning and Development Commission, 2020), which clearly stipulates universal access to education, health, and other basic services, as well as fitting all public institutes with childcare facilities.

Women's share of jobs created

Scenario	ECCE type (age category)	Employment					
		Direct[a]	Indirect	Total	Share by ECCE category (%)	Female share[b]	Share of national employment (%)
1 (LG)	Daycare (age <4)	1,900,742	1,349,614	3,250,355	65	2,471,691	
	Preprimary (age 4–6)	256,231	1,456,553	1,712,785	35	854,125	
	Total	2,156,973	2,806,167	4,963,140		3,325,816 (67%)	7.3
2 (HG)	Daycare (age <4)	1,900,742	1,349,614	3,250,355	53	2,471,691	
	Preprimary (age 4–6)	417,491	2,418,557	2,836,048	47	1,410,918	
	Total	2,318,232	3,768,171	6,086,403		3,882,609.1 (64%)	8.0

[a] Direct jobs created are those calculated in Table 6.

[b] Female share of direct jobs created is calculated based on MoE (2021b) estimate of 91.9% female teachers in preprimary schools for the age 4–6 cohort and sample daycare indications of 100% female carers for those below 4 years. Based on this, of the total direct teaching jobs created in preprimary (123,024 and 192,136 in Scenarios 1 and 2, respectively), women's share is about 113,059 and 176,573 in Scenarios 1 and 2, respectively, compared to 9,965 and 15,563, respectively, for men (see Table 6). On the other hand, women's share of indirect jobs created is calculated based on ESS (2021) data on the employment sex ratio across the various sectors. In this case, women's share of indirect jobs created due to investment in preprimary education is calculated based on the female employment rate in sectors other than the education sector, whereas that of women's share of indirect jobs created due to investment in daycare facilities is calculated based on the female employment rate in sectors other than the health sector.

Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018), SAM (2015/16) (Mengistu et al., 2019), ESS (2021), Genet Preprimary School (2023).

Whereas investing in eliminating the ECCE gap pays off in terms of creating jobs both for women and men at preprimary and daycare facilities, existing capacity to produce the needed qualified teachers and carers, and women in particular, is another question. Despite the country's plan to ensure that preprimary teachers hold a College of Teachers' Education (CTE) diploma, data on the number of female CTE graduates in 2020/21 indicate that the supply of qualified female teachers stands at 18,950. If this trend continues, the supply of female preprimary teachers seems to lag far behind (by more than

50%) the potential preprimary teaching jobs to be created (113,059) through investment in eliminating the ECCE gap (see Figure 1). Hence, it will take targeted training of female teachers to fill the ECCE gap, while at the same time reducing the gender gap in the labour market without compromising ECCE quality. Note that the higher current share of female teaching staff at preprimary (91.9%) and daycare facilities (100%) observed in the case of direct employment effect is overwhelmed by the indirect job multiplier effects, indicating a considerably higher ratio of men in sectors other than education and health.[27]

Preprimary teaching jobs created and CTE graduates
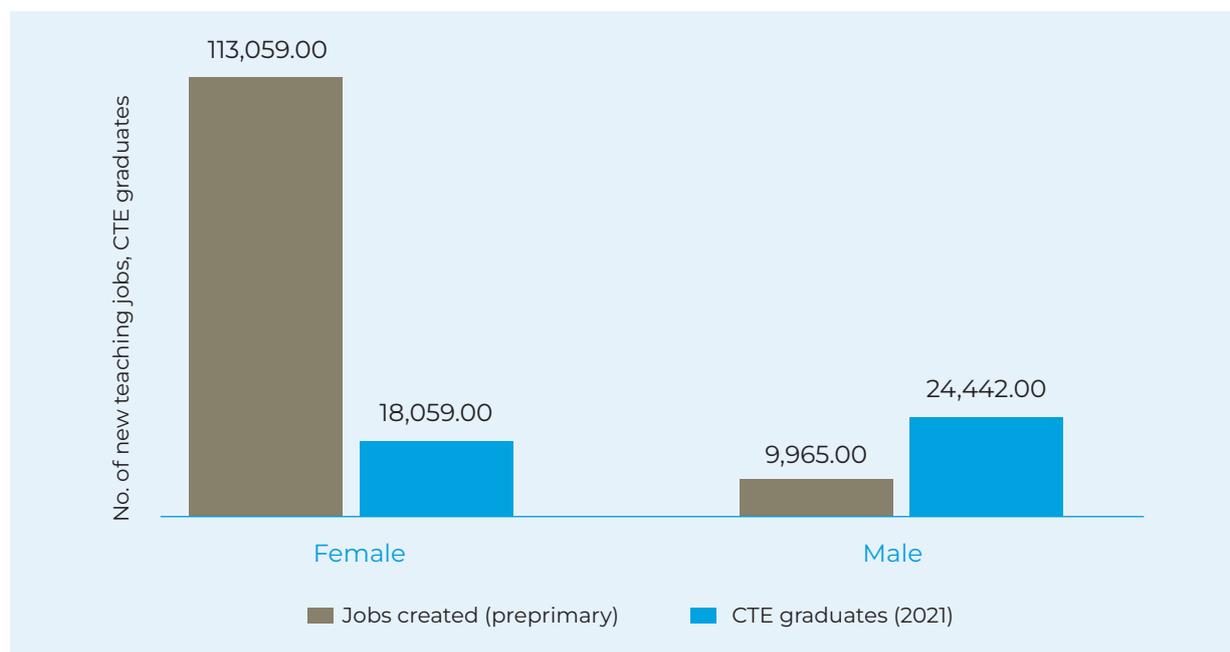
Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018).

7.5   Other returns from investment in ECCE

7.5.1 GDP growth from eliminating the gender employment gap

The present assessment applied the Gender Employment Gap Index (GEGI) (Pennings, 2022) to get an indication of the gain in GDP (or GDP per capita) growth from eliminating the gender employment gap, which is defined in terms of both employed people and EPR for a population of equal male and female working-age populations (as detailed in Section 5.4). For our analysis, the basic (aggregate) GEGI was estimated by applying EPR, as given in equation (1.9), based on data from the Labor and Migration Survey for the age 15–64 cohort (ESS, 2021).

Results show that the GEGI corresponding to the gender gap in EPR of 0.22 (0.78 for men and 0.56 for women) amounts to 16.4% (see Table 9, and Annex, Table A3 for ESS sex-disaggregated employment data). Hence, on average, long-run GDP (or GDP per capita) would be nearly

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27 The SAM employment data are not sex disaggregated; hence, to the extent that the data allow, the share of indirect jobs created for women and men is calculated based on the existing sex distribution of workers (in sectors other than education and health) (ESS, 2021), which in many cases is skewed in favour of men.

16% higher if the existing employment gender gap was eliminated.

Based on the results of the present assessment, investment in eliminating the ECCE gap would increase total female employment by 3,325,816 (i.e. 67% of total new jobs) in the LG scenario and by 3,882,609 (i.e. 64% of total new jobs) in the HG scenario. The increase in female employment would be accompanied by an increase in male employment (33% and 36% of total new jobs created in the LG and HG scenarios, respectively). Assuming the same male and female working-age populations, such a higher rate of increase in female employment implies a reduction in the existing gender gap in EPR from 0.22 to 0.16 in the HG scenario. Hence, there would be a smaller gender employment gap to close in the future, implying a smaller long-run GDP growth effect (10.2%) from closing the gender employment gap. This is indicative of the potential benefits of investment to eliminate the deficit in ECCE and the care sector in general by boosting GDP through reducing the gender gap in employment.

Potential returns to long-run GDP from investment to eliminate the gender employment gap through investing in ECCE

	Employed people (age 15–64)			Employment-to-pop-ulation ratio (EPR)			EPR gap	Basic GEGI
	Total	Male	Female	Total	Male	Female		
Basic model[a]	35,209,845	20,092,516	15,117,329	0.67	0.78	0.56	0.22	16.4
LG[b]	40,172,985	21,729,840	18,443,145	0.77	0.85	0.69	0.16	10.4
HG[c]	41,296,248	22,296,310	18,999,938	0.79	0.87	0.71	0.16	10.2

[a] Pennings (2022) provides GEGI for all countries and estimates the basic GEGI for Ethiopia to be 19.5%, corresponding to an EPR of 0.74 for men (age 15–64) and 0.50 for women, based on ILO data; the present assessment uses data from the Labor and Migration Survey (ESS, 2021). Pennings also estimates the full GEGI, after accounting for the employment gap in better employment sectors (by disaggregating sectors into better employment and others), which the present assessment did not calculate. The basic (aggregate) GEGI is a more conservative estimate (compared to the full GEGI), considering the higher better employment gap of 24.5% in Ethiopia (Pennings, 2022), which would result in a higher GEGI; hence, a higher growth benefit by reducing the gender employment gap than we estimated using the basic GEGI.

[b] Employed people, EPR gap and GEGIs calculated after incorporating the new jobs created for women and men due to investment to eliminate the ECCE deficit (assumption: the same female and male total working populations) in the LG scenario.

[c] Employed people, EPR gap and GEGIs calculated after incorporating the new jobs created for women and men due to investment to eliminate the ECCE deficit (assumption: the same female and male total working populations) in the HG scenario.

Source: Calculated based on data from own survey (2023), MoE (2019; 2021a; 2021b), MoWSA (2022a; 2022b), ILO (2018), SAM (2015/16) (Mengistu et al., 2019), ESS (2021), Genet Preprimary School (2023).

7.5.2 Other returns from investment in ECCE

Investing in ECCE has far-reaching implications that go beyond increasing female labour force participation. To the extent that increased jobs for women is associated with their income earnings, it has implications for economic empowerment. It is also shown that such investment improves the wellbeing of women through reducing the demand for women's unpaid care work and time poverty (ILO, 2021; Ilkkaracan et al., 2021). There are also spillover effects of investment in care services to the rest of the household members in terms of increasing expenditure on child education and health (e.g. Aguirre et al., 2012) and enhancing girls' school attendance.

From a broader economic perspective, investing in ECCE contributes to reducing gender disparity in the labour market. There is also mounting evidence of the role of investment in the care sector in terms of fiscal sustainability (e.g. De Henau et al., 2016; Ilkkaracan et al., 2015; Ilkkaracan & Kim, 2019; ILO, 2018; UN Women, 2019) and enhancing life-long health and productivity. Evidence further indicates a beneficial effect of access to better-quality childcare services in terms of enhancing human development in the longer term (e.g. Heckman et al., 2013).

8 CONCLUSIONS AND RECOMMENDATIONS

8.1   Conclusions

Women and girls shoulder a disproportionately high responsibility for the unpaid and paid care work that sustains all societies. The bulk of women's care time, often unaccounted for, occurs at the expense of time for paid work. In Ethiopia, the limited availability of good-quality and affordable ECCE has led to high demand for women's unpaid care work, causing gender disparities in the labour market. On the other hand, previous studies indicate that investing in care services has the potential to create jobs and reduce gender gaps in economic participation and benefits. The present assessment is aimed at estimating the ECCE coverage deficit, the costs, and employment returns from investing to eliminate the deficit by applying the UN Women/ILO Policy Tool on Care. It also estimates the benefits of eliminating the gender gap in employment on GDP growth based on basic GEGI (Pennings, 2022). In relation to these, the assessment is conducted under two scenarios, with Scenario 1 (LG) constructed based on 50% and 74% target enrolment for daycare and preprimary, respectively, whereas Scenario 2 (HG) is based on 50% and 100% target enrolment for daycare and preprimary, respectively. Secondary and primary sources were employed to generate data pertaining to preprimary and daycare services, respectively.

The total ECCE coverage gap is estimated to be 8,330,347 (of which 64% is by daycare service compared to 36% for preprimary) and 10,403,684 (51% by daycare service compared to 49% for preprimary) in the LG and HG scenarios, respectively. The ECCE gap is considerably higher in the case of daycare compared to preprimary. The total cost of eliminating the ECCE deficit amounts to ETB 73,133,505,137 and ETB 95,305,406,411 in the LG and HG scenarios, respectively. Daycare and preprimary service contribute 54% and 46% of the total cost, respectively, in the LG scenario, which is consistent with the considerably larger coverage gap in access to daycare services than preprimary, with a base period enrolment status of 2.9% (compared to 36.7% for preprimary). In the HG scenario, the costs due to daycare and preprimary are estimated to be 42% and 58%, respectively. This amounts to nearly 2.1%–2.8% (LG–HG cases) of the country's GDP.

Investment to eliminate the ECCE deficit would have considerable returns in terms of jobs created, both direct and indirect. Investment to eliminate the ECCE deficit would create 4,963,140 and 6,086,403 new jobs (direct and indirect) in the LG and HG scenarios, respectively. This is composed of 3,250,355 (66%) and 1,712,785 (34%) new jobs due to investing in daycare and preprimary, respectively, in the LG scenario. In the HG scenario, 3,250,355 (53%) new jobs would be generated due to investment in daycare and 2,836,048 (47%) due to investment in preprimary. Moreover, women would be the main beneficiaries (67% and 64% in the LG and HG scenarios, respectively) of jobs (paid care work) created through investment in eliminating the ECCE gap.

The returns from eliminating the ECCE deficit and to care in general would transcend current job creation, as they would also contribute to boosting GDP through reducing the gender disparity in the labour market. Applying the GEGI developed by Pennings (2022), the present assessment reveals that long-run GDP (or GDP per capita) would grow by nearly 16% in the case of full closure of the existing gender gap in employment and by 10% after accounting for the additional jobs created through investment in eliminating the ECCE deficit in the HG scenario. In this case, the additional jobs for women and men due to

investing in ECCE imply that there would be a smaller gender employment gap to close in the future; hence, a smaller long-run GDP growth effect (10.2%) if the gender employment gap is closed. Other favourable spillover effects of investment in ECCE found in the literature include fiscal sustainability, improved child education and health, and enhanced future human capital.

8.2　Recommendations

General recommendations

- Investing in the care economy should be viewed as an opportunity to create decent jobs, and to close the gender gap in the labour market, economic participation and benefits in general.

- In view of the gaps in daycare data in Ethiopia, conducting mapping of daycare service providers and putting in place a national database are important to enhance data availability (administrative and survey), and monitoring of access to and support for the quality of daycare services. It is also critical to enable further return-on-investment economic modelling and inform evidence-based policy making.

Specific recommendations

- Ministry of Women and Social Affairs (MoWSA)/Ministry of Health (MoH): There is a need to develop a national coordinating body for daycare services, in particular with clarity of mandates regarding policy, standards, monitoring, support and data generation. Generating administrative data, building a database, and monitoring the quality and accountability of paid care services are important to enable regular data availability and tracking of progress in access to quality care services. More needs to be done to create a comprehensive regulatory system for care services, with appraisal of the pros and cons of centralizing the ECCE accreditation and regulatory services into one entity, compared to the current structure of separate entities. As much as monitoring and support are needed to ensure that ECCE service quality protocols are adhered to, the feasibility of items of the ongoing protocol need to be reviewed.

- Ethiopian Statistical Service (ESS): Indicators of access to and quality of daycare services should be incorporated in the data collection tools of its regular surveys, such as the Demographic and Health Survey, Time Use Survey and Labor Force Survey.

- Ministry of Education (MoE): Investment is required in school facilities, and advocacy and support for social policies are needed to help increase the GER and reduce disparity across regions and between GER (36.7%) and NER (21.2%) through access to preprimary schooling at the right time for the age. Investment to eliminate the ECCE gap must be accompanied by targeted training of staff on ECCE to match the potential jobs to be created. In line with this, ECCE curriculum and educational materials development and targeted pre- and in-service training of female ECCE staff are required.

- Ministry of Finance (MoF)/Ministry of Planning and Development (MoPD): Investment in the care economy and putting in place a national policy on the care economy (paid and unpaid care work) are crucial for addressing gender inequality and supporting sustainable development. There is a need to identify macroeconomic policy options to increase the fiscal space needed to support these critical investments, in line with the country's growth trajectory and development targets. Exploring the potential complementarity of investing in care sector with that in other government priority sectors, e.g. manufacturing, is useful to guide such decisions.

- Private sector: Strengthening private sector engagement in the care economy is key to improving job opportunities for women in the care sector and reducing barriers to economic participation of women seeking

care services. In line with this, public private partnership in the care sector is crucial for availing quality care services and stimulating development-positive care business. .

- Development partners: Support is required in the areas of generating daycare data and promoting investments in the care economy. This may involve conducting mapping; policy advocacy, capacity building for estimating gaps in other care services; enhancing network platforms for those in the care sector and earmarking Official Development Assistance (ODA) for the care economy. This support can be provided in a collaborative framework by GOs, NGOs, CSOs and the private sector.

ANNEX

Sample daycare facilities

Region/ City administra-tion	Sub-city/city/ town	Gross total, N	Overlap	Net, N	Sub-city + woreda	Excl. sub-city + woreda	%	Sample size: n = N/(1 + N*e²)	Exact sample size, n
Overall		263	11	252	4	248	1.00	153.09	153
Addis Aba-ba		196	10	186	4	182	0.73	112.35	113
	Addis-Ketema	8	0	8	0	8	0.04	4.94	5
	Akaki-Kality	26	4	22	0	22	0.12	13.58	14
	Arada	4	0	4	0	4	0.02	2.47	3
	Bole	16	1	15	3	12	0.07	7.41	7
	Gullele	8	0	8	1	7	0.04	4.32	4
	Kirkos	8	0	8	0	8	0.04	4.94	5
	Kolfe-Keranyo	32	2	30	0	30	0.16	18.52	19
	Lemi-Kura	36	2	34	0	34	0.19	20.99	21
	Lideta	5	0	5	0	5	0.03	3.09	3
	Nifas Silk-Lafto	41	1	40	0	40	0.22	24.69	25
	Yeka	12	0	12	0	12	0.07	7.41	7
Oromia		9	1	8	0	8	0.03	4.94	5
	Burayu					1	0.13	0.62	1
	Sabata					1	0.13	0.62	1
	Adama					1	0.13	0.62	1
	Galaan					3	0.38	1.85	2
	L/Xaafoo L/ Daadhii					1	0.13	0.62	0
	Babile					1	0.13	0.62	0
Amhara		30	1	29	0	29	0.12	17.90	18
	Awi					6	0.21	3.70	4
	Bahir Dar					7	0.24	4.32	4
	Mekdela					1	0.03	0.62	1
	Debre Berhan					4	0.14	2.47	2
	Dessie					2	0.07	1.23	1
	Finote-Selam					1	0.03	0.62	1
	Dembecha					1	0.03	0.62	1
	Moret-Jiru					1	0.03	0.62	1
	Kombolcha					2	0.07	1.23	1

Region/ City administration	Sub-city/city/ town	Gross total, N	Overlap	Net, N	Sub-city + woreda	Excl. sub-city + woreda	%	Sample size: n = N/(1 + N*e²)	Exact sample size, n
	Yilma-Densa					1	0.03	0.62	1
	Gondar city					1	0.03	0.62	0
	Debre Markos					2	0.07	1.23	1
Tigray		23	0	23	0	23	0.09	14.20	14
	Mehoni					1	0.04	0.62	1
	Mekelle					10	0.43	6.17	6
	Adwa					2	0.09	1.23	1
	Ahferom					2	0.09	1.23	1
	Adigrat					2	0.09	1.23	1
	Abi-Adi					2	0.09	1.23	1
	Wukro					2	0.09	1.23	1
	Sahrti-Samre					1	0.04	0.62	1
	Ganta-Afeshum					1	0.04	0.62	1
Dire Dawa	Dire Dawa	4	0	4	0	4	0.02	2.47	2
Harari	Harari	1	0	1	0	1	0.00	0.62	1

NB: Data were not collected from Tigray due to the war during the assessment period.

Source: Own survey (2023).

TABLE A2

Status of daycare facilities at federal institutions in Addis Ababa

Name of Ministry	No. of children	No. of caregivers	Education background	Monthly salary (ETB)
Ministry of Peace	20 (future plan)	2	10	2,800
Ministry of Revenues	15	3	Certificate	More than 4,500
Ministry of Foreign Affairs	25 registered, but not giving service	None	None	None
Ministry of Water & Energy	2	3	8–12	2,700
Ministry of Education	25	6	10 + 2	3,000 (contract)
Ministry of Labor & Skills	No daycare	None	None	None
Ministry of Women & Social Affairs	6	4	10 + 3	
Ministry of Defense	2	They have daycare, but no care givers are employed and are not functional		
Ministry of Transport & Logistics	5	3	Certificate	More than 3,000
Ministry of Culture & Sport	4	1	Certificate	2,333

Estimating care deficits, investment costs and economic returns for early childhood care and education (ECCE) in Ethiopia

Name of Ministry	No. of children	No. of caregivers	Education background	Monthly salary (ETB)
Ministry of Urban Development & Infrastructure	12	6	Certificate	2,340
Ministry of Finance	16	4	10-Diploma	1,496-4,200
Ministry of Health	8	4	10-Diploma	1,496-4,200
Ministry of Industry	9	3	8–12	2,799
Ministry of Trade & Regional Integration	2	2	10	More than 3,000

Source: MoWSA (2022a).

EPR of people (age 10 and above) by age group and sex

Age category	Total people			Total employed people		
	Total	Male	Female	Total	Male	Female
Country total (age 10–65+)	69,964,474	34,776,708	35,187,765	41,637,071	23,990,027	17,647,044
10–14	13,465,869	6,917,565	6,548,304	4,592,634	2,572,903	2,019,731
15–19	10,537,103	5,419,402	5,117,701	4,656,657	2,641,706	2,014,950
20–24	7,613,580	3,465,448	4,148,132	4,558,302	2,373,118	2,185,184
25–29	7,859,924	3,521,944	4,337,980	5,717,219	3,039,135	2,678,084
30–34	6,146,707	2,968,715	3,177,992	4,798,565	2,746,268	2,052,297
35–39	6,293,640	2,935,888	3,357,752	4,992,064	2,752,228	2,239,836
40–44	4,273,587	2,273,057	2,000,530	3,392,122	2,098,629	1,293,493
45–49	3,322,855	1,755,439	1,567,416	2,681,593	1,639,561	1,042,032
50–54	2,648,469	1,347,719	1,300,750	1,934,661	1,192,065	742,596
55–59	1,846,575	966,928	879,647	1,334,796	852,553	482,244
60–64	1,839,205	941,100	898,105	1,143,866	757,253	386,613
65+	4,116,961	2,263,504	1,853,457	1,834,592	1,324,608	509,985

Source: Labor and Migration Survey (ESS, 2021).

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