FREDERICK S. PARDEE CENTER FOR INTERNATIONAL FUTURES
JOSEF KORBEL SCHOOL OF INTERNATIONAL STUDIES
UNIVERSITY of DENVER

UN WOMEN

FORECASTING WOMEN IN LEADERSHIP POSITIONS

TECHNICAL BRIEF

By: Taylor Hanna, Collin Meisel, Jonathan Moyer (Frederick S. Pardee Center for International Futures) and Ginette Azcona, Antra Bhatt and Sara Duerto Valero (UN Women)
Research Assistance: Asha Meagher

INTRODUCTION

In most regions, women have caught up with or are even surpassing men in terms of educational attainment, especially at the tertiary level. And women's labor force participation has increased in many countries over recent decades. However, women still remain underrepresented in management positions in the workplace. In other words, the gender gap in power and leadership is an important component of the persistent lag in gender equality. Globally, women hold just 28.2 per cent of management positions in the workplace (UN Women, 2023).

Understanding more about the gender gap in managerial positions is an important component of understanding persistent gender inequality. This Technical Brief details the process of adding a measure of women in managerial positions to the International Futures (IFs) integrated modeling platform in order to estimate and forecast women's leadership in the workplace globally. It begins with a review of relevant literature, data sources, and data challenges. It then presents the results of a regression analysis designed to identify relationships between women in managerial positions and other variables for the purpose of identifying driver variables and relationships which are then implemented in the International Futures model. Finally, the brief explores current estimations and forecasts of women in management starting in 2015 and until 2050.

LITERATURE

Data show that women are underrepresented in management positions. In a set of G20 and guest countries with available data, just under 30 percent of middle and senior management positions are occupied by women (ILO, 2020), with considerable variation by region. According to data from the ILO (2019) from 1991–2018, the regions with the highest share of women in management positions are North America (36.2 percent), Latin America and the Caribbean (34.1 percent), and Europe and Central Asia (32.1). Rates are just under 20 percent for Asia and the Pacific and Africa, and lowest (10.1 percent) in Middle East and North Africa (ILO, 2019). Women are more likely to be in management roles in feminized functions, like human resources and administration, and in more feminized sectors, like health, social work, and education than in traditionally male-dominated industries like mining and construction (ILO, 2019, 2020). The share of women in managerial positions is higher in the public sector than in the private sector (ILO, 2020).

Literature on the drivers of women in managerial positions is limited, and much is geographically focused on high-income and Western countries. However, there is evidence that greater economic development does not necessarily mean more women in leadership positions (Pande & Ford, 2011). And it is clear that women's representation in leadership has not kept pace with improvements in women's education and labor force participation (Pande & Ford, 2011).

Cultural norms and attitudes remain a major barrier for women advancing into leadership positions. In cultures that emphasize women's roles as subservient, these values may discourage women from working or seeking leadership positions to begin with (Kiamba, 2009). And when women do seek to advance in the workplace, they are often faced with an organizational culture that subjects women in the workplace to sexual harassment, relegates women to secretarial duties and leadership only in certain roles, like human resources, and undervalues their expertise (Haile et al., 2016; Joshi, 2014; Joshi & Misangyi, 2018). Moreover, women often

lack the social connections and networks that help men in power advance (Fairfax, 2006; Kiamba, 2009).

Women are also under-represented in sectors that matter for the health of our planet, including those related to resource management. In 2019, only 23.7 per cent of managers in large utility companies (with more than 200 employees) were women. In smaller utility companies, the share was even lower, at 23.1 per cent (Azcona et al., 2023).

Another major challenge to women's advancement into leadership positions is the expectation that women perform the majority of domestic and childcare duties in a household (ILO, 2018; UN Women, 2020). Even when working full time, women are often expected to pick up family responsibilities in a "second shift," while many male leaders benefit from spouses who are expected to perform these duties (Ferrant et al., 2014; Hochschild & Machung, 2012; Kiamba, 2009). Alternative childcare options are often costly, resulting in some women staying home or pulling back on paid work commitments in order to care for children (Klettner et al., 2016).

One policy solution to the lack of women's representation in managerial positions is to institute a quota. Gender quotas have existed in some countries for politics for decades but have only recently been introduced to business. In 2003, Norway implemented a gender quota of 40 percent representation on public company boards, and several other countries have followed this example. Some companies have also implemented voluntary gender quotas for board or management positions. Quotas have found to be effective in increasing women's representation in both business and politics (Berevoescu & Ballington, 2021; Pande & Ford, 2011).

Very little research has looked at the performance effects of quotas in the private sector (Pande & Ford, 2011). While one study found that firms affected by Norway's gender quota showed reduced profits in the short term compared to other Nordic companies, that reduction was largely due to increased spending on labor (Matsa & Miller, 2013). And while another found that the increase in women's representation on boards due to a legislated quota was associated with a reduction in affected firms' market valuation, it also found that gender of the board members did not affect the value once other characteristics were controlled for (Ahern & Dittmar, 2010).

At the firm level, there is evidence that women's representation in management and top leadership positions results in improved firm performance in the United States (Dezsö & Ross, 2012), Indonesia (Triana & Asri, 2017), and Canada and Pakistan (Faizan et al., 2019). In a survey of nearly 13,000 enterprises in 70 countries, the ILO (2019) found positive associations between the presence of a gender-inclusive business culture and gender diversity initiatives, and improved business outcomes and profit increases.

At regional and country levels, model simulations show that excluding women from leadership positions dampens economic growth. Esteve-Volart (2004) shows that excluding women from managerial positions in India negatively affects economic growth as well as the labor market, wages, and investments in education. And globally, Cuberes and Teigneier (2012) show that excluding women from entrepreneurship reduces the average output per worker and results in income losses of around 5 percent.

DATA

Historical data for this variable are from the International Labour Organization (ILO) series: *Employment by sex and occupation – ILO modelled estimates, Nov, 2022 (thousands) – Annual.* The dataset includes absolute numbers of women and men in different employment classifications. For this dataset, we calculated the share of women in leadership positions manually, using the occupation category "1. Managers."

The International Standard Classification of Occupations (ISCO) includes four sub-categories within the Managers category: 11. Chief Executives, Senior Officials and Legislators; 12. Administrative and Commercial Managers; 13. Production and Specialized Services Managers; and 14. Hospitality, Retail and Other Services Managers. Category 11 is considered senior management, 12 and 13 are considered middle management, and 14 is considered junior management. Some analyses limit the focus to senior and middle management, excluding 14 (ILO, 2020). For our purposes, in order to ensure the greatest level of coverage, we included all Managerial categories, including those that were not delineated further into a second-digit categorization.

The dataset includes data for 165 countries, over 87 percent of the 188 countries in the model. Data are available from as early as 2010 and as recent as 2021. While some countries offer complete yearly coverage from 2010-2021, others only have one or two datapoints in the period. Altogether, data are available in just over half (53 percent) of country-years for IFs countries from 2010-2021.

Data on the proportion of women in managerial positions come from labor force surveys but have important limitations. Many countries do not conduct labor force surveys regularly due to the required expense, and some others do not make data available at the level necessary to calculate the proportion of women in managerial positions or they are not harmonized to the codes necessary for cross-country comparison (ILO, 2020). Moreover, a review of the data reveals some sharp jumps that may be due to methodological differences from year to year. For example, in Togo the proportion of women in managerial positions more than doubles in two years, from 29.8 percent in 2015 to 70.1 percent in 2017. These large changes indicate that there may be discrepancies in the definitions, methodologies, and reporting in the Labor Force Surveys that inform this data series as well as sample size issues and should be approached with caution.

MODELLING WOMEN IN LEADERSHIP POSITIONS

International Futures

The International Futures (IFs) tool is an open-source integrated assessment modeling platform that allows for historical data analysis and scenario analysis for 188 countries. IFs represent integrated relationships across 12 core systems: agriculture, demographics, economics, education, energy, environment, finance, governance, health, infrastructure, international politics, and technology. All systems and modules within IFs are connected dynamically so that changes in one system lead to changes across all others. More information about IFs is available at pardeewiki.du.edu/ or in Hughes (Hughes, 2019).

For this project, we created a new variable in IFs – Percent of Managerial Roles Filled by Women (WOMENINLEADERSHIP). The variable is initialized using the ILO data series described in the previous section. If no data is available for a country, a value is initialized using the relationships described below, in the Drivers section.

Drivers of women in leadership positions

Based on a review of literature and consultation with experts, we assessed 12 different variables as potential drivers of the forecast of women in managerial positions that are available in the International Futures Model.

The following variables were included in this exploratory analysis:

- Education, average years for male, female, and total
- Female labor force participation rate
- Gender Development Index (GDI)
- Gender Inequality Index (GII)
- Homicide rate for adult women
- Household consumption as a percent of GDP
- Household size
- Life expectancy
- Region
- Social expenditure per GDP
- Total fertility ratio
- Youth dependency ratio

TABLE 1: Regression results for the women's share of managerial positions. Sub-region indicator variables are omitted from the table

VARIABLES	(1) Initial	(2) Alt 1	(3) Alt 2	(4) Alt 3	(5) Alt 4	(6) Alt 5	(7) Alt 6	(8) Alt 7
Gdi	3.963***							
	(0.841)							
hhcon_per-cent_gdp	0.0116***	0.00935***	0.00818*	0.00788***	0.00989**			0.00946***
	(0.00244)	(0.00244)	(0.00419)	(0.00261)	(0.00411)			(0.00257)
edyrs_f	0.0615***	0.135***	0.0500**	0.143***	0.0588**	0.0326*	0.123***	0.113***
	(0.0171)	(0.0188)	(0.0195)	(0.0184)	(0.0230)	(0.0193)	(0.0147)	(0.0141)
Gii		0.745**	0.784	1.035***	0.00553	0.883*	1.025***	
		(0.297)	(0.478)	(0.289)	(0.487)	(0.485)	(0.262)	
lfpr_f			0.0176***	0.00868***		0.0172***	0.0109***	0.00638**
			(0.00628)	(0.00287)		(0.00636)	(0.00225)	(0.00300)
govsocialexp_per_gdp			-0.00451		-0.00628	-0.0124		
			(0.0124)		(0.0121)	(0.0117)		
Constant	-5.395***	-2.677***	-2.942***	-3.334***	-1.964***	-2.246***	-3.024***	-2.431***
	(0.716)	(0.388)	(0.586)	(0.371)	(0.484)	(0.511)	(0.292)	(0.244)
Observations	481	498	147	498	147	149	669	512

Drivers were assessed in different combinations and formulations. See Table 1 for a non-exhaustive selection of regression results, using a fractional response logistic regression with sub-region fixed effects.

Fractional response logistic regression allows for the modeling of continuous variables bounded by the values of zero and one (Papke & Wooldridge, 1996), which is appropriate for our dependent variable modeled here given that the share

of women in leadership positions cannot be less than zero or more than one hundred percent. Moreover, this nonlinear model allows for variable marginal effects. For example, when the share of women in leadership positions is extremely low, a modest amount of liberalization in a society might result in a relatively large increase in the share of women in leadership positions. Relatedly, once the share of women in leadership positions notably exceeds 50 percent, future increases might be expected to see a saturation effect rather than a continuous progression toward a 100 percent share. In contrast, more commonly used ordinary least squares methods assume a constant marginal effect and can produce estimates that include large negative and positive values exceeding the known zero-to-one bound defining any measure of shares or proportions.

Sub-region fixed effects were added to control for unique, unmeasured and oftentimes unmeasurable factors that describe the cultural, historical, geographical, and other factors that define a given country's place in the world. While our preference would have been to use country fixed effects, minimum sample size requirements dictated that sub-regions were the most micro-level geographic control variable available for use (Harrell, 2015).

Our first model (1) was oriented around three buckets of drivers: gender inequality overall, household burden, and women's education and skill. We take GDI as our measure of gender inequality. As the ratio between male and female Human Development Index (HDI) scores, it accounts for gender inequality in income, education, and health outcomes, and reflects broad societal inequalities. We also explored the GII as a measure of gender inequality, but curiously GII consistently showed the opposite sign to what was expected: increased gender inequality was associated with more women in managerial positions. This could be due to a number of reasons, including a small sample size due to limited data and the existence of an unmeasured confounding variable.

Women's educational attainment was significantly associated with women in managerial positions in all formulations and reflects a relationship found in the literature. Household consumption is significantly and positively associated with women in managerial positions. Government welfare spending was tried as a variable, but significantly limited data availability reduced the observation pool such that it was not a viable option.

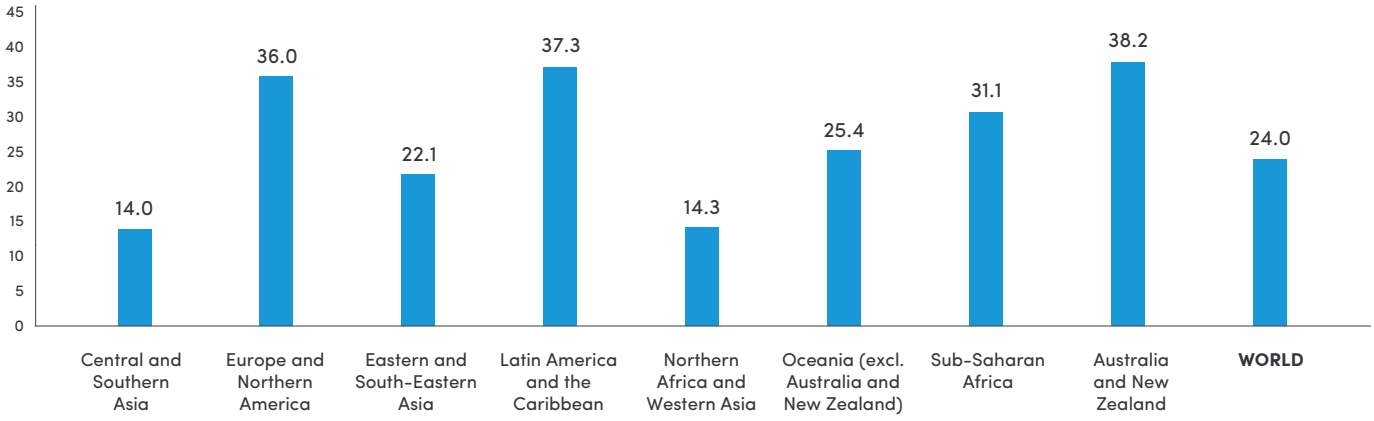
For women in leadership, we ultimately used the initial formulation – (1) in Table 1 – in which the portion of women in managerial positions is **driven by GDI, household consumption, and female education**. A number of other difficult to measure variables such as gender norms, are not taken into account. Slow changes in such characteristics may lead to a longer trajectory towards achieving gender parity in managerial positions, which is beyond the scope of the estimates and projections presented in this paper.

ESTIMATES AND FORECASTS OF WOMEN IN MANAGERIAL POSITIONS

We estimate that, globally, women hold about 24 percent of managerial positions in 2023. Northern Africa and Western Asia (NAWA) and Central and Southern Asia (CSA) are the regions with the lowest female representation at 14.3 and 14 percent of managerial positions, respectively. Levels in Eastern and South-eastern Asia (ESEA) are just below the global average at 22.1 percent. The region with the highest proportion of women in managerial positions is Australia and New Zealand at 38.2 percent, while Europe and Northern America (ENA) and Latin America and the Caribbean (LAC) are at 36 and 37.3 per cent respectively.

FIGURE 1

Proportion of managers who are women by region, 2023

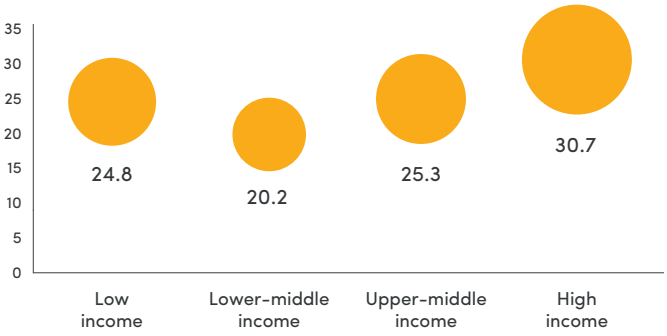


Source: UN Women and the Pardee Center for International Futures using IFs v. 7.97.

By income group, women's representation in management is the lowest in lower-middle income countries (LMICs), at 20.2percent. This is followed by low income countries (LICs) at 24.8 per cent, upper-middle income countries (UMICs) at 25.3 percent, and finally high income countries (HICs) with 30.7 percent.

FIGURE 2

Proportion of managers who are women by World Bank Income Classifications, 2023



Source: UN Women and the Pardee Center for International Futures using IFs v.7.97.

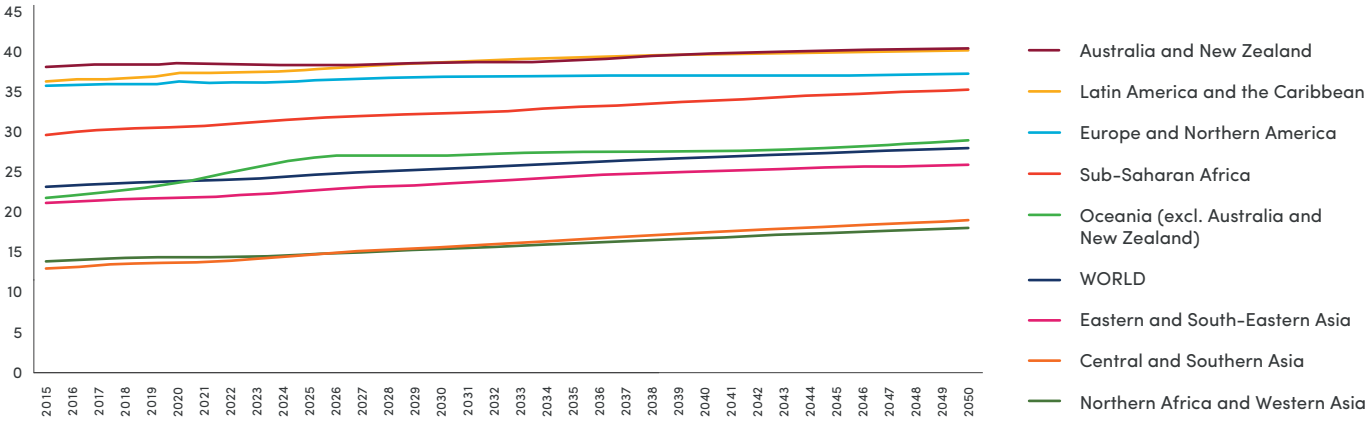
Women's representation in management varies significantly across countries. 2023 estimates based on recent data from Burkina Faso, Jamaica and Lao People's Republic suggest a proportion of women managers near or above 60 percent. However, it is important to take data limitations into consideration, as these figures may obscure challenges to women reaching more senior managerial roles or managerial roles across sectors. For example, the ILO (2021) cautions that while according to the data, women in Jordan made up 62 percent of managers in 2019, female labor force participation is only 14 percent and the majority of female respondents worked in the education sector – less than three percent of female managers work outside of the education sector.

WOMEN IN MANAGERIAL POSITIONS ALONG THE CURRENT PATH

At the current pace of progress, we forecast the proportion of women in managerial positions to rise over time, from roughly 24 percent in 2023 to 28 percent by 2050.

FIGURE 3

Proportion of managers who are women by region, 2015-2050



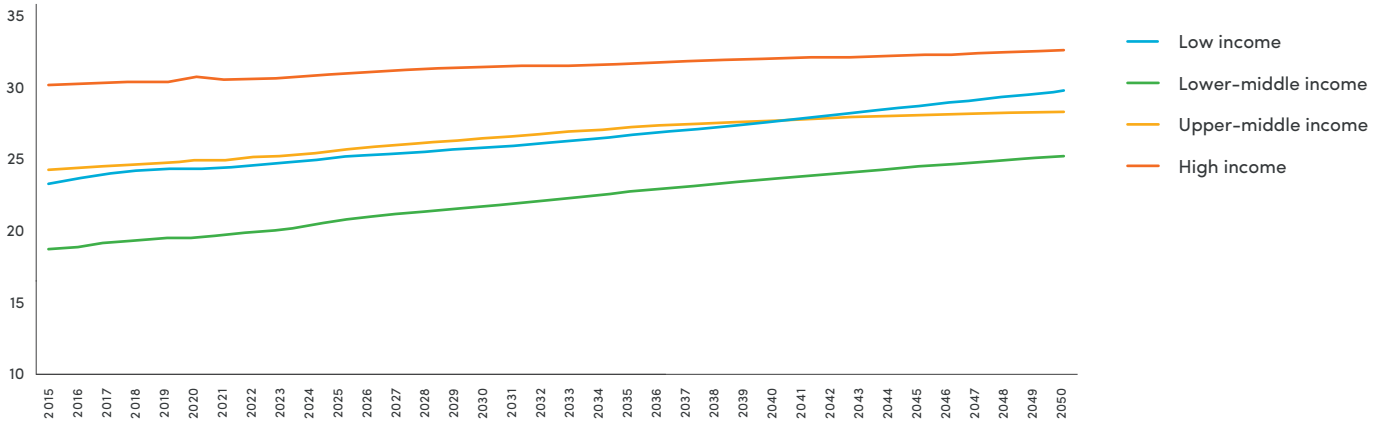
Source: UN Women and the Pardee Center for International Futures using IFs v.7.97.

The proportion of women in managerial positions is expected to grow modestly through the horizon in most regions. Progress is the most muted in Europe and Northern America and Australia and New Zealand, in which improvements of 1 and 2 percentage points are projected, respectively. The greatest relative increase is projected in Central and Southern Asia, where the portion of women in managerial positions is projected to grow from 14 percent in 2023 to 19 per cent in 2050 - 4.8 percentage points. And in Sub-Saharan Africa, an increase of 4 percentage points is projected.

Improvements are expected to be more modest in other regions, but all are expected to grow somewhat through the horizon. The portion of women in management grows from 35 to 36 percent in Europe and Northern America, 25 to 29 percent in Oceania (excluding Australia and New Zealand), and 37.3 to 40 percent in Latin America and the Caribbean.

FIGURE 4

Proportion of managers who are women by World Bank Income Classifications, 2015-2050



Source: UN Women and the Pardee Center for International Futures using IFs v.7.97.

The proportion of managerial positions held by women is expected to improve across income groups as well. By income group, we forecast the greatest growth in women in managerial positions in LICs, which are expected to see a growth of about 5 percentage points between 2023 and 2040- from 25 percent in 2023 to nearly 30percent of managerial roles held by women in 2050, and LMICs, from 20 percent to 25 percent in the same period. Improvement is more muted for UMICs (25 to 28 percent) and HICs (31 to 33 percent).

While women's representation in leadership is expected to improve in coming decades, without transformative action it will do so only gradually. According to IFs estimates, the proportion of women in managerial positions has grown on average just 0.5 percent per year from 2015 to 2023. In order to reach 48 percent by mid-century, that growth would need to be over 4 times faster than projected.

CONCLUDING REMARKS

It is important to acknowledge the limitations inherent to these estimations and forecasts. First, as described in the Data section, the data availability is very limited and data across countries may reflect difference in survey methodologies and definitions as well as the size of certain female-oriented sectors (like education or hospitality) resulting in high values for women in management that may not reflect the state of management across other sectors. Moreover, data only date back to 2010, so we have very little data about how this variable changes over long time horizons. Thus, long-term forecasts should be seen as highly uncertain. Finally, forecasts in this brief are presented using a 2015 base year in the IFs model. This means that data since that date may not be fully incorporated into the forecasts. Recent data estimates (UNESC, 2022) suggest that the portion of women in managerial positions fell slightly in some regions in 2020, a reduction which is not reflected in the Current Path of the IFs model.

This brief details the addition of a new variable measuring the percentage of managerial positions occupied by women to the IFs modeling platform. This has resulted in:

1. Incorporation of data from ILO on women in management into the IFs system;
2. Estimation of values for countries where data are not available;
3. A forecast of the women in management positions, driven by changes in education, economic, and gender dynamics.

Currently, the variable does not have forward linkages to drive changes in the IFs model. Future work pertaining to this question could further explore existing relationships and long-term forecast dynamics to improve long-term forecasts of this variable, as well as explore potential forward linkages and effects of changes to this variable.

ANNEX TABLES

TABLE 1: Estimates and projections of proportion of women in managerial positions, by region, 2015–2050

Region	Year	Proportion of women in managerial positions
World	2015	23
World	2016	23.17
World	2017	23.34
World	2018	23.48
World	2019	23.58
World	2020	23.71
World	2021	23.73
World	2022	23.91
World	2023	24.03
World	2024	24.23
World	2025	24.46
World	2026	24.66
World	2027	24.83
World	2028	24.97
World	2029	25.11
World	2030	25.25
World	2031	25.38
World	2032	25.53
World	2033	25.69
World	2034	25.84
World	2035	25.99
World	2036	26.13
World	2037	26.27
World	2038	26.4
World	2039	26.53
World	2040	26.65
World	2041	26.78
World	2042	26.9
World	2043	27.03
World	2044	27.15
World	2045	27.27
World	2046	27.38
World	2047	27.49
World	2048	27.61
World	2049	27.71
World	2050	27.82
Australia and New Zealand	2015	37.98
Australia and New Zealand	2016	38.14
Australia and New Zealand	2017	38.26
Australia and New Zealand	2018	38.31
Australia and New Zealand	2019	38.35
Australia and New Zealand	2020	38.42
Australia and New Zealand	2021	38.36
Australia and New Zealand	2022	38.3
Australia and New Zealand	2023	38.24
Australia and New Zealand	2024	38.2
Australia and New Zealand	2025	38.19
Australia and New Zealand	2026	38.23
Australia and New Zealand	2027	38.29
Australia and New Zealand	2028	38.37
Australia and New Zealand	2029	38.44
Australia and New Zealand	2030	38.5
Australia and New Zealand	2031	38.54

Australia and New Zealand	2032	38.58
Australia and New Zealand	2033	38.63
Australia and New Zealand	2034	38.7
Australia and New Zealand	2035	38.8
Australia and New Zealand	2036	38.94
Australia and New Zealand	2037	39.11
Australia and New Zealand	2038	39.29
Australia and New Zealand	2039	39.46
Australia and New Zealand	2040	39.61
Australia and New Zealand	2041	39.72
Australia and New Zealand	2042	39.81
Australia and New Zealand	2043	39.87
Australia and New Zealand	2044	39.92
Australia and New Zealand	2045	39.97
Australia and New Zealand	2046	40.02
Australia and New Zealand	2047	40.08
Australia and New Zealand	2048	40.14
Australia and New Zealand	2049	40.21
Australia and New Zealand	2050	40.27
Central and Southern Asia	2015	12.78
Central and Southern Asia	2016	12.99
Central and Southern Asia	2017	13.22
Central and Southern Asia	2018	13.4
Central and Southern Asia	2019	13.49
Central and Southern Asia	2020	13.49
Central and Southern Asia	2021	13.58
Central and Southern Asia	2022	13.76
Central and Southern Asia	2023	14
Central and Southern Asia	2024	14.28
Central and Southern Asia	2025	14.56
Central and Southern Asia	2026	14.79
Central and Southern Asia	2027	14.99
Central and Southern Asia	2028	15.15
Central and Southern Asia	2029	15.31
Central and Southern Asia	2030	15.48
Central and Southern Asia	2031	15.66
Central and Southern Asia	2032	15.85
Central and Southern Asia	2033	16.05
Central and Southern Asia	2034	16.24
Central and Southern Asia	2035	16.43
Central and Southern Asia	2036	16.61
Central and Southern Asia	2037	16.79
Central and Southern Asia	2038	16.96
Central and Southern Asia	2039	17.12

Central and Southern Asia	2040	17.3
Central and Southern Asia	2041	17.46
Central and Southern Asia	2042	17.62
Central and Southern Asia	2043	17.77
Central and Southern Asia	2044	17.93
Central and Southern Asia	2045	18.08
Central and Southern Asia	2046	18.24
Central and Southern Asia	2047	18.39
Central and Southern Asia	2048	18.53
Central and Southern Asia	2049	18.68
Central and Southern Asia	2050	18.83
Eastern and South-Eastern Asia	2015	21
Eastern and South-Eastern Asia	2016	21.12
Eastern and South-Eastern Asia	2017	21.31
Eastern and South-Eastern Asia	2018	21.45
Eastern and South-Eastern Asia	2019	21.55
Eastern and South-Eastern Asia	2020	21.67
Eastern and South-Eastern Asia	2021	21.73
Eastern and South-Eastern Asia	2022	21.93
Eastern and South-Eastern Asia	2023	22.07
Eastern and South-Eastern Asia	2024	22.29
Eastern and South-Eastern Asia	2025	22.54
Eastern and South-Eastern Asia	2026	22.74
Eastern and South-Eastern Asia	2027	22.91
Eastern and South-Eastern Asia	2028	23.05
Eastern and South-Eastern Asia	2029	23.21
Eastern and South-Eastern Asia	2030	23.37
Eastern and South-Eastern Asia	2031	23.55
Eastern and South-Eastern Asia	2032	23.74
Eastern and South-Eastern Asia	2033	23.93
Eastern and South-Eastern Asia	2034	24.12
Eastern and South-Eastern Asia	2035	24.3
Eastern and South-Eastern Asia	2036	24.44
Eastern and South-Eastern Asia	2037	24.56
Eastern and South-Eastern Asia	2038	24.68
Eastern and South-Eastern Asia	2039	24.8
Eastern and South-Eastern Asia	2040	24.91
Eastern and South-Eastern Asia	2041	25.03
Eastern and South-Eastern Asia	2042	25.14
Eastern and South-Eastern Asia	2043	25.24
Eastern and South-Eastern Asia	2044	25.34
Eastern and South-Eastern Asia	2045	25.42
Eastern and South-Eastern Asia	2046	25.5
Eastern and South-Eastern Asia	2047	25.57

Eastern and South-Eastern Asia	2048	25.63
Eastern and South-Eastern Asia	2049	25.68
Eastern and South-Eastern Asia	2050	25.73
Europe and Northern America	2015	35.59
Europe and Northern America	2016	35.7
Europe and Northern America	2017	35.76
Europe and Northern America	2018	35.81
Europe and Northern America	2019	35.84
Europe and Northern America	2020	36.17
Europe and Northern America	2021	35.95
Europe and Northern America	2022	36.08
Europe and Northern America	2023	36
Europe and Northern America	2024	36.05
Europe and Northern America	2025	36.23
Europe and Northern America	2026	36.38
Europe and Northern America	2027	36.51
Europe and Northern America	2028	36.6
Europe and Northern America	2029	36.68
Europe and Northern America	2030	36.72
Europe and Northern America	2031	36.74
Europe and Northern America	2032	36.75
Europe and Northern America	2033	36.77
Europe and Northern America	2034	36.79
Europe and Northern America	2035	36.81
Europe and Northern America	2036	36.83
Europe and Northern America	2037	36.85
Europe and Northern America	2038	36.87
Europe and Northern America	2039	36.87
Europe and Northern America	2040	36.87
Europe and Northern America	2041	36.86
Europe and Northern America	2042	36.85
Europe and Northern America	2043	36.85
Europe and Northern America	2044	36.85
Europe and Northern America	2045	36.87
Europe and Northern America	2046	36.89
Europe and Northern America	2047	36.92
Europe and Northern America	2048	36.97
Europe and Northern America	2049	37.03
Europe and Northern America	2050	37.09
Latin America and the Caribbean	2015	36.15
Latin America and the Caribbean	2016	36.38
Latin America and the Caribbean	2017	36.44
Latin America and the Caribbean	2018	36.57
Latin America and the Caribbean	2019	36.76

Latin America and the Caribbean	2020	37.22
Latin America and the Caribbean	2021	37.15
Latin America and the Caribbean	2022	37.27
Latin America and the Caribbean	2023	37.31
Latin America and the Caribbean	2024	37.42
Latin America and the Caribbean	2025	37.64
Latin America and the Caribbean	2026	37.85
Latin America and the Caribbean	2027	38.07
Latin America and the Caribbean	2028	38.27
Latin America and the Caribbean	2029	38.46
Latin America and the Caribbean	2030	38.61
Latin America and the Caribbean	2031	38.72
Latin America and the Caribbean	2032	38.83
Latin America and the Caribbean	2033	38.94
Latin America and the Caribbean	2034	39.03
Latin America and the Caribbean	2035	39.13
Latin America and the Caribbean	2036	39.22
Latin America and the Caribbean	2037	39.31
Latin America and the Caribbean	2038	39.4
Latin America and the Caribbean	2039	39.48
Latin America and the Caribbean	2040	39.56
Latin America and the Caribbean	2041	39.64
Latin America and the Caribbean	2042	39.7
Latin America and the Caribbean	2043	39.76
Latin America and the Caribbean	2044	39.82
Latin America and the Caribbean	2045	39.88
Latin America and the Caribbean	2046	39.94
Latin America and the Caribbean	2047	39.99
Latin America and the Caribbean	2048	40.06
Latin America and the Caribbean	2049	40.12
Latin America and the Caribbean	2050	40.18
Northern Africa and Western Asia	2015	13.63
Northern Africa and Western Asia	2016	13.79
Northern Africa and Western Asia	2017	13.95
Northern Africa and Western Asia	2018	14.07
Northern Africa and Western Asia	2019	14.16
Northern Africa and Western Asia	2020	14.2
Northern Africa and Western Asia	2021	14.18
Northern Africa and Western Asia	2022	14.27
Northern Africa and Western Asia	2023	14.31
Northern Africa and Western Asia	2024	14.42
Northern Africa and Western Asia	2025	14.56
Northern Africa and Western Asia	2026	14.69
Northern Africa and Western Asia	2027	14.83

Northern Africa and Western Asia	2028	14.98
Northern Africa and Western Asia	2029	15.12
Northern Africa and Western Asia	2030	15.26
Northern Africa and Western Asia	2031	15.38
Northern Africa and Western Asia	2032	15.51
Northern Africa and Western Asia	2033	15.64
Northern Africa and Western Asia	2034	15.78
Northern Africa and Western Asia	2035	15.92
Northern Africa and Western Asia	2036	16.07
Northern Africa and Western Asia	2037	16.21
Northern Africa and Western Asia	2038	16.35
Northern Africa and Western Asia	2039	16.48
Northern Africa and Western Asia	2040	16.61
Northern Africa and Western Asia	2041	16.74
Northern Africa and Western Asia	2042	16.88
Northern Africa and Western Asia	2043	17.01
Northern Africa and Western Asia	2044	17.15
Northern Africa and Western Asia	2045	17.28
Northern Africa and Western Asia	2046	17.4
Northern Africa and Western Asia	2047	17.53
Northern Africa and Western Asia	2048	17.65
Northern Africa and Western Asia	2049	17.77
Northern Africa and Western Asia	2050	17.89
Oceania (excl. Australia and New Zealand)	2015	21.6
Oceania (excl. Australia and New Zealand)	2016	21.91
Oceania (excl. Australia and New Zealand)	2017	22.29
Oceania (excl. Australia and New Zealand)	2018	22.63
Oceania (excl. Australia and New Zealand)	2019	23.01
Oceania (excl. Australia and New Zealand)	2020	23.5
Oceania (excl. Australia and New Zealand)	2021	24.13
Oceania (excl. Australia and New Zealand)	2022	24.84
Oceania (excl. Australia and New Zealand)	2023	25.41
Oceania (excl. Australia and New Zealand)	2024	26.1
Oceania (excl. Australia and New Zealand)	2025	26.63
Oceania (excl. Australia and New Zealand)	2026	26.89
Oceania (excl. Australia and New Zealand)	2027	26.92
Oceania (excl. Australia and New Zealand)	2028	26.86
Oceania (excl. Australia and New Zealand)	2029	26.82
Oceania (excl. Australia and New Zealand)	2030	26.87
Oceania (excl. Australia and New Zealand)	2031	26.96
Oceania (excl. Australia and New Zealand)	2032	27.09
Oceania (excl. Australia and New Zealand)	2033	27.2
Oceania (excl. Australia and New Zealand)	2034	27.29
Oceania (excl. Australia and New Zealand)	2035	27.36

Oceania (excl. Australia and New Zealand)	2036	27.4
Oceania (excl. Australia and New Zealand)	2037	27.41
Oceania (excl. Australia and New Zealand)	2038	27.41
Oceania (excl. Australia and New Zealand)	2039	27.41
Oceania (excl. Australia and New Zealand)	2040	27.43
Oceania (excl. Australia and New Zealand)	2041	27.48
Oceania (excl. Australia and New Zealand)	2042	27.56
Oceania (excl. Australia and New Zealand)	2043	27.66
Oceania (excl. Australia and New Zealand)	2044	27.78
Oceania (excl. Australia and New Zealand)	2045	27.92
Oceania (excl. Australia and New Zealand)	2046	28.09
Oceania (excl. Australia and New Zealand)	2047	28.26
Oceania (excl. Australia and New Zealand)	2048	28.44
Oceania (excl. Australia and New Zealand)	2049	28.63
Oceania (excl. Australia and New Zealand)	2050	28.81
Sub-Saharan Africa	2015	29.48
Sub-Saharan Africa	2016	29.82
Sub-Saharan Africa	2017	30.08
Sub-Saharan Africa	2018	30.27
Sub-Saharan Africa	2019	30.41
Sub-Saharan Africa	2020	30.44
Sub-Saharan Africa	2021	30.6
Sub-Saharan Africa	2022	30.86
Sub-Saharan Africa	2023	31.06
Sub-Saharan Africa	2024	31.3
Sub-Saharan Africa	2025	31.55
Sub-Saharan Africa	2026	31.73
Sub-Saharan Africa	2027	31.88
Sub-Saharan Africa	2028	31.99
Sub-Saharan Africa	2029	32.09
Sub-Saharan Africa	2030	32.18
Sub-Saharan Africa	2031	32.29
Sub-Saharan Africa	2032	32.43
Sub-Saharan Africa	2033	32.59
Sub-Saharan Africa	2034	32.75
Sub-Saharan Africa	2035	32.92
Sub-Saharan Africa	2036	33.08
Sub-Saharan Africa	2037	33.24
Sub-Saharan Africa	2038	33.4
Sub-Saharan Africa	2039	33.55
Sub-Saharan Africa	2040	33.71
Sub-Saharan Africa	2041	33.87
Sub-Saharan Africa	2042	34.03
Sub-Saharan Africa	2043	34.19
Sub-Saharan Africa	2044	34.34
Sub-Saharan Africa	2045	34.5
Sub-Saharan Africa	2046	34.64
Sub-Saharan Africa	2047	34.77
Sub-Saharan Africa	2048	34.9
Sub-Saharan Africa	2049	35.02
Sub-Saharan Africa	2050	35.15

Table 2: Proportion of women in managerial positions, by country, select years

Country	2023	2030	2050
Afghanistan	7.313	8.304	12.19
Albania	19.43	19.41	20.7
Algeria	10.41	12.17	14.93
Angola	20.94	23.81	27.75
Argentina	30.43	31.19	32.2
Armenia	28.51	28.01	28.75
Australia	38.06	38.28	40.35
Austria	30.81	32.21	33.72
Azerbaijan	36.38	36.65	37.39
Bahamas	50.54	49.8	49.85
Bahrain	22.13	23.43	26.03
Bangladesh	12.17	13.6	16.45
Barbados	51.25	51.24	51.6
Belarus	45.74	46.31	46.79
Belgium	32.63	33.15	34.32
Belize	48.65	48.75	50.59
Benin	15.4	16.74	21.03
Bhutan	17.86	18.04	21.82
Bolivia	37.58	39.14	41.92
Bosnia and Herzegovina	21.71	21.87	23.59
Botswana	57.37	57.5	58.34
Brazil	40.04	41.3	43.12
Brunei Darussalam	37.46	39.49	41.89
Bulgaria	37.12	37.48	38.75
Burkina Faso	61.05	62.91	67.02
Burundi	26.55	25.77	21.26
Cabo Verde	44.43	45.4	47.8
Cambodia	31.29	32.15	35.14
Cameroon	51.66	53.74	56.12
Canada	36.14	36.33	37.1
Central African Republic	38.72	42.31	41.56
Chad	24.42	27.36	33.57
Chile	28.45	29.02	31.76
China	19.24	20.42	22.26
Colombia	36	36.47	38.19
Comoros	27.63	28.88	31.05
Congo	34.51	37.87	43.16
Congo, Dem. Republic of the	22.96	24.23	29.91
Costa Rica	29.41	29.99	32.94
Cote D'Ivoire	21.21	24.02	28.82
Croatia	27.46	28.34	29.31
Cuba	40	42.24	45.31
Cyprus	22.26	22.98	23.31
Czech Republic	30.58	31.9	33.02
Denmark	27.3	28.21	27.93
Djibouti	12.32	15.53	20.93
Dominican Republic	38.2	38.45	39.28
Ecuador	33.43	35.49	37.38
Egypt	7.633	8.146	10.9
El Salvador	42.54	42.88	44.02
Equatorial Guinea	35.06	34.65	39.18
Eritrea	23.3	25.09	25.49
Estonia	31.61	31.94	32.01
Eswatini	45.77	47.18	48.79
Ethiopia	27.51	28.45	33.4
Fiji	40.62	41.14	43.77
Finland	33.46	33.75	34.07
France	32.23	32.77	33.78
Gabon	46.66	49.14	47.4
Gambia	35.01	36.24	38.44
Georgia	38.2	38.22	39.93
Germany	31.07	32.8	32.36
Ghana	42.63	42.97	45.84
Greece	25.03	25.32	27.18
Grenada	42.11	42.71	44.01
Guatemala	33.01	33.35	36.06
Guinea	22.7	23.1	29.9
Guinea Bissau	24.39	25.67	26.57

Guyana	40.63	37.47	40.94
Haiti	40.45	40.79	41.52
Honduras	51.2	51.61	52.33
Hong Kong	33.2	32.16	33.07
Hungary	42.31	43.33	44.44
Iceland	38.83	39.51	37.97
India	14.95	16.68	20.9
Indonesia	24.15	25.85	29.51
Iran	16.7	17.34	19.11
Iraq	23.28	25.56	28.2
Ireland	37.64	39.57	40.55
Israel	32.48	32.69	33.5
Italy	27.53	28.59	29.49
Jamaica	63.21	63.14	63
Japan	12.55	13.52	15.15
Jordan	63.92	64.44	66.43
Kazakhstan	36.97	37.21	38.17
Kenya	50.36	50.74	52.69
Kiribati	28.59	31.66	34.07
Korea, Dem. People's Republic	16.63	17.28	19
Korea, Republic of	11.61	12.96	13
Kosovo	10.26	10.27	14.23
Kuwait	13.11	13.17	13.77
Kyrgyzstan	33.69	33.33	35.51
Lao People's Dem. Republic	59.3	60.1	62.84
Latvia	44.09	44.43	43.56
Lebanon	21.45	20.5	23.47
Lesotho	29.98	29.67	31.42
Liberia	57.14	58.56	59.8
Libya	20.04	20.96	21.41
Lithuania	38.65	39.13	37.66
Luxembourg	19.78	22.37	23.63
Macedonia, North	22.58	22.55	26.05
Madagascar	32.72	32.41	33.84
Malawi	17.57	18.02	18.39
Malaysia	23.27	23.84	25.29

Maldives	19.46	19.92	22.81
Mali	15.63	15.53	19.49
Malta	27.58	29.85	30.53
Mauritania	16.7	17.83	22.64
Mauritius	26.97	26.73	29.63
Mexico	37.37	38.3	40.93
Micronesia	18.58	22.73	26.25
Moldova, Republic of	45.69	44.86	45.28
Mongolia	41.26	42.29	43.5
Montenegro	20.13	20.18	21.91
Morocco	16.57	17.89	21.24
Mozambique	22.76	24.68	28.54
Myanmar	27.27	28.78	29.94
Namibia	35.41	34.75	36.61
Nepal	13.79	16.15	15.58
Netherlands	27.95	29.4	30.1
New Zealand	39.23	39.72	39.76
Nicaragua	34.67	34.56	36.11
Niger	50.58	51.71	55.85
Nigeria	32.89	34.52	35.21
Norway	36.72	37.06	37.49
Oman	11.23	11.72	13.04
Pakistan	4.435	5.991	8.95
Palestine	15.2	15.21	18.2
Panama	44.73	44.21	47.66
Papua New Guinea	22.69	24.33	26.47
Paraguay	40.78	42.13	43.72
Peru	34.31	34.95	38.06
Philippines	47.14	46.99	48.83
Poland	41.16	41.96	42.52
Portugal	32.66	33.18	33.91
Puerto Rico	50.42	52.3	49.27
Qatar	14.43	15.29	15.17
Romania	32.08	33.07	35.24
Russian Federation	39.73	40.97	39.58
Rwanda	13.22	12.23	14.45
Sahrawi Arab Dem Rep	19.58	25.43	34.06

Samoa	50	51.32	51.73
Sao Tome and Principe	24.09	23.4	27.71
Saudi Arabia	7.147	8.695	11.56
Senegal	26.38	28.06	32.57
Serbia	29.37	30.51	31.45
Seychelles	45.24	46.1	49.69
Sierra Leone	38.62	37.68	39.61
Singapore	37.62	38.23	38.1
Slovakia	32.26	33.62	34.9
Slovenia	38.99	40.49	39.87
Solomon Islands	26.01	27.75	29.14
Somalia	31.49	33.09	40.34
South Africa	31.31	32.37	34.2
Spain	31.94	33.31	33.97
Sri Lanka	26.75	27.83	28.88
St. Lucia	52.85	52.86	55.92
St. Vincent and the Grenadines	48.62	48.09	50.67
Sudan	15.64	17.81	22.71
Sudan South	14.2	15.22	34.24
Suriname	39.28	42.35	43.3
Sweden	39.38	39.78	39.93
Switzerland	34.26	35.48	35.35
Syrian Arab Republic	9.356	11.55	12.17
Taiwan	28.35	29.65	29.66
Tajikistan	14.96	15.66	17.76
Tanzania	25.78	26.85	28.68
Thailand	36.15	37.06	36.5
Timor-Leste	27.05	28.71	31.92
Togo	32.07	33.66	37.95
Tonga	39.29	39.54	40.27
Trinidad and Tobago	43.06	44.59	46.13
Tunisia	9.828	10.52	14.12
Turkey	13.83	14.24	17.07
Turkmenistan	24.35	25.65	26.17
Uganda	33.67	33.67	35.93
Ukraine	37.51	39.71	37.55
United Arab Emirates	17.32	18.25	20.36
United Kingdom	35.44	35.44	36.73
United States of America	39.4	39.4	39.81
Uruguay	33.84	34.49	33.44
Uzbekistan	24.78	25.33	26.89
Vanuatu	42.62	42.32	43.6
Venezuela, Bolivarian Republic	31.39	39.92	34.56
Viet Nam	26.34	27.69	29.32
Yemen	4.541	5.925	7.88
Zambia	34.52	35.41	38.12
Zimbabwe	27.33	26.34	25.08

Source: UN Women and the Pardee Center for International Futures using IFs v.7.97.

Note: The data presented in this brief are based on a modified (rebased to initialize in 2015) version 7.97 of the International Futures Model. These values may exhibit differences if extracted from another version of the model. These differences can be attributed to the following:

a) **Changes in the initialization and forecast of driver variables.** Household consumption as a percent of GDP is one of the drivers for this variable, which is subject to changes to both household consumption (which is a part of the model's Social Accounting Matrix, meaning it is one component that needs to be balanced with other consumption and spending variables in the model) and GDP. These are both flows rather than stocks, the latter of which are slower-moving. Thus, we are more likely to see differences in household consumption as a percent of GDP across model versions which could lead to changes in the variables driven by it.

b) **Changes in base year.** Figures here reflect a version of IFs with a 2015 base year, instead of the model's standard base year of 2019. Moving the base year back by several years will change the data with which IFs initializes the variable, as the model will not initialize using data from years later than the base year.

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