India

COVID-19 Economic Effects on Vulnerable Groups

fraym®

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STUDY OVERVIEW

The COVID-19 pandemic has shed light on structural gender inequities around the globe. Women were disproportionately affected by pandemic-related school closures and stay-at-home orders, giving up income-generating activities to take care of children and family members at home.

Through this report, Fraym expands its recent gender-transformative recovery work by conducting deep-dive analyses on the gendered economic effects of the COVID-19 pandemic in India and South Africa. More specifically, Fraym explored whether specific groups may have been disproportionately impacted by the pandemic and analyzed the varying impacts and perceptions of the economic consequences of COVID-19.

This analysis provides an important opportunity to highlight specific challenges and other dynamics that may affect labor force participation and productive opportunities for specific types of women and marginalized groups.

Data collection for Fraym's April 2021 surveys in India and South Africa reached nearly 40,000 respondents overall, making this one of the largest gender-disaggregated and spatially-enabled studies of the pandemic. The survey data was weighted to reflect the most recent population parameters available from Indian Ministry of Statistics and Programme Implementation across gender, age, education, and state levels.

This report details findings from India.

In India, Fraym conducted a **nationally-representative survey** of 27,354 respondents from 9-29 April 2021.[1] The survey captured how COVID-19 directly affected people's lives and their perceptions of how the pandemic and government response influenced the lives of others. In this report, Fraym conducts a deep-dive on how COVID-19 impacted the economic livelihoods of several specific vulnerable groups, including:

(1) **Female Entrepreneurs:** Own their own businesses, either as freelancers or employing other individuals.

(2) **Unemployed Women:** Not in the labor force prior to and during the pandemic.

(3) **Marginalized Women:** Scheduled Caste, Scheduled Tribe, Other Backward Class, or non-Hindu women who earn less than 500,000 Indian rupees (INR) per year.

(4) **Informal Settlement Residents:** Individuals living in tin shacks, slums, or shantytowns.

(5) **Unpaid Family Workers:** Women who worked in their own household or a family business but did not receive pay.

Note: This survey was conducted prior a further spike in cases in India in May 2021 and may not capture the most current and complete impacts of the COVID-19 pandemic.

INDIA

Focus Population Groups for Analysis

Fraym identified different groups that have been disproportionately impacted by the pandemic and analyzed the varying impacts and perceptions of the economic consequences of COVID-19.

Female Entrepreneurs

Female entrepreneurs own their own businesses, either as freelancers or employing other individuals.

Unemployed Women

Unemployed women are not currently in the labor force. This excludes full time students, retirees and those with long term illnesses.

Marginalized Women

Marginalized women are defined as belonging to a Scheduled Caste, Scheduled Tribe, Other Backward Class, or practice a non-Hindu religion and who earn less than INR 500,000 per year.

Informal Settlement Residents

Individuals living in tin shacks, slums, or shantytowns.

Unpaid Family Workers

Unpaid family workers are defined as women who worked in their own household or a family business but did not receive pay (e.g., taking care of children, household agriculture, etc.).

INDIA

TOP 10 TAKEAWAYS

Indians who are part of the specific examined groups – female entrepreneurs, unemployed women, marginalized women, unpaid family workers, and residents of informal settlements – have born disproportionate economic effects from the COVID-19 pandemic.

1 Over half of female entrepreneurs from Rajasthan and Chandigarh reported losing their job or having reduced working hours due to COVID-19.

2 More than two in five female entrepreneurs reported increased government support and charity during the pandemic.

3 Indian unemployed women are over five times more likely to live in a household that lost income from a paid job than to live in a household that increased this income.

4 Tamil Nadu, Uttar Pradesh, and West Bengal top the list of states with the highest concentrations of unemployed women who reported being out of work force in April 2021.

5 Roughly half of marginalized women report that the Indian government failed to adequately address economic shocks, including job losses and food price increases, during the COVID-19 pandemic.

6 Four in ten marginalized women reported a decrease in household income from paid jobs, family businesses, or remittances.

7 Over half a million people residing in Mumbai's informal settlements lost income from jobs and businesses during the pandemic.

8 Over 270,000 adults living in informal slums in Mumbai report reduced income from government support programs.

9 Over half of unpaid female family workers reported an increase in hours devoted to household activities; nearly 90 percent of Indian districts report these types of majority-level effects.

10 Over a third of unpaid family workers report decreases in household income from family businesses, paid jobs, or investments.

Female Entrepreneurs

Overview of Female Entrepreneurs

Female entrepreneurs are defined as those who report owning their own businesses, whether as freelancers or employing other individuals. Most female entrepreneurs employ other people, and around a third increased the number of hours worked at their business. Compared to male entrepreneurs, female entrepreneurs are also more likely to be married and with one or more children aged 5 years or younger in the household, but less likely to live in a household with an elderly person.

| Demographics	Female Entrepreneurs	Male Entrepreneurs
Described their businesses as…		
Employing other people	75%	76%
Not employing other people (i.e. freelancing)	25%	24%
Since the start of the pandemic, the number of hours worked at their business has…		
Increased	33%*	27%
Stayed the same	29%	30%
Decreased	32%	34%
Lost their job entirely	4%	6%
Marital Status[1]		
Single	20%*	31%
Married	76%*	65%
Live with the following		
One or more child aged 5 years or younger	56%*	50%
One or more elderly adult (65+)	22%*	33%

* Statistically significant difference

Note 1: Categories do not sum to 100 percent due to response options that are not shown.

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

Reductions in Paid Work Among Female Entrepreneurs

Rajasthan and Chandigarh have the highest proportion of female entrepreneurs who lost paid work in the form of either lost jobs or reduced working hours. In these two areas, over half of female entrepreneurs either lost their jobs or had their working hours reduced. Mizoram and Himachal Pradesh had the lowest rates, with roughly one quarter of female entrepreneurs losing work due to the pandemic.
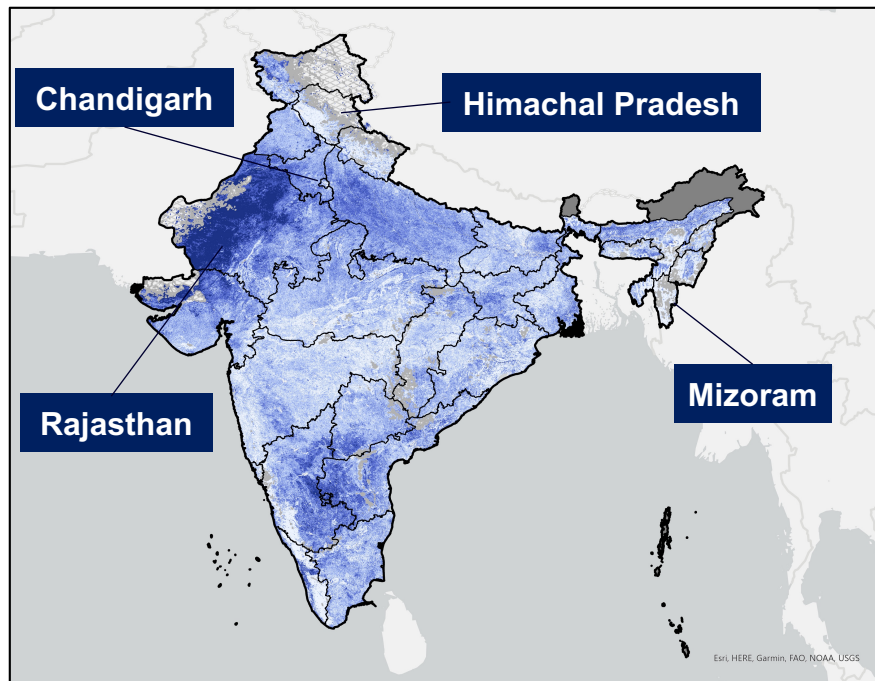
Chandigarh
Himachal Pradesh
Rajasthan
Mizoram

Esri, HERE, Garmin, FAO, NOAA, USGS

States with the highest reductions in paid hours (%) due to COVID-19[1]		States with the lowest reductions in paid hours (%) due to COVID-19[1]	
Chandigarh	57%	Mizoram	21%
Rajasthan	51%	Himachal Pradesh	25%
Andhra Pradesh	40%	NCT of Delhi	25%
Uttar Pradesh	40%	Maharashtra	30%
Haryana	40%	Odisha	30%
Gujarat	40%	Chhattisgarh	31%
Jammu & Kashmir	39%	Tripura	31%
Karnataka	39%	Bihar	32%
Tamil Nadu	38%	Madhya Pradesh	33%
Telangana	37%	Jharkhand	33%

0   100%

State Highlighted states

Insufficient data

Areas with less than 10 people per sq km

Note 1: Map includes States and Union Territories. The states of Jammu and Kashmir and Arunachal Pradesh are disputed territory but are included in the map since the populations were enumerated for the survey. Data is not included for any state that had fewer than 30 respondents (shown in gray on the map).

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.
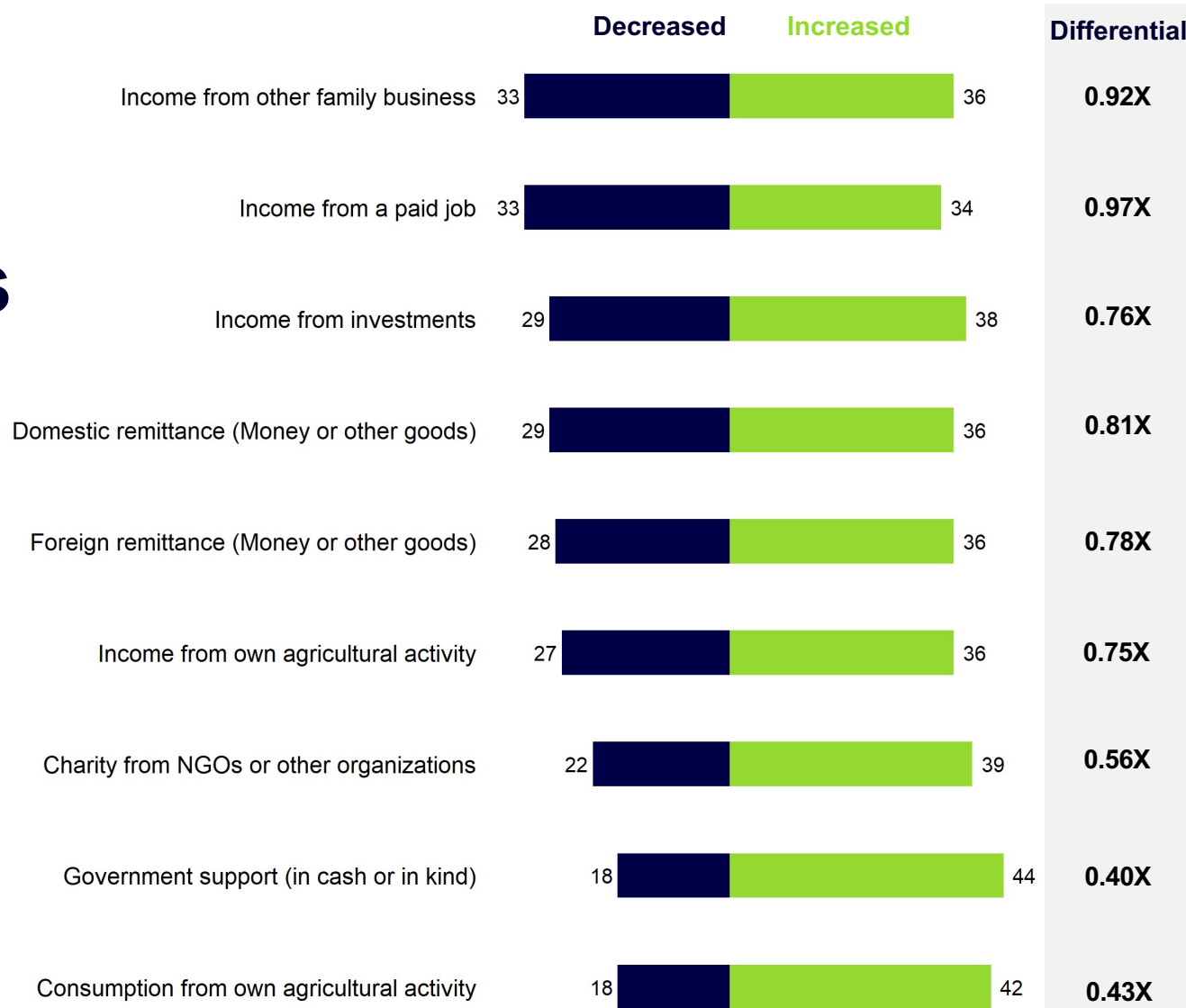
COVID-19 Income Impacts on Female Entrepreneurs

Female entrepreneurs were slightly more likely to have **increased income** (than decreased) during the pandemic across every individual income source type.

Over 40 percent were also reported increases in household income through government support and charity.

Roughly one third of female entrepreneurs lost income from their business. This likely relates to how different types of businesses may have been impacted (or helped) by the COVID-19 pandemic.

% of female entrepreneurs who reported the pandemic _increased / decreased_ their household resources, by source

Source	Decreased	Increased	Differential
Income from other family business	33	36	0.92X
Income from a paid job	33	34	0.97X
Income from investments	29	38	0.76X
Domestic remittance (Money or other goods)	29	36	0.81X
Foreign remittance (Money or other goods)	28	36	0.78X
Income from own agricultural activity	27	36	0.75X
Charity from NGOs or other organizations	22	39	0.56X
Government support (in cash or in kind)	18	44	0.40X
Consumption from own agricultural activity	18	42	0.43X

Note: The proportion of respondents that said activity was not a source of income/support is not shown.
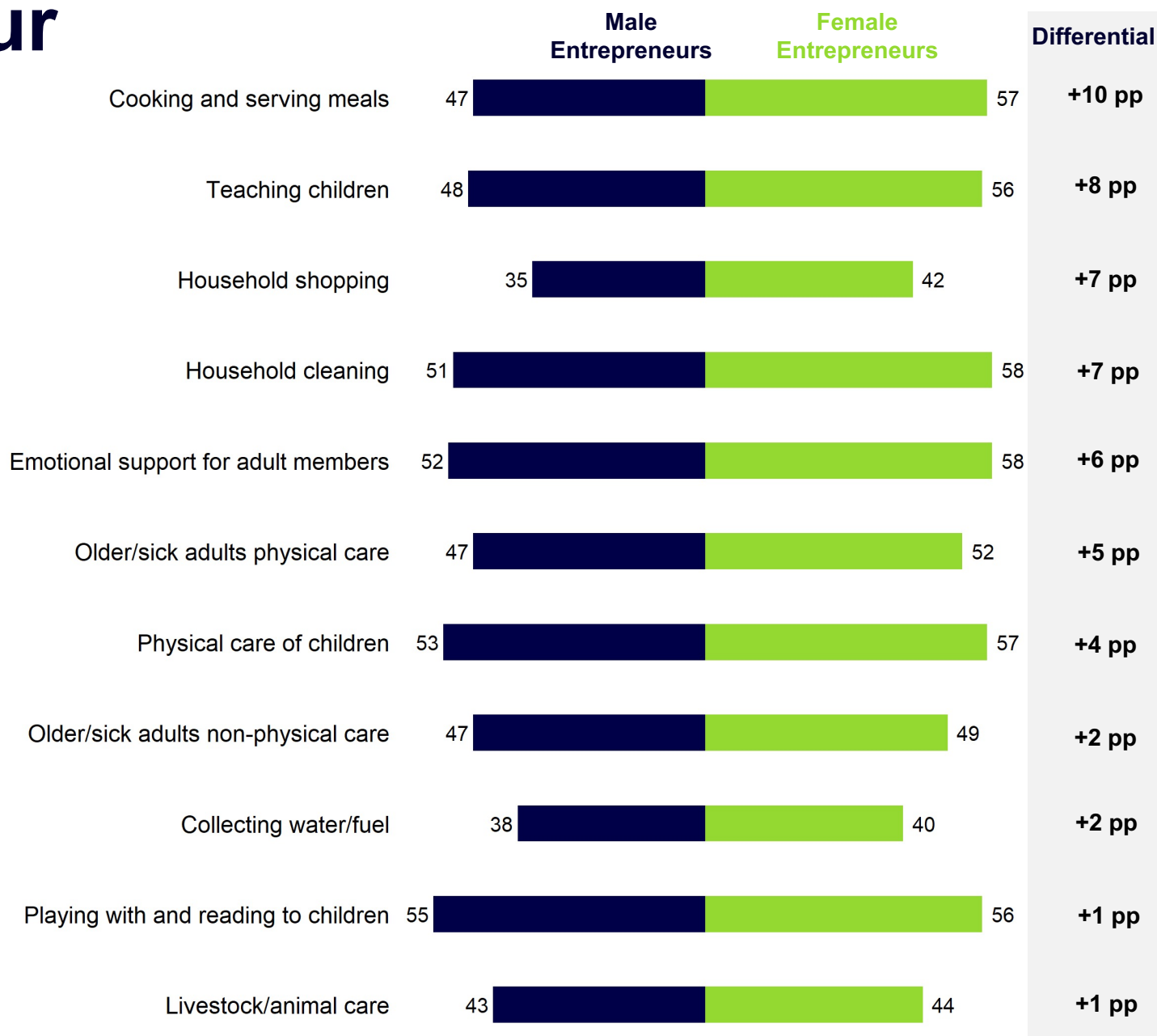
INDIA

Entrepreneur Caregiving and Household Activities

Female entrepreneurs report more increases in hours devoted to domestic workloads as compared to male entrepreneurs.

Female entrepreneurs were more likely than male entrepreneurs to spend more time on household activities like cooking, shopping, and cleaning as well as taking on the burden of educating children.

Female and male entrepreneurs roughly were equally as likely to increase their hours spent on other physical chores such as collecting water or fuel and caring for animals.

% of entrepreneurs reporting the COVID-19 pandemic <u>increased</u> the hours they devote to household activities, by differential

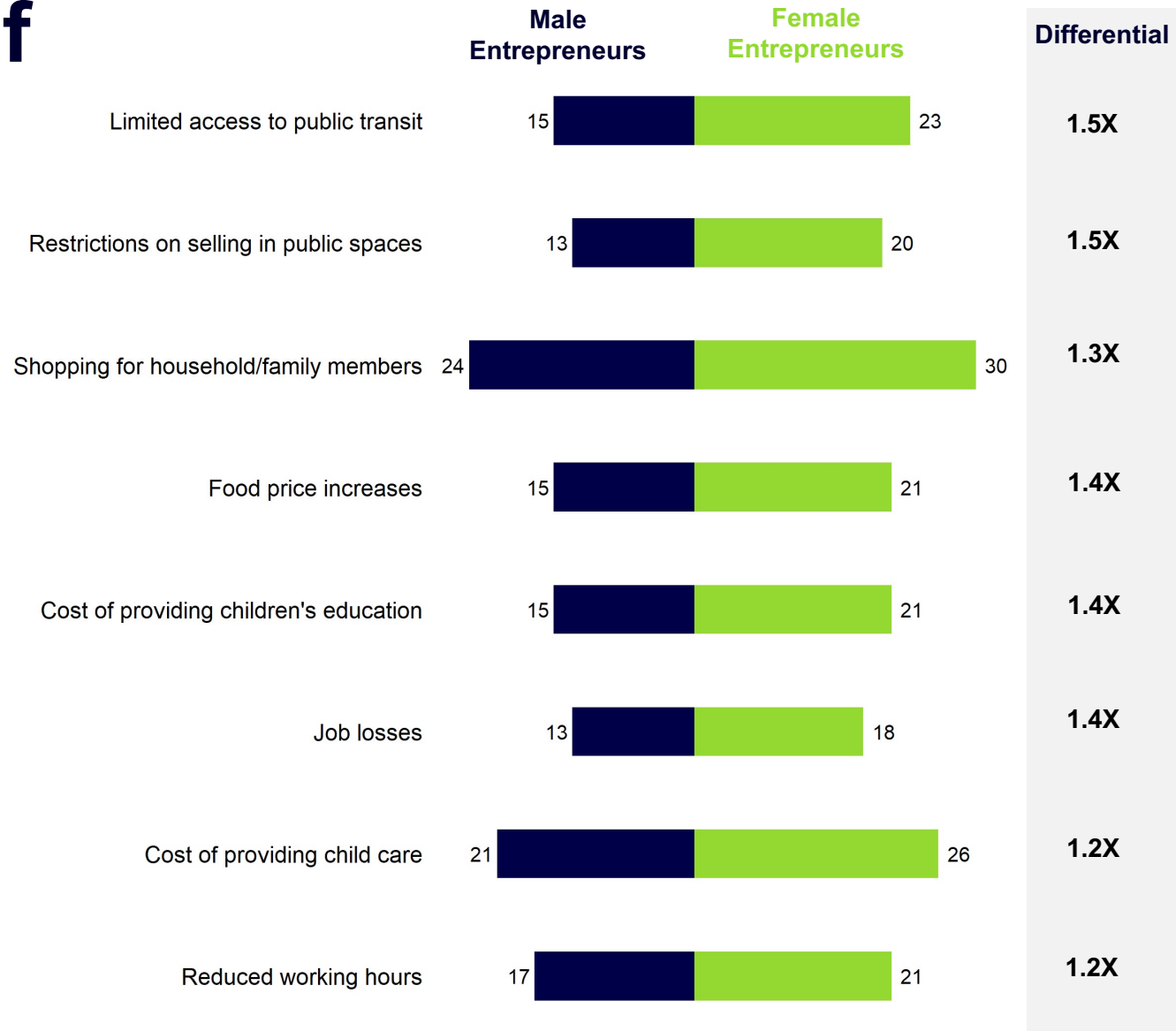|	Male Entrepreneurs	Female Entrepreneurs	Differential
Cooking and serving meals	47	57	+10 pp
Teaching children	48	56	+8 pp
Household shopping	35	42	+7 pp
Household cleaning	51	58	+7 pp
Emotional support for adult members	52	58	+6 pp
Older/sick adults physical care	47	52	+5 pp
Physical care of children	53	57	+4 pp
Older/sick adults non-physical care	47	49	+2 pp
Collecting water/fuel	38	40	+2 pp
Playing with and reading to children	55	56	+1 pp
Livestock/animal care	43	44	+1 pp

Entrepreneurs' Perceptions of COVID-19 Economic Effects

Overall, both male and female entrepreneurs believe that men have borne more of the economic effects of the COVID-19 pandemic.

However, female entrepreneurs are more likely to believe that women were affected more than men across all response categories.

Female entrepreneurs are more likely to believe that they are hurt more by restrictions on access to public transit and selling in public spaces – issues that might impact their ability to run their businesses.

*% of entrepreneurs who believed economic effects of COVID-19 affected **women more**, by differential*

	Male Entrepreneurs	Female Entrepreneurs	Differential
Limited access to public transit	15	23	1.5X
Restrictions on selling in public spaces	13	20	1.5X
Shopping for household/family members	24	30	1.3X
Food price increases	15	21	1.4X
Cost of providing children's education	15	21	1.4X
Job losses	13	18	1.4X
Cost of providing child care	21	26	1.2X
Reduced working hours	17	21	1.2X

Unemployed Women

Overview of Unemployed Women

Unemployed women are defined as those without a job prior to the pandemic, excluding full time students, retirees, and those with long term illnesses. Unemployed women are less likely to belong to a scheduled caste, tribe, or OBC as compared to the overall population. Over 40 percent of unemployed women reported that they were actively looking for a job and available to start working.

Demographics	Unemployed Women	Total Population[2]
Described their reason for not working as…		
I was looking for a job and available to starting work	41%	--
I was not looking for a job and not available to work	59%	--
Live with the following		
One or more children aged 5 years or younger	28%	30%
One or more elderly adult (65+)	28%*	39%
Age[1]		
18-34	51%	45%
35-64	48%	48%
Caste/Tribe		
Scheduled Caste	9%*	25%
Schedule Tribe	3%*	8%
OBC (Other Backward Class)	33%	32%
None of them	55%*	35%
Marital Status[1]		
Single	30%	30%
Married/Cohabiting	64%	68%

Note 1: Categories do not sum to 100 percent due to response options that are not shown.
**Note 2:** Total population includes unemployed women.
Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

* Statistically significant difference

Localized Concentrations of Unemployed Women

Tamil Nadu, Uttar Pradesh, and West Bengal top the list of states with the highest concentrations of unemployed women who reported being out of work force in April 2021. Chandigarh, Mizoram, and Goa had the lowest concentrations of unemployed women.
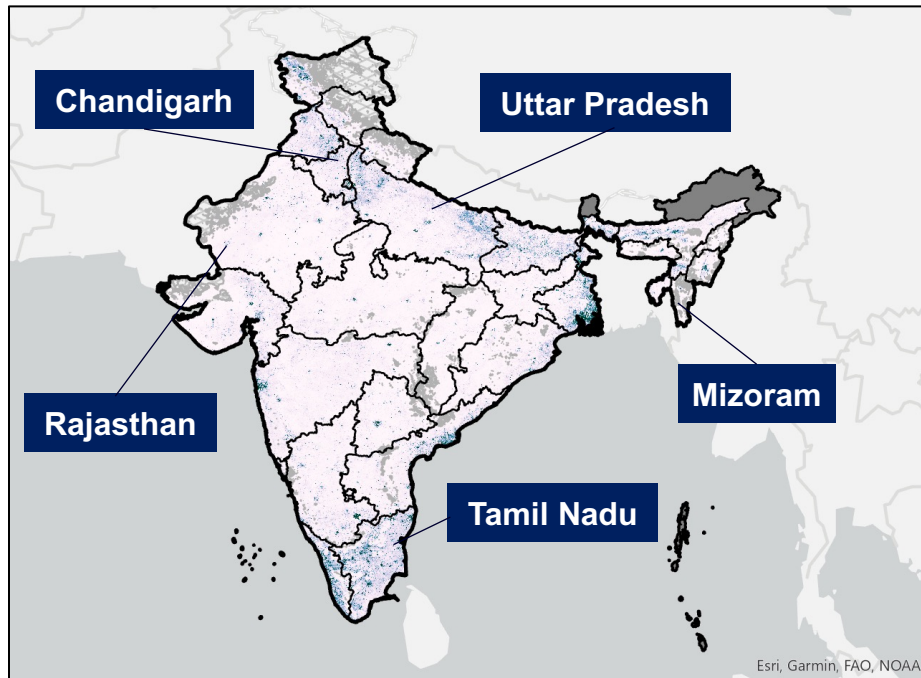
States with the highest concentration of unemployed women[1]		States with the lowest concentration of unemployed women[1]	
Tamil Nadu	3,794,000	Chandigarh	12,000
Uttar Pradesh	3,114,000	Mizoram	37,000
West Bengal	2,557,000	Goa	43,000
Maharashtra	2,264,000	Nagaland	54,000
Andhra Pradesh	1,783,000	Meghalaya	82,000
Karnataka	1,640,000	Tripura	93,000
Kerala	1,528,000	Manipur	133,000
Gujarat	1,414,000	NCT of Delhi	175,000
Bihar	1,324,000	Chhattisgarh	255,000
Rajasthan	1,306,000	Uttarakhand	257,000

Map labels: Chandigarh, Uttar Pradesh, Rajasthan, Mizoram, Tamil Nadu

Esri, Garmin, FAO, NOAA

10   25,000+

State Highlighted states   Insufficient data   Areas with less than 10 people per sq km

Note 1: Map includes States and Union Territories. The states of Jammu and Kashmir and Arunachal Pradesh are disputed territory but are included in the map since the populations were enumerated for the survey. Data is not included for any state that had fewer than 30 respondents (shown in gray on the map).

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

COVID-19 Income Impacts on Unemployed Women

Unemployed women reported income shocks since the pandemic started due to **losses from investments, family run businesses (both agricultural and non-agricultural), paid jobs, as well as lower receipts of foreign and domestic remittances.**

Household resource increases were widely attributed to additional government support and charity as well as household agricultural activities.

% of unemployed women who reported the pandemic increased / decreased their household resources, by source

	Decreased	Increased	Differential
Income from investments	43	11	- 4.0X
Income from other family business	39	9	- 4.3X
Income from a paid job	38	7	- 5.4X
Domestic remittance (Money or other goods)	31	13	- 2.3X
Foreign remittance (Money or other goods)	27	12	- 2.3X
Income from own agricultural activity	26	15	- 1.7X
Consumption from own agricultural activity	21	23	1.1X
Government support (in cash or in kind)	19	24	1.3X
Charity from NGOs or other organizations	18	15	- 1.2X

Note: Respondents could report increased, decreased, or unchanged hours, as well as not a source of income/support

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.
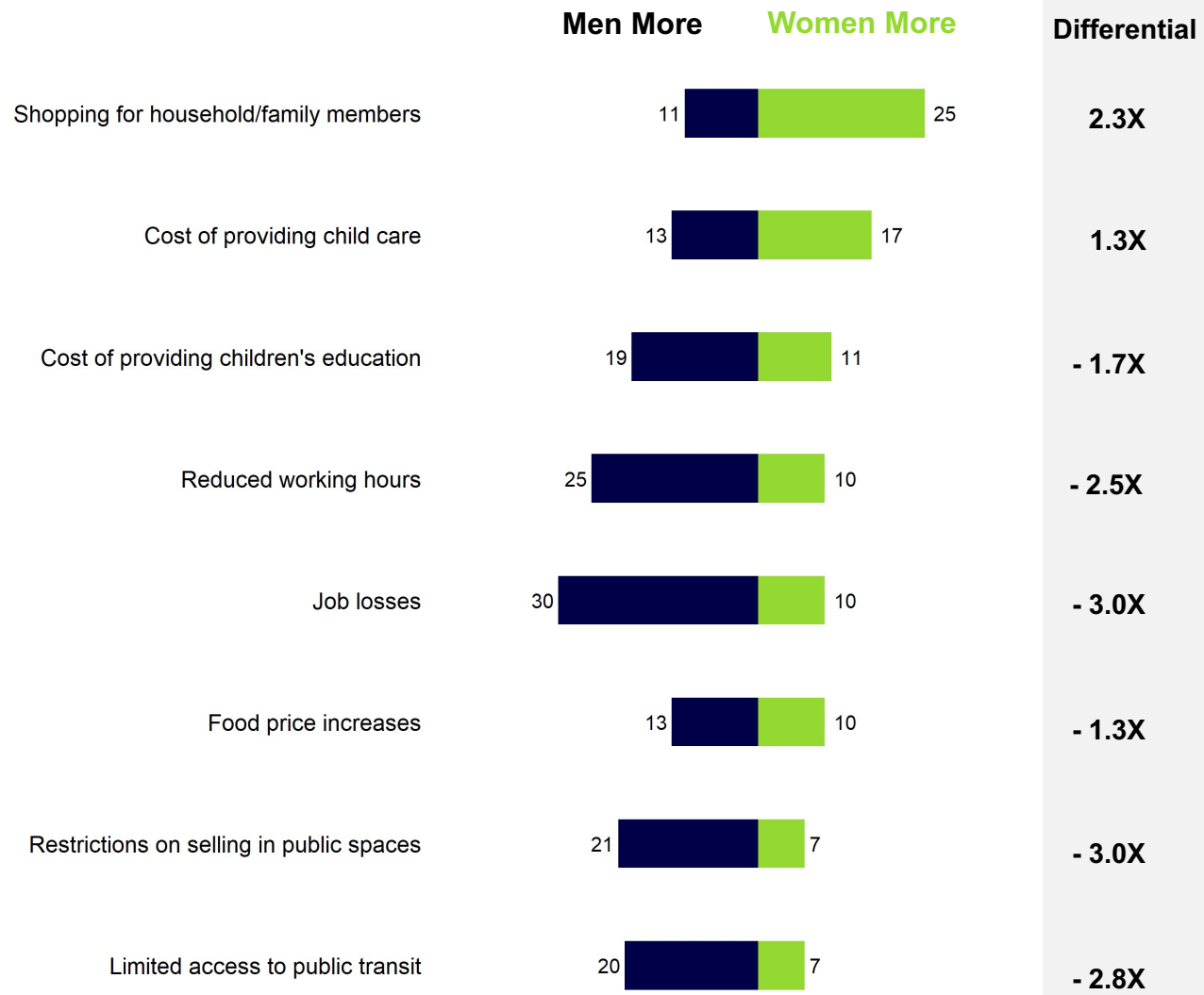
Unemployed Women's Perceptions of COVID-19 Economic Effects

Most unemployed women generally believe that the pandemic's economic effects have affected men more than women.

However, they believe that women have been more affected than men with respect to housework and childcare activities.

This is particularly true for household activities that are disproportionally managed by women, including shopping for the household and the cost of providing childcare.

% of unemployed women who believed economic effects of COVID-19 affected ___ more

Activity	Men More	Women More	Differential
Shopping for household/family members	11	25	2.3X
Cost of providing child care	13	17	1.3X
Cost of providing children's education	19	11	- 1.7X
Reduced working hours	25	10	- 2.5X
Job losses	30	10	- 3.0X
Food price increases	13	10	- 1.3X
Restrictions on selling in public spaces	21	7	- 3.0X
Limited access to public transit	20	7	- 2.8X

Note: Respondents could report women more, men more, about the same, or no impact for each activity

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

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Marginalized Women

Overview of Marginalized Women

Marginalized women are those belonging to either Scheduled Castes, Scheduled Tribes or Other Backward Class or non-Hindu religions and who earn less than INR 500,000 per year. These women are more likely to be under the age of 35 and are twice as likely to be single compared to all Indian women. They also are more likely to live in a household with a young child and/or an elderly member. Marginalized women are nearly twice as likely to be unemployed compared to the broader female population.

Demographics	Marginalized Women	All Women
Caste/Tribe[1]		
Scheduled Castes	26%	29%
Scheduled Tribes	9%	8%
Other Backward Classes	46%*	30%
Marital Status[1]		
Single	46%*	22%
Married	50%*	76%
Age[1]		
18-34	67%*	49%
35-64	31%*	51%
Live with the following		
One or more children aged 5 years or younger	42%*	30%
One or more elderly adults (65+)	18%	18%
Employment[1]		
Worked for pay	39%*	58%
Unpaid family worker	22%*	15%
Did not work	24%*	13%

Note 1: Categories do not sum to 100 percent due to response options that are not shown. *Statistically significant difference
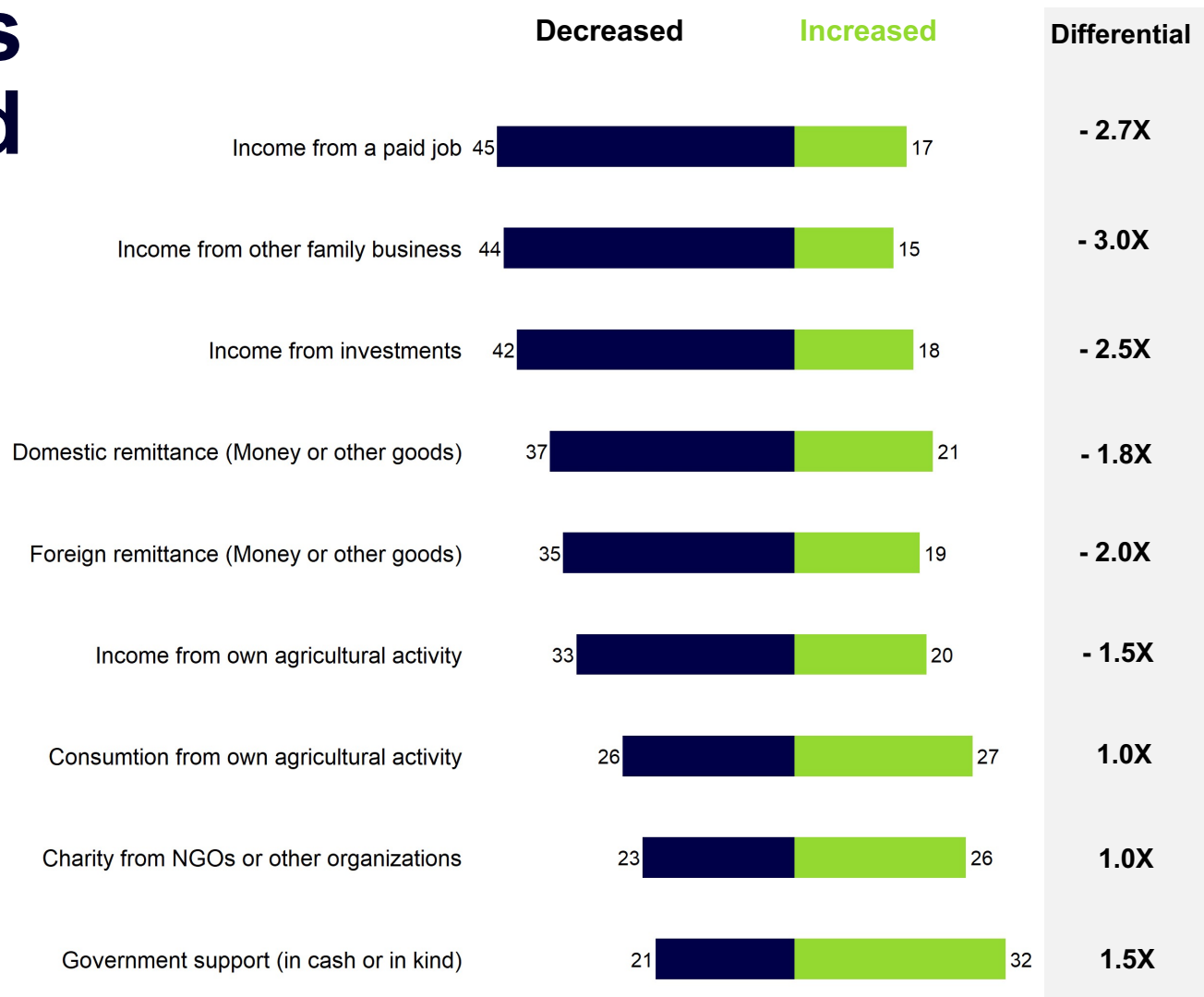
COVID-19 Income Impacts on Marginalized Women

Most marginalized women reported household-level income losses from paid jobs due to the pandemic.

Four in ten marginalized women reported a decrease in household-level income from paid jobs, family businesses, investments as well as domestic and foreign remittances.

While income increases were widely attributed to additional government support, two in ten women reported a *decrease* in income from government support and charity.

% of marginalized women who reported the pandemic increased / decreased their household resources, by source

	Decreased	Increased	Differential
Income from a paid job	45	17	- 2.7X
Income from other family business	44	15	- 3.0X
Income from investments	42	18	- 2.5X
Domestic remittance (Money or other goods)	37	21	- 1.8X
Foreign remittance (Money or other goods)	35	19	- 2.0X
Income from own agricultural activity	33	20	- 1.5X
Consumtion from own agricultural activity	26	27	1.0X
Charity from NGOs or other organizations	23	26	1.0X
Government support (in cash or in kind)	21	32	1.5X

Note: Respondents could report increased, decreased, or unchanged hours, as well as not a source of income/support.

Source: Fraym nationally representative survey of 27,354 Indians conducted April 9-29, 2021.
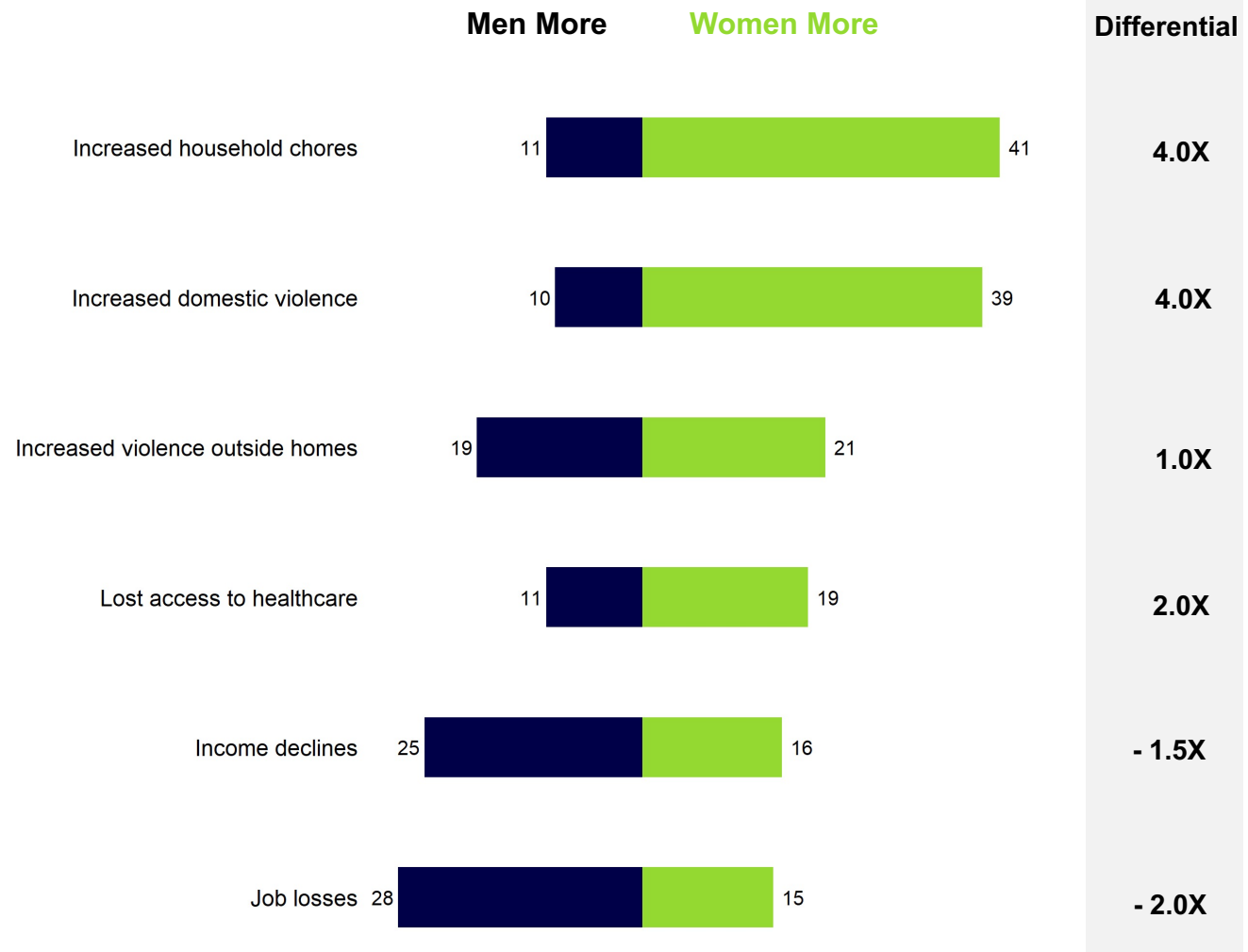
Impacts of Stay-at-Home Orders

% of marginalized women who believed lockdown effects of COVID-19 affected ___ more

Marginalized women are **4 times more likely to believe that stay-at-home orders increased the threat of domestic violence for women** compared to for men. They also are four times more likely to believe that increased household chores have affected women more than men.

However, marginalized women also reported **men being twice as likely to suffer from economic shocks due to the lockdown through income and job losses as compared to women.**

	Men More	Women More	Differential
Increased household chores	11	41	4.0X
Increased domestic violence	10	39	4.0X
Increased violence outside homes	19	21	1.0X
Lost access to healthcare	11	19	2.0X
Income declines	25	16	- 1.5X
Job losses	28	15	- 2.0X

Note: Respondents report the difference between men and women. Respondents could select women more, men more, about the same, or not an impact.

Source: Fraym nationally representative survey of 27,354 Indians conducted April 9-29, 2021.

Perceptions of the COVID-19 Government Response

Nearly half of marginalized women report that the current government fails to adequately address economic shocks including job losses, food prices increases and provision of financial support during the COVID-19 pandemic.

Although, a strong majority of marginalized women report feeling satisfied with the current government's efforts to support security inside and outside of the home as well as promoting equal opportunities for women.

% of marginalized women that reported the Indian government is handling the COVID-19 economic disruption _____

	Well	**Poorly**
Job losses due to COVID-19	41	54
Food price impact of COVID-19	49	46
Financial support for poor/vulnerable people	53	42
Protection from domestic violence	55	37
Protection from violence outside homes	56	36
Promoting equal opportunities for women	60	33

Note: Responses do not add up to 100 as response category "Don't know" is not shown.

Source: Fraym nationally representative survey of 27,354 Indians conducted April 9-29, 2021.
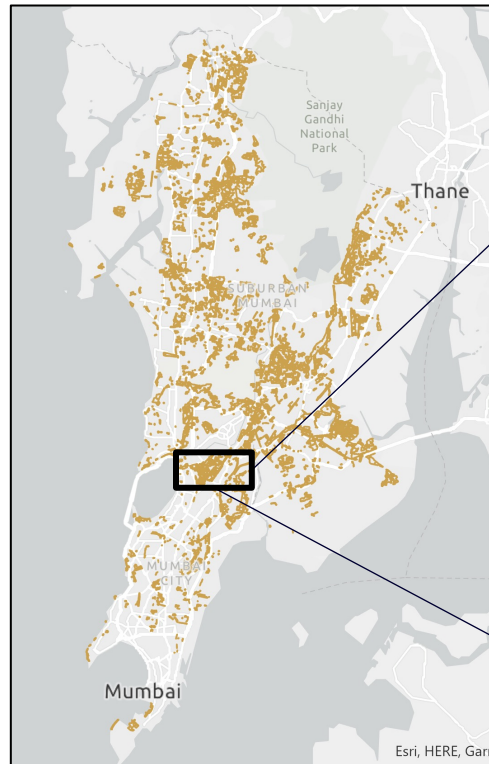
Mumbai's Informal Settlement Residents
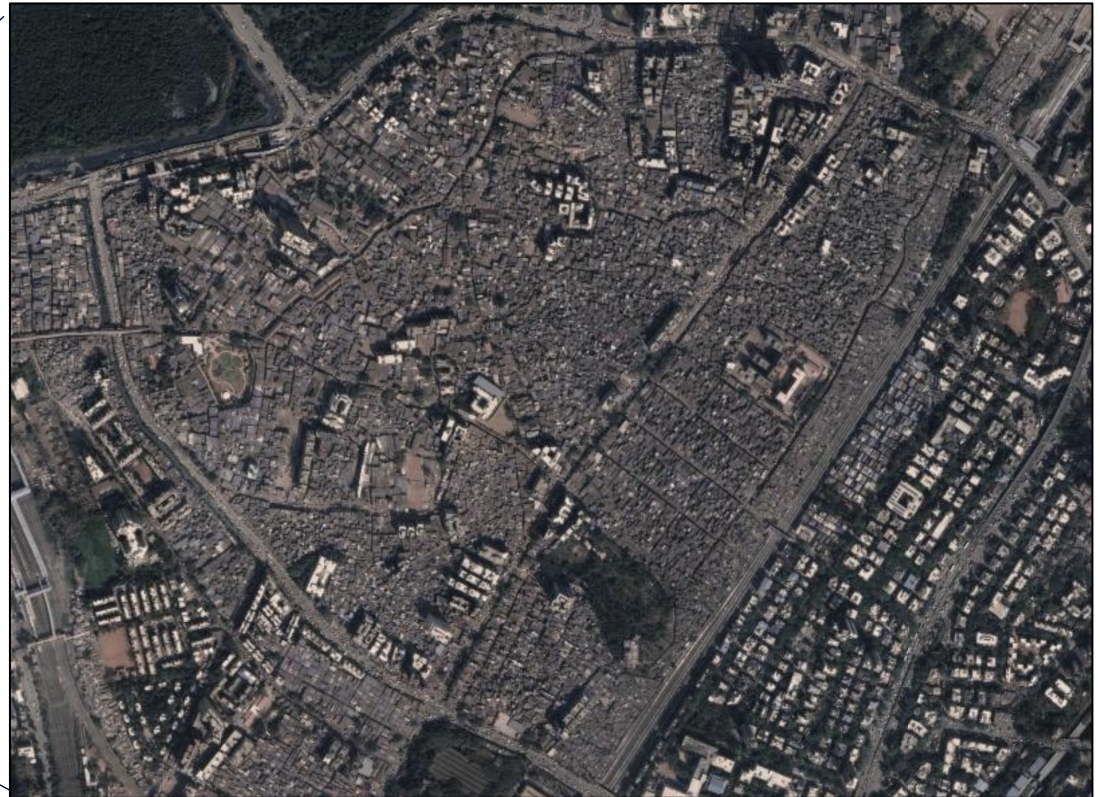
Mumbai's Informal Settlements

Fraym used advanced machine learning algorithms to map how the COVID-19 pandemic affected residents of 700+ informal settlements in the city of Mumbai.[1] These residents live in tin shacks, slums, or *chawls*.[2] Informal settlements frequently lack access to safe and improved water, improved sanitation, durability of housing, and sufficient living areas.

Dharavi – one of the largest slums in the world – is located in central Mumbai and houses over one million residents living in squatter settlements.

Mumbai

Dharavi Slum

Mumbai Informal Settlements

Note 1: The informal settlement map combines information from different datasets that were obtained from the Slum Rehabilitation Authority, Mumbai via, available at https://github.com/datameet/Municipal_Spatial_Data/blob/master/Mumbai/slumClusters.geojson. Data originally obtained by the City Survey Department of Slum Rehabilitation Authority, Mumbai and the Utility Mapping Division, National Informatics Centre, New Delhi available at MUMABI_CA_MAP_MUMBAI_GLOBAL_42X72_SLUMCLUSTER.pdf (sra.gov.in) and Google Earth

**Note 2:** A large tenement house offering cheap, basic housing

Loss of Government Support

Over 270,000 adults living in informal slums in Mumbai report losses from income through government support.

The Bhimwadi slum in Dharavi reported the highest losses from government support (in cash or kind) with over 7,000 residents losing income through the lockdown.

Mazgaon, Navpada and Patkar Blocks slums follow with over 3,000 adult residents losing government support.

Number of adults reporting lost government support during the COVID-19 pandemic

Tagore Nagar

Navpada

Dharavi

Esri, HERE, Garmin, METI/NASA, USGS

0

77,100+
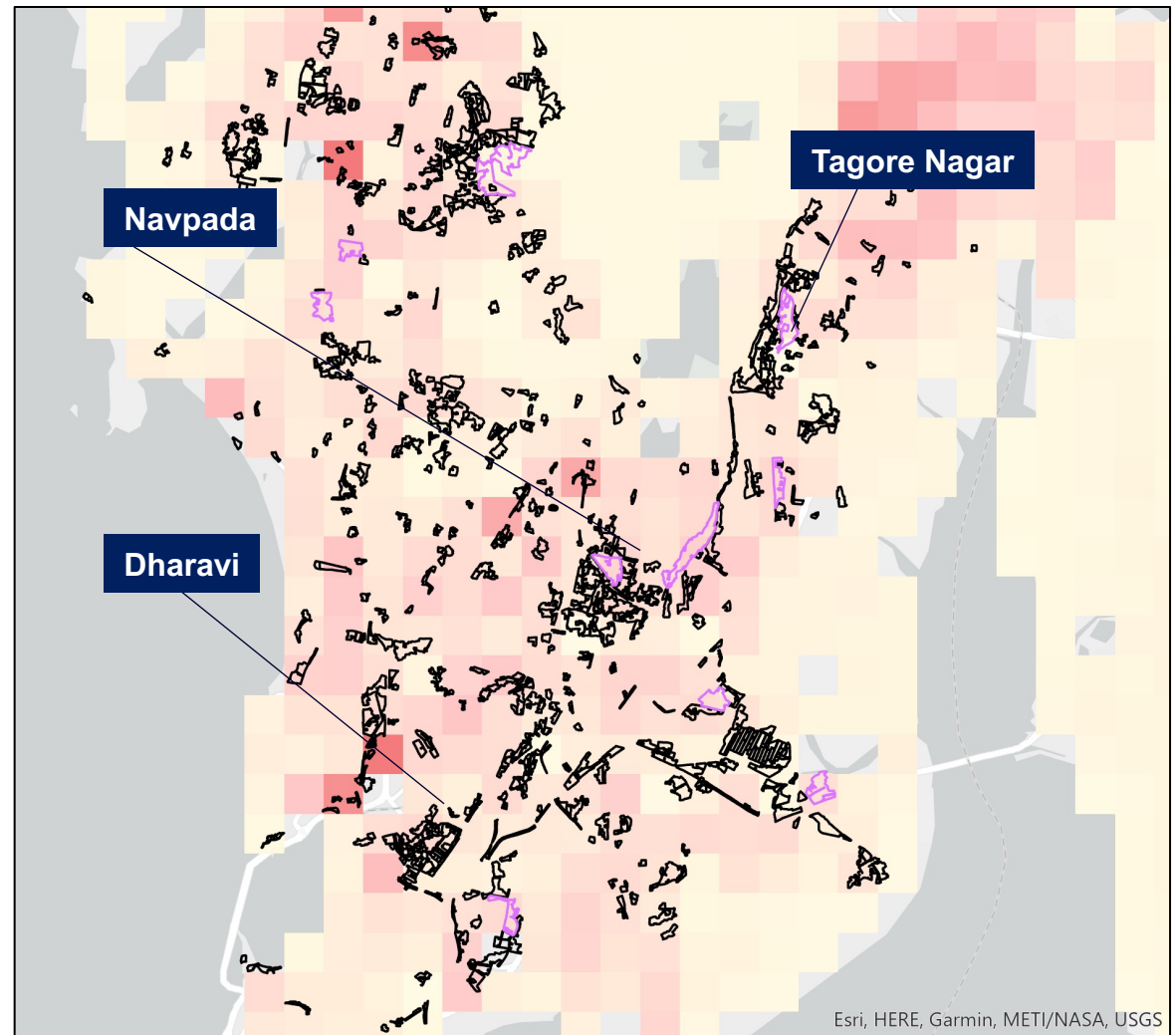
Mumbai's Informal Settlements

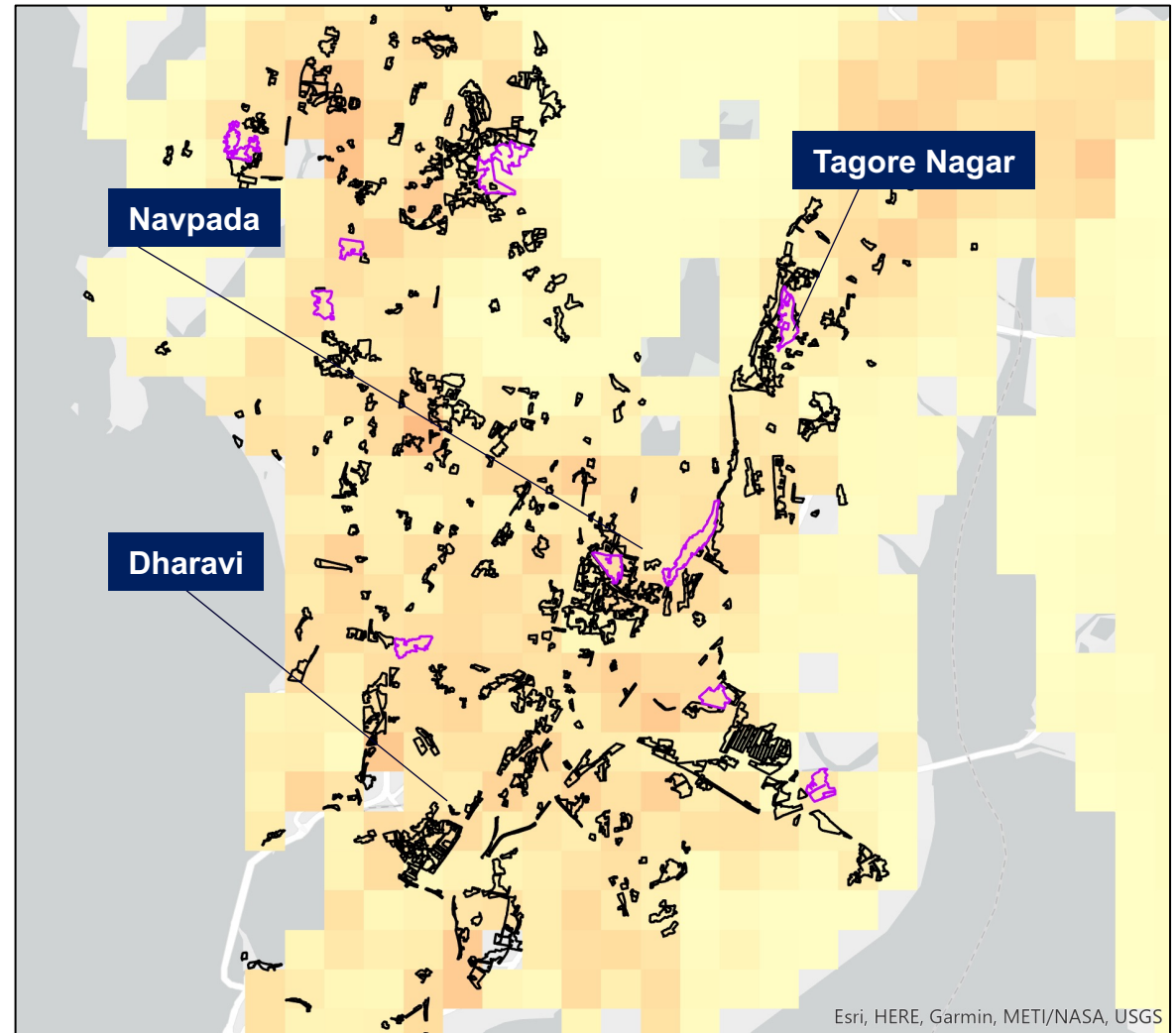Informal Settlements with the highest population reporting decline in government support

Loss of Income from Jobs or Businesses

More than half a million adults living in Mumbai slums live in households that lost income due to the pandemic.

The Bhimwadi slum in Dharavi reported the highest losses earned income with over 13,400 residents losing income through the lockdown.

The Mazgaon, Tagore Nagar and Navpada slums also report over 6,000 adult residents losing income from jobs or businesses.

Number of adults reporting lost income during the COVID-19 pandemic

Tagore Nagar

Navpada

Dharavi

Esri, HERE, Garmin, METI/NASA, USGS

0   125,000+

Mumbai's Informal Settlements

Informal settlements with highest populations reporting loss in income

INDIA

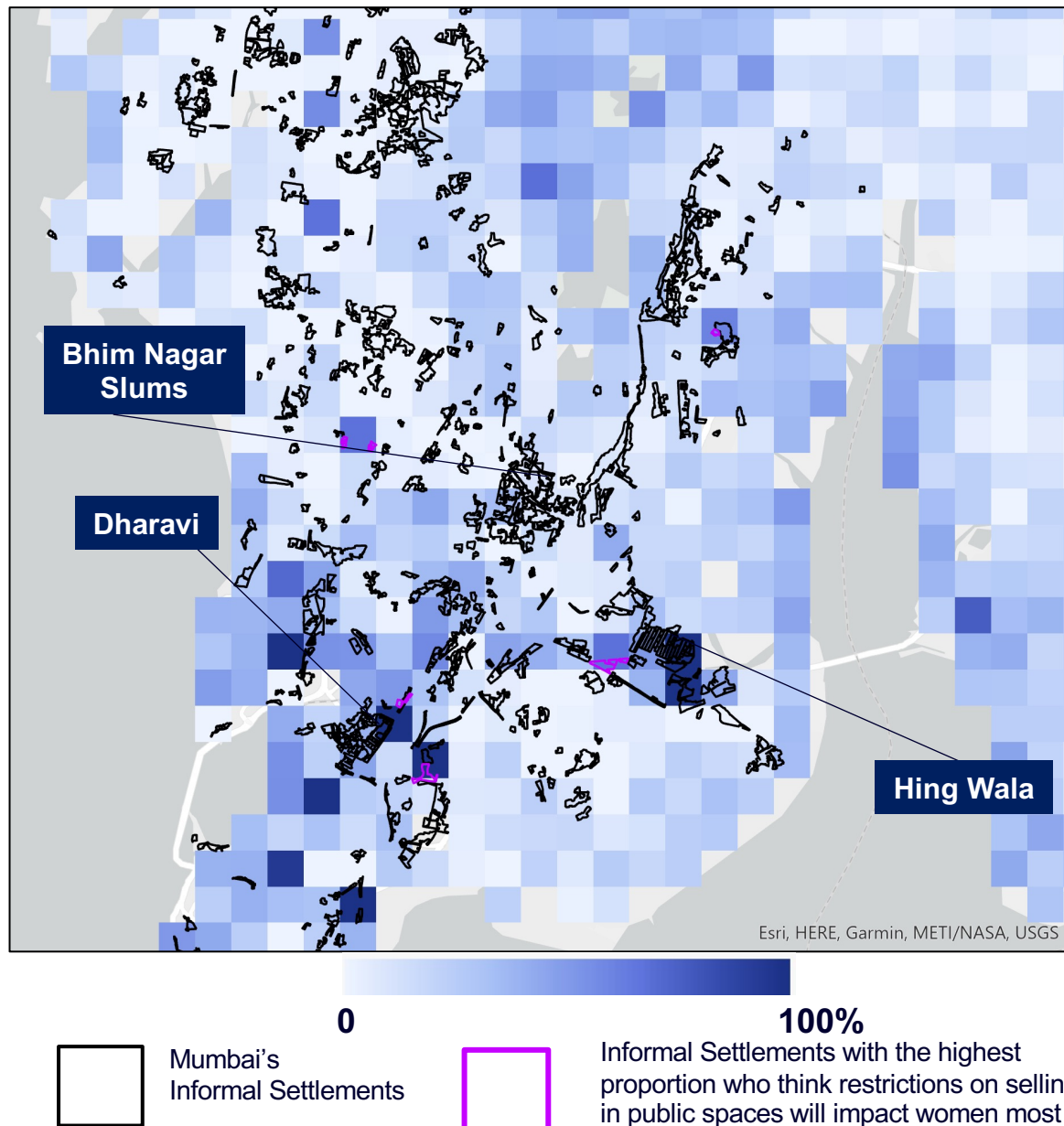# Impact of Restrictions on Selling in Public Places

Six out of ten adults living in informal settlements of Mumbai believe that more women than men were affected due to restrictions on selling in public spaces.

Over 90% of adult residents in the slum clusters Hing Wala, Sara Colony, Sai Baba Nagar, Parishram and Bhim Nagar Slum believe that restrictions on selling in public spaces have a greater impact on women than on men. We find similar super-majorities in many other Mumbai informal settlements.

Proportion of adults that report restrictions on selling in public spaces due to COVID-19 impact women the most

Esri, HERE, Garmin, METI/NASA, USGS

0   100%

☐ Mumbai's Informal Settlements

☐ Informal Settlements with the highest proportion who think restrictions on selling in public spaces will impact women most

Source: Fraym nationally representative survey of 27,354 Indians conducted April 9-29, 2021.
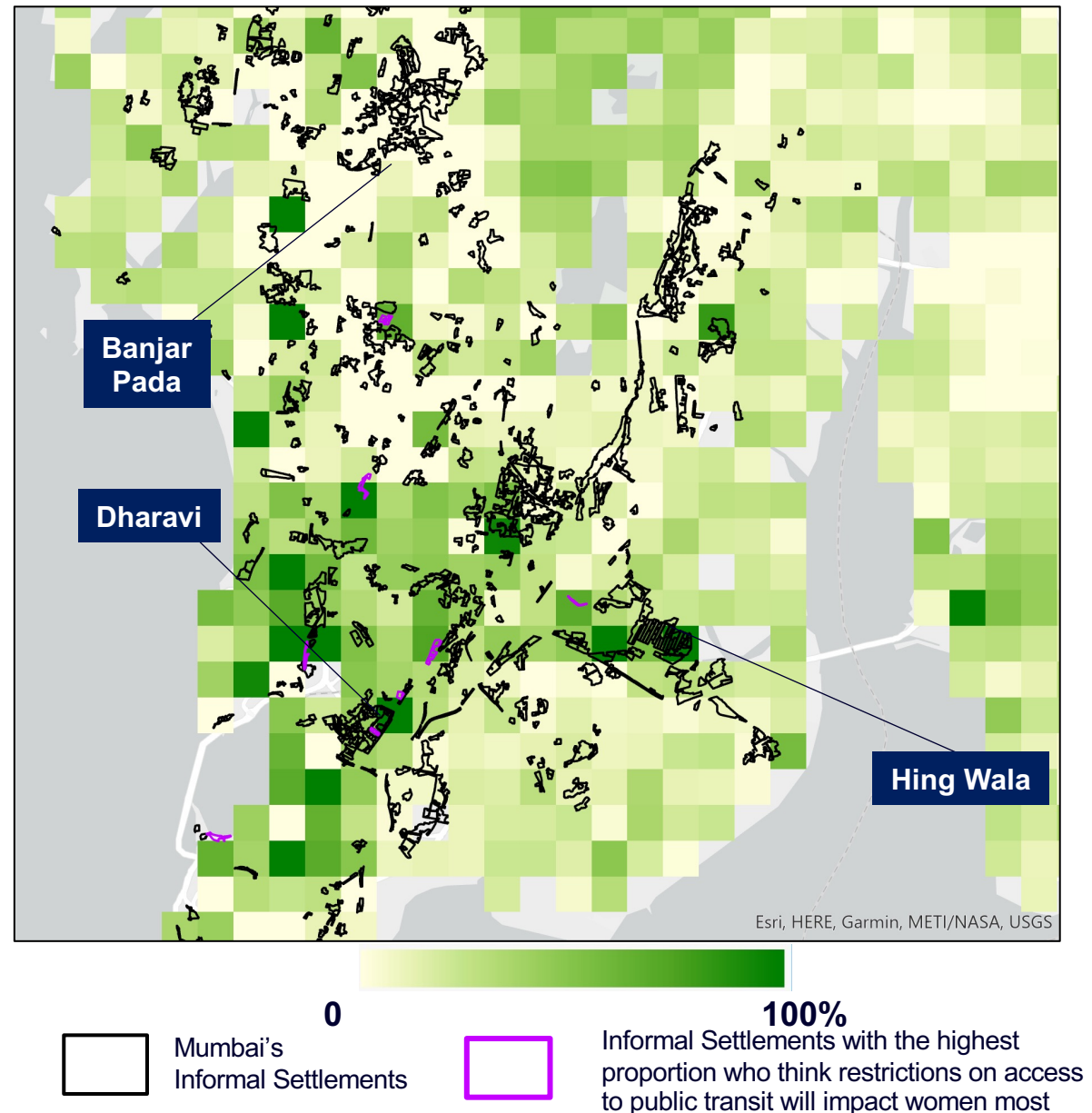
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Impact of Limitations on Access to Public Transit

One in two adults residing in informal settlements of Mumbai believe that limitations on access to public transportation affected women more than men.

Pushpa Bihar Colony, Banjar Pada, Krishna Colony and Hing Wala have over 90% of adult residents that believe limitations on access to public transit have a greater impact on women than on men.

Proportion of adults that report restrictions on selling in public spaces due to COVID-19 impact women the most

Banjar Pada

Dharavi

Hing Wala

Esri, HERE, Garmin, METI/NASA, USGS

0   100%

Mumbai's Informal Settlements

Informal Settlements with the highest proportion who think restrictions on access to public transit will impact women most

Unpaid Family Workers

Overview of Unpaid Family Workers

Unpaid family workers are defined as those working in their own household and not receiving pay for performing agricultural work, helping in any other type of family business, or taking care of children or elderly. These women are more likely than the general population to be married, of a Scheduled Tribe, and live with one or more children aged 5 years or younger in the household.

| Demographics	Female Unpaid Caregivers	Total Population
Marital Status[1]		
Single	23%*	30%
Married	71%*	66%
Age[1]		
18-24	19%	19%
25-34	27%	26%
35-44	21%	20%
Live with the following		
One or more children aged 5 years or younger	25%*	21%
One or more elderly adult (65+)	29%	27%
Caste/Tribe		
Scheduled Caste	22%	25%
Schedule Tribe	12%*	8%
OBC (Other Backward Class)	30%	32%
None of them	36%	35%

* Statistically significant difference

Note 1: Categories do not sum to 100 percent due to response options that are not shown.

INDIA

Localized Increases in Unpaid Working Hours

Over half of unpaid female family workers reported an increase in hours devoted to household activities. This trend is widespread across the country, with nearly 90 percent of Indian districts reporting these types of majority-level effects.
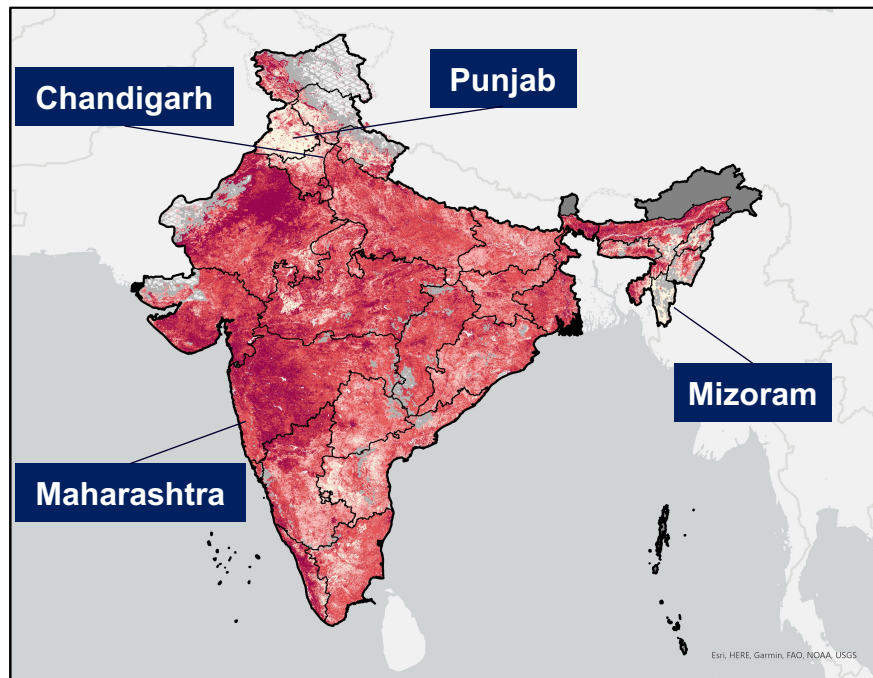
States with the __highest__ increase in unpaid household work (%) due to COVID-19[1]		States with the __lowest__ increase in unpaid household work (%) due to COVID-19[1]	
Chandigarh	86%	Mizoram	32%
Maharashtra	77%	Punjab	43%
Gujarat	73%	Himachal Pradesh	45%
Rajasthan	72%	Bihar	55%
NCT of Delhi	71%	Andhra Pradesh	56%
Assam	70%	Uttarakhand	56%
West Bengal	70%	Nagaland	57%
Kerala	69%	Haryana	57%
Madhya Pradesh	68%	Manipur	59%
Chhattisgarh	68%	Odisha	60%

0   100%

State Highlighted states   Insufficient data   Areas with less than 10 people per sq km

Note 1: Map includes States and Union Territories. The states of Jammu and Kashmir and Arunachal Pradesh are disputed territory but are included in the map since the populations were enumerated for the survey. Data is not included for any state that had fewer than 30 respondents (shown in gray on the map).

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

Unpaid Family Workers and Economic Shocks

Over one third of unpaid family workers report decreases in household income from family businesses, paid jobs, or investments. Since these women are not paid for their work, these household income shocks may affect them more severely than multi-income households.

As with other focus groups, unpaid family caregivers are more likely to have witnessed increased household resources from agricultural activities, increased charity, or increased government support.

% of unpaid family workers who reported the pandemic increased / decreased their household resources, by differential
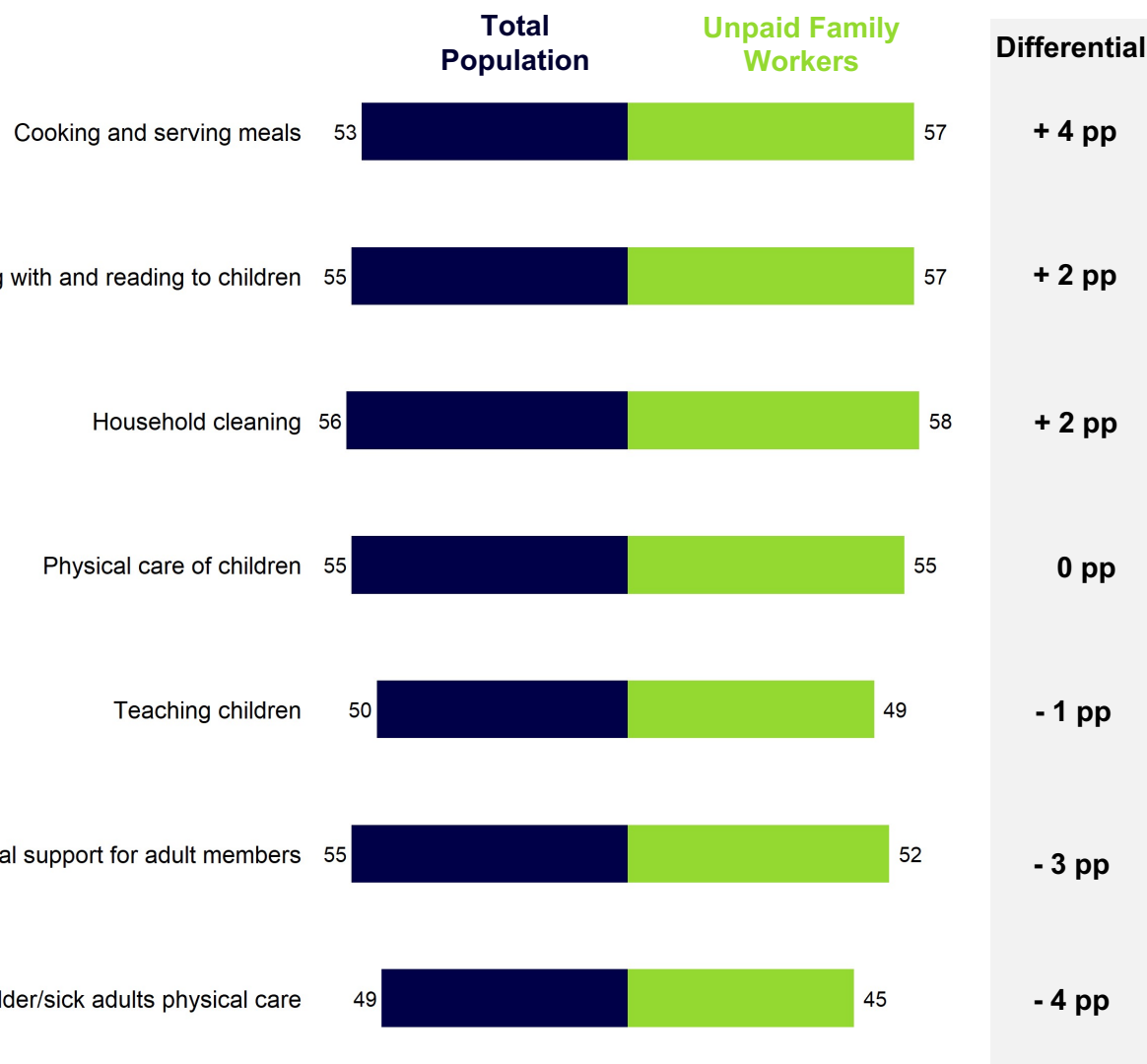
	Decreased	Increased	Differential
Income from other family business	37	21	**1.8X**
Income from a paid job	37	23	**1.6X**
Income from investments	35	22	**1.6X**
Foreign remittance (Money or other goods)	30	24	**1.3X**
Domestic remittance (Money or other goods)	30	25	**1.2X**
Income from own agricultural activity	29	24	**1.2X**
Consumption from own agricultural activity	26	29	**0.9X**
Charity from NGOs or other organizations	22	29	**0.8X**
Government support (in cash or in kind)	20	29	**0.7X**

Note: Sample excludes responses that report these income categories as not a source of their income or no change in their income

Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

Household Tasks and Responsibilities

Over half of unpaid female family workers report an increase in hours devoted to these activities.

Compared to the general population, unpaid family workers spent more time cooking and serving meals, playing with children, and doing household cleaning.

% of unpaid family workers that reported the COVID-19 pandemic __increased__ the hours they devote to household activities, by differential

	Total Population	Unpaid Family Workers	Differential
Cooking and serving meals	53	57	+ 4 pp
Playing with and reading to children	55	57	+ 2 pp
Household cleaning	56	58	+ 2 pp
Physical care of children	55	55	0 pp
Teaching children	50	49	- 1 pp
Emotional support for adult members	55	52	- 3 pp
Older/sick adults physical care	49	45	- 4 pp

Note: Respondents could report increased, decreased, or unchanged hours, as well as not normally doing that activity in their household.
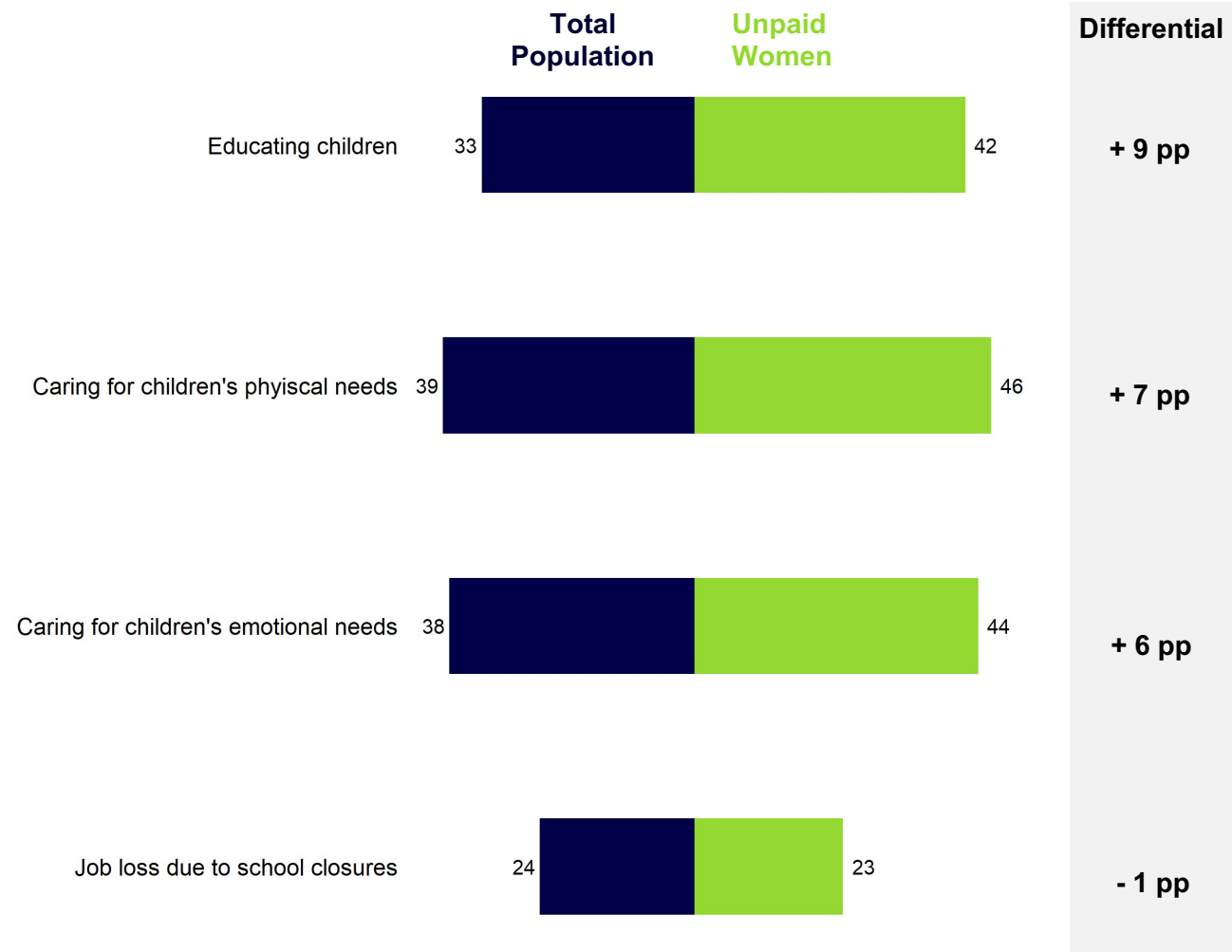
Source: Fraym nationally representative survey of 27,354 Indian adults conducted April 9-29, 2021.

Caregiving and Impacts of School Closures

Female unpaid family workers are more likely than the general population to believe that they bear the brunt of the consequences of school closures related to caring for and educating children.

These women are critical to child development due to school closures and the general population may underestimate the burden placed on them during the pandemic.

% of unpaid family workers that reported school closure experiences affected <u>women more</u>, by differential

	Total Population	Unpaid Women	Differential
Educating children	33	42	+ 9 pp
Caring for children's phyiscal needs	39	46	+ 7 pp
Caring for children's emotional needs	38	44	+ 6 pp
Job loss due to school closures	24	23	- 1 pp

Note: Respondents could select women more, men more, about the same, or not an impact.

Impacts of Stay-at-Home Orders

Over 40 percent of unpaid family workers reported that increased household chores would affect women more, compared to one-third of the general population.

Not only does the general population underestimate the impact of increased childcare responsibilities on women due to school closures, they also may underestimate the increased housework women face due to stay-at-home orders.

% of unpaid family workers that reported the stay-at-home orders affected <u>women more</u>, by differential
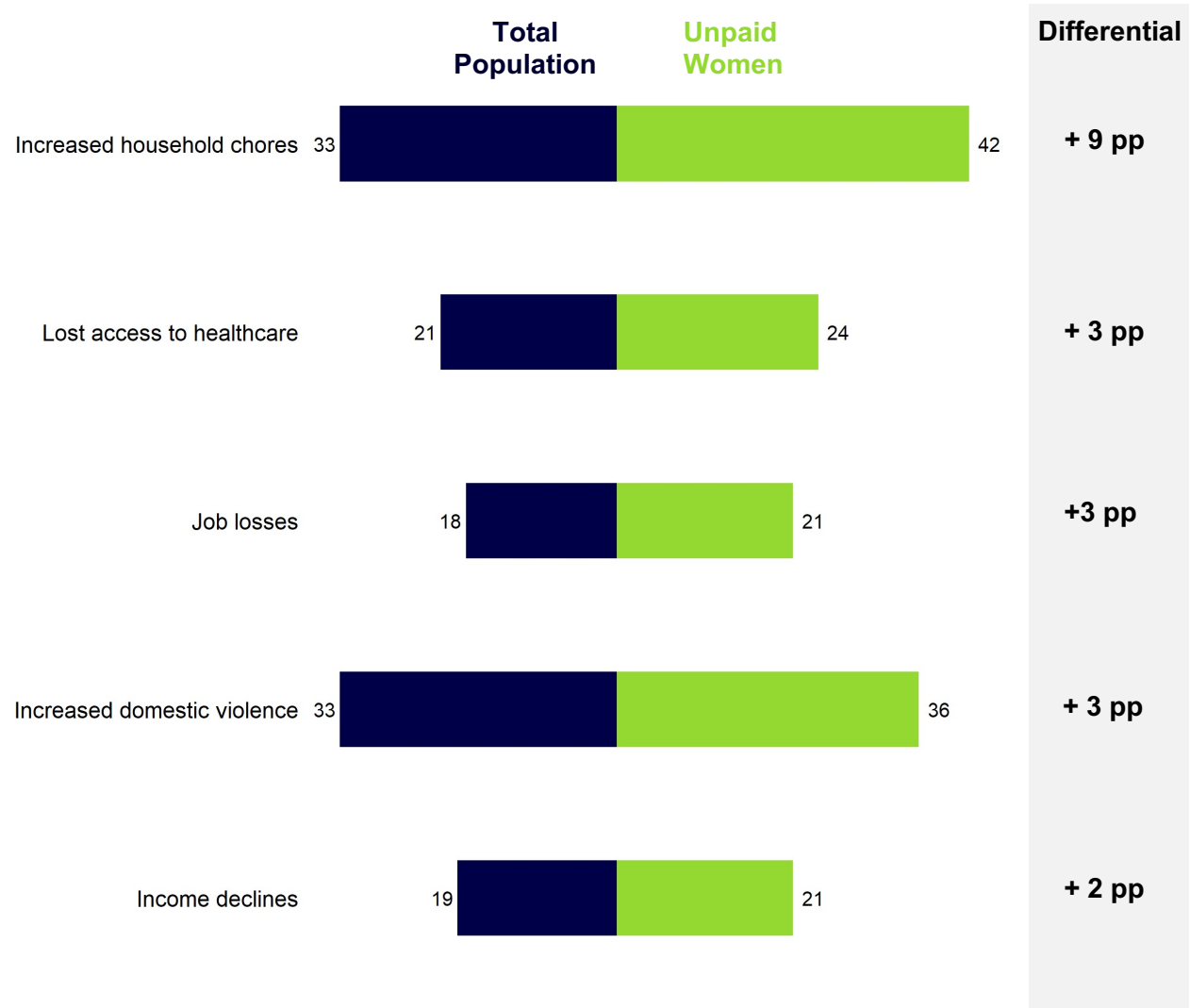
	Total Population	Unpaid Women	Differential
Increased household chores	33	42	+ 9 pp
Lost access to healthcare	21	24	+ 3 pp
Job losses	18	21	+3 pp
Increased domestic violence	33	36	+ 3 pp
Income declines	19	21	+ 2 pp

Note: Respondents could select women more, men more, about the same, or not an impact.

Conclusion

The Economic Effects of COVID-19

Through this report, Fraym expands its [recent gender-transformative recovery work](#) by conducting deep-dive analyses on the gendered economic effects of the COVID-19 pandemic in India. More specifically, Fraym explored whether specific groups may have been disproportionately impacted by the pandemic and analyzed the varying impacts and perceptions of the economic consequences of COVID-19.

This analysis provides an important opportunity to highlight specific challenges and other dynamics that may affect labor force participation and productive opportunities for specific types of women and marginalized groups.

(1) **Paid work and loss of working hours:** Roughly two in five women reported a decrease in income from a family business, paid job, or other investments. Over half of female entrepreneurs in Chandigarh and Rajasthan reported losing their job or having reduced working hours.

(2) **Restrictions on selling in public places and public transportation:** Six out of 10 adults living in Mumbai informal settlements believe that women were more affected due to restrictions on selling in public spaces. In addition, one in two adults informal settlement residents believe that limitations on access to public transportation affected women more than men.

(3) **Caregiving and household tasks:** Over half of unpaid family workers reported an increase in hours devoted to household responsibilities. This trend is widespread across the country, with nearly 90 percent of Indian districts reporting these types of majority-level effects.

(4) **Government resources:** Although over 40 percent of female entrepreneurs experienced increased government support during the pandemic, half of marginalized women believe the government failed to adequately address job losses and food price increases due to the pandemic. Over 270,000 adults living in informal slums in Mumbai report reduced income from government support programs.

Appendix

About Fraym

Fraym has built machine learning (ML) software that weaves together geo-tagged household survey data with satellite imagery to create localized population information (1 km^2).

1 The primary ML model input is data from high-quality, geo-tagged household surveys. Key indications of a high-quality household survey include implementing organization(s), sample design, sample size, and response rates. After data collection, *post-hoc* sampling weights are created to account for any oversampling and ensure representativeness.

2 The second major data input is satellite imagery and related derived data products, including Earth observation (EO) data, gridded population information (e.g., human settlement mapping, etc.), proximity to physical locations (e.g., health clinics, ports, roads, etc.) and biophysical surfaces like soil characteristics. As with the survey data, Fraym data scientists ensure that the software only uses high-quality imagery and derivative inputs.

3 To create spatial layers from household survey data, Fraym leverages machine learning to predict an indicator of interest at a 1 square kilometer resolution. This methodology builds upon existing, tested methodologies for interpolation of spatial data. The resulting model is used to predict the survey data for all non-enumerated areas. A similar approach was originally developed by academic researchers focused on health outcomes, which were expanded upon by USAID's Demographic and Health Surveys program since then by Fraym and others.[1]

ACQUIRE DATA	HARMONIZE DATA	MACHINE LEARNING	GEOSPATIAL INSIGHT
Geo-tagged household surveys	Validate	Proprietary algorithms	Predictive modeling
Satellite imagery	Clean	Human-centric QA/QC	API enabled
Partner datasets	Geospatially enable	Automation	Analytic services
Mobility data from network operators			Front-end tools
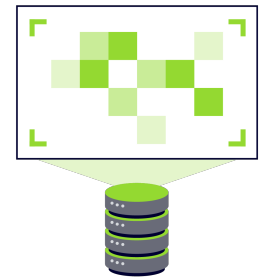
Note 1: Gething, Peter, Andy Tatem, Tom Bird, and Clara R. Burgert-Brucker. 2015. Creating Spatial Interpolation Surfaces with DHS Data DHS Spatial Analysis Reports No. 11. Rockville, Maryland, USA: ICF International. Other notable, relevant work includes: Weiss DJ, Lucas TCD, Nguyen M, et al. Mapping the global prevalence, incidence, and mortality of *Plasmodium falciparum*, 2000–17: a spatial and temporal modelling study. Lancet 2019 and Tatem A, Gething P, Pezzulo C, Weiss D, and Bhatt S. 2014. Final Report: Development of High-Resolution Gridded Poverty Surfaces. University of Southampton. https://www.worldpop.org/resources/docs/pdf/Poverty-mapping-report.pdf

Study Methodology

Fraym conducted a survey of 27,354 Indian respondents via a demographically and geographically-targeted online panel. Data was collected between 9-29 April, 2021.

The respondents identified the following gender identities: 11,846 females (43%), 15,079 males (55%), and 429 (2%) respondents who identified as transgender woman, transgender man, other (3rd gender/non-binary), or preferred not to answer. India's 36 states and union territories were represented as follows:

Andaman and Nicobar Islands, 15 (0.05%), Andhra Pradesh, 894 (3.27%), Arunachal Pradesh, 30 (0.11%), Assam, 467 (1.71%), Bihar, 1,175 (4.30%), Chandigarh, 297 (1.09%), Chhattisgarh, 273 (1.00%), Dadra and Nagar Haveli, 11 (0.04%), Daman and Diu, 11 (0.04%), Delhi, 1,781 (6.51%), Goa, 95 (0.35%), Gujarat, 1,200 (4.39%), Haryana, 649 (2.37%), Himachal Pradesh, 250 (0.91%), Jammu and Kashmir, 165 (0.60%), Jharkhand, 362 (1.32%), Karnataka, 2,141 (7.83%), Kerala, 978 (3.58%), Lakshadweep, 3 (0.01%), Madhya Pradesh, 1,355 (4.95%), Maharashtra, 3,586 (13.11%), Manipur, 36 (0.13%), Meghalaya, 36 (0.13%), Mizoram, 86 (0.31%), Nagaland, 56 (0.20%), Odisha, 561 (2.05%), Puducherry, 31 (0.11%), Punjab, 557 (2.04%), Rajasthan, 1,223 (4.47%), Sikkim, 14 (0.05%), Tamil Nadu, 1,909 (6.98%), Telangana, 1,111 (4.06%), Tripura, 144 (0.53%), Uttar Pradesh, 2,467 (9.02%), Uttarakhand, 445 (1.63%), West Bengal, 2,940 (10.75%).

The average survey completion time was 18 minutes for respondents. The survey consisted of about 70 questions. Topics included demographics, impacts of the COVID-19 pandemic, perceptions of the gender burden of these impacts as well as attitudes toward support from international, national, and local actors.

The survey firm adheres to industry best-practices for online panel sample monitoring and quality assurance. These include: (i) regularly testing/validating on a rolling basis to ensure participants and their responses are real/accurate; (ii) comparing answers from respondents to pre-collected information on the same respondents for consistency, such as same age, gender, socio-economic status, and geography; (iii) using automated natural language processing (NLP) on open-ended responses to detect non-sensical language etc.; (iv) check for straight lining (e.g. answering the first response for all questions); and (v) checking speed of completion rates, (e.g. flagging anyone who spends 1/3 or less of the median time to complete the questionnaire). Responses that fail any one of these tests were removed from the data and possibly lead to the removal from the vendor's sample pool as well.

The data was designed to be nationally representative. Modest divergence was found between sample characteristics and the population parameters according to available Ministry of Statistics and Programme Implementation (MoSPI) data. Post-hoc weights were created to correct for these differences. An iterative proportional fitting process was used to simultaneously balance the distributions of the following parameters: gender, age, urban status, and the population in each of India's 36 states and union territories.

The localized maps seen in this report were produced using the proprietary software FUSE*fraym™*. This software uses artificial intelligence and machine learning (AI/ML) to weave together survey data with satellite imagery and geostatistical datasets. These include earth observation (EO) data, gridded population information (e.g., human settlement mapping), and biophysical surfaces like soil characteristics. Fraym data scientists ensure that the software only uses high-quality imagery inputs. Derived products are carefully assessed for model metrics, contextual checking, and pedigree within the geospatial data science community. Remotely sensed data, such as satellite imagery, are downloaded from long running and frequently quality-checked satellites and sensors. Data is provided by respected organizations including the National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), European Space Agency (ESA), the Socioeconomic and Applications Center (SEDAC), and the Center for International Earth Science Information Network (CIESEN).

Have questions about how Fraym data can help your organization?

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