

ISSUE PAPER

INVESTING IN FREE UNIVERSAL
CHILDCARE IN SUB-SAHARAN
AFRICA: CÔTE D'IVOIRE, NIGERIA,
RWANDA, SENEGAL AND THE
UNITED REPUBLIC OF TANZANIA:
Estimating spending requirements,
gendered employment effects and
fiscal revenue

JULY 2021
UN WOMEN

Acknowledgements

This report is a joint production of the Macroeconomic Team of the Economic Empowerment Section at UN Women, UN Women's regional office in West and Central Africa, UN Women's regional office in East and Southern Africa, and UN Women's country offices in Côte D'Ivoire, Nigeria, Senegal, Rwanda and Tanzania. The main author of the report is Jerome De Henau, Senior Lecturer in Economics, The Open University, United Kingdom. Research and data assistance were provided by Momath Cissé, Cecile Mukarubuga, Aline Sylvie Pawele, Eponou Pelagie and Abdullahi Yahaya. Bobo Diallo, Economics Specialist, Macroeconomics, UN Women, and Maria Elena Ruiz Abril, Policy Advisor, UN Women Regional Office in West and Central Africa, led the report's overall coordination and supervision. This work has greatly benefited from comments and suggestions received from anonymous referees and other scholars. We gratefully acknowledge financial support from the Government of the Principality of Liechtenstein.

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This report contributes to public debate on issues concerning development policy. The views and recommendations expressed are those of the contributors, noted above, and do not necessarily reflect the position of their respective organizations.

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EXECUTIVE SUMMARY

This study investigates the annual investment required to provide universal, high-quality, free early childhood care and education (ECCE) in Côte d'Ivoire, Nigeria, Rwanda, Senegal and the United Republic of Tanzania. High-quality ECCE is central to achieving the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), from improving children's health and development to reducing gender inequalities in employment and unpaid care. It is also a good strategy to foster an employment-rich recovery from the COVID-19 pandemic.

Although pre-primary education is a policy priority in these countries and has been for a few decades, sufficient provision of affordable and high-quality ECCE is still wanting, even for children from age 3 to the age they enter primary school. This is reflected in public spending on pre-primary education, which is a tiny fraction of gross domestic product (GDP) in each country.

For this study, modelling annual investment (staffing costs and overheads) assumed centre-based services across a given country for all children aged 4 months to the age they enter primary school. This investment included construction costs and costs for training staff to boost their qualifications to adequate levels, providing higher wages and achieving child/staff ratios on par with international standards. Two scenarios were considered, both providing full-time, full-year services for 50 per cent of children aged 0-2 and 100 per cent of children aged 3 and above, with a mix of tertiary educated and post-secondary educated teachers. The first "current" scenario reflected pay levels on par with existing salaries in pre-primary or primary education and statutory child/staff ratios. The second "improved" scenario estimated higher salaries, equivalent to the higher levels found in Côte d'Ivoire (relative to average employee wages). It also improved the child/staff ratio to international standards – around 5 to 1 for children below 3 and 15 to 1 for children aged 3 and above.

Public investment in childcare not only creates direct employment but also has multiplier effects, generating indirect employment in industries supplying the childcare sector and, in turn, their suppliers. Induced employment stems from additional consumption effects in the economy. The

study simulates these effects using a social accounting matrix for each country. Results show that, given the significant annual investment required, in the range of 4-10 per cent of GDP in the "current" scenario and 8-14 per cent of GDP in the "improved" scenario, employment creation is substantial. For example, in the "improved" scenario, employment rates could rise by between 8 percentage points in Côte d'Ivoire and 23 percentage points in Tanzania. Given the predominance of women in the childcare sector, women's employment rates would rise by more than men's. They would climb by between 11 percentage points in Côte d'Ivoire and 25 percentage points in Tanzania. Gender gaps in employment rates would decline by nearly a third in Rwanda and Senegal and by more than half in Nigeria and Tanzania.

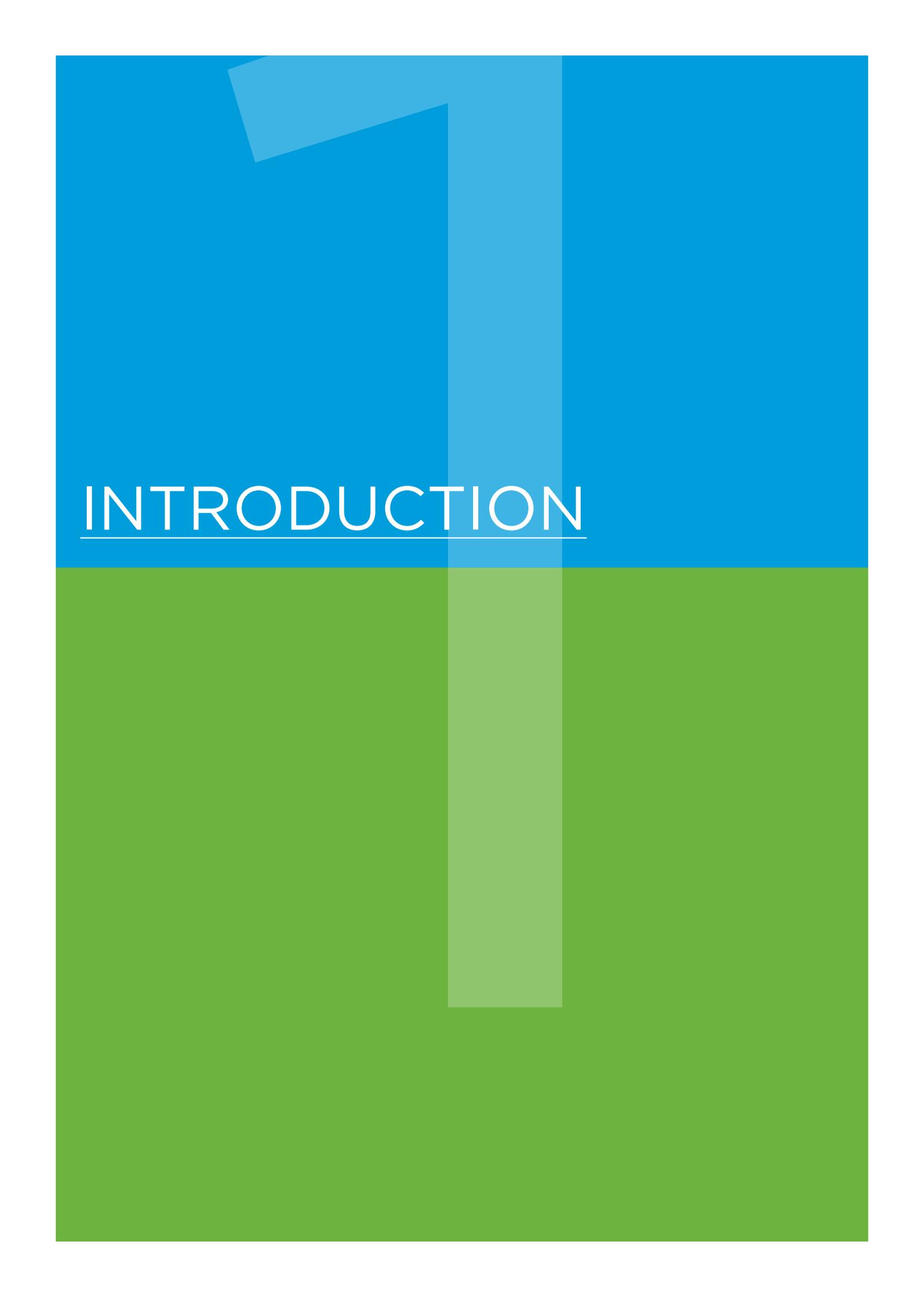
Undoubtedly, such investment is a substantial commitment relative to each country's GDP although two factors make the net investment less burdensome. First, tax revenue stemming from increased employment, earnings and consumption (through direct and indirect taxation) reduces the annual spending requirement. Second, the investment has multiplying effects on GDP given that it becomes a lower proportion of a larger whole. Taking both factors into account, the net annual investment requirement as a proportion of the "new" GDP falls from 8-5 per cent in Nigeria and from 14-6 per cent in Tanzania in the "improved" scenario.

These remain significant sums that will require borrowing on international markets as well as international aid on a substantial scale. For many countries, the question of financing remains the crucial challenge in achieving the SDGs and a weak point of the agreed parameters of the 2030 Agenda.

Rather than looking at what is achievable within existing means, this study examines what needs to be done to create necessary fiscal space. This implies looking at conditions that would make investment self-funding over time, defined in the narrow sense of breaking even fiscally from the additional tax revenue generated by increased maternal employment, which would close the gender lifetime earnings gaps of typical parents. With the “current” scenario, average tax incidence (of social security contributions from both employees and employers, income tax and indirect taxes) on average earnings would need to be between 39-45 per cent in Côte d’Ivoire, Nigeria and Senegal to break even over a typical working life of a mother with three children. This implies either increasing tax rates or expanding the tax base (or both) by shifting more people into formal employment. It is a process that will happen gradually. These levels of incidence remain below

those found in European countries. In Rwanda and Tanzania, however, the incidence required would still be quite high, at about 64-68 per cent.

This study is the first of its kind estimating universal entitlement to high-quality ECCE services in sub-Saharan African countries. It sets the scene for further discussion and research into the implementation and feasibility over time of this important goal. It gives a more robust understanding of the challenges ahead and how policies to achieve the SDGs need to shift the focus from export-led development strategies to internal structural reforms that entail high-wage job creation, including in sectors related to care provision, as an effective channel to reduce gender inequality and achieve the well-being of all.

The background consists of a solid blue upper half and a solid green lower half. A vertical bar with a light-to-dark gradient runs through the center. In the top-left corner, there is a semi-transparent blue trapezoidal shape.

INTRODUCTION

1. INTRODUCTION

This report makes the case for significant recurrent public investment in early childhood care and education (ECCE) in five sub-Saharan African countries as a way to achieve the Sustainable Development Goals (SDGs) and recover from the COVID-19 pandemic.

The study examines the annual budgetary requirements as well as direct and indirect employment and fiscal effects of investing in universal, high-quality, free childcare. The five countries studied are Côte d'Ivoire, Nigeria and Senegal in West Africa, and Rwanda and the United Republic of Tanzania in East Africa.

In many countries, the development of high-quality ECCE services is becoming a political priority in the race to achieve the SDGs by 2030. Enabling all children to access high-quality pre-primary education would reduce child poverty, improve health outcomes, and better distribute paid and unpaid work between women and women.

The COVID-19 pandemic has exposed the critical role of education and care in maintaining the social fabric of an economy, while laying bare chronic underinvestment and its dire consequences on people's lives. The need for greater public investment in social infrastructure – the services of health, care and education – largely predates the pandemic but has become even more pressing because of it. Well-funded social infrastructure offers long-term benefits to children and society at large by enabling society to exist and reproduce itself. Moreover, its labour-intensive structure provides effective conditions for a much needed employment stimulus to recover from the economic damage caused by the virus (De Henau and Himmelweit, 2021; Heintz et al., 2021).

Successful strategies for early childhood development pertain to multiple interventions in all domains of nurturing care: social protection, child protection, health, nutrition and education (Britto et al., 2017; Richter et al., 2017). The literature associates high-quality childcare with long-term and wider benefits such as reducing stunting (provided ECCE facilities feed children too); reducing the risk of leaving school (including for older children who otherwise could be called upon to watch over their

younger siblings, missing out on school time); and increasing parental earnings, which cumulate over the life course (Garcia et al., 2017; Havnes and Mogstad, 2011, 2014; Babchishin et al., 2013; Li et al., 2013; Karoly et al., 2005; Melhuisch, 2004). Although empirical studies applied to the African context are more limited, those that exist confirm the wider benefits of organized childcare for early childhood development, with a few studies for Kenya (Clark et al., 2021; Clark et al., 2019; Simeu et al., 2017) and more generally in the global South (Samman et al., 2016; Leroy et al., 2012).

Non-parental childcare provision also allows more mothers to stay in or take up employment and earn a decent living, relieving them of some of their childcare constraints, and fostering more gender equality in lifetime earnings (De Henau, 2017, 2019; Garcia et al., 2017). As a result, it offers a supply-side solution to demand-oriented stimulus policies in times of chronic underemployment or recessions. Not only would investment in care services, and childcare in particular, create many more jobs than equivalent investment in more male-dominated industries such as construction of physical infrastructure, but it would also release some of the supply-side caring constraints in taking up those jobs, more so than construction investment (Kim et al., 2019; De Henau et al., 2016, 2017).

As in previous studies carried out with UN Women for the Republic of North Macedonia (De Henau and Mojsoska-Blazevski, 2019), South Africa, Turkey and Uruguay (De Henau et al., 2018), the method employed is a simulation of the investment requirements in gross and net terms, when employment and fiscal effects are taken into account. The simulation targets universal childcare provision on a full-time basis, for all children below primary school age (which is age 6 for all countries, except Rwanda, where it is 7). ECCE attendance is assumed to start from the age of 4 months, implicitly following four

months of well-paid maternity leave (which is not costed here).

The study adopts a bottom-up approach of looking at needs in each country and the best ways to address them. It takes into account country-level parameters on current wages, enrolment and staff ratios, and simulates scenarios to improve these parameters in line with internationally agreed quality standards for Africa. The different scenarios of pay, qualification, enrolment and supervision ratios result in different levels of annual public spending requirements. The study also estimates resulting employment creation in the sector as well as the economy more broadly.

Finally, financing considerations are discussed in the context of political challenges with respect to mobilizing all necessary resources for full implementation of the SDGs (Razavi, 2016). In doing so, this study suggests a route towards more equality of outcomes and not just the mere equality of opportunity that seems to pervade the SDGs (Esquivel, 2016). Rather than analysing how current public policies with respect to early childhood development fare in terms of gender equality promotion, the study adopts the opposite stance, examining the types of (fiscal) policy and reform that are needed to achieve gender equality in outcomes.

The image features a solid blue background in the upper half and a solid green background in the lower half. Overlapping these two colors are several semi-transparent, overlapping circles of varying shades of blue and green. The text is centered in the blue section.

OVERVIEW OF
THE SOCIOECONOMIC
CONTEXT OF
EACH COUNTRY

2. OVERVIEW OF THE SOCIOECONOMIC CONTEXT OF EACH COUNTRY

Nurturing care

African countries have young populations. According to United Nations population data, around 18 per cent of the total population in each of the five countries studied here is below school age, compared to only about 6 per cent in Europe. This shows upfront both the importance and challenge of providing universal access to high-quality childcare in these countries. Most children below school age are currently looked after by family members, outside of formal ECCE facilities, especially the youngest ones. Between 20-35 per cent of children under 5 are estimated to have inadequate supervision at home, as

they are either left alone or in the care of a young sibling (UNICEF, 2020). Stunting rates vary from 17 per cent in Senegal to 44 per cent in Nigeria, while fewer than half of young children benefit from a stimulating home-learning environment (ibid.). In Rwanda, for example, only 12 per cent of mothers engage with more than four learning activities with their child aged 3 or 4, and only 3 per cent of fathers, with large differences by educational attainment of parents (NISR, 2016).

Table 1 shows access to formal high-quality ECCE based on the most recent available data from 2015-2019.

TABLE 1:
The main indicators of ECCE enrolment and staffing

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Net enrolment rate in formal ECCE (0-2 years)	0.5%	5.0%	1.0%	0.9%	n/a
Net enrolment rate in formal ECCE (3-5 years)	11%	15.4%	20.8%	16%	20%
Percentage in rural settings	26%	n/a	52%	40%	n/a
Percentage in public settings	68%	65%	62%	43%	95%
Net attendance rate one year prior to primary school, bottom quintile	27%	25%	70%	16%	44%
Net attendance rate one year prior to primary school, top quintile	82%	93%	94%	61%	99%
Child/staff ratio 0-2 years	11	n/a	n/a	n/a	n/a
Child/staff ratio 3-6 years	24	80	24	27	74
Percentage of qualified teachers (pre-primary)	71%	n/a	50%	38%	52%
Percentage of female teachers	97%	83%	85%	77%	78%
Government spending on pre-primary education (percentage of GDP)	0.11%	n/a	0.04%	0.03%	0.20%
Government spending on primary education (percentage of GDP)	1.54%	n/a	0.88%	1.53%	1.66%

Child/staff ratio primary	42	62	57	45	42
Salary of main teachers (percentage of GDP/capita)	282%	108%	169%	221%	357%
GDP/head in purchasing power parity (PPP), USD	5,455	5,349	2,319	3,536	2,770

Source: See Appendix 2 for details.

Note: The category of 3-5 years includes pupils aged 6 in Rwanda. Net enrolment rate refers to children registered; net attendance rate indicates children present.

Table 1 shows that few children below age 3 have access to ECCE facilities, whether in private or public settings. For the pre-primary age group (aged 3 and above), the main group targeted by SDG target 4.2,¹ enrolment remains low by international standards. Most children of that age group who attend childcare do so in public facilities (especially in Tanzania) but more children in Senegal attend in private settings. Given that the proportion of children living in rural areas is around half in Côte d'Ivoire, Nigeria and Senegal, nearly two thirds in Tanzania and 82 per cent in Rwanda (UNESCO, 2020), Table 1 shows that childcare enrolment in rural areas is much lower than in urban centres, as the former account for a share below their share in the population. The repartition is slightly less uneven in Senegal.

Another form of inequality is by wealth quintile of households. Children in the richest quintile are far more likely to attend organized learning in ECCE one year prior to their entry into primary school than those in the poorest quintile. The difference is three times as much in Côte d'Ivoire, Nigeria and Senegal. Participation is more even in Rwanda.

Children enrolled in ECCE facilities in Nigeria and Tanzania do not benefit from high levels of supervision compared to their peers in Côte d'Ivoire and Senegal. Côte d'Ivoire stands out by having relatively low child/staff ratios (despite these being higher than its statutory regulations), and most teaching staff are qualified at an adequate level (post-secondary or tertiary).

Government spending on pre-primary education is indicative of low quality and enrolment although with sizeable differences among the five countries. Tanzania spends five times more than Rwanda as

a proportion of its GDP on pre-primary education, which seems to go mostly into paying relatively high salaries to teaching staff, despite lower child/staff ratios (Mghasse and William, 2016). The difference in public spending between these two countries also reflects the greater enrolment of children in public settings in Tanzania compared to Rwanda. Average salaries of teaching staff in Nigeria are much lower relative to GDP per capita when compared to the other countries. Note that for Nigeria, Table 1 shows the salaries for teachers employed in federal facilities, which are about five times higher than those in state facilities. Therefore, an additional challenge for Nigeria will be to boost staff pay, over and above improving child/staff ratios, the qualifications of staff and enrolment as in other countries (Odiagbe, 2015).

Despite low public investment, governments of the five countries are committed to realizing the universal provision of childcare as they recognize the beneficial role of organized early learning development to reduce social inequalities and educational attainment gaps (Borisova et al., 2020; Britto et al., 2017). Senegal and Côte d'Ivoire have firmly established publicly subsidized pre-primary education over the last two decades, following a school-based approach of age-appropriate sections. In Rwanda, the Government aims to increase the enrolment rate in organized early childhood development (ECD) facilities for the 3-6 year age group to 45 per cent. It plans to reduce stunting by half from 37 per cent to 19 per cent by 2024 (NECDP, 2018).

Employment and work

To varying degrees, these five sub-Saharan African countries are characterized by agrarian economies and informal employment. Table 2 shows that more than a third of employment is in agriculture (two thirds in Tanzania) and nearly 90 per cent of employment

¹ By 2030 ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

is informal. But change is happening fast through growing formal employment in the service sector, a reduction of employment in agriculture, and a shift from own-production and self-employment to more employee jobs in agriculture (ILO, 2020).

The employment-to-population ratio (employment rate) of adults (aged 15 and above), which includes

both formal and informal employment provided it is not production work for own consumption, varies greatly. It ranges from a low of 43 per cent and 44 per cent in Senegal and Rwanda, respectively, to a high of 82 per cent in Tanzania, albeit dominated by agricultural employment. Employment rates are generally higher in rural than urban areas, except in Rwanda.

TABLE 2:
The main indicators of employment by gender, 2019

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Employment-to-population ratio, all aged 15 and above	55%	49%	44%	43%	82%
Employment-to-population ratio, men aged 15 and above	64%	54%	52%	54%	86%
Employment-to-population ratio, women aged 15 and above	46%	44%	36%	32%	78%
Gender gap in employment-to-population ratio (percentage points)	17	10	16	22	8
Employment-to-population ratio, fathers 25-54	85%	75%	69%	79%	97%
Employment-to-population ratio, mothers 25-54	63%	57%	48%	48%	87%
Gender gap in employment-to-population ratio (percentage points)	22	18	21	31	10
Employment-to-population ratio, rural (all aged 15 and above)	60%	50%	41%	45%	87%
Employment-to-population ratio, urban (all aged 15 and above)	52%	47%	55%	41%	74%
Percentage of employees, all	27%	19%	67%	35%	14%
Percentage of employees, men	34%	23%	68%	39%	18%
Percentage of employees, women	17%	13%	66%	27%	10%
Percentage of formal employment	93%	89%	80%	93%	91%
Percentage employed in agriculture, all	40%	35%	37%	30%	65%
Percentage employed in agriculture, men	46%	44%	31%	34%	63%
Percentage employed in agriculture, women	31%	24%	46%	25%	67%
Percentage employed in education, all	3.3%	4.4%	3.6%	4.5%	2.0%
Percentage employed in education, men	4.2%	5.3%	3.3%	5.1%	1.9%
Percentage employed in education, women	1.9%	3.2%	4.0%	3.6%	2.0%
Percentage of children in child labour (5-17 years), all	25%	29%	4%	17%	22%

Percentage of children in child labour (5-17 years), men	25%	30%	4%	26%	23%
Percentage of children in child labour (5-17 years), women	25%	28%	4%	9%	21%
Average salary of employees (percentage of GDP/head)	121%	88%	96%	116%	186%

Source: ILOSTAT database (ILO, 2020) based on national employment and labour force surveys.

The gap in employment rates between men and women ranges from 8 percentage points in Tanzania to 22 percentage points in Senegal. The gender employment gap for parents aged 25-54 is larger than for the adult population as a whole, reaching 31 percentage points in Senegal. This reflects the larger amount of unpaid work carried out by women, especially in looking after young children. In Tanzania, mothers seem to combine employment with caring responsibilities more than in other countries given their much higher employment rate. Note that in Rwanda, the proportion of the population in “work” when considering agricultural own-use production is on par with the figures for Tanzania, with more than 80 per cent in work, two thirds of which is in agriculture (ILO, 2020).

As the International Labour Organization (ILO, 2018a) has made clear, unpaid care work remains highly gendered in all parts of the world. In Africa, the proportion of women giving unpaid care work as the main reason for not being part of the labour force is nearly nine times as large as that of men (34 per cent versus 3.9 per cent). Among all women and men across the world, women spent twice as much time on unpaid care work as men around 2012, largely unchanged since 1997. Men spent twice as much time on paid employment as women, a slight decrease since 1997 (ibid.). In African countries where time use data exist, women with children under age 5 spend 3.5 times more minutes in unpaid care work than men in Ghana and South Africa, and 2.5 times more minutes in Ethiopia (ibid.). In Rwanda, the Labour Force Survey 2019 showed that adult women spend twice as much time doing care work per week than men (NISR, 2020).

The image features a split background of blue (top) and green (bottom). A large, light blue number '4' is positioned in the upper half, and a large, light green number '5' is in the lower half. The text 'METHODS AND DATA' is centered horizontally across the boundary between the two colors.

METHODS AND DATA

3. METHODS AND DATA

This study calculates the annual public spending requirement for providing free, full-time, universal ECCE for children under primary school age, based on country-specific parameters to reflect different contexts. The model is described in detail for a study carried out for the United Kingdom (De Henau, 2019) and builds on studies conducted in other countries with the same method, for South Africa, Turkey and Uruguay (De Henau et al., 2018) and for the Republic of North Macedonia (De Henau and Mojsoska-Blazevski, 2019).

Even though we take account of country-specific parameters, the simulations of costings were essentially based on a relatively uniform model of centre-based ECCE providing age-adapted nurturing and care activities for early development and learning. This does not mean adopting a classroom model as many pre-primary schools do. The centre can be seen as a blend of community-based, home-feel, play-focused learning environments where multiple aspects of nurturing and care are developed in line with recommendations of the United Nations Children’s Fund (UNICEF) (Borisova et al., 2020; Richter et al., 2017). ECCE facilities can take different forms, depending on the age of the child and the location (rural or urban). Urban centres tend to offer more of a school-based model of pre-primary learning (centre-based, sometimes attached to a school). In rural contexts, a model of a community facility is when villages informally organize the care of children among themselves with adults taking turns to look after the children. Such community models, however, still rely on the good will and availability of (mostly female) carers who must juggle multiple tasks. Overall, not many children attend ECD facilities, and the dominant form of organized childcare remains, in all countries, centre-based pre-primary settings.²

Given the focus on expanding access for all children, the model assumed a daytime facility catering to about 50 children, with qualified staff looking after different age groups for a given number of hours per week per year, without precluding specific adaptations to the local context.

² The main characteristics of typical models of ECCE were researched for this study by national consultants using a mixture of desk reviews of official documents, rules and reports by ministries responsible for education and family affairs and ad hoc interviews with ECCE providers.

Running costs of facilities

The cost of provision in a typical ECCE centre depends on seven main elements:

1. Number of children offered a place (enrolment)
2. Opening hours per week (and per year)
3. Numbers of children per staff members of different qualifications (child/staff ratios), which typically vary by child age
4. Working time of staff, taking account of non-contact time (time away from children’s supervision for training and administration), and provision for sickness and holiday replacements
5. Level of remuneration and qualification of staff (including auxiliary staff such as cooks, cleaners and administrative), including to cover sick pay and holiday pay
6. Non-staff costs (overhead – mostly food for children’s meals)
7. Non-annual costs for construction of the facilities and their equipment, and for initial training to qualify childcare staff to the relevant level

The main parameters set to vary in the different scenarios were the enrolment rates for different age groups, the level of pay of qualified staff and the child/staff ratios. Only one (maximum) set of opening hours was retained. The contact time was set at 45 hours per week for 50 weeks. This included all activities from play-based learning to resting that

children undertake under the supervision of any staff person in the ECCE facility. All staff persons in childcare centres were assumed to work full time on a 40-hour-per-week basis, in line with typical working hours of employees in education (ILO, 2020). One in seven of these working hours was dedicated to non-contact time (for administration and preparation). The qualification mix of ECCE staff was as follows: 30 per cent of staff (hereafter main teachers) was deemed qualified at the bachelor's degree level or equivalent with training in ECCE pedagogy, and the remaining 70 per cent (assistant teachers) at two years of post-secondary education. The initial two- and three-year training of both staff types was costed in the simulations.

Given the many possible combinations of parameters, only two main scenarios were simulated:³

- **“Current” scenario:** current average salaries based on primary teachers' wages (for the main graduate staff category) and statutory child/staff ratios
- **“Improved” scenario:** higher pay of staff if deemed too low and lower child/staff ratios based on international standards

Enrolment rates were in line with those computed by the ILO (2018a) with 50 per cent of the younger age group population following maternity leave (from about 4 months to 36 months of age, hereafter the 0-2 year group) and 100 per cent of the pre-primary population (hereafter the 3-5 year group, that is, those aged 3 and above up to their entry age for primary school, which is 7 in Rwanda and 6 in the other countries).

These are ambitious targets for fully universal coverage. They should be seen as objectives over time with gradual implementation starting from very low levels as shown in Table 1. These targets may not reflect more limited practical priorities by national governments, but the model reflects at least the tone of the official strategies in these countries, which allude to a commitment to universalism. Both the governments of Côte d'Ivoire and Senegal have an official policy of universal access to early education to prepare for primary school entry although they focus mostly on the older age group of 3-5 year

olds. In the same vein, the Government of Rwanda's target of 45 per cent enrolment by 2024 focuses on the 3-6 year age group only, while privileging a more hybrid ECD strategy for children below 3, supporting a mix of home-care practices with parental involvement, home “health” checks as well as some community-based childcare (NECDP, 2018).

The universal provision of ECCE for very young children remains a target in this study as the benefits are far reaching as discussed above. Given that very few young children are currently receiving any stimulating learning environment, it is imperative to include them in such a plan. Admittedly a target of 50 per cent coverage for the younger age group is not strictly universal. It is nevertheless an ambitious mid-way point towards such a goal. The most disadvantaged children should be prioritized in this respect, given the larger social benefits this would entail including for the children themselves (Richter et al., 2017; Leroy et al., 2012). One of many ways to prioritize could be to provide ECCE services first in poorer urban neighbourhoods and rural areas.

In the “current” scenario, child/staff ratios were set at about 7 children per staff in the age group 0-2 years and 20 children per staff in the age group 3-5 years, when considering statutory requirements. This was based on information from only two countries that could provide it, Côte d'Ivoire and Rwanda (MIGEPROF, 2016; Ministère de la Femme, de la Famille et de l'Enfant, 2015). In the “improved” scenario, the ratios were set to 5 children aged 0-2 per staff and 15 children aged 3-5 per staff. These improved ratios would still be slightly higher than what can be found in many European countries but are more generous than the assumption used by the ILO (2018a) for the youngest group (10 children per staff, which is above statutory ratios). The ratios were the same for the older group. Given the huge impact of adequate supervision and teacher involvement at a very young age (Huston et al., 2015), it makes sense to model a more generous child/staff ratio early on.

The parameters for the “current” scenario mapped salaries for qualified teachers in primary education (this will sometimes be the same as pre-primary education, as in Côte d'Ivoire). The “improved” scenario assumed a salary increase to level up with Côte d'Ivoire, where the teaching staff is paid nearly

³ Appendix 3 shows results for three additional scenarios with varying enrolment rates, child/staff ratios and pay.

three times as much as GDP per capita and more than twice average employee earnings. In Tanzania, where teachers' salaries are 3.6 times as high as GDP per capita but less than twice the average wage of employees, we increased the wages to reach those of Côte d'Ivoire in the proportion of average employees' earnings. This was on par with the average salary in the whole education sector, which is TZS 900,000 per month (NBS, 2019).

Table 3 shows the main figures for the current and higher pay targets, along with the target population

on which to base enrolment rates by age group. In the "improved" scenario (higher pay target), graduate ECCE staff reached similar pay levels as their counterparts in primary and secondary education on the grounds that looking after very young children to give them the best chances in life should be rewarded on par with teaching teenagers, for equivalent qualification levels. This was in line with the rationale used by the ILO (2018a), where modelling increased investment in early education gave ECCE staff similar levels of wages as the average in the education sector.

TABLE 3:
Main data for simulation parameters

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Population aged 4 months-2 years (thousands)	2,160	17,818	986	1,379	5,082
Population aged 3-5 years (thousands)	2,328	19,220	1,401	1,507	5,504
Mean monthly gross salary graduate primary teacher (national currency units)	315,127	65,000	72,487	156,098	767,112
Mean monthly salary, graduate primary teacher (USD PPP)	1,283	480	233	651	823
As percentage of GDP per capita	282%	108%	121%	221%	357%
As percentage of mean salary of employees	233%	123%	125%	191%	191%
Higher pay target monthly salary (national currency units)	315,127	170,516	169,720	199,470	934,730
Higher pay target monthly salary (USD PPP)	1,283	1,258	546	832	1,003
Higher education teacher monthly salary (national currency units)	479,874	170,516	296,933	308,235	934,730
Higher education teacher monthly salary (USD PPP)	1,954	1,258	955	1,286	1,003

Source: ILOSTAT (ILO, 2020) and national statistical offices (see Appendix 2 for details).

Auxiliary/support staff (for cooking, administration, cleaning, repairing) were budgeted as two full-time employees per facility, paid at the average wage.

The main overhead costs included provision for two meals per day per child based on price estimations carried out in Côte d'Ivoire, the only country for which we could gather reliable information on canteen costs (in private settings). Meal costs

for the other countries were estimated by taking the average grocery price differences between representative cities in each country.⁴ This gave an average cost of USD 0.70 per meal for Côte d'Ivoire,

⁴ Using the price comparison website Numbeo (<https://www.numbeo.com/cost-of-living/in/Abidjan>) with Abidjan as a reference and other capital/main urban centres as comparators (Lagos, Dar es Salaam and Dakar), except for Rwanda where Gisenyi was picked as more representative given Rwanda's much larger population share in smaller towns and villages.

USD 0.67 in Senegal, USD 0.45 in Tanzania and USD 0.41 in Nigeria and Rwanda (all excluding staff costs). The overhead was costed at three times that amount per day per child (two thirds for food and another third for other costs such as toys, stationary, energy and overall maintenance). These costs relative to staff costs were checked against the ratio of intermediate inputs to staff costs in the social accounting matrices of each country.

The annual investment for the government to cover all running costs (assuming free State-funded provision) was the sum of staff and overhead costs across all facilities. The reference year was 2019 so the results of cost estimates should be interpreted in real terms at 2019 prices.

Construction and training costs

Besides this recurrent expenditure, upfront investment is needed to build ECCE facilities and train staff to adequate qualification levels. We expected heavy frontloading of these investment categories given the ambitious expansion. These are not strictly speaking one-off payments as construction will take a few years and will accompany gradual enrolment. But they can be costed as year zero investments with depreciation over 20 to 30 years. We applied a depreciation period of 20 years to give a sense of annualized spending. In the same way, the training of new teachers needs to happen initially. For this costing exercise, however, we spread costs annually over an average career of an ECCE staff person.

Building costs gathered from different national sources showed high levels of similarity across Côte d'Ivoire, Rwanda and Senegal at about USD 220 per square meter. The study assumed a generous 10 square meter area per child (hence a centre for 50 children of 500 square meters, including outdoor space).⁵

For training costs, the method was simply to calculate the number of lecturers needed and their wages per new childcare staff to train. The average student-to-lecturer ratio was about 25 (UNESCO, 2020), and lecturers were assumed to receive the average wage in higher education (Table 3). Total training time was calculated over the whole learning period of the childcare staff (two years for assistant staff and three years for main graduates). Total training time per staff was then depreciated over 20 years since the training output will accompany childcare staff persons over their careers. This annualized training time was then included in full-time equivalent as part of the annual total staff time of the ECCE facility. It boiled down to a proportion of training staff time counted annually that was around 1 per cent of total ECCE facility annual staff time.

5 For an interesting example of an innovative model of social architecture for Rwanda, see: <https://www.activesocialarchitecture.com/pre-primaries> or <https://www.activesocialarchitecture.com/ecd-f-centers>.



EMPLOYMENT EFFECTS

4. EMPLOYMENT EFFECTS

The employment generated by the investment in universal childcare goes beyond the staffing of ECCE facilities or direct employment effects. Indirect employment is generated by the increase in demand for inputs to the childcare sector (for food, energy, manufactured goods, etc.). Increased employment yields higher incomes for households if new jobs are taken up by people previously un- or underemployed or who would switch from informal employment to formal employment at higher wages. As a result, consumption will increase in the economy. This generates further demand for different industries' domestic output and thus additional employment, known as induced employment, which itself generates further increases through multiplying effects.

To estimate this potential increase in indirect and induced employment, we carried out a social accounting matrix (SAM)-based multiplier analysis, very similar to the input-output multiplier analysis used in previous studies on childcare investment (De Henau et al., 2018; De Henau and Mojsoska-Blazevski, 2019; De Henau, 2019). SAMs are expanded input-output tables where relationships between sectors of the economy other than industries producing goods and services are estimated, using a series of household and employment micro-surveys and national accounts data (Boulanger et al., 2017; IFPRI, 2017).

SAM data were available for the following years for each country: 2013 for Côte d'Ivoire (INS, 2018); 2006 for Nigeria (Manson et al., 2014);⁶ 2011 for Rwanda (IFPRI, 2014); 2014 for Senegal (Boulanger et al., 2017) and 2015 for Tanzania (IFPRI, 2017).

The employment multipliers derived from the SAM were applied to the direct employment creation calculated in the previous section, with some modification to account for wage differences between the education sector overall (relative to GDP per capita in the year of the respective SAM) and the ECCE facilities simulated. The method for adjustment is described in De Henau and Himmelweit (2020). It shows that overall employment multipliers will be reduced if lower wages are paid (for a given number of direct jobs created) given the lower spending of

6 We could not obtain a more recent version of the 2006 Nigeria SAM so the results for Nigeria need to be interpreted with more caution given the likely large changes in the composition of the economy in the last 14 years. The main multiplier effects, however, are qualitatively similar to those of Côte d'Ivoire and Senegal.

households that would result, albeit not in exact proportion to the wage differential.

Short-term fiscal effects from employment creation

The SAM calculations gave an indication of the total tax revenue generated by such rounds of investment and increases in economic activity. To get a sense of the recurrent fiscal returns that investment in childcare generates, we computed the indirect tax revenue (mostly from sales taxes but also from import taxes) as a proportion of household income using the SAM data for each country and applied to the average gross earnings of new jobs created.

Direct taxes such as income tax and social security contributions were calculated directly by applying the 2019 income tax schedule in each country to the gross earnings of different staff categories (main teachers, assistant teachers and support staff). Direct taxes collected on the earnings of jobs outside the childcare sector only apply to those in formal employment. We assumed that all non-childcare jobs were paid at the average earnings of all employees (both formal and informal) but that none of the informal jobs paid income tax or social security contributions in line with the standard ILO definition. The share of informal employment in total employment shown in Table 2 was obtained from the ILO (2018b).

Fiscal revenue generated by the investment will determine short-term funding requirements from

other sources, from borrowing to international aid. It is unlikely that taxation will provide enough funding overall, given predominantly informal economies. Over time, it is expected that many people will increase their attachment to the formal labour market, in particular, mothers previously largely excluded from gainful employment because of childcare responsibilities. This provides scope for increasing the tax base.

The first step was to calculate the net funding requirement remaining if all jobs were formal and thus provided full income tax and social security contributions. This is still expected to fall short of the target given the low average tax incidence, even on formal jobs. A second step was to calculate the necessary average tax incidence on all jobs (assuming that they have now all become formal) that would make the annual childcare investment entirely recouped from direct and indirect tax revenue on the jobs created.

Longitudinal fiscal effects from closing the gender earnings gap

In previous studies we estimated a theoretical fiscal break-even point from closing the gender lifetime earnings gap (De Henau and Mojsoska-Blazevski, 2019). This was measured as the minimum number of years of full-time employment at full earnings a typical mother with two children would need to regain (relative to fathers) for the full investment in childcare for her two children (i.e., about 11 years of childcare in total) to be recouped within her working life. For this to result in a feasible break-even within a typical working life, tax incidence on earnings cannot be too low.⁷ This was not the case in the five countries studied here. Given the low tax incidence on all jobs combined with a high prevalence of informal employment, it was expected that tax generated from a typical mother's increased employment and earnings would remain substantially low. To overcome this, a slightly different way of looking at the effect of closing this gender gap was needed.

Instead of calculating the number of years needed to break even fiscally for a given average tax incidence, we calculated the minimum average tax incidence required to break even within a typical working life of 35 years (after the first birth). Moreover, unlike in previous studies, a typical mother in this case was assumed to have three children not two. The results will mainly depend on average wage differentials between men and women, and on the employment gap of mothers and fathers. Given the inclusion of direct and indirect taxes, as well as social security contributions paid by employers, a marginal total tax incidence of up to 50-60 per cent seems achievable over time. This is the kind of combined tax incidence observed in many Organisation for Economic Co-operation and Development countries (OECD, 2020).

⁷ Tax incidence in this study is calculated as the average income tax, social security contributions and indirect (consumption) taxes of households on average in proportion of average gross earnings.

The image features a split background of blue (top) and green (bottom). Large, semi-transparent letters 'R' and 'S' are overlaid on the background. The 'R' is light blue and positioned in the upper left, while the 'S' is light green and spans across the middle and bottom. The word 'RESULTS' is written in white, uppercase letters on the blue background, with a thin white underline beneath it.

RESULTS

5. RESULTS

Employment effects

Using the results of the SAM-based multiplier analysis, Tables 4 and 5 show total employment creation in ECCE and other sectors, distinguished by farm and non-farm, including the proportion of women in each category of employment. Table 4 shows the results for the “current” scenario with the statutory child/staff ratio by age group and current levels of salaries. Table 5 shows the results for the “improved” scenario with better child/staff ratios and higher pay.

Table 4 shows that employment creation in ECCE would be substantial. The sector would represent between 4-7 per cent of total employment (old and new). Assuming unchanged gender ratios, most of those jobs would go to women as the majority of current ECCE teachers.⁸ This is a significant step towards making the paid economy more caring, understood as an economy in which care is shared more equally between society and individuals (De Henau and Himmelweit, 2021).

TABLE 4:
Employment creation in the “current” scenario

	Côte d’Ivoire	Nigeria	Rwanda	Senegal	Tanzania
ECCE sector	516,504	4,262,800	273,110	331,995	1,218,183
As percentage of total employment	6%	7%	6%	7%	4%
Percentage of women	88%	79%	79%	74%	75%
Other sectors: non-farm	263,568	2,539,432	206,384	203,920	2,211,788
Percentage of women	47%	60%	32%	47%	21%
Other sectors: farm	181,250	2,639,907	482,464	146,263	1,676,985
Percentage of women	35%	39%	59%	34%	89%
Total jobs created	961,322	9,442,139	961,958	682,178	5,106,956
Percentage of women overall	67%	62%	59%	57%	56%
Percentage points in employment rate change					
All	6	8	13	7	16
Men	4	6	11	7	14
Women	9	10	15	12	17
Percentage points in gender employment gap change	-5	-4	-4	-5	-4
As a share of current gender employment gap	-26%	-43%	-24%	-24%	-43%

Source: Calculations based on national SAM data and employment surveys.

The main results of this table are the employment effects outside of the ECCE sector. These are shown by distinguishing jobs created in agriculture (“farm”) from other sectors. Except for Nigeria and Rwanda, more jobs would be created in the non-farm sector than in agriculture. Total job creation varies between countries relative to the population aged 15 and above. The increase in the employment rate (in percentage points) ranges from 6

percentage points in Côte d’Ivoire to as much as 16 percentage points in Tanzania.⁸

⁸ We counted support staff (cooks/cleaners) and higher education staff (training ECCE staff) in this total, assuming a proportion of two thirds women, lower than the proportion of women in the main ECCE staff group. The support staff accounted for 27 per cent of total staff in ECCE facilities in the “current” scenario and 21 per cent in the “improved” scenario.

The increase in employment rates varies by gender with more women likely to gain access to new jobs than men, though both genders would see a significant increase in their employment rate. The gender employment gap would also be reduced by 4-5 percentage points, a reduction of about a quarter in Côte d'Ivoire, Rwanda and Senegal, and 43 per cent in Nigeria and Tanzania.

Tanzania's employment rate is already very high (at 82 per cent, see Table 2) so on face value it may look unrealistic for the economy to absorb such increases.

As in other countries, however, many women are underemployed. Labour underutilization rates in Tanzania as calculated by the ILO – that is, the share of those available for work or additional hours but not currently getting any – are about 18 per cent overall and 19 per cent for women (ILO, 2020). This does not include women exclusively performing care work who would not count as potential members of the labour force in the ILO definition. People employed in agriculture constitute the majority of paid employment and they work on average half the hours that employees in services do every week (ILO, 2020).

TABLE 5:
Employment creation in the “improved” scenario

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
ECCE sector	657,686	5,427,858	345,486	422,599	1,550,973
As percentage of total employment	7%	7%	7%	9%	5%
Percentage of women	90%	79%	81%	75%	76%
Other sectors: non-farm	358,785	5,702,674	332,847	294,620	3,312,235
Percentage of women	47%	60%	32%	47%	21%
Other sectors: farm	246,729	5,928,307	778,097	211,319	2,511,348
Percentage of women	35%	39%	59%	34%	89%
Total jobs created	1,263,200	17,058,839	1,456,430	928,538	7,374,557
Percentage of women overall	67%	59%	58%	57%	56%
Percentage points in employment rate change					
All	8	15	19	10	23
Men	5	12	17	9	20
Women	11	18	22	16	25
Percentage points in gender employment gap change	-6	-6	-5	-7	-5
In percentage of current gender employment gap	-35%	-56%	-31%	-31%	-56%

Source: Calculations are based on national SAM data and employment surveys.

In the more generous scenario, with improved child/staff ratios and salaries, the employment effects are magnified (Table 5). In this case, the ECCE sector would account for between 5-9 per cent of total employment, with 75-90 per cent of the jobs going to women. These would all be formal jobs. The boost to overall employment mirrors the increase in the ECCE sector (with the same caveat for Tanzania). In the other four countries, women's employment

rates would jump by between 11 percentage points in Côte d'Ivoire and 22 percentage points in Rwanda, narrowing the gender employment gap by nearly a third (and by half in Nigeria).

Besides annual investment in ECCE, employment creation also stems from investment in the construction industry to build new facilities. The numbers of jobs shown in Table 6 are annualized,

assuming the construction investment spans 20 years as depreciation. That is, whether the facilities are built in one year or 20, total employment created is spread over the 20-year period so the figures

in Table 6 are annual employment. Far fewer jobs are required to build the facilities than to run them. The employment created would go mostly to men, especially in Nigeria.

TABLE 6:
Job creation from investing in construction

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Jobs in construction industry	14,491	352,016	21,324	9,370	21,955
Jobs in other sectors	55,871	626,087	131,753	44,821	411,668
Percentage of women in overall job creation	32%	27%	44%	34%	47%

Source: Calculations are based on national SAM data and employment surveys.

Annual gross and net investment requirements

This section examines the results of the calculations in terms of gross annual investment required – the sum of all running costs of the facilities – and net funding requirements, once employment creation and related tax revenues are taken into account.

Tables 7 and 8 show the results for the “current” and “improved” scenarios, respectively. The first three rows of the tables show the total annual investment needed to run the new facilities (including training costs), in millions of national currency units and millions of USD as well as in the percentage of GDP.⁹ The next row shows the annual ECCE investment per child expressed as the proportion of GDP per capita to give a sense of the commitment to nurturing care of high quality.

Table 7 shows that the investment is significant in all countries, ranging between 4-10 per cent of GDP, with variations among countries that mostly reflect the levels of teacher wages relative to average wages and the population of children enrolled in the total population. The lower (higher) spending effort in Nigeria (Tanzania) reflects average wage levels of ECCE staff well below (above) that of the other countries, in the proportion of GDP per capita (see Table 1). Notwithstanding, the annual spending requirement to cater to half of the 0-2 year age group and

all of the 3-5 year age group remains substantial in all countries. These results are hardly comparable to the level of current spending by government on pre-primary education (Table 1). The investment would be 50 times as high as current spending in Tanzania and 250 times as high in Senegal. This is for three main reasons: first, a massive increase in enrolment, which is currently almost non-existent for the youngest age group; second, much improved child-to-teacher ratios and pay since current provision fails to reach statutory requirements in many cases; and third, the assumption of childcare being entirely subsidized by the State and provided free at the point-of-use, unlike current provision in many settings.

The net funding requirement will be lower, however, given increased tax revenue stemming from employment creation in both ECCE and the economy more widely. The net funding gap shown in Table 7 represents the net funding requirement once direct and indirect tax revenue have been taken into account.¹⁰ Given the high prevalence of informal employment, direct tax revenue (from income tax and social security contributions) mainly originates from employment created in the ECCE sector as the model assumes this comprises formal jobs. The indirect tax revenue, however, applies to all new jobs generated, whether formal or not. The ratio of total sales and import taxes in the SAM tables, expressed as a proportion of total household income, is used as a proxy for the average indirect tax incidence on gross earnings.

⁹ Amounts of investment required in construction are given in the overall results in Appendix 3. They are a small fraction of the running costs on an annual basis.

¹⁰ We subtracted the amount of current public spending on existing pre-primary education to avoid double counting.

TABLE 7:

Annual gross and net investment requirements, “current” scenario

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Gross annual cost (national currency units, millions)	2,497,226	5,695,644	713,331	1,005,363	14,913,257
Gross annual cost (USD millions)	4,262	17,525	793	1,716	6,483
Percentage of GDP	7%	4%	8%	7%	10%
Cost per child					
Percentage of GDP per capita	55%	28%	52%	54%	72%
Direct tax revenue (national currency units, millions)	249,232	750,548	53,220	156,666	4,661,443
Indirect tax revenue (national currency units, millions)	281,293	115,790	20,906	116,178	1,227,889
Net funding gap (national currency units, millions)	1,927,845	4,829,305	635,646	728,497	8,727,407
Net funding gap (USD, millions)	3,290	14,859	707	1,243	3,794
Percentage of GDP	6%	3%	7%	5%	6%
GDP rise	13%	8%	17%	10%	18%
Net funding gap (percentage of new GDP)	5.0%	3.1%	6.0%	4.8%	5.1%
Percentage of self-funding	23%	15%	11%	28%	41%
Percentage of self-funding if all new jobs are formal	25%	21%	12%	32%	69%
Current tax incidence (new jobs)	24%	14%	11%	32%	21%
Tax incidence if all new jobs are formal	27%	19%	12%	37%	35%
Tax incidence needed to break even	115%	91%	105%	116%	53%

Note: The reference year for all price values is 2019.

When expressed as a proportion of GDP, the net funding gap is lower still when taking into account the GDP multiplier. This is because the boost in employment and consumption will increase the volume of GDP and thereby reduce the funding burden relatively. The row “GDP rise” in Table 7 shows a significant boost in the volume of GDP, ranging from an 8 per cent increase in Nigeria to 17 per cent in Rwanda and 18 per cent in Tanzania. Compared to gross annual investment, the net investment requirement (i.e., the net funding gap as a percentage of the new GDP) is reduced by as much as half in Tanzania, from 10 to 5 per cent of GDP. Of the gross investment, 41 per cent would be recouped from tax revenues each year in

that country. If all new non-farm jobs created were treated as formal jobs, the annual ECCE investment in Tanzania would be recouped at 69 per cent. The results are less encouraging in the other countries because of lower tax incidence and lower wages in non-ECCE industries even if they were to become formal. In Côte d'Ivoire and Rwanda, the proportion of the investment that is self-funding would barely rise if all new non-farm jobs were indeed formalized (from 11-12 per cent in Rwanda).

The fiscal effort required to plug the gap is indicated in the bottom three rows of Table 7. The third to last row shows the current average tax incidence (the

proportion of direct and indirect taxes collected in the total earnings of all new jobs). The next row shows the average tax incidence of all these new jobs if the new non-farm jobs all became formal. The difference between these two rows is small, except in Tanzania, where the education sector has a larger non-farm employment multiplier than the other countries (60-80 per cent higher).

The last row shows the average tax incidence required on all these new jobs (assuming all non-farm jobs to be formal) for the annual gross investment to be self-funding. It is beyond feasibility in Côte d'Ivoire, Rwanda and Senegal, at more than 100 per cent, but is within reach in Tanzania, at 53 per cent.

Even in the other countries simulated in previous studies, all with higher average tax incidence and lower informal employment, the "self-funding" proportion of the annual gross investment was never near 100 per cent (De Henau and Mojsoska-Blazevski, 2019; De Henau et al., 2018) and so would

have also required significant tax rises.¹¹ The combination of lower wages in the economy overall relative to the simulated ECCE salaries; low tax incidence, even on formal jobs; and a much larger child population makes investment in ECCE services in sub-Saharan Africa a totally different endeavour. In any case, the benefits, as discussed above, ought to be assessed on very different grounds than purely fiscal returns, even more so than in other countries.

Having said that, some indication of fiscal sustainability based on longitudinal employment and fiscal effects is still worth examining for these countries. As explained in the method section, this can be proxied by estimating a theoretical fiscal revenue stemming from the gains in maternal employment and the gradual closing of the lifetime gender earnings gaps caused by care work inequalities. This is discussed in the next section. Before that, it is worth adding the main summary results for the "improved" scenario (Table 8) for comparison with the "current" scenario (Table 7).

TABLE 8:
Annual gross and net investment requirements, "improved" scenario (summary)

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Gross annual cost (national currency units, millions)	3,023,507	11,255,128	1,030,073	1,322,025	19,983,576
Percentage of GDP	9%	8%	11%	10%	14%
Net funding gap (national currency units, millions)	2,263,373	8,600,525	820,396	859,338	10,592,122
Percentage of GDP	7%	6%	9%	6%	7%
GDP rise	15%	15%	24%	14%	24%
Net funding gap (percentage of new GDP)	5.7%	5.1%	7.3%	5.5%	5.9%
Percentage of self-funding	25%	24%	20%	35%	47%
Percentage of self-funding if all new jobs are formal	28%	30%	21%	40%	77%
Tax incidence needed to break even	102%	71%	80%	99%	47%

Note: The reference year for all price values is 2019. Detailed results are shown in Appendix 3.¹¹

¹¹ Except perhaps in the United Kingdom where the simulations took into account reduced spending on means-tested and out-of-work social security benefits (De Henau, 2019).

Given the more generous child/staff ratios and staff pay in the “improved” scenario, it is not surprising to see a jump in the gross annual investment required, compared to the “current” scenario. While in all countries the child/staff ratio is reduced in the same way (from 7 children aged 0-2 per staff to 5, and from 20 aged 3-5 to 15), changes in wage levels vary across countries. ECCE staff wages do not move in Côte d’Ivoire as they are taken as the benchmark for “high” wages in education already (relative to average wages). The main jump in salaries is in Nigeria and Rwanda where wages in the “improved” scenario more than treble, while they double in Senegal and Tanzania. Higher earnings also mean larger induced employment effects and GDP increases. Despite a significant rise in gross annual spending requirements between the two scenarios, the net funding gap in the new GDP does not differ much, by less than 1 percentage point in Côte d’Ivoire, Senegal and Tanzania, 1.3 percentage point in Rwanda and 2.1 percentage points in Nigeria.

Although slightly improved, the percentage of self-funding remains low (except in Tanzania), and the tax incidence required for breaking even on an annual basis is far from achievable. The next section examines the fiscal effects from a different angle to assess the “affordability” over time of investing in high-quality childcare.

Gender earning gaps and longitudinal fiscal considerations

Rather than looking for recurrent fiscal revenue year on year, we can also measure the fiscal space available for investing in high-quality universal childcare from the point of view of direct beneficiaries, even

if the social and economic benefits extend beyond children and their parents. This section examines the fiscal conditions that would make the investment pay off over time, during the working lifespan of the main carer. As childcare becomes more widely available, mothers can shift part of their unpaid work to more gainful employment, closing the gender earnings gap, and with it, adding fiscal revenue.

Previous studies using this method looked at the break-even point in terms of years before the investment is recouped if mothers regain their “lost” earnings relative to fathers owing to their disproportionate share of childcare work (De Henau and Mojsoska-Blazevski, 2019). In this study instead, as explained in the method section, we look at the average tax incidence required to fund the total cost of childcare by bringing sufficient tax revenue from closing the differential in earnings between fathers and mothers. We do so for a typical mother and father potentially earning their respective average wages, accounting for the proportion of fathers and mothers outside of the labour force.

The first row of Table 9 gives a sense of the current gender gap in average monthly earnings of prime-age mothers and fathers in employment. This compares with the weighted gap in the next row when considering differential employment rates of mothers and fathers. It is the gender earnings gap with earnings of each gender averaged out across the whole prime-age population (i.e., weighted by the respective employment rate of each group). The gender “income” gap of parents is highest in Senegal at 59 per cent, more than twice as large as Tanzania’s. This modified wage gap is a proxy for the real-term lifetime earnings differential between mothers and fathers on average.

TABLE 9:
Longitudinal fiscal effects for parents

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Gender gap in monthly earnings (employed parents 25-54)	26%	25%	34%	33%	19%
Gender gap in monthly earnings (all parents 25-54)	45%	44%	54%	59%	28%
Years to break even at current tax incidence and formal employment					
For three children					
"Current" scenario	54	104	97	46	52
"Improved" scenario	65	206	140	61	70
For two children					
"Current" scenario	36	70	65	31	35
"Improved" scenario	43	138	93	40	47
Tax incidence required to break even after 35 years					
For three children					
"Current" scenario	45%	39%	68%	41%	64%
"Improved" scenario	55%	78%	98%	54%	86%
For two children					
"Current" scenario	30%	26%	45%	28%	43%
"Improved" scenario	37%	52%	66%	36%	57%

Source: Calculations are based on national labour force surveys (see details in Appendix 2).

The middle of Table 9 shows that if mothers' lifetime earnings increased to the level of their male counterparts, the tax revenue generated would not allow for recouping the investment in childcare for a typical mother with three children within their remaining working life of 35 years.¹² In the "current" scenario of childcare costs, 16.5 years of childcare (5.5 years for each child) would require mothers to work between 46 years in Senegal and 104 years in Nigeria. With only two children, the fiscal gain renders a break-even possible in 35-36 years in Côte d'Ivoire, Senegal and Tanzania. The "improved"

scenario would still put a break-even out of reach in both cases.

Given the low tax incidence even for formal jobs, the fiscal gain remains modest with this method. The last part of Table 9 shows the tax incidence required to manage a fiscal break-even within the remaining 35 years of a typical working life after becoming a mother. With three children, this would be achievable for Côte d'Ivoire, Nigeria and Senegal but harder for Rwanda and Tanzania. But this does not account for increases in overall wages in the economy, where high salaries of ECCE staff relative to average wages will gradually reduce (as is the case in OECD countries), making childcare investment relatively less expensive compared to potential tax revenue.

¹² Note that these examples use the current average tax incidence while assuming full tax compliance, i.e., formal employment only. Moreover, the tax incidence not only relates to indirect and direct taxes, but also to social security contributions paid by employers.

The background features a vertical split between a blue upper half and a green lower half. Overlaid on this are several large, semi-transparent, curved shapes that resemble stylized letters or abstract forms. The word 'CONCLUSION' is written in white, uppercase letters across the blue section, with a thin white horizontal line underneath it.

CONCLUSION

6. CONCLUSION

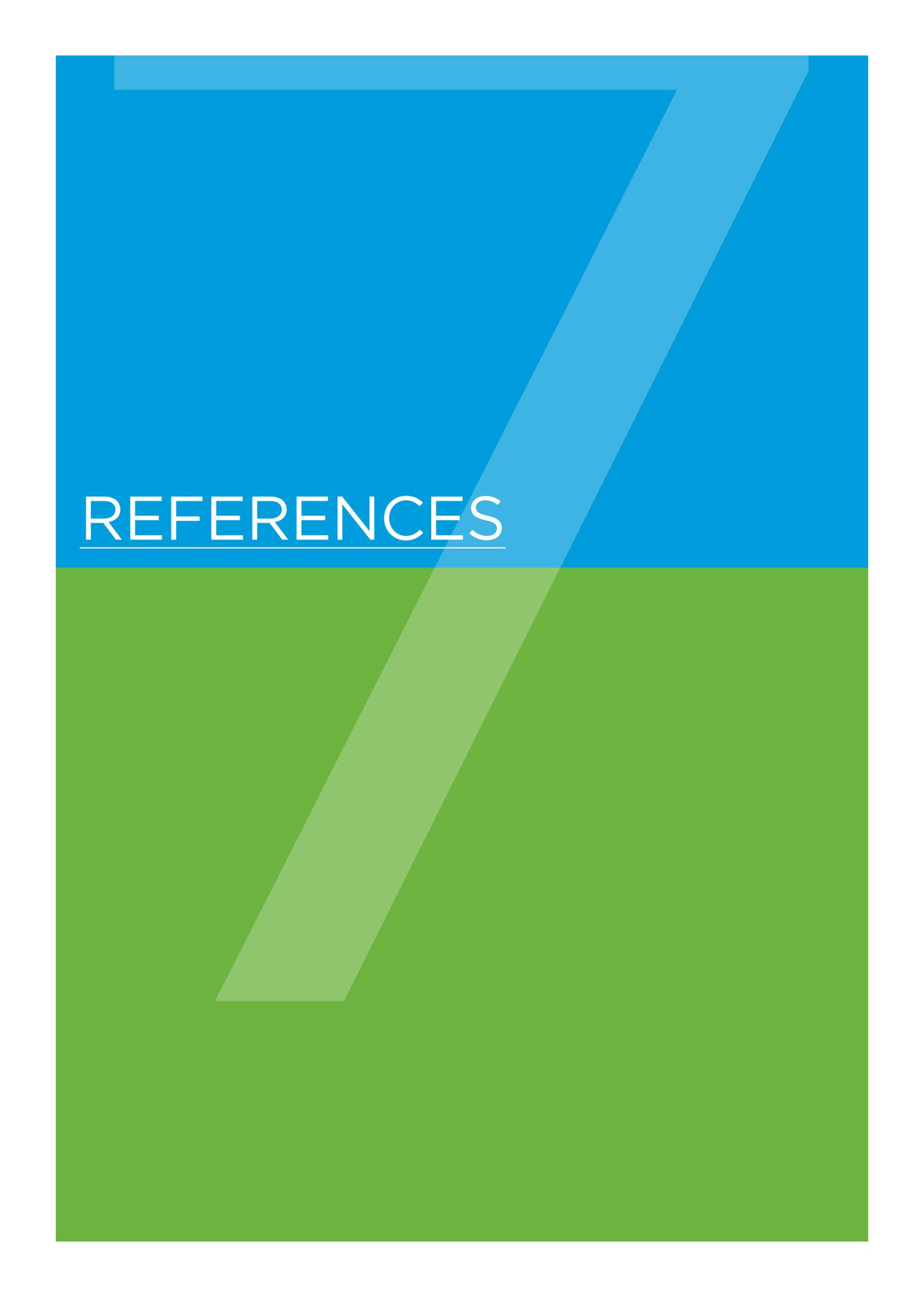
This study has shown that significant public investment is required to provide high-quality universal childcare. Employment effects are significant, reducing gender employment gaps by between a third to more than half in the more generous scenario. With increased earnings for mothers, it is possible to envisage sufficient fiscal revenues to help fund the investment over time, provided tax rates on average increase.

Despite a rather uniform approach to setting the parameters in each country, the data underpinning the assumptions reflect local specificities and do not preclude any tailoring of needs and constraints, for example, by adapting the size of facilities for rural and urban settings.

This costing exercise does not attempt to provide a realistic route to follow. Instead, it gives an indication of the main factors that influence costs and the relative trade-offs to make the investment palatable. More refined calculations would be needed to account for micro-level factors such as how individual consumption decisions react to tax increases and changes in the composition of employment. This is in part why the scenarios take an extreme approach of full-time, free and universal childcare entitlement. Employment effects are plausible only with the understanding that childcare provision is of sufficient quality to convince parents to leave their children on a full-time basis so they can gain access to employment, and that sufficient jobs are created. Compromising this quality to reduce annual spending will not only damage the life chances of children but will also invalidate efforts to stimulate the economy through sub-par job creation and low wages.

The multiple policy challenges to achieve the 2030 Agenda require no less than full commitment to funding such investment with public money (Razavi, 2016). While the upfront costs, including of training and construction, will require significant borrowing and international aid, the study also shows that under reasonable assumptions, the investment can pay off over time, even when considering a very narrow fiscal path.

Of course, fiscal returns from parental employment are not and should not be the only criterion for evaluation. Other fiscal returns, chiefly from the increased life chances of the children themselves (health and employment) would add further fiscal space to such investment (Garcia et al., 2017). And there are many non-directly quantifiable benefits of a better, more equal society. Social infrastructure to achieve gender equality and well-being is an investment worth making in its own right, a principle that should move political priorities and international financial cooperation beyond the current dominant neo-liberal dogma. Studies of this kind hopefully contribute to changing the narrative.



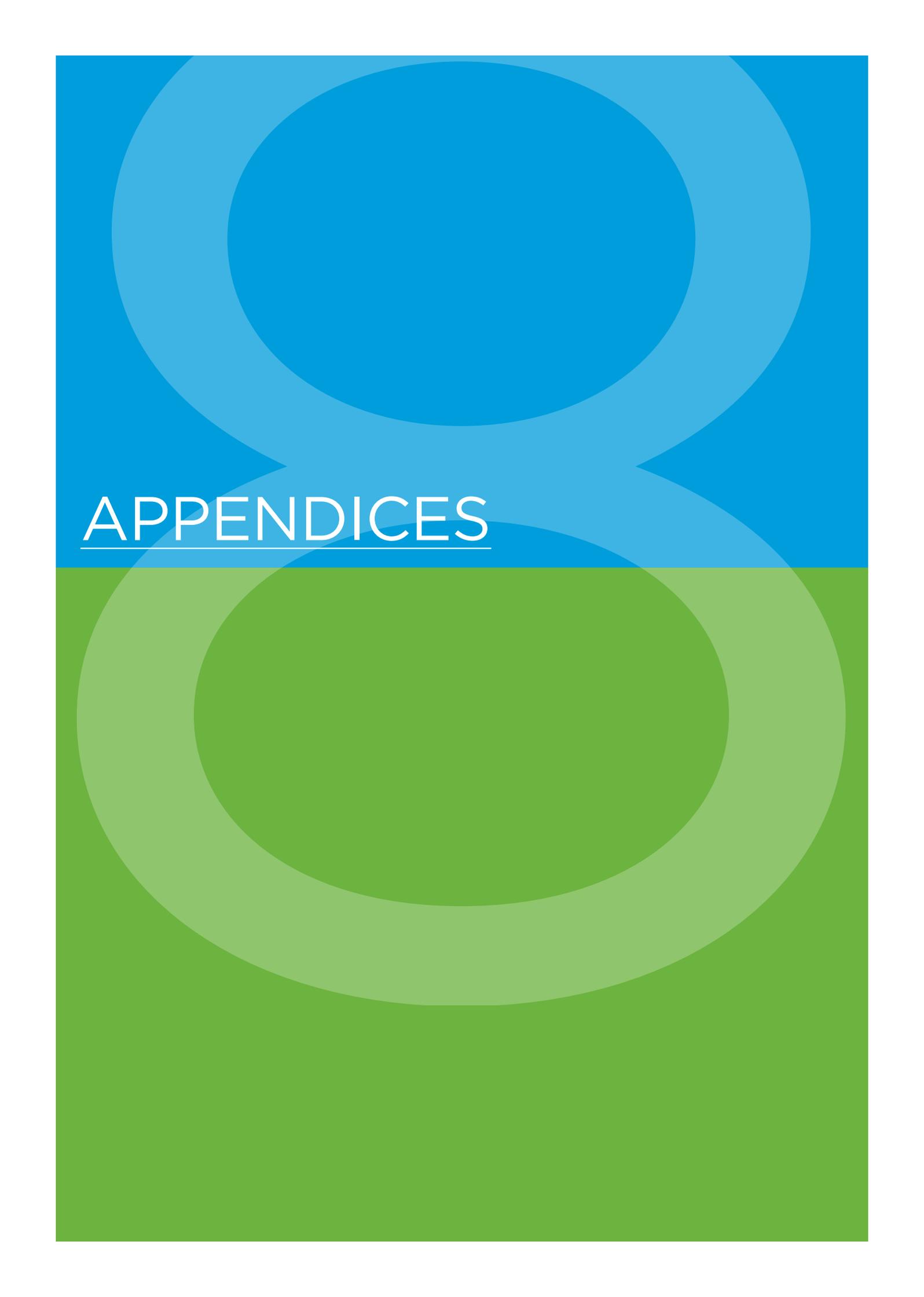
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APPENDICES

APPENDIX 1

Parameters for simulations

TABLE A.1:
Fixed parameters

Parameter	Value	Source
Child/staff ratio 0-2 years	7 (5 in “improved” scenario)	MIGEPROF (2016), Ministère de la Femme, de la Famille and de l’enfant (2015), and international standards (De Henau, 2019)
Child/staff ratio 3-5 years	20 (15 in “improved” scenario)	Ibid.
Opening hours	45 per week (5 days)/50 weeks per year	De Henau et al. (2018)
Staff working hours	40 per week (52 weeks)	ILOSTAT (ILO, 2020)
Non-contact hours	1 hour per day	De Henau (2019)
Provision for sickness, holidays	10 per cent of contact time	De Henau (2019)
Construction costs	USD 220 per square meter	Own estimates based on parameters from: Côte d’Ivoire’s national consultant visiting structures where the construction cost was USD 182 per square meter, CFC 64 million for 600 square meters, adapted to fit improved norms. Rwanda’s social architecture, ASA studios (https://www.activesocialarchitecture.com/ecd-f-centers), adjusted to 2019 prices.
Meal costs	CFA 410 (70 US cents) per meal (excluding labour cost) in Côte d’Ivoire	Calculations based on data provided by national consultant (just under half of canteen fees, which are CFA 20,000 per month per child, assuming 22 days of care per month).

APPENDIX 2

Sources of data for descriptive tables

Table A.2 shows the references for specific sources used in Tables 1, 3 and 9.

TABLE A.2:
Sources by category

	Côte d'Ivoire	Nigeria	Rwanda	Senegal	Tanzania
Data for Table 1					
Net enrolment rate in formal ECCE (0-2 years)	DSPS (2020)	Federal Ministry of Education (2016)	Esri Rwanda (2018)	MEN (2018)	President's Office (2017)
Net enrolment rate in formal ECCE (3-5 years)	DSPS (2020)	Federal Ministry of Education (2016)	NISR (2019)	MEN (2018)	President's Office (2017)
Percentage in rural settings	DSPS (2020)	n/a	Esri Rwanda (2018)	MEN (2018)	n/a
Percentage in public settings	DSPS (2020)	Federal Ministry of Education (2016)	NISR (2019)	MEN (2018)	President's Office (2017)
Net attendance rate one year prior to primary school	UNESCO (2020) UIS data base (monitoring indicators for SDGs)				
Child/staff ratio 0-2 years	DSPS (2020)	n/a	n/a	n/a	n/a
Child/staff ratio 3-6 years	DSPS (2020)	National consultant	Esri Rwanda (2018)	MEN (2018)	President's Office (2017)
Percentage of qualified teachers	DSPS (2020)	National consultant	Esri Rwanda (2018)	MEN (2018)	President's Office (2017)
Percentage of female teachers	UNESCO (2020)				
Government spending on pre-primary education and care	UNESCO (2020) (n/a for Nigeria)				
Government spending on primary school	UNESCO (2020) (n/a for Nigeria)				
Child/staff ratio primary school	UNESCO (2020)	Federal Ministry of Education (2016)	UNESCO (2020)	UNESCO (2020)	UNESCO (2020)

Salary main (percentage of GDP/capita)	National consultant (official public salaries by occupation)	National consultant	National consultant	National consultant	Paylab (2020)
GDP/head in USD PPP	UNESCO (2020)				
Data for Table 3					
Population 0-6 years	ILOSTAT (ILO, 2020)				
Mean salary of primary graduate teachers	National consultant (official public salaries by occupation)	National consultant	National consultant	National consultant	Paylab (2020)
PPP rates, GDP per capita, GDP deflator	UNESCO (2020)				
Mean salary of employees	ILOSTAT (ILO, 2020) (Labour Force Survey 2019)	ILOSTAT (2020) (Labour Force Survey 2019)	NISR (2020)	ANSD (2018)	NBS (2014)
Data for Table 9					
Mean salary of employees by gender	ILOSTAT (ILO, 2020) (Labour Force Survey 2019)	ILOSTAT (2020) (Labour Force Survey 2019)	NISR (2020)	ANSD (2018)	NBS (2014)
Prime-age employment rate by sex and presence of children	ILOSTAT (2020) (Labour Force Survey 2019)	ILOSTAT (2020) (Labour Force Survey 2019)	ILOSTAT (2020) (Labour Force Survey 2018)	ANSD (2016)	NBS (2014)

APPENDIX 3

Main results from five scenarios

Scenario 2 corresponds to the “current” scenario and Scenario 5 to the “improved” scenario.

TABLE A.3A:
Côte d’Ivoire

Scenarios	1	2	3	4	5
Number of children 4 months-2 years covered	25%	50%	100%	50%	50%
Number of children 3-5 years covered	50%	100%	100%	100%	100%
Hours per week per child	45	45	45	45	45
Child/staff ratio	Statutory	Statutory	Statutory	Improved	Improved
Pay level	Current	Current	Current	Current	High
New jobs					
ECCE sector	258,252	516,504	776,444	657,686	657,686
ECCE as percentage of total employment	2.9%	5.6%	7.9%	6.9%	6.9%
Percentage of women	88%	88%	88%	88%	90%
Other sectors: non-farm	131,784	263,568	405,103	348,656	358,785
Percentage of women	47%	47%	47%	47%	47%
Other sectors: farm	90,625	181,250	278,581	239,764	246,729
Percentage of women	35%	35%	35%	35%	35%
Total jobs created	480,661	961,322	1,460,128	1,246,106	1,263,200
Percentage of women overall	67%	67%	67%	68%	67%
Percentage points employment rate change					
All	3.2	6.4	9.7	8.3	8.4
Men	2.1	4.2	6.3	5.3	5.5
Women	4.4	8.7	13.3	11.4	11.5
Percentage points gender employment gap change	-2.3	-4.5	-7.0	-6.0	-6.0
In percentage of current gender employment gap	-13%	-26%	-40%	-35%	-35%
Costings					
Gross annual cost (national currency units, millions)	1,248,613	2,497,226	3,608,672	2,966,597	3,023,507

Gross annual cost (USD, millions)	2,131	4,262	6,159	5,063	5,160
Percentage of GDP	3.6%	7.2%	10.5%	8.6%	8.8%
Cost per child					
Percentage of GDP per capita	55%	55%	60%	65%	66%
Direct tax revenue (national currency units, millions)	124,616	249,232	382,884	329,421	337,272
Indirect tax revenue (national currency units, millions)	140,646	281,293	432,766	372,719	384,007
Net funding gap (national currency units, millions)	944,495	1,927,845	2,754,166	2,225,601	2,263,373
Net funding gap (USD millions)	1,612	3,290	4,701	3,799	3,863
Percentage of GDP	2.7%	5.6%	8.0%	6.5%	6.6%
GDP rise	6.3%	12.7%	18.3%	15.0%	15.3%
Net funding gap (percentage of new GDP)	2.6%	5.0%	6.8%	5.6%	5.7%
Percentage of self-funding	24%	23%	24%	25%	25%
Percentage of self-funding all jobs formal	27%	25%	26%	28%	28%
Current tax incidence (new jobs)	24%	24%	24%	24%	24%
Current tax incidence (all formal)	27%	27%	27%	27%	27%
Tax incidence needed	115%	115%	108%	103%	102%
Closing gender gap over time					
Number of years to break even	54	54	59	64	65
Tax incidence for break-even in 35 years	45%	45%	50%	54%	55%
Exchange rate national currency/ USD	586	586	586	586	586
GDP per capita, national currency units	1,339,393	1,339,393	1,339,393	1,339,393	1,339,393
Construction costs (USD 220 per square meter)					
Cost per facility (national currency units)	64,450,210	64,450,210	64,450,210	64,450,210	64,450,210
Total per annum over 20 years (percentage of GDP)	0.3%	0.6%	0.8%	0.6%	0.6%
Employment in construction	7,246	14,491	19,085	14,491	14,491
Total employment	27,935	55,871	73,580	55,871	55,871
Percentage of women	32%	32%	32%	32%	32%

TABLE A.3B:
Nigeria

Scenarios	1	2	3	4	5
Number of children 4 months-2 years covered	25%	50%	100%	50%	50%
Number of children 3-5 years covered	50%	100%	100%	100%	100%
Hours per week per child	45	45	45	45	45
Child/staff ratio	Statutory	Statutory	Statutory	Improved	Improved
Pay level	Current	Current	Current	Current	High
New jobs					
ECCE sector	2,131,404	4,262,800	6,406,920	5,427,858	5,427,858
ECCE as percentage of total employment	3.5%	6.5%	9.1%	8.0%	7.5%
Percentage of women	79%	79%	79%	79%	79%
Other sectors: non-farm	1,269,718	2,539,432	3,816,005	3,232,424	5,702,674
Percentage of women	60%	60%	60%	60%	60%
Other sectors: farm	1,319,956	2,639,907	3,966,991	3,360,319	5,928,307
Percentage of women	39%	39%	39%	39%	39%
Total jobs created	4,721,078	9,442,139	14,189,916	12,020,601	17,058,839
Percentage of women overall	62%	62%	63%	63%	59%
Percentage points employment rate change					
All	4.2	8.3	12.5	10.6	15.1
Men	3.1	6.2	9.3	7.8	12.3
Women	5.2	10.5	15.8	13.5	17.9
Percentage points gender employment gap change	-2.1	-4.3	-6.5	-5.6	-5.6
In percentage of current gender employment gap	-21%	-43%	-65%	-56%	-56%
Costings					
Gross annual cost (national currency units, millions)	2,847,827	5,695,644	8,048,234	6,500,701	11,255,128
Gross annual cost (USD, millions)	8,763	17,525	24,764	20,002	34,631
Percentage of GDP	2.0%	3.9%	5.5%	4.5%	7.7%
Cost per child					
Percentage of GDP per capita	28%	28%	30%	32%	55%

Direct tax revenue (national currency units, millions)	375,275	750,548	1,127,635	955,053	2,327,647
Indirect tax revenue (national currency units, millions)	57,895	115,790	173,978	147,360	326,956
Net funding gap (national currency units, millions)	2,414,657	4,829,305	6,746,620	5,398,287	8,600,525
Net funding gap (USD millions)	7,430	14,859	20,759	16,610	26,463
Percentage of GDP	1.7%	3.3%	4.6%	3.7%	5.9%
GDP rise	3.8%	7.6%	10.8%	8.7%	15.1%
Net funding gap (percentage of new GDP)	1.6%	3.1%	4.2%	3.4%	5.1%
Percentage of self-funding	15%	15%	16%	17%	24%
Percentage of self-funding all jobs formal	21%	21%	22%	23%	30%
Current tax incidence (new jobs)	14%	14%	14%	14%	17%
Current tax incidence (all formal)	19%	19%	19%	19%	21%
Tax incidence needed	91%	91%	86%	82%	71%
Closing gender gap over time					
Number of years to break even	104	104	112	119	206
Tax incidence for break-even in 35 years	39%	39%	42%	45%	78%
Exchange rate national currency/ USD	325	325	325	325	325
GDP per capita, national currency units	724,750	724,750	724,750	724,750	724,750
Construction costs (USD 220 per square meter)					
Cost per facility (national currency units)	35,750,000	35,750,000	35,750,000	35,750,000	35,750,000
Total per annum over 20 years (percentage of GDP)	0.3%	0.7%	0.9%	0.7%	0.7%
Employment in construction	176,008	352,016	463,507	352,016	352,016
Total employment	313,044	626,087	824,383	626,087	626,087
Percentage of women	27%	27%	27%	27%	27%

TABLE A.3C:
Rwanda

Scenarios	1	2	3	4	5
Number of children 4 months-2 years covered	25%	50%	100%	50%	50%
Number of children 3-5 years covered	50%	100%	100%	100%	100%
Hours per week per child	45	45	45	45	45
Child/staff ratio	Statutory	Statutory	Statutory	Improved	Improved
Pay level	Current	Current	Current	Current	High
New jobs					
ECCE sector	136,555	273,110	391,768	345,486	345,486
ECCE as percentage of total employment	3.6%	6.2%	8.1%	7.4%	7.1%
Percentage of women	79%	79%	80%	79%	81%
Other sectors: non-farm	103,192	206,384	296,097	261,146	332,847
Percentage of women	32%	32%	32%	32%	32%
Other sectors: farm	241,232	482,464	692,186	610,481	778,097
Percentage of women	59%	59%	59%	59%	59%
Total jobs created	480,979	961,958	1,380,051	1,217,113	1,456,430
Percentage of women overall	59%	59%	59%	59%	58%
Percentage points employment rate change					
All	6.3	12.6	18.1	16.0	19.1
Men	5.3	10.7	15.2	13.4	16.6
Women	7.3	14.5	20.9	18.5	21.6
Percentage points gender employment gap change	-1.9	-3.8	-5.6	-5.0	-5.0
In percentage of current gender employment gap	-12%	-24%	-35%	-32%	-31%
Costings					
Gross annual cost (national currency units, millions)	356,665	713,331	934,392	767,168	1,030,073
Gross annual cost (USD, millions)	397	793	1,039	853	1,145
Percentage of GDP	3.9%	7.8%	10.3%	8.4%	11.3%
Cost per child					
Percentage of GDP per capita	52%	52%	54%	56%	75%

Direct tax revenue (national currency units, millions)	26,610	53,220	76,363	67,355	155,892
Indirect tax revenue (national currency units, millions)	10,453	20,906	30,004	26,469	50,226
Net funding gap (national currency units, millions)	316,043	635,646	824,465	669,785	820,396
Net funding gap (USD millions)	351	707	917	745	912
Percentage of GDP	3.5%	7.0%	9.1%	7.4%	9.0%
GDP rise	8.4%	16.7%	21.9%	18.0%	24.2%
Net funding gap (percentage of new GDP)	3.2%	6.0%	7.4%	6.2%	7.3%
Percentage of self-funding	11%	11%	12%	13%	20%
Percentage of self-funding all jobs formal	12%	12%	13%	14%	21%
Current tax incidence (new jobs)	11%	11%	11%	11%	16%
Current tax incidence (all formal)	12%	12%	12%	12%	17%
Tax incidence needed	105%	105%	96%	89%	80%
Closing gender gap over time					
Number of years to break even	97	97	101	104	140
Tax incidence for break-even in 35 years	68%	68%	71%	73%	98%
Exchange rate national currency/ USD	899	899	899	899	899
GDP per capita, national currency units	721,366	721,366	721,366	721,366	721,366
Construction costs (USD 220 per square meter)					
Cost per facility (national currency units)	98,940,424	98,940,424	98,940,424	98,940,424	98,940,424
Total per annum over 20 years (percentage of GDP)	1.0%	2.1%	2.6%	2.1%	2.1%
Employment in construction	10,662	21,324	26,875	21,324	21,324
Total employment	65,877	131,753	166,048	131,753	131,753
Percentage of women	44%	44%	44%	44%	44%

TABLE A.3D:
Senegal

Scenarios	1	2	3	4	5
Number of children 4 months-2 years covered	25%	50%	100%	50%	50%
Number of children 3-5 years covered	50%	100%	100%	100%	100%
Hours per week per child	45	45	45	45	45
Child/staff ratio	Statutory	Statutory	Statutory	Improved	Improved
Pay level	Current	Current	Current	Current	High
New jobs					
ECCE sector	166,001	331,995	497,885	422,599	422,599
ECCE as percentage of total employment	3.8%	7.1%	9.8%	8.6%	8.5%
Percentage of women	74%	74%	75%	75%	75%
Other sectors: non-farm	101,962	203,920	307,798	262,486	294,620
Percentage of women	47%	47%	47%	47%	47%
Other sectors: farm	73,133	146,263	220,771	188,270	211,319
Percentage of women	34%	34%	34%	34%	34%
Total jobs created	341,097	682,178	1,026,455	873,355	928,538
Percentage of women overall	57%	57%	58%	58%	57%
Percentage points employment rate change					
All	3.7	7.3	11.0	9.4	10.0
Men	3.3	6.6	9.9	8.4	9.1
Women	5.9	11.8	17.8	15.2	15.9
Percentage points gender employment gap change	-2.6	-5.2	-8.0	-6.8	-6.8
In percentage of current gender employment gap	-43%	-24%	-37%	-32%	-31%
Costings					
Gross annual cost (national currency units, millions)	502,693	1,005,363	1,427,910	1,162,515	1,322,025
Gross annual cost (USD, millions)	858	1,716	2,437	1,984	2,256
Percentage of GDP	3.6%	7.3%	10.3%	8.4%	9.6%
Cost per child					

Percentage of GDP per capita	54%	54%	58%	62%	71%
Direct tax revenue (national currency units, millions)	78,335	156,666	238,963	206,285	273,231
Indirect tax revenue (national currency units, millions)	58,091	116,178	176,356	151,007	185,434
Net funding gap (national currency units, millions)	362,246	728,497	1,008,570	801,201	859,338
Net funding gap (USD millions)	618	1,243	1,721	1,367	1,467
Percentage of GDP	2.6%	5.3%	7.3%	5.8%	6.2%
GDP rise	5.2%	10.4%	14.7%	12.0%	13.7%
Net funding gap (percentage of new GDP)	2.5%	4.8%	6.4%	5.2%	5.5%
Percentage of self-funding	28%	28%	29%	31%	35%
Percentage of self-funding all jobs formal	33%	32%	34%	36%	40%
Current tax incidence (new jobs)	32%	32%	32%	32%	34%
Current tax incidence (all formal)	37%	37%	37%	37%	39%
Tax incidence needed	116%	116%	109%	104%	99%
Closing gender gap over time					
Number of years to break even	46	46	50	53	61
Tax incidence for break-even in 35 years	41%	41%	45%	48%	54%
Exchange rate national currency/USD	586	586	586	586	586
GDP per capita, national currency units	847,813	847,813	847,813	847,813	847,813
Construction costs (USD 220 per square meter)					
Cost per facility (national currency units)	64,450,210	64,450,210	64,450,210	64,450,210	64,450,210
Total per annum over 20 years (percentage of GDP)	0.5%	1.0%	1.3%	1.0%	1.0%
Employment in construction	4,685	9,370	12,311	9,370	9,370
Total employment	22,411	44,821	58,889	44,821	44,821
Percentage of women	34%	34%	34%	34%	34%

TABLE A.3E:
Tanzania

Scenarios	1	2	3	4	5
Number of children 4 months-2 years covered	25%	50%	100%	50%	50%
Number of children 3-5 years covered	50%	100%	100%	100%	100%
Hours per week per child	45	45	45	45	45
Child/staff ratio	Statutory	Statutory	Statutory	Improved	Improved
Pay level	Current	Current	Current	Current	High
New jobs					
ECCE sector	609,091	1,218,183	1,829,674	1,550,973	1,550,973
ECCE as percentage of total employment	2.1%	3.8%	5.2%	4.6%	4.5%
Percentage of women	75%	75%	76%	76%	76%
Other sectors: non-farm	1,105,894	2,211,788	3,356,645	2,866,810	3,312,235
Percentage of women	21%	21%	21%	21%	21%
Other sectors: farm	838,493	1,676,985	2,545,020	2,173,626	2,511,348
Percentage of women	89%	89%	89%	89%	89%
Total jobs created	2,553,478	5,106,956	7,731,339	6,591,409	7,374,557
Percentage of women overall	56%	56%	56%	56%	56%
Percentage points employment rate change					
All	7.8	15.7	23.7	20.2	22.6
Men	6.9	13.9	21.0	17.9	20.3
Women	8.7	17.5	26.5	22.6	25.0
Percentage points gender employment gap change	-1.8	-3.6	-5.5	-4.7	-4.7
In percentage of current gender employment gap	-21%	-43%	-65%	-56%	-56%
Costings					
Gross annual cost (national currency units, millions)	7,456,629	14,913,257	21,541,162	17,727,861	19,983,576
Gross annual cost (USD, millions)	3,241	6,483	9,364	7,706	8,687
Percentage of GDP	5.1%	10.3%	14.8%	12.2%	13.7%
Cost per child					
Percentage of GDP per capita	72%	72%	79%	85%	96%

Direct tax revenue (national currency units, millions)	2,330,721	4,661,443	7,089,851	6,064,785	7,210,690
Indirect tax revenue (national currency units, millions)	613,944	1,227,889	1,866,633	1,596,180	1,884,245
Net funding gap (national currency units, millions)	4,215,444	8,727,407	12,288,159	9,770,377	10,592,122
Net funding gap (USD millions)	1,832	3,794	5,342	4,247	4,604
Percentage of GDP	2.9%	6.0%	8.5%	6.7%	7.3%
GDP rise	9.1%	18.1%	26.2%	21.5%	24.3%
Net funding gap (percentage of new GDP)	2.7%	5.1%	6.7%	5.5%	5.9%
Percentage of self-funding	43%	41%	43%	45%	47%
Percentage of self-funding all jobs formal	71%	69%	72%	75%	77%
Current tax incidence (new jobs)	21%	21%	21%	21%	21%
Current tax incidence (all formal)	35%	35%	35%	35%	36%
Tax incidence needed	53%	53%	51%	49%	47%
Closing gender gap over time					
Number of years to break even	52	52	57	62	70
Tax incidence for break-even in 35 years	64%	64%	70%	76%	86%
Exchange rate national currency/ USD	2300	2300	2300	2300	2300
GDP per capita, national currency units	2,581,149	2,581,149	2,581,149	2,581,149	2,581,149
Construction costs (USD 220 per square meter)					
Cost per facility (national currency units)	253,053,790	253,053,790	253,053,790	253,053,790	253,053,790
Total per annum over 20 years (percentage of GDP)	0.7%	1.4%	1.8%	1.4%	1.4%
Employment in construction	10,977	21,955	28,889	21,955	21,955
Total employment	205,834	411,668	541,691	411,668	411,668
Percentage of women	47%	47%	47%	47%	47%

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