

# Inequality of Opportunity in Asia and the Pacific

## Women's Sexual and Reproductive Health





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## **Women's Sexual and Reproductive Health**

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# Country abbreviations

AF	Afghanistan	MM	Myanmar
AM	Armenia	MN	Mongolia
BD	Bangladesh	NP	Nepal
BT	Bhutan	PK	Pakistan
ID	Indonesia	PH	Philippines
IN	India	TH	Thailand
KZ	Kazakhstan	TJ	Tajikistan
KG	Kyrgyzstan	TM	Turkmenistan
KH	Cambodia	TL	Timor-Leste
LA	Lao People’s Democratic Republic	VN	Viet Nam
MV	Maldives	VU	Vanuatu

# About the Inequality of Opportunity papers

The ESCAP *Inequality of Opportunity* papers place men and women at the heart of sustainable and inclusive development. They do so by identifying seven areas where inequality jeopardizes a person's access to basic life opportunities, namely: education; women's access to sexual and reproductive health; children's nutrition; decent work; water and sanitation; clean energy; and financial inclusion. Each of these opportunities is covered by specific commitments outlined in the 2030 Agenda for Sustainable Development and addressed in a separate thematic policy paper covering approximately 22 countries throughout Asia and the Pacific.<sup>i</sup>

ESCAP first discussed inequality of opportunity in its 2015 report *Time for Equality*, exploring the distinction between inequality of outcome and inequality of opportunity. While the former depicts the consequences of unequally distributed income and wealth, the latter is concerned with access to key services necessary to fulfil one's basic rights.<sup>ii</sup>

The papers build on the work of many scholars. They apply a novel approach to analysing household surveys with the aim of identifying the groups of individuals with the lowest access to opportunities. These groups are defined by common circumstances over which the individual has no direct control, such as wealth, gender and place of residence, amongst others.

In addition to identifying the furthest behind, the *Inequality of Opportunity* papers also explore the gaps in accessing key opportunities between population groups within countries, as well as the extent to which these gaps have narrowed or widened over time. These inequalities are then analysed to identify the role each key circumstance plays.

Ultimately, the findings aim to generate discussion on transformations needed to leave no one behind and reach the "furthest behind first" as pledged in the 2030 Agenda.

<sup>i</sup> All policy papers follow the same methodology using the latest publicly available DHS and MICS data, except for decent work, where slight modifications are due to the use of a different dataset.

<sup>ii</sup> *Time for Equality: The Role of Social Protection in Reducing Inequalities in Asia and the Pacific* (UNESCAP) (2015). Available at: [https://www.unescap.org/sites/default/files/SDD%20Time%20for%20Equality%20report\\_final.pdf](https://www.unescap.org/sites/default/files/SDD%20Time%20for%20Equality%20report_final.pdf)

# 1. Introduction and scope

**Access to sexual and reproductive health is first and foremost a fundamental human right.** Universal access to health care, including sexual and reproductive health, matters because a healthy population underpins all development efforts. Health is the thread linking nearly every development objective together, both as a precondition and an outcome of sustainable development policies.<sup>1</sup>

## 1.1 A universal human right

**Universal access to basic health care and the universal right to the highest attainable standard of health are enshrined in several international human rights instruments, including the Universal Declaration of Human Rights (article 25) and the International Covenant on Economic, Social and Cultural Rights (article 12).** The Convention on the Rights of the Child (article 24) and the Convention on the Elimination of all Forms of Discrimination against Women (article 1, 14, and 16) specifically recognize women's rights to access maternal pre- and post-natal care as well as family planning services.

Building on international human rights instruments, the 1994 International Conference on Population and Development (ICPD) Programme of Action emphasized the right of both men and women to access family planning methods of their choice, as well as the right of access to maternal health services for safe pregnancies and childbirths.<sup>2</sup> It was followed in 1995 by the Beijing Declaration and Platform of Action which reaffirmed women's right to the highest attainable standards of sexual and reproductive health and asked governments to remove all barriers hindering the fulfilment of this right.

Through Sustainable Development Goal (SDG) 3, all Member States have further pledged to ensure healthy lives and promote well-being for people at all ages. The Goal particularly emphasizes the need to drastically reduce maternal mortality (Target 3.1) and to ensure "universal access to sexual and reproductive health-care services"

(Target 3.7). SDG Target 5.6 also calls for universal access to sexual and reproductive health and reproductive rights, in line with the 1994 ICPD Programme of Action, the Beijing Platform for Action and their respective review conferences, as a precondition for achieving gender equality and empowering all women and girls.

Equity in access to health care is also embedded in SDG 1, whereby countries have committed to implementing "nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieving substantial coverage of the poor and the vulnerable" (Target 1.3). Universal health coverage is a core pillar of the Social Protection Floors framework as per ILO Recommendation 202 (2012).

## 1.2 How is the Asia-Pacific region faring?

**With less than 6 out of 10 people in the region having legal coverage, the region falls short with respect to universal health coverage.**<sup>3</sup> Bhutan and Thailand are often hailed as good examples in promoting universal access to primary health care, having extended health coverage to 90 per cent and 98 per cent of their respective populations.<sup>4</sup>

Developments have been more rapid in relation to women's access to sexual and reproductive health. Most countries in Asia and the Pacific have recorded progress, often outperforming global averages.<sup>5</sup>

Between 1995 and 2019, the share of 15–49-year old women, married or in union, using modern contraceptive methods increased from 78 to 81 per cent in Asia and the Pacific, higher than the global average of 78 per cent in 2019.<sup>6</sup> The share of births attended by skilled professionals also increased from 59 to 87 per cent during the same period, also higher than the global average of 79 per cent.<sup>7</sup>

These achievements are significant, particularly against a backdrop of persistent gender bias and discrimination in many Asia-Pacific countries,



which causes the specific needs of women and girls to be frequently overlooked in service design and implementation.<sup>8</sup>

Despite progress, 85,000 women in the region died while giving birth in 2015 and an estimated 132 million women had unmet needs for contraception.<sup>9</sup> A closer look at data indicates that progress has been uneven across countries and subregions, among income groups and along the rural-urban divide. For example, the maternal mortality ratio — an indicator closely linked to the share of births attended by skilled professionals in the 2030 Agenda — was more than four times higher in lower-middle and low-income Asia-Pacific countries in 2015 than in upper-middle income countries, and more than 10 times higher than in high-income Asia-Pacific countries.<sup>10</sup>

The divide in access to skilled birth attendance between richer and poorer segments of the population within countries also remains high. This inequality is evident across the region. Notable exceptions are countries in North and Central Asia, such as Armenia, Kazakhstan and Uzbekistan, where nearly all births are attended by skilled health personnel, irrespective of the wealth quintile the mother belongs to.<sup>11</sup>

Inequality in women's access to sexual and reproductive health services is determined by the availability of essential services and qualified staff, as well as the suitability of infrastructure. Demand for and uptake of services is also influenced by socio-cultural factors, including traditional values and health beliefs. The role and influence of the partner and family on health-seeking behaviours is particularly prominent, including in access to contraception and in cultural taboos related to open discussion about sex — or premarital sex. Gender bias and discrimination perpetuated by health-care providers themselves can also affect demand for services.<sup>12</sup>

### 1.3

## The scope of the paper

**Principles of social justice and international human rights instruments stipulate that differences in health outcomes should not depend on unavoidable life circumstances.**<sup>13</sup> Yet across developed and developing countries alike, health inequalities remain firmly linked to social stratifications.<sup>14</sup> This paper aims to explore how individual circumstances trap groups of women and shape inequality trends in Asia and the Pacific. It focuses on women left behind in access to sexual and reproductive health services, focusing on: 1) the proportion of births attended by skilled birth personnel, and 2) the proportion of women's demand for family planning satisfied through modern contraceptive methods. The analysis is aligned with indicators under SDG Targets 3.1 and 3.7. It uses household data from the Demographic and Health Survey (DHS) and the Multiple Indicator Cluster Survey (MICS) for 22 countries in Asia and the Pacific.<sup>iii</sup>

To measure access to skilled birth attendance, the analysis considers births during the past five years among women between 15 and 49 years of age. Skilled health personnel, as referred to by SDG indicator 3.1.2, are “competent maternal and new born health (MNH) professionals educated, trained and regulated to national and international standards”. They are competent to: (i) provide and promote evidence-based, human-rights-based, quality, socio-culturally sensitive and dignified care to women and new-borns; (ii) facilitate physiological processes during labour and delivery to ensure a clean and positive childbirth experience; and (iii) identify and manage or refer women and/or new-borns with complications.<sup>iv</sup>

To measure the proportion of women's demand for family planning satisfied through modern contraceptive methods, referred to in this report as use of modern contraceptive methods, the data refer to women between 15 and 49 years of age, currently in union, who wish either to

iii These surveys were preferred over other national surveys because they are comparable across countries and easy to access and analyse. In the use of modern contraceptive methods, the analysis does not include Vanuatu due to lack of data of this indicator, hence the total number of countries for this indicator is reduced to 21. The complete list of countries for which data were available is presented on Annex Table A1.

iv 2018 Joint Statement by WHO, UNFPA, UNICEF, ICM, ICN, FIGO, IPA on definition of skilled health personnel providing care during childbirth. Available at: <https://www.who.int/reproductivehealth/publications/statement-competent-mnh-professionals/en/>.

have no (additional) children or to postpone the next pregnancy and who are using a modern contraceptive method.<sup>v</sup> (Box 1 provides more information on the calculation of this indicator).

This paper does not explore the structural and institutional factors underpinning inequalities in women's access to sexual and reproductive health and does not analyse other health indicators beyond those above described. Instead, it focuses on new ways of exploring gaps in access to these health services shaped by the shared circumstances of groups of women in the selected

22 countries in the region, for which household survey data are available (Annex Table A1).

The study aims to: i) outline the key implications of inequality in women's access to basic sexual and reproductive health services across countries in Asia and the Pacific, specifically in relation to attainment of the relevant SDGs; ii) introduce an innovative methodology that identifies the shared circumstances of women "furthest behind" in accessing sexual and reproductive health services; and iii) analyse observed inequality by the relative contribution of each circumstance.

**BOX 1**

**Explaining indicator 3.7.1: Women's need for family planning satisfied with modern methods**

According to SDG indicator 3.7.1, the proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods are those "who desire either to have no (additional) children or to postpone the next child and who are currently using a modern contraceptive method."

The methodology calculates "the percentage of women of sexual and reproductive age (15–49 years old) who are currently using, or whose sexual partner is currently using, at least one modern contraceptive method, as a share of the total demand for family planning (including the sum of contraceptive prevalence (any method) and the unmet need for family planning)." The unmet need for family planning refers to those women who do not want to become pregnant but are not using contraception. Estimates are with respect to women who are married or in a union.<sup>15</sup> The proportion of demand satisfied by modern methods is obtained through the formula below:

$$\text{Demand satisfied by modern methods} = \frac{\text{Number of women who are currently using a modern method of contraception}}{\text{Number of women using any method of contraception (modern and traditional) and those who have unmet need for family planning}}$$

Modern methods of contraception include female and male sterilization, male and female condoms, intra-uterine device (IUD), oral contraceptive pills, implants, injectables, vaginal barrier methods, lactational amenorrhea method (LAM), emergency contraception and other modern methods not reported separately. By contrast, traditional methods of contraception include withdrawal, rhythm (e.g., fertility awareness-based methods, periodic abstinence) and other traditional methods not reported separately.

Source: SDG Indicators. Metadata Repository. Available at: <https://unstats.un.org/sdgs/metadata/>  
The Demographic Health Surveys (DHS) Programme. "Unmet need for family planning". Available at: <https://dhsprogram.com/topics/unmet-need.cfm>

<sup>v</sup> Since 2019, the global monitoring of SDG 3.7.1 has been extended to cover all women of sexual and reproductive age (not only those married or in union). Available at: [https://www.un.org/en/development/desa/population/publications/pdf/popfacts/PopFacts\\_2019-3.pdf](https://www.un.org/en/development/desa/population/publications/pdf/popfacts/PopFacts_2019-3.pdf)

## 2. Why does inequality in women's access to sexual and reproductive health services matter?

**Inequality in access to sexual and reproductive health services, including to relevant information, translates in inequality in income, education, employment and overall wellbeing and social and economic empowerment for women and girls.** Inequality in sexual and reproductive health services is also closely intertwined with gender inequality. In 2017, almost 1 in 3 women aged 15 to 49 years, who were married or in union, could not make autonomous decisions regarding contraceptive use, sexual relations and access to reproductive health services.<sup>16</sup>

These impacts are likely to have a ripple effect on entire communities and countries, as well as extend to the next generation. Equality in sexual and reproductive health, on the other hand, can unleash positive effects in human capital accumulation and consequently, economic development and poverty reduction, in addition to promoting gender equality.

### 2.1 Impacts on women's wellbeing

**Ensuring universal access to sexual and reproductive health information and services equalizes women's opportunities for long-term health and wellbeing.** Ensuring all births are attended by skilled professionals may be a matter of life or death: countries with lower rates of skilled birth attendance report higher maternal mortality rates.<sup>17</sup>

While skilled birth attendance is crucial to ensuring safe deliveries, use of modern contraceptive methods remains the first step towards positive sexual and reproductive health outcomes for all women. Unintended pregnancies, often due to lack of access to contraceptives or correct information on their use, also present significant risks, including disability and even death, caused by obstetric fistula during childbirth or unsafe

abortions. About 4.6 million women in the region are treated for abortion complications each year.<sup>18</sup>

Addressing 90 per cent of the global unmet need for contraception would reduce unintended pregnancies and consequently reduce births by almost 28 million, thus averting 67,000 maternal deaths, 440,000 neonatal deaths and 564,000 stillbirths.<sup>19</sup> The largest absolute number of women with an unmet need for modern contraception — about 70 million — live in South Asia.<sup>20</sup> These official statistics further underestimate the real needs, as available data only reflect unmet need among women married or in union.

The risks associated with unintended pregnancies and unsafe abortions are especially prevalent amongst young women and adolescent girls.<sup>21</sup> Young women also tend to be more vulnerable to sexual abuse and exploitation than adult women. As a result, they are also highly exposed to the consequences of high-risk sexual behaviours — which include the risk of contracting and transmitting STDs, including HIV. Traditional views regarding adolescent sexual behaviour and stigma surrounding premarital sex contribute to resistance by health providers in delivering information and services to young people, which limits their options to protect themselves from unsafe sex and its consequences.<sup>22</sup>

Married adolescent girls have the highest unmet need for contraception.<sup>23</sup> Across the region, 43 per cent of all adolescent pregnancies are unintended — and most of them occur among married adolescent girls.<sup>24</sup> Early and child marriage remains a key determinant of adolescent pregnancies in the region.<sup>25</sup> The basic reproductive rights of adolescent girls are blatantly violated when they get married, as they have limited agency to access and use contraception and to resist their partner's and family pressure to

prove their fertility.<sup>26</sup> Ending child marriage would significantly reduce early childbirths. Over a 15-year period, that would contribute to the survival of about 2.1 million children past the age of 5 and the elimination of stunting among 3.6 million children globally.<sup>27</sup>

## 2.2

### Impacts on women's achievements in education and employment

**Inequality in the use of modern contraception contributes to inequality in women's education outcomes, with effects extending to their earning potential.** Early and unintended pregnancies can force affected adolescents to drop out of school. Increased medical needs, the double burden of studying and child rearing, as well as widespread punitive education policies implemented by schools pose barriers to young women wishing to complete their education. The exclusion from education negatively affects these girls' physical, emotional and intellectual development. Lower acquisition of knowledge, in turn, reduces their chances of accessing better paid employment opportunities. Conversely, completion of secondary school can be a major deterrent of early and unintended pregnancies.<sup>28</sup>

Women's earning potential is also impacted by higher fertility rates and tightly spaced births, contributing to intergenerational inequality. Each birth has been estimated to reduce a woman's lifetime labour supply by approximately two years.<sup>29</sup> Conversely, having fewer children enables women to remain in the labour force, thus increasing household incomes and boosting productivity.<sup>30</sup>

An array of factors leads to changes in female labour force participation and women's earning power. Among them, the effect of reduced fertility is an essential enabler for economic empowerment of women, in the region as well as globally.<sup>31</sup>

Studies on family planning and reproductive health intervention have demonstrated their effectiveness not only in reducing fertility, but also in improving women's health, earnings and participation in paid employment. In Bangladesh,

women in villages that participated in an outreach programme reported 40 per cent higher earnings than those in the control villages.<sup>32</sup> They also had higher productivity and over 25 per cent more physical assets in their households than those in the control areas. In Malaysia, early adoption of family planning programmes and policies are credited for having created incentives to invest in girls' education and for the improvement in women's labour income. As women started contributing more to the household income, they also gained higher bargaining power within the household.<sup>33</sup>

Informed decision-making regarding the number, timing and spacing of births also improves the health outcomes of children, which in turn has exponential economic and social development effects, contributing to breaking the inter-generational transmission of poverty and inequality.<sup>34</sup>

## 2.3

### Intergenerational impacts through better outcomes for children

**A higher number of births, particularly if tightly spaced, negatively impacts children's health and wellbeing.** Narrow birth spacing results in worse health outcomes among children, the higher a child's birth order. Children with more siblings under the age of 5 have a higher likelihood of being stunted in several Asia-Pacific countries, including in India, Kazakhstan, Kyrgyzstan, Maldives, Mongolia, Nepal and Turkmenistan.<sup>35</sup> Lower education levels among mothers who dropped out of school because of early pregnancies aggravates the plight of these children, increasing their levels of stunting and wasting.

The intergenerational impacts of poor health in childhood are well documented. The first 1,000 days of a child's life are crucial, particularly from a nutritional perspective. When children under 2 years of age are stunted, the impact is largely irreversible and lasts a lifetime, with blunted educational outcomes and loss to future productivity and income.<sup>36</sup>

Having fewer children also enables women to enter and remain in the labour force, thus increasing household incomes.<sup>37</sup> With much of this additional income invested in their children, the benefits are vast. Children not only have more and better access to education and resources; they also enjoy more quality time with parents. On the other hand, early and unintended pregnancies are often closely linked to child abandonment, neglect and abuse. Young adolescent mothers who have themselves suffered physical abuse are at high risk of committing child abuse in the early years of their child's life.<sup>38</sup> Response interventions, which entail home visits by trained social workers, come at a high cost for any public health care system, developed or developing.

## 2.4

### Impacts on poverty reduction and economic development

**Inequality in access to health-care services has negative effects on economic development and hinders poverty reduction efforts.** In the absence of universal health coverage, many people pay out-of-pocket to cover basic health care needs. The obligation to save for unplanned future health expenditures reduces household consumption, which in turn lowers aggregate demand and, hence, economic growth.<sup>39</sup> Most of the Asia-Pacific region has higher out-of-pocket expenditures for health care than the world's average (Figure 1). Out-of-pocket health expenditures are also usually higher for women, because of their specific needs for sexual and reproductive health services and longer life expectancy than men.

Not every household can afford these out-of-pocket health expenses. Inability to pay for health care before, during and after childbirth leads to higher mortality and morbidity for mothers and for children, both in the short- and long-term. It also results in lower productivity and eventually, higher risk of falling into poverty.<sup>40</sup> The problem is highest in South Asia, where more than half of total health expenditure is paid out-of-pocket

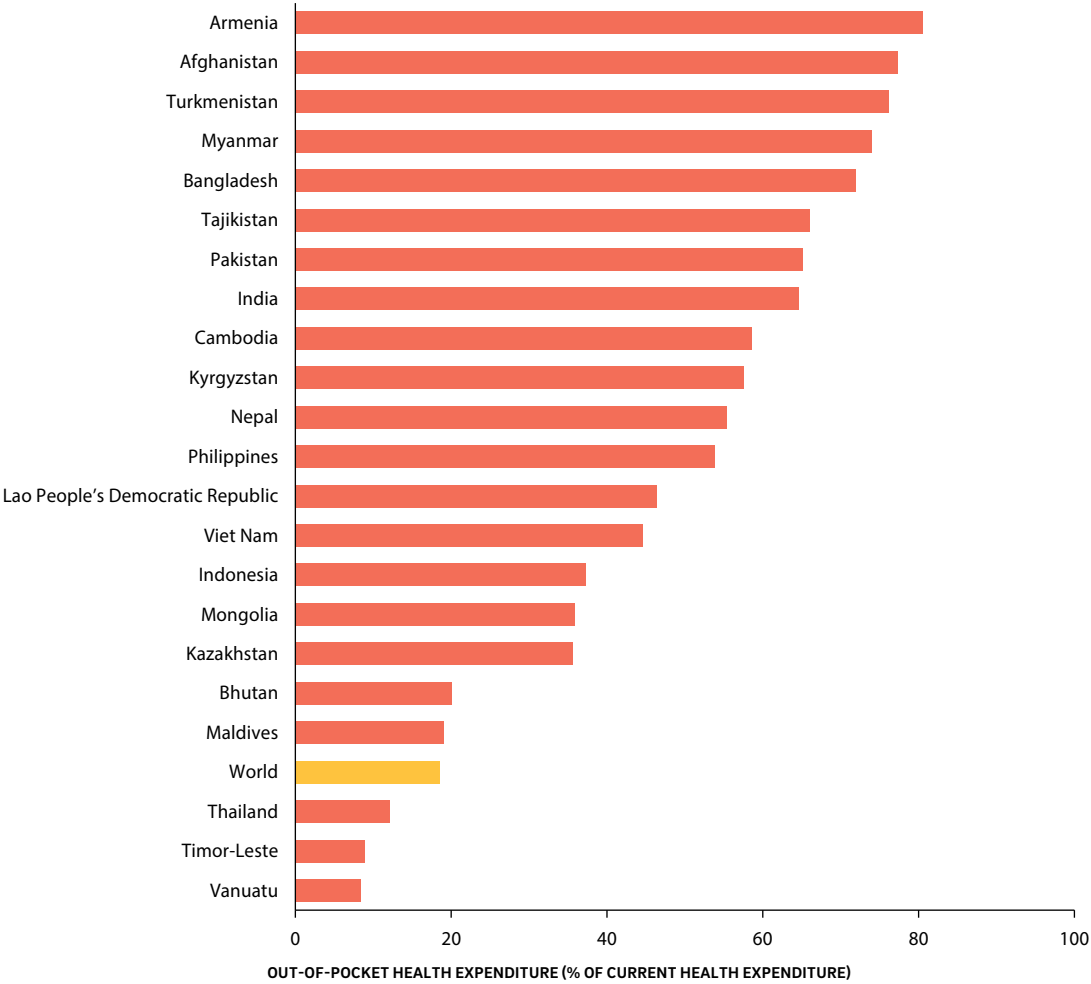
by individuals. In the Indian state Gujarat, for example, 88 per cent of households who fell into poverty attributed their status to health-care costs.<sup>41</sup>

Countries that successfully lower out-of-pocket spending for health care, can reap significant economic benefits. Provision of universal health coverage, encompassing sexual and reproductive health, inclusive of maternal care, has the potential to reduce catastrophic costs for households. In Thailand, following the introduction of universal health coverage (UHC), the incidence of non-poor households falling below the poverty line because of health care costs fell from 2.7 per cent in 2000 to 0.5 per cent in 2010.<sup>42</sup>

*“Investing in women's and girls' sexual and reproductive health alone can translate into substantial gains for entire economies”*

Investing in women's and girls' sexual and reproductive health alone can translate into substantial gains for entire economies. Universal interventions on sexual and reproductive, maternal, new-born and child health care in low-income and middle-income countries are estimated to produce economic, social and health benefits up to 8.7 times their cost.<sup>43</sup> As an example, it has been estimated that between 2000 and 2011, at least a quarter of income growth in low- and middle-income countries was generated from improved women's, children's and adolescents' health outcomes.<sup>44</sup> Because of its political significance, equality in women's access to health care has come to signal good governance as it requires participation but also transparency, representation, accountability and adequate resource mobilization.<sup>45</sup>

**FIGURE 1**  
Out-of-pocket health expenditure as a share of current health expenditure, 2016



Source: World Development Indicators, Health Nutrition and Population Statistics.  
Available at: <https://databank.worldbank.org/data/source/health-nutrition-and-population-statistics> (accessed on 10 October 2019).

### 3. A new approach to identifying the furthest behind

**The 2030 Agenda calls on Member States to produce high-quality, timely, reliable and disaggregated data to ensure that no one is being left behind (SDG 17.8).** Governments and other stakeholders need to move beyond measurement of average progress in women's access to sexual and reproductive health services, towards more disaggregated analysis that sheds light on the gaps in access between different groups. An innovative methodological approach, the classification tree analysis, is used in this study precisely to help policymakers respond to the call of the 2030 Agenda for leaving no one behind.

To explore gaps between population groups and identify who is being left behind in access to skilled birth attendance and use of modern contraception, this study uses data from available Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) for 22 countries in Asia and the Pacific.

The classification tree approach is used to determine the circumstances that shape the groups of women most likely to be left behind.<sup>vi</sup> Through this approach, an algorithm splits the sample into groups with significantly different access rates, based on the following circumstances: household wealth (bottom 40 and top 60 per cent of the wealth distribution); residence (urban and rural); level of educational attainment of the woman respondent (no education, primary, secondary or higher education); age group (15–24, 25–34, and 35–49 years old); and number of children under 5 years of age. Moreover, when considering access to skilled birth attendance, women's marital status (single, currently in union, and formerly in union) is used as an additional circumstance.

The identified groups consist of women sharing common circumstances, e.g. all women belonging to the bottom 40 of the wealth distribution and residing in rural areas. To illustrate how different circumstances interact to produce a disadvantage (or advantage) in access to skilled birth attendance and use of modern contraception, the examples from Lao People's Democratic Republic (Figure 2) and India (Figure 3) are used below.

The classification tree for Lao People's Democratic Republic indicates that average access to skilled birth attendance amongst all women is 64 per cent (Figure 2). These results are in line with the 2017 MICS "Lao Social Indicator Survey II". The first level of significant split comes from wealth: women in households belonging to the bottom 40 per cent of the wealth distribution have an access rate of 41 per cent, compared to 85 per cent among women in households belonging to the top 60 of the wealth distribution.<sup>vii</sup> The second split within both the poorer (bottom 40) and richer (top 60) groups relates to the place of residence: women in rural households are worse off when compared to their urban counterparts. The third split comes from the highest level of educational attainment among women in rural areas belonging to the top 60 per cent of the wealth distribution, while the number of children under 5 years of age matters most for women in urban households at the bottom 40 of the wealth distribution.

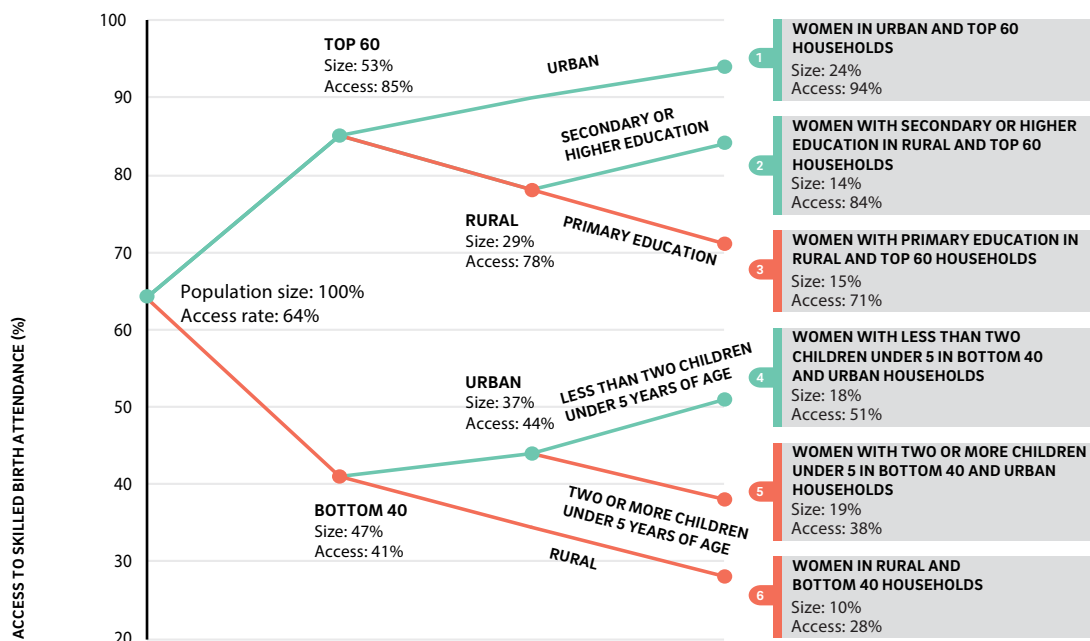
The tree shows that the most advantaged group consists of women living in urban areas and belonging to the top 60 per cent households. This group has an access rate of 94 per cent, while the furthest behind group — women in rural areas and belonging to the bottom 40 households — has only 28 per cent access to skilled birth attendance.

vi A detailed illustration of the classification tree approach is included in the methodological annex.

vii Poorer households are defined as households coming from the two lowest quintiles of the wealth distribution, hence "bottom 40" (see Annex for the bottom 40 – top 60 wealth split).

**FIGURE 2**

Classification tree of women's access to skilled birth attendance in Lao People's Democratic Republic, 2017 (15–49 years of age)



Source: ESCAP calculations, using MICS for Lao People's Democratic Republic, 2017.

The example of India is used to illustrate the same methodology applied to the use of modern contraceptive methods (Figure 3). With an overall average of 73 per cent, the first split is based on the number of children under the age of 5. The use rate falls to 52 per cent for women with young children, while women without young children have a use rate of 85 per cent. The second split amongst women without young children relates to their own age: those above the age of 35 have an 88 per cent use rate, while the use rate among those aged 15 to 34 falls to 79 per cent. Within the group of women above 35 years old, a third significant split relates to the highest level of educational attainment: women with secondary or higher education have a use rate of 85 per cent, contrary to the most advantaged group, women with at most primary education, who have a use rate of 90 per cent.

Among women with children under the age of 5, a second split is made between women in households belonging to the top 60 per cent of

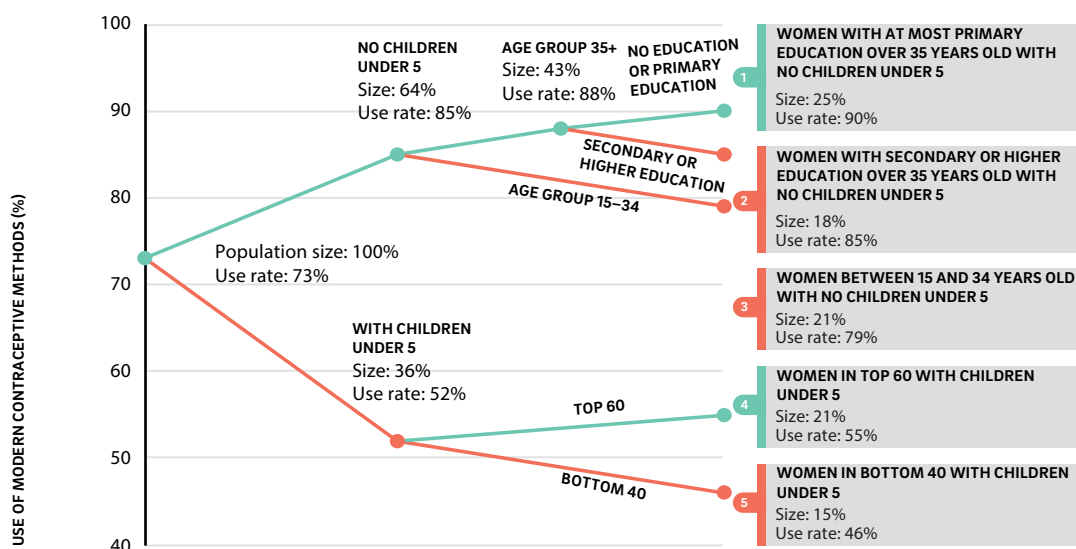
the wealth distribution and women in households belonging to the bottom 40 of the wealth distribution. Only 46 per cent of women in the furthest behind group, i.e. poorer women with children under 5, use modern contraception. There is no further split in this group as there is no other factor significant enough to produce subgroups with different access level.

“Governments and other stakeholders need to move beyond measurement of average progress in women's access to sexual and reproductive health services...”



**FIGURE 3**

**Classification tree of women's use of modern contraception in India, 2016  
(15–49 years of age)**



Source: ESCAP calculations, using DHS India, 2016.

The same classification tree analysis was produced for 22 countries for skilled birth attendance and 21 countries for women's use of modern contraception. This exercise is then repeated for two points in time and produces a total number of over 80 classification trees. These trees are used as the basis for the various types of data analysis presented in the following sections of this study.<sup>viii</sup> As they present a snapshot of the situation in each country at a specific point in time, it should be

acknowledged that the trees may hide in them stories of progress but also of remaining gaps. These more nuanced stories need to be explored further by policymakers and researchers working at the national level on sexual and reproductive health. Potentially, national datasets could be used to improve the analysis. The following section presents key findings from the most recent publicly available DHS and MICS surveys at the time of writing.

<sup>viii</sup> Classification trees for all countries are available upon request.

## 4. Who are the furthest behind?

Data indicate that as of 2017, 87 per cent of births in the Asia-Pacific region were attended by skilled health personnel.<sup>46</sup> However, regional averages conceal great disparities both across and within countries. In Afghanistan, for example, an average of 51 per cent of births were attended by skilled health personnel. In Viet Nam, the corresponding access rate stood at 94 per cent.<sup>47</sup> This reality contrasts with the principle of leaving no one behind permeating the 2030 Agenda. By excluding a large proportion of women from key opportunities, such as access to sexual and reproductive health, the region's potential of long-term prosperity is under threat.

### 4.1 How large are the gaps?

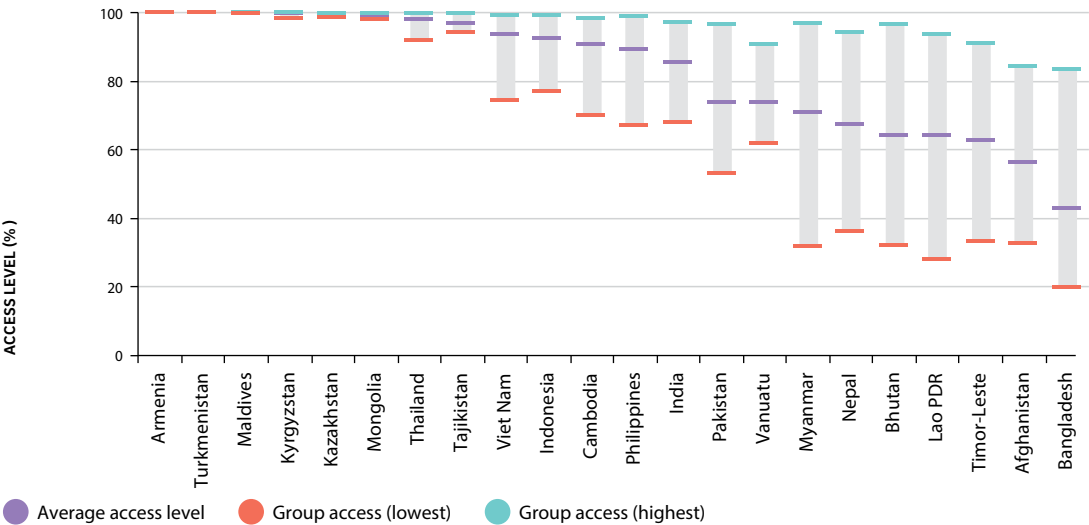
The tree analysis described in section 3 allows for comparison of gaps within and across countries. The results for the two indicators are summarized in Figure 4 and Figure 6. The upper line of each bar represents the access rate of the most advantaged group (those with highest access) for each country. The bottom side represent the access rate of the furthest behind group (those with lowest access).

The actual composition of the furthest behind group is discussed later in this section and shown in Tables 1 and 2. The middle line across each bar is the average access by which countries are sorted in the figures.

With respect to skilled birth attendance, most North and Central Asian countries, as well as Maldives, record the highest access rates, close to 100 per cent (Figure 4). On the other hand, access gaps between groups are the widest in Bangladesh, Bhutan, Lao People's Democratic Republic and Myanmar.

The relationship between average access and the access gap is captured by a binomial equation (Figure 5). An inverted U-shaped pattern is expected: when countries have lower or higher access, there is less inequality as most people either have access or not. On the other hand, inequality is likely to be high when roughly half of the population has access to a basic service or opportunity. This pattern is indeed observed, although Bhutan, Lao People's Democratic Republic and Myanmar stand out as "negative outliers," having a higher access gap than

**FIGURE 4**  
Gaps in access to skilled birth attendance for women aged 15–49, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.

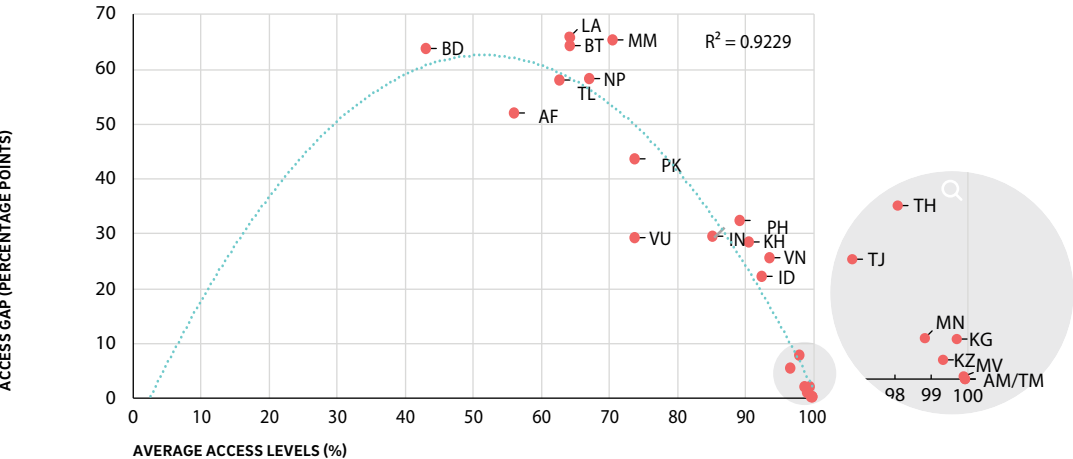
4. WHO ARE THE FURTHEST BEHIND?

their average rate would predict. In contrast, Afghanistan, Pakistan and Vanuatu have smaller gaps than expected.

Overall, average use of modern contraception is lower than access to skilled birth attendance. Thailand, at 92 per cent, has the highest average use of modern contraception amongst all

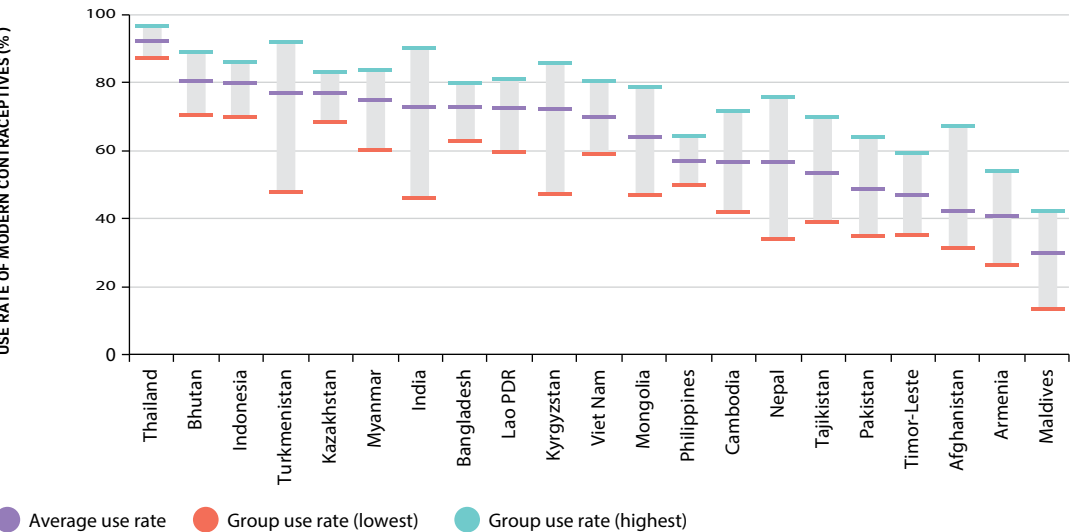
countries analysed (Figure 6). The gaps between the furthest behind and the furthest ahead are widest in Afghanistan, India, Kyrgyzstan, Nepal and Turkmenistan, at more than 35 percentage points. Thailand and Bhutan, the countries with the highest and second highest average use respectively, have gaps below 20 percentage points.

**FIGURE 5**  
Average access and access to skilled birth attendance, latest year



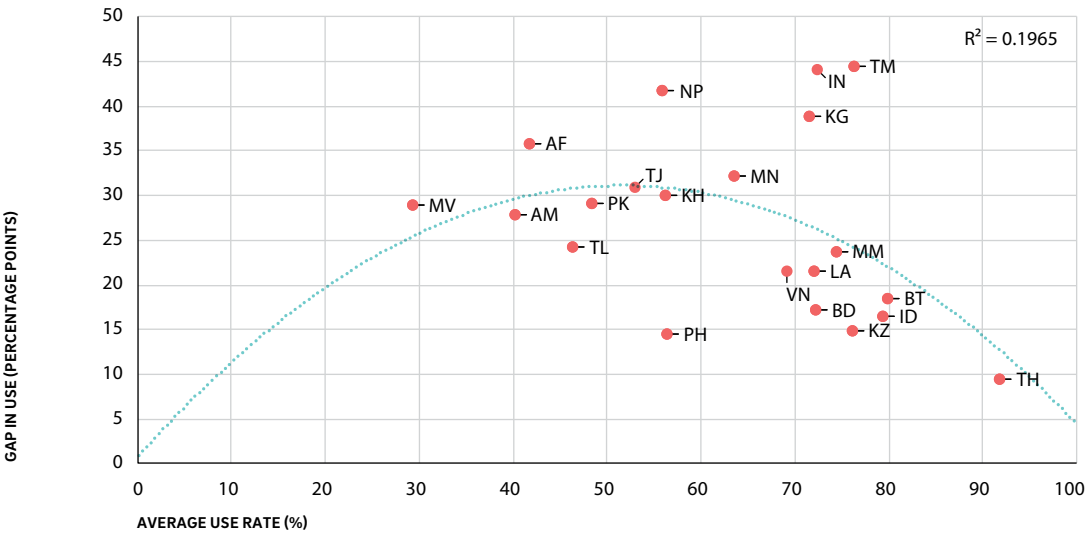
Source: ESCAP calculations based on latest DHS and MICS surveys.

**FIGURE 6**  
Gaps in use of modern contraceptive methods for women in union aged 15–49, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.

**FIGURE 7**  
Average use of modern contraception and use gaps, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.

It is important to point out that, while use of modern contraception is a key indicator to measure women’s access to sexual and reproductive health services, it does not capture the total proportion of women’s demand for family planning satisfied by any other method. For instance, in Figure 6, Armenia appears to have a lower use of modern contraceptive methods than Afghanistan. However, DHS 2015 data indicate that total demand satisfied by any method in Armenia was 82 per cent.<sup>48</sup> The share of demand met by any contraceptive method in Afghanistan was only 48 per cent.<sup>49</sup>

The relationship between gaps and average use of modern contraception reveals that India, Kyrgyzstan, Nepal, and Turkmenistan are “negative outliers”, with higher gaps than would have been predicted by their average access levels (Figure 7). DHS data analysis on unmet need for modern contraception both globally and in the region indicate an array of reasons why women respondents do not use modern methods, including health concerns, reliance on traditional methods, lack of exposure to pregnancy-related health risks and opposition by the partner to the use of modern contraception, besides religious reasons.

**4.2**  
Identifying the furthest behind groups

**To address the root causes of inequality in access to skilled birth attendance and the use of modern contraception it is essential to identify those who are most excluded.** This section narrows the focus on the furthest behind groups in each country and identifies the circumstances they share. Although these circumstances might not be the same across all countries analysed, several commonalities are found.

Tables 1 and 2 list the circumstances of groups with the lowest access rates, as well as the size of the population they represent and the gap between the groups with the highest and lowest access.<sup>ix</sup> Belonging to a poorer household and having lower education are the most important circumstances for access to skilled birth attendance (Table 1). Having children under the age of 5 is also a recurrent characteristic amongst the furthest behind women in Afghanistan, Bhutan, India and Vanuatu, while rural residence is an important factor in Lao People’s Democratic Republic.

ix These tables do not show the composition of the most privileged group (with the access rate) but this information will be made available shortly on ESCAP website.

**TABLE 1****The importance of various circumstances on skilled birth attendance, latest year**

WHO ARE THE FURTHEST BEHIND GROUPS IN TERMS OF ...									
...ACCESS TO SKILLED BIRTH ATTENDANCE									
COUNTRY/ CIRCUMSTANCES	WEALTH	EDUCATION	RESIDENCE	AGE GROUP	NUMBER OF CHILDREN UNDER 5	MARITAL STATUS	ACCESS LEVEL OF THE FURTHEST BEHIND GROUP	SIZE OF THE FURTHEST BEHIND GROUP	ACCESS GAP FROM MOST ADVANTAGE GROUP (pp)
Afghanistan	B40			25+ years old	1		33%	13%	52 pp
Bangladesh	B40	No education or primary					20%	27%	64 pp
Bhutan	B40				2–4		32%	16%	64 pp
Cambodia	B40	No education					70%	10%	28 pp
India	B40	No education or primary			1		68%	17%	29 pp
Indonesia	B40	No education or primary					77%	18%	22 pp
Lao PDR	B40		Rural				28%	10%	66 pp
Myanmar	B40	No education					32%	13%	65 pp
Nepal	B40	No education					36%	15%	58 pp
Pakistan	B40			25+ years old			53%	28%	43 pp
Philippines		No education or primary					67%	17%	32 pp
Timor-Leste	B40	No education or primary					33%	26%	58 pp
Vanuatu	B40				2–3		62%	23%	29 pp
Viet Nam		No education or primary					74%	17%	25 pp

Source: ESCAP estimations based on latest DHS and MICS surveys.

Note: Armenia, Kazakhstan, Kyrgyzstan, Maldives, Mongolia, Tajikistan, Thailand, and Turkmenistan are not shown given the furthest behind group have an access over 90 per cent.

Note 2: B40 refers to households belonging to the bottom 40 of the wealth distribution, while T60 refers to those at the top 60.

Note 3: “pp” stands for percentage points.

Regarding the use of modern contraceptive methods, women aged 15 to 24 have the lowest levels in almost all countries (Table 2). This might result from policies and societal stigma which restrict access to contraception to young people and unmarried couples.<sup>50</sup> The importance between women's education for the use of modern contraception is mixed. While in Myanmar and Pakistan, women with the lowest access are those with lower levels of education, in others, including Indonesia and Mongolia, women with higher levels of education are the ones with lower access. As noted by UNFPA, this discrepancy might be due to health policies and programmes in developing countries having historically focused on the poorest and most vulnerable women — often those with lower levels of education — enhancing their use of modern contraception, rather than that of richer and more educated women who may still use traditional methods.<sup>51</sup>

### 4.3

#### Are gaps in women's access to sexual and reproductive health falling over time?

**Socioeconomic circumstances, such as wealth and education, continue to restrict access to skilled birth attendance and the use of modern contraceptive methods for women in most countries in the region.** If socioeconomic progress in the Asia-Pacific region has boosted health outcomes more generally, has it also contributed to closing the gaps? This section reviews progress over time. It tests if average access to the two relevant services has increased over time and whether the distance between the furthest behind groups and the average has fallen.<sup>x</sup>

For skilled birth attendance, the expectations hold true for countries in North and Central Asia,

x It is important to note that the furthest behind group, which has the lowest access, always represents at least 10 per cent of the sample population since this is a requirement set in the classification tree analysis (see Annex).

#### 4. WHO ARE THE FURTHEST BEHIND?

**TABLE 2**

The importance of various circumstances on use of modern contraceptives, latest year

WHO ARE THE FURTHEST BEHIND GROUPS IN TERMS OF ...								
...ACCESS TO MODERN CONTRACEPTION								
COUNTRY/ CIRCUMSTANCES	WEALTH	EDUCATION	RESIDENCE	AGE GROUP	NUMBER OF CHILDREN UNDER 5	ACCESS LEVEL OF THE FURTHEST BEHIND GROUP	SIZE OF THE FURTHEST BEHIND GROUP	ACCESS GAP FROM MOST ADVANTAGE GROUP (pp)
Afghanistan	B40		Rural		2–4	31%	17%	36 pp
Armenia		No education, primary or secondary	Rural	35+ years old		26%	14%	28 pp
Bangladesh		Secondary education		15–24 or 35+ years old	No children	63%	9%	17 pp
Bhutan				15–24 years old		70%	17%	18 pp
Cambodia			Urban	15–24 or 35+ years old		42%	9%	30 pp
India	B40				1–6	46%	15%	44 pp
Indonesia		Higher education				70%	11%	16 pp
Kazakhstan				15–24 years old		68%	11%	15 pp
Kyrgyzstan				15–24 years old		47%	14%	39 pp
Lao PDR		No education, secondary or higher education		15–24 years old		59%	6%	21 pp
Maldives		Secondary education		15–24 years old		13%	10%	29 pp
Mongolia		Higher education	Urban		No children	47%	15%	32 pp
Myanmar		No education				60%	14%	24 pp
Nepal				15–24 years old		34%	20%	42 pp
Pakistan		No education			1–3	35%	22%	29 pp
Philippines		No education or higher	Urban			50%	17%	14 pp
Tajikistan				15–24 or 35+ years old	1–3	39%	20%	31 pp
Thailand				15–24 years old		87%	9%	9 pp
Timor-Leste				35+ years old	1–3	35%	13%	24 pp
Turkmenistan				15–24 years old		48%	10%	44 pp
Viet Nam				15–24 years old		59%	5%	21 pp

Source: ESCAP estimations based on latest DHS and MICS surveys.

Note: B40 refers to households belonging to the bottom 40 of the wealth distribution, while T60 refers to those at the top 60.

Note 2: “pp” stands for percentage points.

#### 4. WHO ARE THE FURTHEST BEHIND?

as well as in India, Indonesia, Maldives, Pakistan, the Philippines and Viet Nam. Outstanding progress in average access has been registered in Cambodia, although the distance of furthest behind group from the mean slightly increased between 2000 and 2014 (Figure 8). On the other hand, in Afghanistan, Bangladesh, Lao People's Democratic Republic, Thailand and Timor-Leste, the gap between the furthest behind groups and the average increased in the period considered.

With regards to the use of modern contraception, there has been moderate progress across the region, although the average use rate has remained low, at 50 per cent in most countries. In Bangladesh, Cambodia, India, Kyrgyzstan, Lao People's Democratic Republic, Philippines, Tajikistan, Thailand and Timor-Leste, the access rate of the furthest behind improved

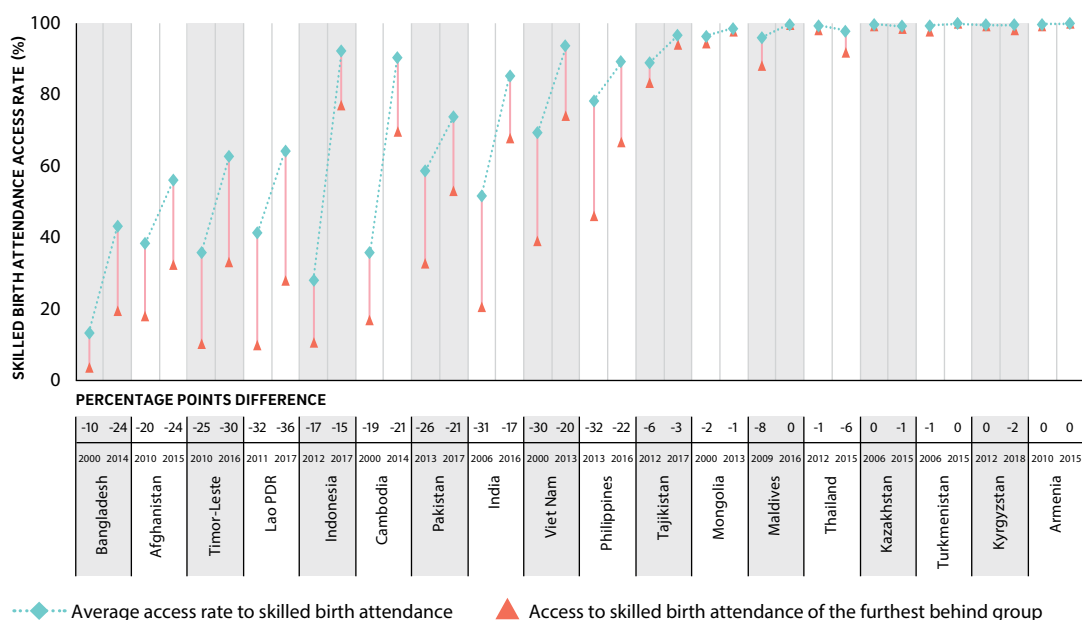
(Figure 9). Meanwhile, in Maldives, both the average use rate and that of the furthest behind groups decreased over time.

It is important to note that progress across countries is not always fully comparable because the time lag between two surveys may span from 3 years (in Philippines and Thailand) to 14 years (in Bangladesh and Cambodia). The findings should therefore be viewed in this light. Furthermore, the composition of the furthest behind groups may vary between the two surveys.<sup>xi</sup>

Average progress is identifiable across most countries, more significantly in access to skilled birth attendance than in use of modern contraception. However, the furthest behind women identified in the data analysis have largely remained excluded from both.

**FIGURE 8**

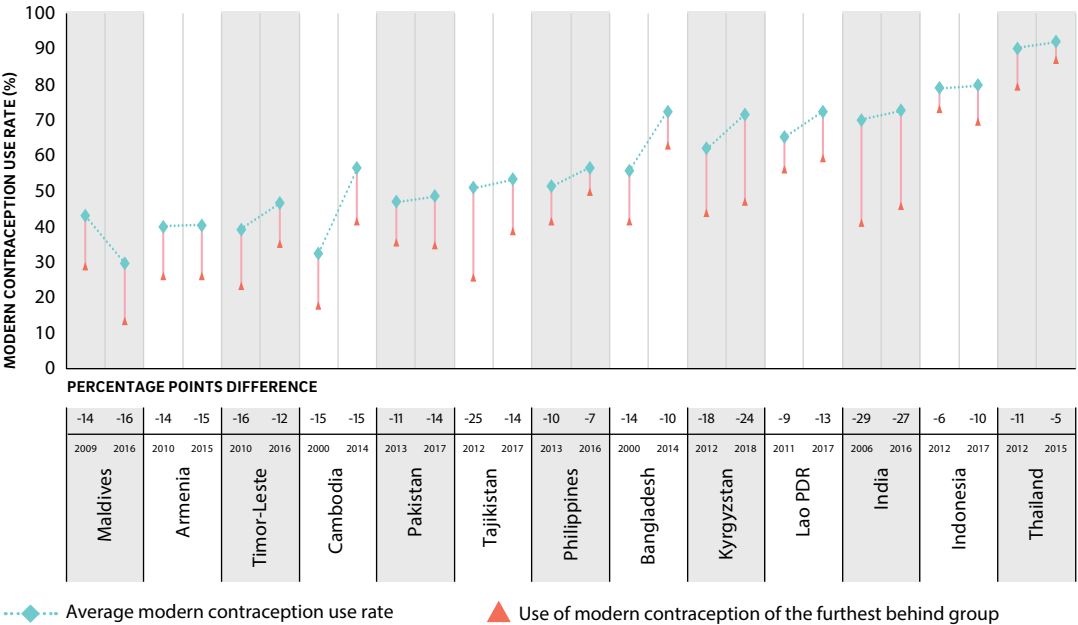
Gaps between the furthest behind groups and the average in access to skilled birth attendance in the Asia-Pacific region, earliest and latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.

xi A full list of the classification trees that reveals the composition of all groups is available upon request and will be posted on the ESCAP website soon.

**FIGURE 9**  
Gaps between the furthest behind groups and the average in use of modern contraceptives in the Asia-Pacific region, earliest and latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.



## 5. Understanding inequality in women's access to sexual and reproductive health services

**Understanding inequality in accessing sexual and reproductive health services, as experienced by women, is important for better directing policies and programmes.** This section measures overall inequality in skilled birth attendance and use of modern contraception, with the aim of revealing if certain groups are more systematically excluded from access. By decomposing the obtained inequality, it is also possible to capture the size and impact of each circumstance.

### 5.1

#### Measuring overall inequality

**The first step to measure overall inequality in access to a specific service or opportunity is to identify all possible population groups and their respective access levels.** The dissimilarity index (D-index) is then determined by the weighted distance in access for each of these groups from the average level (see Box 2). The calculated D-index represents the overall inequality in each indicator used to measure access to sexual and reproductive health services.

### 5.2

#### Where is overall inequality highest?

**Overall inequality in access to skilled birth attendance tends to be the highest in countries with the lowest average access rate.** Women in Afghanistan, Bangladesh, Bhutan, Lao People's Democratic Republic and Timor-Leste, have the highest inequality in access to skilled birth attendance, while high access come alongside low inequality as proved by the countries pooled in the lower right quadrant of Figure 10.

Considering use of modern contraception, women in Afghanistan, Armenia, Maldives and Nepal, Pakistan, Tajikistan, and Timor-Leste, face the highest inequality and lowest average access (upper left quadrant, Figure 11). On the contrary, countries such as Bhutan, Indonesia, and Thailand show the highest average access with lowest D-indices.

### BOX 2

#### Calculating the Dissimilarity Index

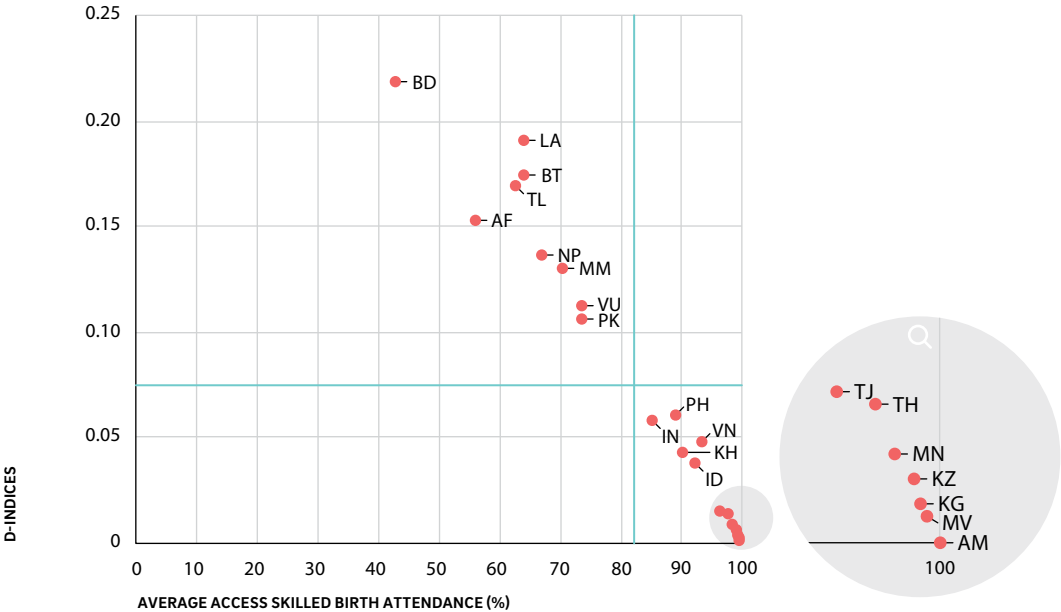
The dissimilarity index, or D-index, measures how different groups of women with shared circumstances fare in terms of accessing sexual and reproductive health services. For example, two countries with identical average access rates may have a very different D-index if the distribution of access in one country excludes certain groups. The following equation is used:

$$D = \frac{1}{2\bar{p}} \sum_{i=1}^n \beta_i |p_i - \bar{p}| \quad ,$$

where  $\beta_i$  is the weighted sampling proportion of group  $i$ , (sum of  $\beta_i$  equals 1),  $\bar{p}$  is the average access rate in the country and  $p_i$  is the level of access of population group  $i$ , and takes values from 0 to 1. There are  $n$  number of groups defined by using the interactions of the circumstances selected for the analysis.

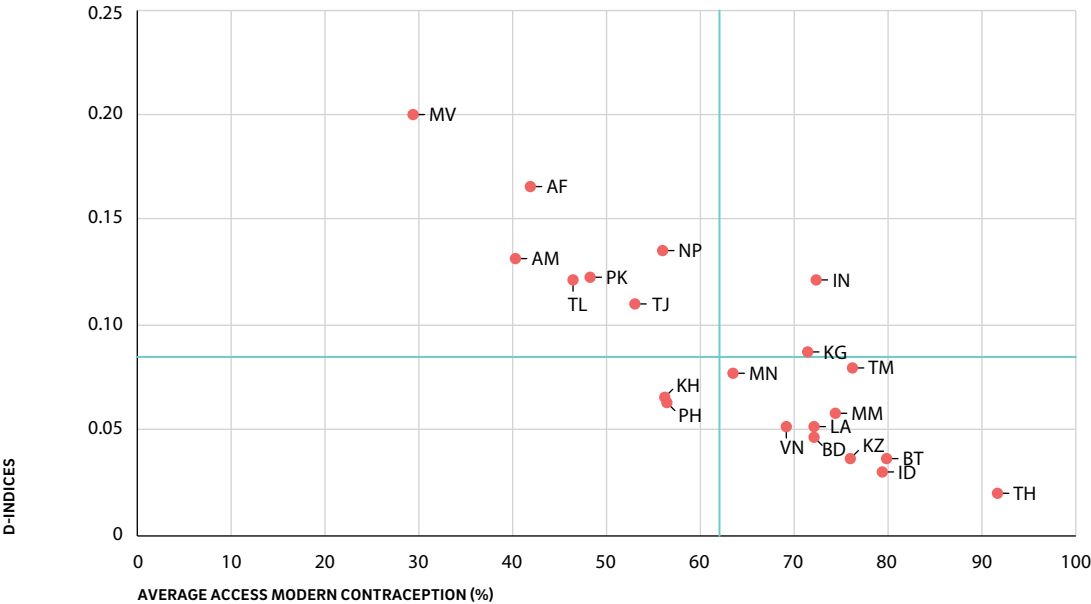
Five circumstances (six for skilled birth attendance as women's marital status is also considered) are used to determine the number and composition of the groups: wealth (2 groups); residence (2 groups); education (4 groups); number of children under 5 years of age (5 groups); and age group of the woman (3 groups). This produces  $n=240$  possible groups ( $2 \times 2 \times 4 \times 5 \times 3$ ), covering the entire population. Further details can be found in the Annex.

**FIGURE 10**  
D-Indices and average access to skilled birth attendance, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.  
Note: The blue lines are the respective averages for countries with available surveys.

**FIGURE 11**  
D-Indices and average use of modern contraception, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.  
Note: The blue lines are the respective averages for countries with available surveys.

**BOX 3****Shapley decomposition**

The Shapley decomposition method estimates the marginal contribution of each circumstance to overall inequality in women's access to sexual and reproductive health services. The basic idea behind this decomposition, taken from cooperative game theory, is to measure by how much the estimated D-index would change if a circumstance was added to the pre-existing set of circumstances. The change in inequality caused by adding a new circumstance would be a reasonable indicator of its contribution to the overall level of inequality.<sup>52</sup>

The impact of an additional circumstance A (e.g. wealth) is given by the following formula:

$$D_A = \sum_{S \subseteq N \setminus \{A\}} \frac{|S|!(n-|S|-1)!}{n!} [D(S \cup \{A\}) - D(S)]$$

Where N is the set of all n circumstances; and S is the subset of N circumstances obtained after omitting the circumstance A. D(S) is the D-index estimated with the sub set of circumstances S. D(SU{A}) is the D-index calculated with set of circumstances S and the circumstance A.

The contribution of characteristic A to the D-index is then obtained by:

$$M_A = \frac{D_A}{D(N)}$$

**5.3****What circumstances matter for women's access?**

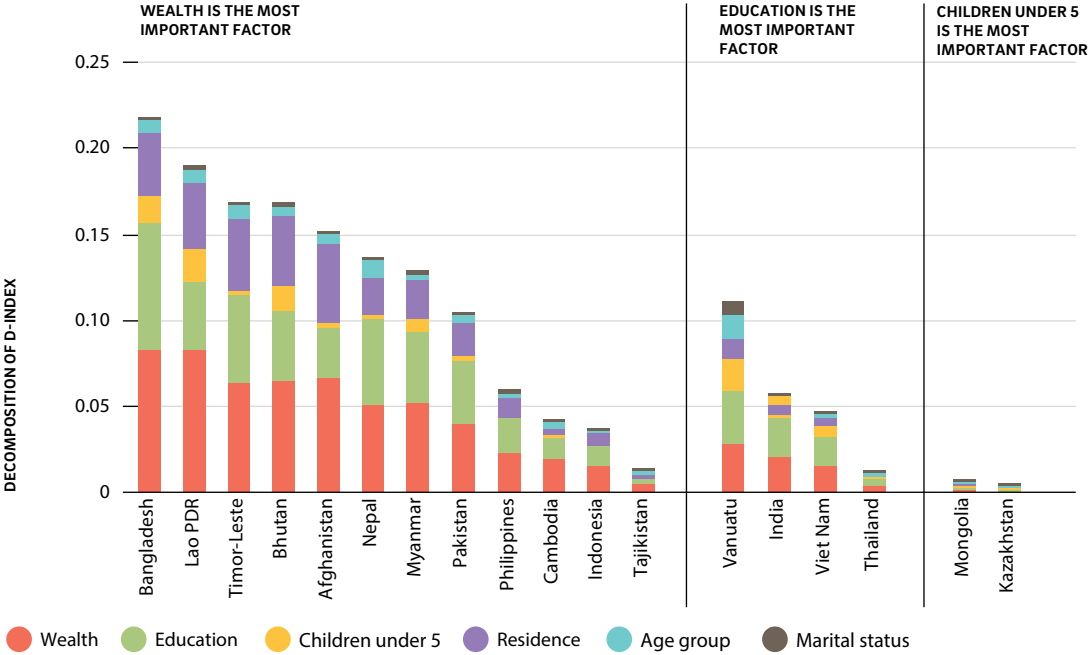
**The contribution of each of the circumstances to overall inequality can be estimated, using the Shapley decomposition method (Box 3).** From a policymaking perspective, understanding these patterns is useful to inform prioritization in achieving universal access to sexual and reproductive health services.

The relative contribution of a specific circumstance to overall inequality in women's access to sexual and reproductive health services varies across countries. For skilled birth attendance, wealth is the most important driver of inequality in 12 out of 22 countries, while education is the most important factor in four countries (Figure 12). The number of children under the age of 5 is the third most significant factor associated with this inequality. The influence of age group, residence and marital status is limited.

For inequality in use of modern contraception, the woman's age is the main contributing factor in 14 out of the 21 countries analysed, while the number of children under 5 years of age is the most important factor in 5 out of 21 countries (Figure 13). Education appears to be the main factor only in Armenia and Indonesia.

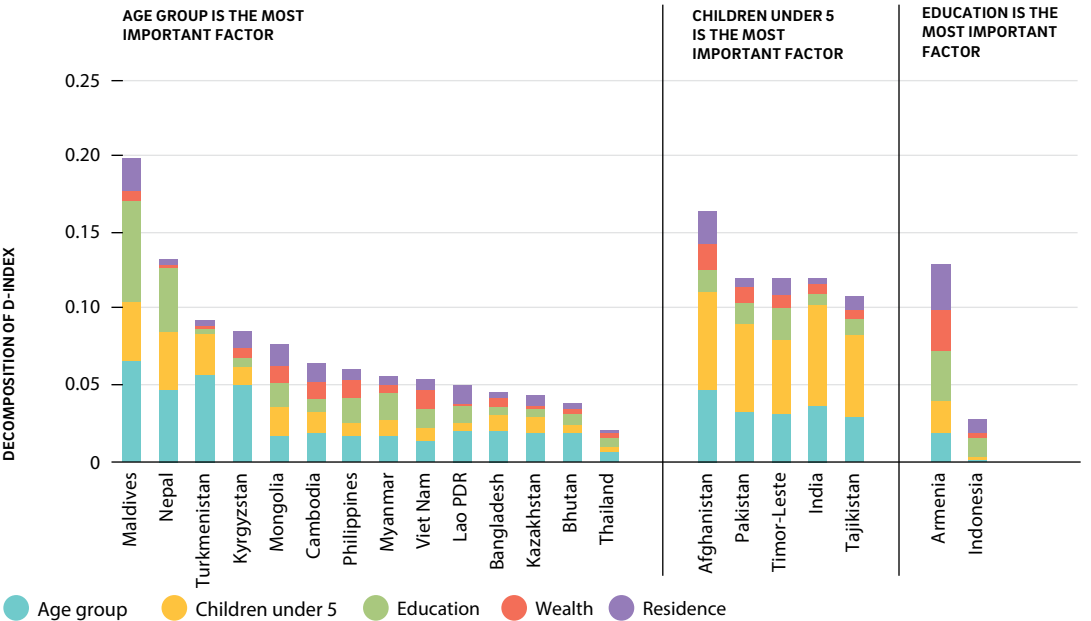
The results of the decomposition can also be confirmed through alternative econometric methods (see Annex Tables A3 and A4). Ultimately, countries have their own specificities that shape the distribution of opportunities among population groups. Studying inequality of opportunity aims to unearth how these specificities create advantage or disadvantage within groups, so that policymakers can better focus their efforts. The next section will examine how belonging to an ethnic, linguistic or religious minority can be one such specificity that matters more in some parts of the region than others.

**FIGURE 12**  
Inequality in women's access to skilled birth attendance and its decomposition, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.  
Note: Armenia, Kyrgyzstan, Maldives and Turkmenistan are not shown given there is no inequality as measured by their D-Index.

**FIGURE 13**  
Inequality in women's use of modern contraception and its decomposition, latest year



Source: ESCAP calculations based on latest DHS and MICS surveys.

## 6. Does a minority identity matter for determining the furthest behind?

**In many countries the furthest behind groups are also defined by a minority ethnic, linguistic or religious identity.** However, there is a general lack of data detailing how these characteristics shape inequality and contribute to marginalization within countries.

In nine countries, surveys include questions on ethnicity, caste, language or religion in their MICS, thereby opening a small, but unique window to understanding how these identities interact with other circumstances to create groups that are left behind.

### 6.1

**How does a minority identity add to the disadvantage?**

**Ethnicity, language and religion play a significant role in determining inequality in women's access to sexual and reproductive health in 4 out of the 9 countries with available information.**

Replicating the classification tree analysis to include ethnicity, language and religion alters the composition of the furthest behind groups in access to skilled birth attendance in Afghanistan, Thailand and Viet Nam.

In Afghanistan, on average only 39 per cent of women have access to skilled birth attendance.<sup>xii</sup> Access falls further to only 16 per cent among women from rural poorer households who speak Dari (Table 3, column 3). In contrast, 24 per cent of Pashto, Uzbek or Turkmen-speaking women from similar households (also rural and poorer) have access to skilled birth attendance (column 4). The furthest behind group in Afghanistan is Dari-speaking women from rural poorer households who are also older than 25, with an access rate of only 14 per cent. Similarly, in Thailand, women speaking a minority language have somewhat lower levels of access to skilled birth attendance, at 92 per cent, compared with Thai speakers, at 99 per cent (Table 3, column (3) and (4)).

**TABLE 3**

**Access to skilled birth attendance for different ethnic, linguistic or religious groups**

	OVERALL FURTHEST BEHIND:	OVERALL BEST-OFF:	COMPARABLE:	
	CIRCUMSTANCES AND ACCESS RATE OF THE FURTHEST BEHIND GROUP (1)	CIRCUMSTANCES AND ACCESS RATE OF THE MOST ADVANTAGED GROUP (2)	FURTHEST BEHIND LINGUISTIC, ETHNIC, RELIGIOUS MINORITY (3)	BETTER-OFF LINGUISTIC, ETHNIC, OR RELIGIOUS MINORITY (4)
Afghanistan (2010)	Dari speaking poorer women over 25 years old living in rural areas: 14%	Women between 15–24 years old living in urban areas: 79%	Dari speaking poorer women living in rural areas: 16%	Pashto, Uzbek or Turkmen speaking poorer women living in rural areas: 24%
Thailand (2015)	Women who speak a minor language and have either no education or primary education: 87%	Buddhist or belonging to a minor religion women who speak Thai and have higher education: 100%	Women who speak a minor language: 92%	Women who speak Thai: 99%
Viet Nam (2013)	Non-Kihn women with 2 or more children under 5: 54%	Kihn women belonging to richer households: 100%	Non-Kihn women: 68%	Kihn women: 99%

Source: ESCAP calculations based on latest MICS surveys.

Note: These results are based on classification tree analysis that sets the minimum population size of the furthest behind group at approximately 5 per cent of the total reference population (lower than the 10 per cent used in earlier sections of the report), so that smaller minorities are captured.

xii Afghanistan's latest survey (DHS, 2015) does not include questions related to ethnicity and/or religion. For this reason, the analysis in this section considers only its early 2010 MICS survey.

**TABLE 4**  
**Use of modern contraception for different ethnic, linguistic or religious groups**

	OVERALL FURTHEST BEHIND:	OVERALL BEST-OFF:	COMPARABLE:	
	CIRCUMSTANCES AND ACCESS RATE OF THE FURTHEST BEHIND GROUP (1)	CIRCUMSTANCES AND ACCESS RATE OF THE MOST ADVANTAGED GROUP (2)	FURTHEST BEHIND LINGUISTIC, ETHNIC, RELIGIOUS MINORITY (3)	BETTER-OFF LINGUISTIC, ETHNIC, OR RELIGIOUS MINORITY (4)
Lao PDR (2017)	Hmong-Mien women: 44%	Lao-Tai, Mon-Khmer or belonging to a minor ethnicity women over 25 years old, with primary or secondary education, no children under 5, living in rural areas and practicing a minor religion or animism: 83%	Hmong-Mien women: 44%	Lao-Tai, Mon-Khmer or belonging to a minor ethnicity women: 75%
Thailand (2015)	Muslim women: 81%	Buddhist or belonging to a minor religion women with children under 5 with no education or primary education: 97%	Muslim women: 81%	Buddhist or belonging to a minor religion women: 93%
Viet Nam (2013)	Buddhist (religion) women living in urban and richer households: 60%	Non-Kihn (ethnicity) poorer women over 25 years old: 83%	Kihn (ethnicity) poorer women over 25 years old: 74%	Non-Kihn (ethnicity) poorer women over 25 years old: 83%

Source: ESCAP calculations based on latest MICS surveys.  
Note: These results are based on classification tree analysis that sets the minimum population size of the furthest behind group at approximately 5 per cent of the total reference population (lower than the 10 per cent used in earlier sections of the report), so that smaller minorities are captured.

Ethnicity plays a major role in Viet Nam, as women belonging to an ethnic minority have 31 percentage points lower access to skilled birth attendance than ethnic majority Kinh women (column (3) and (4)).

Minority status also plays a significant role in determining use of modern contraception in Lao People’s Democratic Republic, Thailand, and Viet Nam.

In Lao People’s Democratic Republic, women belonging to the Hmong-Mien minority are less likely to use modern contraception when compared with women belonging to Lao-Tai, Mon-Khmer or other ethnicity (Table 4, column (3) and (4)).

In Viet Nam, gaps in the use of modern contraception are influenced by both ethnicity and religion. The group with the lowest level of modern contraceptives use consists of Buddhist women living in urban and richer households, only 60 per cent of whom have their needs for contraception met with modern methods. Ethnicity also matters. Poorer women who are above the age of 25 use modern contraception

at a lower rate if they are from an ethnically Kinh household (74 per cent) than if they are not (83 per cent).

In Thailand, although overall women’s use of modern contraception is high (93 per cent), Muslim women have lower use than Buddhist women or those belonging to another religion, with a 12-percentage point gap (Table 4, column (3) and (4)).

**6.2**  
**So what’s the impact on overall inequality?**

**The analysis implies that discrimination in access to sexual and reproductive health services on the grounds of ethnicity, language and religion can be both partly concealed or partly compounded by economic, social or geographical circumstances.** Recalculating the decomposition of inequality of opportunity (D-Index) to include ethnicity, language and religion as circumstances (along with wealth, age group, residence, education level etc.), confirms these findings (Figure 14).

For example, in Lao People's Democratic Republic, ethnicity overtakes age group, to become the most important circumstance shaping inequality in the use of modern contraception (compare Figure 13 with Figure 14). This finding is also consistent with the large gaps in access between Hmong-Mien, on the one hand, and Lao-Tai and Mon-Khmer, on the other, shown in Table 4. In Viet Nam, the combination of ethnicity and religion also contribute most of the inequality of opportunity for both access to skilled birth attendance and use of modern contraception. Religion also becomes the most important circumstance in Thailand for access to skilled birth attendance, although inequality in this indicator is quite small overall: the D-Index of 0.03 is among the lowest in the region.

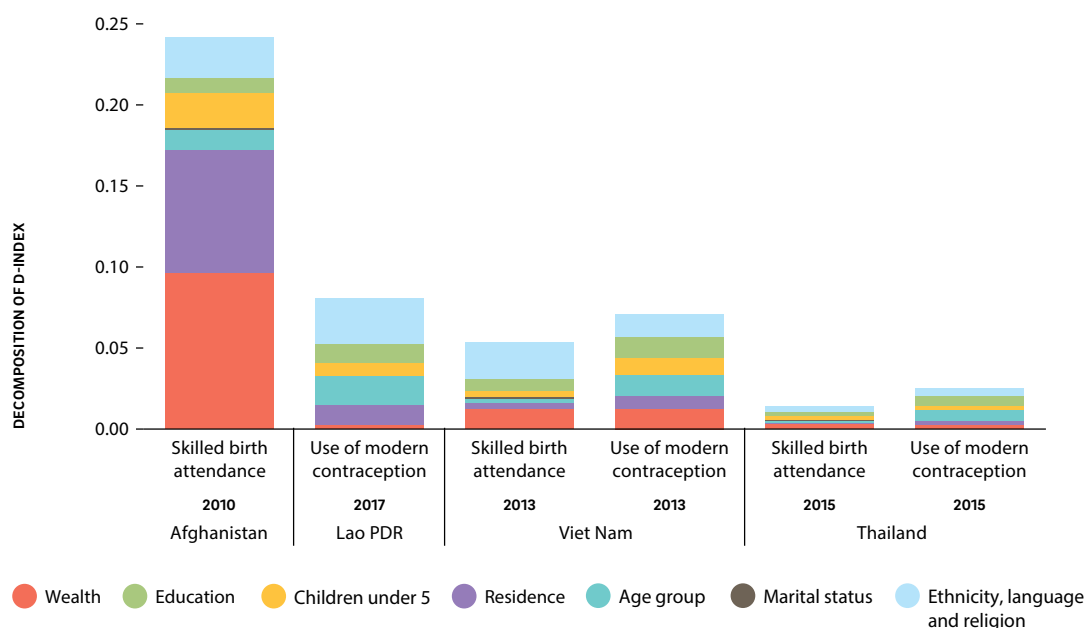
What this region-wide analysis does not capture is how geographic isolation can also interact with minority identities to make access to sexual and reproductive health services among ethnic and other minority groups particularly

difficult. Minority groups often live in remote and underserved regions, an aspect not explored in this study.<sup>xiii</sup> For example, the Dari-speaking Shi'a Hazaras group in Afghanistan, as well as the Hmong ethnic minority groups in Viet Nam live in mountainous central highlands.<sup>53</sup> Muslims in Thailand mostly reside in southern border provinces such as Narathiwat, Pattani, and Yala which have higher poverty and lower educational attainment levels than the rest of the country.<sup>54</sup>

This brief assessment implies that belonging to a minority may add a disadvantage — or sometimes an advantage — for women seeking to access sexual and reproductive health services. It also confirms the general lack of comparable, reliable and consistently collected data on minority groups and the need to include their circumstances into future research. The same consideration applies to other marginalized groups such as migrants, refugees, slum dwellers, women with disabilities, and other hard to reach groups for which data are limited or inexistent.

**FIGURE 14**

**The role of ethnicity, language and religion in shaping inequality in skilled birth attendance and use of modern contraception, latest year**



Source: ESCAP calculations using data from the latest MICS surveys. Countries are only included when ethnicity, religion and language contribute over 5 per cent to overall inequality.

xiii To explore the additional impact of living in a geographically remote region, it is possible to add a country's local regions as circumstances in the classification tree analysis and in the calculation and decomposition of the D-index.

## 7. Recommendation for closing the gaps

**Women's sexual and reproductive health has gained traction in the global development agenda and in national policymaking.** Significant improvements in the average access to basic services were made in the past decade, but inequality persists within and across countries. These disparities have a life-long effect on women's and girls' health and wellbeing. They also have a long-term negative impact on the social, economic and political development of the region and are likely to affect the achievement of the 2030 Agenda.

The findings indicate that inequality among women in access to skilled birth attendance and in the use of modern contraceptive methods is determined by a wide range of factors including age, education, residence, household wealth and marital status, as well as the number of other young children in the family. The relative impact of each factor varies significantly between countries. In some countries, less educated women, or women from rural areas, may not have the highest need for information interventions in modern contraception methods.

To achieve all SDGs but particularly Target 3.1 on reduction of maternal mortality and Target 3.7 on universal access to sexual and reproductive health services, governments should consider the specific circumstances faced by the furthest behind groups in each country, prioritizing the extension of health coverage to those who need it most.

The following are general recommendations for policymakers' consideration based on the findings of the data analysis and the review of trends in the Asia-Pacific region:

**1 In line with the relevant international human rights instruments to which member States are party, address the persistence of discriminatory laws, policies and practices, as well as gender-based violence and discrimination in the design and delivery of basic health care and services, including sexual and reproductive health services.** There is an urgent need to transform unequal power

relations and provide women and girls with the enabling environment needed to make free and informed decisions about their sexual and reproductive health and their reproductive rights. The combination of top-down and bottom-up approaches in advocating for women's health and rights — mobilizing both right-holders and duty-bearers — are most likely to succeed and benefit those furthest behind.

**2 Inform policymaking with the analytical findings related to the shared circumstances shaping inequality in women's access to sexual and reproductive health.** National policies should increase access of the most marginalized women to potentially life-saving health services. Unequal access to sexual and reproductive health and reproductive rights is strongly linked to unequal outcomes across other development objectives. Understanding these links and the circumstances that shape women's and girls' access to the relevant services can help address gender inequalities across other key dimensions of the 2030 Agenda.

**3 Strengthen data collection to include traditionally disadvantaged groups.** In many countries, available data do not allow for obtaining the full picture of households' and individuals' choices and behaviours in relation to seeking and accessing health services. More granular data are needed to fully understand women's health and its implications for local and national development. For example, collecting further qualitative and quantitative data about husbands and other male family members' behaviours and attitudes will advance the understanding of inequality among women in access to health services. Likewise, expanding the scope of national surveys to include traditionally marginalized groups such as migrant labourers and their families, ethnic and other minority groups would allow governments to understand fully their situations and design more effective policies, catering to the needs of all socioeconomic groups. Unless adequate funding is provided



for data collection on the most vulnerable and hard-to-reach populations, as well as for the sustainable implementation of relevant policies and programmes, the challenge of rising inequality in sexual and reproductive health might not be fully addressed by 2030.

- 4 **Adopt universal health coverage, inclusive of maternal, sexual and reproductive health.** Universal health care schemes are less administratively burdensome and expensive in the long run than targeted and fragmented ones. Universal health care schemes support all households, including the poorest ones, to seek essential health services including for sexual and reproductive health, avoiding prohibitive out-of-pocket costs. Countries that have already invested in universal health care, such as many North and Central Asian countries and Thailand, have the lowest access gaps and levels of inequality. Increased investment and integrated interventions are necessary to ensure universal health coverage that includes comprehensive, accessible and non-discriminatory sexual and reproductive health.
- 5 **Encourage collaboration among relevant government ministries and integrate sexual and reproductive health services effectively within national development plans.** The multiplicity of factors affecting women's access to sexual and reproductive health services requires cross-sectoral coordination at national level. For example, the furthest behind groups in skilled birth attendance almost always consist of women from poorer households. Addressing the financial limitations faced by these women will require a combination of policies and interventions, such as establishing universal social protection systems and decent job opportunities.
- 6 **Commit to ensuring that all women have access to skilled birth attendants.** Maternal mortality and morbidity remain a critical priority area for action for most governments

in the region. Midwives, when competent and supported by a functional health system, can help avert over two-thirds of maternal and newborn deaths and disabilities.<sup>55</sup> In addition, midwives can deliver 87 per cent of all essential sexual, reproductive, maternal and newborn health services. Availability of trained health service providers in rural and remote areas has a significant impact on closing the inequality gaps in women's access to sexual and reproductive services.

- 7 **Make sexual and reproductive health information user-friendly for all women and girls, across the lifecycle.** Adolescents and single women have the right to access adequate information in a user-friendly format as well as non-discriminatory services, including comprehensive sexuality education. In most studied countries, 15–24-year-old women belong to the furthest behind group. The adoption of age-appropriate comprehensive sexuality education both in- and out-of-schools therefore becomes a priority. The goal is to educate adolescent girls to make better fertility choices, with a focus on the prevention of early and unintended pregnancies and unsafe abortion.<sup>56</sup>
- 8 **Empower and support women's voice in relation to sexual relations, contraceptive use and reproductive health care.** Promotion of social behavioural change, including the transformation of gender social norms, which limit women's and girls' decision-making power and expose them to the risk of all forms of gender-based violence, is a prerequisite to improving women's access to sexual, particularly in relation to family planning and contraception. Women's political voice also matters. By embracing diversity in political institutions to include women, but also ethnic and other minorities and persons with disabilities, governments also strengthen public trust in the social contract.<sup>57</sup>

# Annex: Methodology for identifying gaps in access to opportunities

## Inequality of Opportunity

To measure inequality of opportunity, the ESCAP policy papers on Inequality of Opportunity identify a set of opportunities and measure the gaps among different population groups in access to these opportunities. To do so, a set of circumstances is selected from available variables in the DHS and MICS datasets to define the groups. The circumstances are a set of conditions over which the individuals or households have no control.

Those circumstances are used in the classification tree analysis to identify the groups that are most disadvantaged in each country; in this case, these are those who have the least access to sexual and reproductive health. The composition of those groups varies from country to country, as does the size of the sample population represented.

This approach differs from the use of “inequality of opportunity” in other recent literature, which instead uses regression analysis to explain the share of inequality of outcome (income inequality or consumption inequality) that can be attributed to circumstances over which individuals have no control, such as race and sex.

Given that the DHS and MICS datasets do not include information on income or consumption (both classified as outcomes), these thematic policy papers do not include such regressions. However, future analysis might use the wealth index of the DHS and MICS as a proxy “outcome” and regress it against the set of circumstances used in this analysis.

## The Data Sources

The analysis exploring inequality in access to opportunities uses the Demographic and Health Surveys (DHS) and the Multiple Indicator Cluster Surveys (MICS). DHS and MICS are publicly

available for 22 Asian- Pacific countries as shown in Table A1.<sup>xiv</sup> The DHS and MICS datasets are selected because of the: a) the comparability across countries; b) accessibility of the data; and c) the extensive questions on health, demographic and basic socioeconomic data referencing both the household (e.g. water and sanitation, financial inclusion, electricity and clean fuels) and individuals (e.g. level of education, nutrition status).

## The Countries

Based on available surveys, 22 countries are included in this policy paper on women’s sexual and reproductive health. The number of countries having surveys representing two different points in time are 18 (skilled birth attendance) and 13 countries (use of modern contraception). Table A1 provides the full list of 22 countries and their survey years (latest and earliest).

## The Indicators and Circumstances

The indicators used to uncover women’s inequality in sexual and reproductive health are skilled birth attendance and use of modern contraceptive methods. As reported in General Assembly Resolution 71/313 “Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development” their connection to the Sustainable Development Goals (SDGs) were the main criterion for selecting these indicators.<sup>58</sup> The circumstances used are residence (living in a rural or urban area), wealth (belonging to the bottom 40 or top 60 per cent of a wealth distribution), level of education of the women respondents (no education, primary, secondary and higher education), marital status (single, currently in union or formerly in union), number of children aged under 5 years of age (numerical variable), and age group (15–24 years old, 25–34 years old, and above 35 years old) (Table A2).

<sup>xiv</sup> Access to the DHS datasets for three additional Pacific countries has been requested and the requests are still under consideration.

**TABLE A1****List of countries and survey years**

COUNTRY	EARLIEST YEAR	EARLIEST SURVEY	LATEST YEAR	LATEST SURVEY
Afghanistan	2010	MICS	2015	DHS
Armenia	2010	DHS	2016	DHS
Bangladesh	2000	DHS	2014	DHS
Bhutan	n/a	n/a	2010	MICS
Cambodia	2000	DHS	2014	DHS
India	2006	DHS	2016	DHS
Indonesia	2012	DHS	2017	DHS
Kazakhstan	2006	MICS	2015	MICS
Kyrgyzstan	2012	DHS	2018	MICS
Lao People's Democratic Republic	2011	MICS	2017	MICS
Maldives	2009	DHS	2016	DHS
Mongolia	2000	MICS	2013	MICS
Myanmar	n/a	n/a	2016	DHS
Nepal	n/a	n/a	2016	DHS
Pakistan	2013	DHS	2017	DHS
Philippines	2013	DHS	2016	DHS
Thailand	2012	MICS	2015	MICS
Turkmenistan	2006	MICS	2015	MICS
Tajikistan	2012	DHS	2017	DHS
Timor-Leste	2010	DHS	2016	DHS
Vanuatu	n/a	n/a	2007	MICS
Viet Nam	2000	MICS	2013	MICS

**The Classification Tree Analysis**

The primary goal of the survey analysis is identifying the groups with lowest and highest access to sexual and reproductive health services. The two selected indicators can be viewed as “response variables”, while the factors characterizing these groups are defined as “circumstances”.

The analysis then uses a classification tree model to identify the groups with highest or lowest access. A classification tree is an analytical structure representing groups of the sample population with different response values, or different levels of access to a certain opportunity.

Consider the following example:

**Opportunity:** Women’s sexual and reproductive health

**Indicator (“response variable”):** “Access to skilled birth attendance during childbirth”.

**Factors (“circumstances”):** The circumstances being considered are the following:

- 1 Residence (urban vs. rural),
- 2 Household wealth (Bottom 40 or Top 60),
- 3 Highest education level of the women (No Education, Primary, Secondary, Higher),
- 4 Marital status (single, currently in union, formerly in union),
- 5 Number of children under 5 years of age,
- 6 Age group (15–24 years old, 25–34 years old, and above 35 years old).

To identify the groups with the highest or lowest access to women’s sexual and reproductive health, a classification tree is constructed for each country, using R, an open source statistical software. The root node of the tree represents the entire reference population. The tree method algorithm starts by searching for the first split (or branch) of the tree. It does so by looking at each circumstance and separating the sample in two groups, so that it achieves the most “information gain”. This information metric can be defined in a few ways, while the most common one, and the one used in this analysis is the “entropy”.

## The Tree Representation

A tree method is an algorithm that estimates women's access to sexual and reproductive health services by partitioning the respondents into different groups based on the circumstances chosen:

$$p(Y_i = 1 | X_{1i}, X_{2i}, \dots, X_{li}) = \sum_{j=1}^m p_j \times I((X_{1i}, X_{2i}, \dots, X_{li}) \in A_j)$$

Where  $Y_i$  is the observed opportunity (indicator) for the  $i^{\text{th}}$  women in the sample,  $X_{1i}, \dots, X_{li}$  are the circumstances. In the example of women's health,  $Y$  is the indicator,  $X_1, X_2, X_3, X_4, X_5, X_6$  (where  $l = 6$ ) are residence, wealth level, highest education level of the women, marital status, number of children under 5 years of age, and age group.  $A_1, A_2, \dots, A_m$  are the different partitions of the sample, also called end nodes, where:

$$A_i \cap A_j = \emptyset$$

and

$$\bigcup_{i=1}^m A_i = \Omega.$$

This means the end nodes are mutually exclusive and complementary, and every respondent belongs to one and only one of the end nodes.  $I()$  only takes value 1 when the  $i^{\text{th}}$  respondent belongs to  $j^{\text{th}}$  end node, otherwise,  $I()$  takes value 0. The tree algorithm generates the end nodes, according to metrics that measure the effectiveness of the partition that gives to different levels of access to women's sexual and reproductive health.

Information theory and entropy is a very common choice for the metrics. Entropy for  $j$ -th end node can be calculated according to the definition:

$$I_E(p_j) = -(p_j \times \log_2 p_j + (1 - p_j) \times \log_2 (1 - p_j))$$

The aggregated entropy for the tree is calculated by:

$$H(T) = \sum_{j=1}^m q_j \times I_E(p_j)$$

Where  $q_j$  is the sample proportion of  $A_j$ . The actual algorithm that generates the end-nodes is step-by-step, starting from the entire sample. Each time the sample is partitioned new end-nodes are generated and the entropy is calculated and compared to the entropy before the new partition. Each partition (and hence the new end nodes) is kept when the addition of the new circumstance decreases the

entropy when compared to the entropy of a pre-set threshold. The algorithm stops when no more "information gain" can be made by a new partition, or a set of pre-set conditions can't be satisfied.

In addition to finding groups that have significant differences in their access to skilled birth attendance, the classification tree algorithm also operates under the limitation that each group should have enough group members. To avoid a too small sub-sample size, the analysis has set the tree nodes to have a minimum size of at least 10 per cent of the total population and the split of tree is only made when an "information gain" criterion is satisfied.

In section 6, which introduces ethnicity, language, and religion as circumstances, the minimum size of the group criterion is reduced to 5 per cent of the population to fully capture minority religions and ethnicities.

## Choice of Circumstances

Out the many variables available in the DHS and MICS surveys, several determinant factors are considered to help identify the most excluded groups. The selection of variables is consistent across all surveys to maintain comparability of inequality across countries.

The classification tree includes these factors in the tree as branches only if they are found to reduce entropy. Ultimately, these circumstances (determinant factors) define the composition of the groups. However, circumstances should not be interpreted as "causes" of inequality. The association found does not imply causality. Furthermore, there are many other factors that these models cannot consider, given the limitations of the datasets.

Ideally, it would have been preferred to include only circumstances over which a household member has very little control, such as dominant religion in a household, ethnicity, existence of a disability, education of the mother or father of the respondent. The majority of the DHS did not include these questions. Some MICS, however, did ask questions related to ethnicity, language and religion and the results are presented in section 6.

In the cases where these questions were included, the analysis is repeated using these additional determinant factors. Additional factors of interest for study are geographical variables, such as province or city in a given country, but inclusion would have affected comparability across countries. Geographic variables can be analysed in future work that focusing on one country only.

## Gaps and limitations

The available datasets limit the scope of this analysis somewhat. First, several relevant circumstances cannot be captured. For example, distance from a health-care provider is an important circumstance that might shape a women's access to skilled birth attendance.

Furthermore, and consistent with similar studies on inequalities among groups, this analysis does not consider inequality within groups.<sup>59</sup> Even within homogeneous groups, additional unobserved circumstances may affect outcomes. This analysis only calculates observable average access to opportunity for each group, and thus

draws conclusions on gaps and inequality based on these average observations.

Finally, recent literature also links inequality of outcome with inequality of opportunity, by calculating the share of income inequality (inequality of outcome) that can be explained by the circumstances of each group.<sup>60</sup> This analysis in this series of policy papers does not follow the same approach because the datasets do not include an income proxy besides the wealth index.

## The wealth index and the bottom 40 - top 60 wealth split

Wealth, as used in this policy paper, is a composite index reflecting a household's cumulative living standard that is developed by the DHS and MICS researchers and combines a range of household circumstances including: a) ownership of household assets, such as TVs, radios and bicycles, b) materials used for housing; and c) type of water and sanitation facilities.

The wealth index is calculated using the Principal Component Analysis and thus allows a relative

**TABLE A2**  
Selected indicators and factors

OPPORTUNITY STUDIED				FACTORS USED TO DETERMINE EXCLUDED GROUPS						SDG REFERENCE	SURVEY REFERENCE		
OPPORTUNITY COMPONENT	INDICATOR	REFERENCE (TARGET) GROUP IN SURVEY	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	RELATED SDG INDICATOR	SURVEY QUESTION IN DHS/MICS	DESCRIPTION	SURVEY RECODE	
1	Health	Use of modern contraception	Women aged between 15 and 49 currently in union	Wealth	Residence	Number of children under 5	Highest Education	Age group	-	3.7.1 Proportion of women aged 15-49 years who have their need for family planning satisfied with modern methods	Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?	Modern contraceptive methods include pills, UID, foam, condom, etc.	IR
2	Health	Skill birth attendance during childbirth	Women aged between 15 and 49 ever given birth in the last 5 years	Wealth	Residence	Number of children under 5	Highest Education	Age group	Marital status	3.1.2 Proportion of births attended by skilled health personnel	Who assisted with the delivery of (name)?	Professional help includes doctor, nurse, and midwife	IR

Note: To calculate the demand for family planning satisfied through modern contraception, the report uses the DHS recode variable v626 or V626a. For MICS surveys, the variable is constructed from the following survey question codes: fertility birth history (BH1, BH4) contraception (CP1 – CP4), desire for last birth (DB2, DB4A-DB4B), marriage/union (MA1, MA8A-MA8B), maternal and new born health (MN35), sexual behavior (SB2), unmet need (UN2, UN4A-UN4B, UN5, UN7 - UN14).

Note 2: IR = Individual Recode

ranking of households based on their assets.<sup>xv</sup> The wealth index is not comparable across countries, however, as it consists of different assets in each country. Cross-country comparison of household access based on “wealth” should be understood with that caveat.

In this series of policy papers, the wealth index is employed as a circumstance to distinguish between different types of households or individuals. Although technically not a circumstance over which households or individuals have no control, wealth is still a proxy for many hidden conditions that may limit access to a certain opportunity, especially considering the lack of other determinant factors to explore, such as education of mother or father, ethnicity, prevalence of a disability or migrant status.

In this policy paper, women can belong to one of two possible types of households based on the wealth index: the bottom 40 per cent (sometimes labelled as “bottom 40”) and the top 60 per cent (or “top 60”).

Several other possible cuts of the wealth index were considered, including by quintile, by top 40 - bottom 40 and by top 10 - bottom 40. None of these were selected however, because generally they produce more homogeneous groups thus overshadowing other circumstances (e.g. education levels, rural – urban distinctions). The top 40 - bottom 40 approach (and its variation of top 10 - bottom 40) are also rejected because they eliminate 20 to 50 per cent of the sample population from the analysis, with a risk of missing some “middle class” groups that share common characteristics (e.g. secondary education).

Narrowing the sample population to only half (top 10 – bottom 40) also runs the risk of not allowing for making statistically significant inferences. Moreover, neither the top node, or root, of the tree, nor the size of the groups of the rest of the nodes would be representative of the population.

Finally, the wealth index in the DHS and MICS produces a distribution of households by wealth, without any monetary values assigned to the distribution. Therefore, the comparisons of top 1 - top 10 - top 40 per cent do not have the same explanatory value as they would if the wealth index had taken continuous monetary values.

## Confirming results through logistic regressions

In order to bolster the analytical findings of this study, logistic regressions were used to observe the effects that circumstances (household wealth, residence, age group, number of children under 5 and education) have on skilled birth attendance and use of modern contraceptive methods in every country analysed.

For example, the logistic regression model for use of modern contraception is given by

$$\text{logit}(p_i) = \log \log \left( \frac{p_i}{1-p_i} \right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8$$

Where  $p_i$  is a binary variable, assuming values:

$$p_i = \begin{cases} 1, & \text{if the women use modern contraceptive methods} \\ 0, & \text{if the women do not use modern contraceptive methods} \end{cases}$$

$\beta_0..n$  are logit model coefficients and  $X_1..n$  are circumstance variables:  $X_1$  is household wealth,  $X_2$  is household residence,  $X_3$  and  $X_4$  are dummy variables representing women’s age group categories ( $X_3$  for age group 25–34 years old, and  $X_4$  for the age group over 35 years old),  $X_5$  is a numerical variable indicating the number of children under 5, and  $X_6$ ,  $X_7$  and  $X_8$  are dummy variables indicating the level of education.<sup>xvi</sup>

The base references used in the model are richer households (belonging to top 60 per cent of the wealth distribution) for  $X_1$ , urban households for  $X_2$ , women younger than 25 years old for  $X_3$  and  $X_4$ , number of children under 5 (numerical variable) for  $X_5$ , and women with no education for  $X_6$ ,  $X_7$  and  $X_8$ .<sup>xvii</sup>

xv For more information see Demographic and Health Surveys (DHS). Available at: [http://www.dhsprogram.com/programming/wealth%20index/DHS\\_Wealth\\_Index\\_Files.pdf](http://www.dhsprogram.com/programming/wealth%20index/DHS_Wealth_Index_Files.pdf)

xvi In the case of skilled birth attendance during childbirth,  $X_9$  and  $X_{10}$  are dummy variables representing marital status categories ( $X_9$  for currently married,  $X_{10}$  for formally married).

xvii For countries with MICS surveys, the base reference used for education is lower education. This base comprises women with no education and primary education. Further, the base for marital status in attendance are single women. A total of 43 logistic regressions are summarized in Annex Table A3 and A4: 21 logistic regressions for use of modern contraceptive methods, and 22 logistic regressions for access to skilled birth attendance. The regression results ( $\beta$  coefficients, standard errors and calculated odds ratios) indicate that circumstance variables affect women access to these indicators at a 10%, 5% and 1% significance level.

**TABLE A3****Logit model results: Skilled birth attendance**

	AFGHANISTAN			ARMENIA			BANGLADESH			CAMBODIA			INDIA		
DHS	(1)			(2)			(3)			(4)			(5)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	1.3 ***	0.06		25.8	132522.63		-0.28 *	0.16		2.64 ***	0.24		0.45 ***	0.15	
Poorer Household	-0.91 ***	0.03	0.40	-19.67	4571.51		-0.84 ***	0.08	0.43	-1.38 ***	0.12	0.25	-0.86 ***	0.02	0.42
Residence: Rural	-0.99 ***	0.04	0.37	0.99	1.44		-0.61 ***	0.07	0.55	-0.7 ***	0.17	0.50	-0.34 ***	0.02	0.71
Age Group 25-34	-0.14 ***	0.04	0.87	0.31	1.44		0.02	0.07		0.16	0.11		-0.26 ***	0.01	0.77
Age Group 35+	-0.19 ***	0.04	0.82	18.5	11107.46		0.2	0.16		-0.38 ***	0.13	0.68	-0.7 ***	0.02	0.50
Marriage Status: Currently in union/married				-2.08	131480.75								0.26 *	0.15	1.29
Marriage Status: Formerly in union/married	-0.82 ***	0.16	0.44	15.92	133025.81		0.05	0.32		-0.01	0.2		-0.03	0.16	
No. of children under age of 5	0	0.02		18.37	6423.31		-0.21 ***	0.08	0.81	-0.05	0.09		0.14 ***	0.01	1.15
Education: Primary	0.86 ***	0.07	2.37				0.55 ***	0.13	1.73	0.9 ***	0.1	2.45	0.25 ***	0.02	1.29
Education: Secondary	1.17 ***	0.08	3.23	-18.3	14591.15		1.22 ***	0.12	3.37	1.88 ***	0.16	6.56	0.85 ***	0.02	2.34
Education: Higher	2.87 ***	0.34	17.59	-18.44	14591.15		2.31 ***	0.16	10.13	2.9 ***	1.01	18.22	1.78 ***	0.04	5.94
	INDONESIA			MALDIVES			MYANMAR			NEPAL			PAKISTAN		
DHS	(6)			(7)			(8)			(9)			(10)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	-0.88	0.54		41.71	92465.22		-0.5 ***	0.16		-0.76 ***	0.21		-0.17	0.11	
Poorer Household	-1.45 ***	0.11	0.23	18.84	6118.57		-0.97 ***	0.09	0.38	-1.16 ***	0.09	0.31	-0.89 ***	0.07	0.41
Residence: Rural	-0.59 ***	0.09	0.55	-18.43	14768.72		-0.92 ***	0.14	0.40	-0.58 ***	0.09	0.56	-0.3 ***	0.07	0.74
Age Group 25-34	0.28 ***	0.09	1.32	-18.16	9979.01		0.08	0.11		-0.14	0.1		-0.1	0.07	
Age Group 35+	0.32 ***	0.11	1.38	-0.64	13860.87		0.08	0.11		-0.2	0.19		-0.24 ***	0.09	0.79
Marriage Status: Currently in union/married	0.67	0.49		0.69	81798.47										
Marriage Status: Formerly in union/married	0.35	0.53		17.49	85253.53		-0.31 *	0.17	0.73	1.35	0.83		0.12	0.34	
No. of children under age of 5	-0.14	0.14		17.84	16869.54		-0.18 **	0.07	0.84	0	0.15		0.2 ***	0.07	1.22
Education: Primary	1.27 ***	0.19	3.58	-0.91	40044.94		0.9 ***	0.1	2.45	0.52 ***	0.12	1.68	0.53 ***	0.09	1.70
Education: Secondary	2.12 ***	0.19	8.31	-17.77	38885.76		1.54 ***	0.12	4.65	1.12 ***	0.12	3.06	1.01 ***	0.09	2.75
Education: Higher	2.82 ***	0.25	16.75	0.78	40280.31		2.73 ***	0.36	15.32	1.89 ***	0.18	6.64	2.02 ***	0.16	7.56
	PHILIPPINES			TAJIKISTAN			TIMOR-LESTE								
DHS	(11)			(12)			(13)								
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR						
(Intercept)	-0.77 **	0.38		-1.06	1.08		0.29	0.62							
Poorer Household	-1.52 ***	0.14	0.22	-0.76 ***	0.25	0.47	-0.92 ***	0.08	0.40						
Residence: Rural	-0.81 ***	0.12	0.44	-0.57 *	0.34	0.56	-1.06 ***	0.11	0.35						
Age Group 25-34	0.07	0.1		-0.32	0.26		-0.29 ***	0.09	0.75						
Age Group 35+	-0.02	0.12		-1.09 ***	0.32	0.34	-0.42 ***	0.12	0.66						
Marriage Status: Currently in union/married	-0.15	0.27		2.71 ***	0.96	15.06	-0.92	0.61							
Marriage Status: Formerly in union/married	-0.17	0.37		2.73 **	1.2	15.37	-1.38 **	0.68	0.25						
No. of children under age of 5	0.13	0.11		0.11	0.29		0.09	0.1							
Education: Primary	1.06 ***	0.23	2.90	0.95 *	0.52	2.58	0.3 ***	0.11	1.35						
Education: Secondary	2.23 ***	0.23	9.31	1.52 ***	0.4	4.59	0.85 ***	0.1	2.34						
Education: Higher	2.92 ***	0.26	18.59	2.9 ***	0.64	18.23	2.18 ***	0.25	8.86						
	BHUTAN			KAZAKHSTAN			KYRGYZSTAN			LAO PDR					
MICS	(1)			(2)			(3)			(4)					
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR			
(Intercept)	5.3 ***	1.02		4.62 ***	0.79		38.05	13873.72		0.12	1.57				
Poorer Household	-1.27 ***	0.1	0.28	-0.06	0.59		19.12	10503.49		-1.45 ***	0.08	0.23			
Residence: Rural	-1.01 ***	0.15	0.37	-0.39	0.57		0.62	5549.53		-0.77 ***	0.11	0.46			
Age Group 25-34	-0.14	0.1		0.04	0.57		17.43	15095.51		-0.11	0.08				
Age Group 35+	-0.22	0.14		0.01	0.74		-92.63	11425.03		-0.39 ***	0.12	0.68			
Marriage Status: Currently in union/married	0.01	0.2		14.84	1135.59		-12.56	145317.76		-0.41	0.26				
Marriage Status: Formerly in union/married	0.14	0.55		14.89	2398.58		-19.64	7663.96		-0.24	0.25				
No. of children under age of 5	-0.34 ***	0.07	0.71	0.21	0.37		-18.63	2541.1		-0.27 ***	0.04	0.76			
Education: Primary	-2.86 ***	1.01	0.06	0	0.52					0.79	1.57				
Education: Secondary	-0.17	1.24					110.53	12905.27		1.31	1.57				
Education: Higher							128.36	19632.11		2.7 *	1.59	14.87			
	MONGOLIA			THAILAND			TURKMENISTAN			VANUATU			VIET NAM		
MICS	(5)			(6)			(7)			(8)			(9)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	5.53 ***	0.71		0.78	0.75		26.57	41859		16.77	638.71		7.69 ***	0.95	
Poorer Household	0.4	0.48		-1.01 ***	0.22	0.36	0	23403.13		-0.55 ***	0.21	0.57	-3.56 ***	0.6	0.03
Residence: Rural	-0.34	0.47		-0.55 ***	0.2	0.58	0	22727.98		-0.3	0.25		-0.88 **	0.34	0.42
Age Group 25-34	-0.44	0.53		-0.57 ***	0.21	0.56	0	25513.82		-0.04	0.2		0.14	0.22	
Age Group 35+	-0.14	0.69		-0.2	0.28		0	34103.26		-0.31	0.25		-0.07	0.35	
Marriage Status: Currently in union/married	-0.25	1.04		-0.41	0.37		0	62777.69		0.16	0.59		0.63	0.65	
Marriage Status: Formerly in union/married	-1.03	0.78		12.29	518.8		0	253184.9		-0.44	0.29		12.66	610.1	
No. of children under age of 5	-0.42	0.32		-0.25 *	0.13	0.78	0	9086.73		-0.02	0.12		-0.45 ***	0.14	0.64
Education: Primary				1.76 **	0.74	5.80	0	38772.57		-15.44	638.71		-17.05	882.74	
Education: Secondary	-0.25	0.50		2.48 ***	0.74	11.93	0	39167.54		-14.55	638.71		-1.55 **	0.74	4.72
Education: Higher				3.37 ***	0.78	29.09							0.84	1.02	

Source: ESCAP elaboration based on DHS and MICS household surveys.

Notes: 1. Latest year available for each country 2. Base references are richer households, urban household, age group 15–24, single as marital status, no children under 5 years old in the household, and no education.

Coeff. = Coefficient, SE = Standard Error, OR = Odds Ratio. \*\*\* 1% level of significance, \*\* 5% level of significance, \* 10% level of significance.

**TABLE A4****Logit model results: Use of modern contraception**

DHS	AFGHANISTAN			ARMENIA			BANGLADESH			CAMBODIA		
	(1)			(2)			(3)			(4)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	-0.67 ***	0.06		-12.32	229.49		1.13 ***	0.07		0.71 ***	0.09	
Poorer Household	-0.26 ***	0.04	0.770	-0.11	0.11		0.18 ***	0.05	1.192	0.16 ***	0.05	1.171
Residence: Rural	-0.17 ***	0.04	0.844	-0.23 **	0.11	0.792	-0.22 ***	0.05	0.804	0.28 ***	0.06	1.321
Age Group 25-34	0.59 ***	0.05	1.805	0.11	0.15		0.27 ***	0.05	1.311	0.24 ***	0.07	1.273
Age Group 35+	0.82 ***	0.05	2.261	-0.3 *	0.17	0.739	-0.32 ***	0.06	0.724	-0.19 **	0.07	0.829
Children Under 5	-0.43 ***	0.02	0.654	-0.33 ***	0.09	0.717	-0.05	0.04		-0.11 ***	0.04	0.9
Education: Primary	0.19 ***	0.07	1.214	11.42	229.49		0.02	0.06		-0.16 **	0.07	0.851
Education: Secondary	0.15 **	0.07	1.159	11.57	229.49		-0.09	0.06		-0.29 ***	0.08	0.745
Education: Higher	-0.01	0.13		11.99	229.49		-0.16 *	0.08	0.853	-0.62 ***	0.15	0.54
DHS	INDIA			INDONESIA			MYANMAR			MALDIVES		
	(5)			(6)			(7)			(8)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	0.37 ***	0.01		1.06 ***	0.13		0.63 ***	0.13		-1.12 ***	0.23	
Poorer Household	-0.37 ***	0.01	0.690	-0.12 ***	0.04	0.890	-0.11	0.07		0.01	0.09	
Residence: Rural	-0.01	0.01		0.27 ***	0.03	1.309	-0.25 ***	0.08	0.778	-0.13	0.14	
Age Group 25-34	0.85 ***	0.01	2.335	0.13 **	0.05	1.14	0.03	0.1		0.4 ***	0.14	1.496
Age Group 35+	1.11 ***	0.01	3.042	-0.03	0.06		-0.48 ***	0.1	0.62	0.76 ***	0.16	2.14
Children Under 5	-0.72 ***	0.01	0.488	-0.13 ***	0.03	0.88	-0.13 ***	0.05	0.875	-0.25 ***	0.08	0.783
Education: Primary	0.05 ***	0.01	1.05	0.54 ***	0.13	1.71	0.6 ***	0.09	1.829	0.06	0.19	
Education: Secondary	-0.26 ***	0.01	0.771	0.23 *	0.12	1.263	0.58 ***	0.1	1.779	-0.4 **	0.2	0.673
Education: Higher	-0.65 ***	0.02	0.524	-0.21	0.13		0.76 ***	0.15	2.134	-0.13	0.22	
DHS	NEPAL			PAKISTAN			PHILIPPINES			TAJIKISTAN		
	(9)			(10)			(11)			(12)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	0.03	0.09		-0.78 ***	0.09		-0.54 ***	0.2		-0.2	0.28	
Poorer Household	-0.08	0.05		-0.29 ***	0.06	0.751	0.16 ***	0.05	1.178	-0.07	0.08	
Residence: Rural	-0.16 ***	0.05	0.853	0.04	0.05		0.12 ***	0.04	1.125	-0.12	0.08	
Age Group 25-34	0.5 ***	0.07	1.653	0.47 ***	0.08	1.597	0.32 ***	0.06	1.377	0.42 ***	0.11	1.516
Age Group 35+	0.9 ***	0.08	2.467	0.7 ***	0.08	2.006	0.06	0.06		0.59 ***	0.12	1.807
Children Under 5	-0.39 ***	0.05	0.678	-0.3 ***	0.04	0.743	-0.05	0.04		-0.41 ***	0.06	0.664
Education: Primary	-0.39 ***	0.07	0.676	0.27 ***	0.07	1.304	0.84 ***	0.2	2.324	-0.18	0.31	
Education: Secondary	-0.68 ***	0.07	0.504	0.24 ***	0.07	1.276	0.97 ***	0.19	2.636	0.06	0.26	
Education: Higher	-0.75 ***	0.09	0.47	0.27 ***	0.08	1.304	0.78 ***	0.2	2.181	0.29	0.27	
DHS	TIMOR-LESTE											
	(13)											
	Coeff	SE	OR									
(Intercept)	-0.37 ***	0.12										
Poorer Household	-0.24 ***	0.08	0.791									
Residence: Rural	0.22 ***	0.08	1.244									
Age Group 25-34	0.39 ***	0.1	1.48									
Age Group 35+	0.31 ***	0.11	1.366									
Children Under 5	-0.3 ***	0.06	0.74									
Education: Primary	0.4 ***	0.1	1.498									
Education: Secondary	0.09	0.09										
Education: Higher	-0.02	0.14										
MICS	BHUTAN			KAZAKHSTAN			KYRGYZSTAN			LAO PDR		
	(1)			(2)			(3)			(4)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	0.9 ***	0.08		-0.1	0.92		-0.53	1.15		-10.92	119.47	
Poorer Household	0.14 **	0.07	1.153	0.07	0.08		0.22 *	0.12	1.244	-0.24 ***	0.05	0.790
Residence: Rural	0.04	0.07		0.1	0.08		0.15	0.11		0.37 ***	0.05	1.453
Age Group 25-34	0.58 ***	0.07	1.781	0.5 ***	0.1	1.655	1.17 ***	0.14	3.222	0.62 ***	0.05	1.857
Age Group 35+	0.9 ***	0.08	2.466	0.57 ***	0.1	1.773	2.02 ***	0.16	7.573	0.76 ***	0.06	2.133
Children Under 5	0.09 **	0.04	1.093	0.01	0.04		0.4 ***	0.07	1.495	-0.02	0.03	
Education: Primary										11.06	119.47	
Education: Secondary	-0.24 ***	0.08	0.788	0.8	0.92		-0.35	1.13		10.93	119.47	
Education: Higher	-0.16	0.21		0.95	0.92		-0.25	1.13		10.39	119.47	
MICS	MONGOLIA			THAILAND			TURKMENISTAN			VIET NAM		
	(5)			(6)			(7)			(8)		
	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR	Coeff	SE	OR
(Intercept)	0.54 *	0.28		1.42 ***	0.45		10.72	324.74		-1.21	0.87	
Poorer Household	0.13 **	0.07	1.140	0.19 ***	0.07	1.212	0	0.12		0.31 ***	0.07	1.362
Residence: Rural	0.3 ***	0.06	1.348	-0.09	0.06		0.19 *	0.11	1.215	0.08	0.06	
Age Group 25-34	0.45 ***	0.09	1.566	0.28 ***	0.08	1.326	0.94 ***	0.13	2.569	0.58 ***	0.1	1.788
Age Group 35+	0.1	0.09		0.61 ***	0.09	1.836	1.92 ***	0.15	6.806	0.54 ***	0.11	1.719
Children Under 5	0.12 ***	0.04	1.132	0.17 ***	0.04	1.188	-0.07 *	0.04	0.928	0.18 ***	0.05	1.202
Education: Primary				0.6	0.44					1.86 **	0.87	6.431
Education: Secondary	0.15	0.27		0.42	0.44		-10.53	324.74		1.65 *	0.87	5.228
Education: Higher	-0.15	0.27		0.06	0.44		-10.78	324.74		1.54 *	0.87	4.643

Source: UNESCAP elaboration based on DHS and MICS household surveys.

Notes: 1. Latest year available for each country. 2. Base reference are richer household, urban household, age group 15–24, no children under 5 years old in the household and no education.

Coeff. = Coefficient, SE = Standard Error, OR = Odds Ratio. \*\*\* 1% level of significance, \*\* 5% level of significance, \* 10% level of significance.



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## **Inequality of Opportunity in Asia and the Pacific: Women's Sexual and Reproductive Health**

Reducing inequality in all its forms is at the heart of the 2030 Agenda for Sustainable Development. It is emphasized in the stand-alone Goal 10 “Reduce inequality within and among countries” and in other Goals that call for universality and for “leaving no one behind”. Reducing inequality advances human rights and social justice and is fundamental for all three dimensions of sustainable development.

The ESCAP *Inequality of Opportunity* papers identify seven areas of basic opportunities where inequality jeopardizes a person's life prospects, namely: education; women's sexual and reproductive health; children's nutrition; decent work; water and sanitation; clean energy; and financial inclusion. Each of these opportunities are covered by specific commitments outlined in the 2030 Agenda for Sustainable Development and addressed in a separate thematic paper covering 33 countries throughout Asia and the Pacific.

This paper on Inequality of Opportunity in Women's Sexual and Reproductive Health explores gaps between groups in access to skilled birth attendance and use of modern contraceptive methods. The analysis identifies the furthest behind and analyses inequalities to determine the relative contribution of each underlying circumstance. Ultimately, these findings are of direct use for generating discussion on transformations needed to reach the “furthest behind first” as pledged in the 2030 Agenda.

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