Missing Women on Global Streets: A Research Note

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Abstract

How absent are women from city streets around the world? Using 9,835 person-filtered street-level photographs across 101 cities in 88 countries from the Global Streetscapes corpus, we measure apparent gender composition among 9,364 classified pedestrians and 1,797 two-wheeler riders. Globally, women account for 36.5% (95% CI: [32.9%, 40.2%]) of classified pedestrians and 13.0% of two-wheeler riders, ranging from 0.0% to 100.0% across cities.

1 Introduction

Presence in public space is a direct, observable indicator of gender equity in freedom of movement, yet prior street-level audits have been limited to small purposive sites or single-country surveys [Viswanath and Basu, 2015, Goel, 2022, Pujadas-Mora and Molina Rodríguez, 2026]. Recent randomized street surveys in four Indian cities using wearable cameras [Karekurve-Ramachandra and Sood, 2026] and Google Street View audits in three Indian cities [Sood, 2026] found that women make up roughly 20% to 27% of visible pedestrians. Whether that magnitude is distinctive to South Asia or varies systematically across regions and national income has remained unknown for lack of comparable, cross-national street-level measurement [Elrod et al., 2025].

2 Data and Sampling Design

We draw a reproducible stratified sample of 100 cities from the Global Streetscapes corpus [Hou et al., 2024] (688 cities; Mapillary and KartaView imagery). Eligibility requires at least 400 images and non-missing city population and World Bank GDP per capita PPP (543 eligible cities). Cities are stratified across 12 cells defined by 6 World Bank-derived regions (merging North America and Latin America & Caribbean into Americas) crossed with within-region

income halves. Regional quotas follow Bankier square-root allocation, and cities are drawn via Efraimidis–Spirakis $\sqrt{\text{population}}$ weighting with an unrepresented-country-first pass and a population-scaled per-country cap, yielding 101 cities across 88 countries (with New Delhi included as a certainty benchmark).

Within each city, we filter on precomputed Mask2Former instance counts (Person + Rider $\geq$ 1) to avoid empty-road frames and draw 100 images per city in Round 1 (9,835 images). Each full-resolution frame is coded using `muse-spark-1.3-contributor` for pedestrian women, pedestrian men, two-wheeler women, two-wheeler men, and unclear-sex detections.

3 Results

Table 1: Pedestrian and two-wheeler female share by World Bank-derived region (Round 1).

Region	Cities	Images	Pedestrians	Ped. Female Share [95% CI]	2-Wh. Share	Unclear
Europe & Central Asia	26	2,569	2,686	49.6% [46.3, 52.9]	30.3%	74.1%
East Asia & Pacific	18	1,626	1,254	43.5% [38.1, 49.0]	22.9%	76.1%
Americas	25	2,458	1,302	40.1% [34.5, 45.7]	13.5%	76.8%
Sub-Saharan Africa	12	1,191	1,180	30.5% [26.7, 34.3]	6.2%	75.5%
South Asia	9	893	1,678	26.5% [21.3, 31.7]	12.3%	61.2%
MENA, Afg. & Pak.	11	1,098	1,264	17.2% [9.1, 25.2]	4.5%	62.2%
Global (all regions)	101	9,835	9,364	36.5% [32.9, 40.2]	13.0%	71.8%

Notes: City-clustered 95% confidence intervals around ratio estimates. Pedestrian female share is $\sum \text{women} / \sum(\text{women} + \text{men})$. Unclear share is unclear detections over all detected pedestrians and riders.

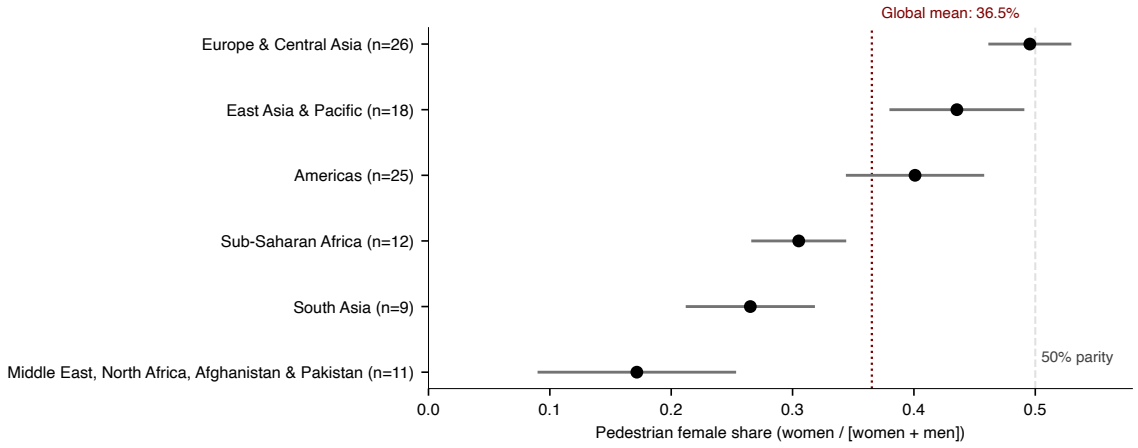


Figure 1: Pedestrian female share across World Bank-derived regions with city-clustered 95% confidence intervals. Dotted red line marks the global weighted mean (36.5%); dashed gray line marks 50% parity.

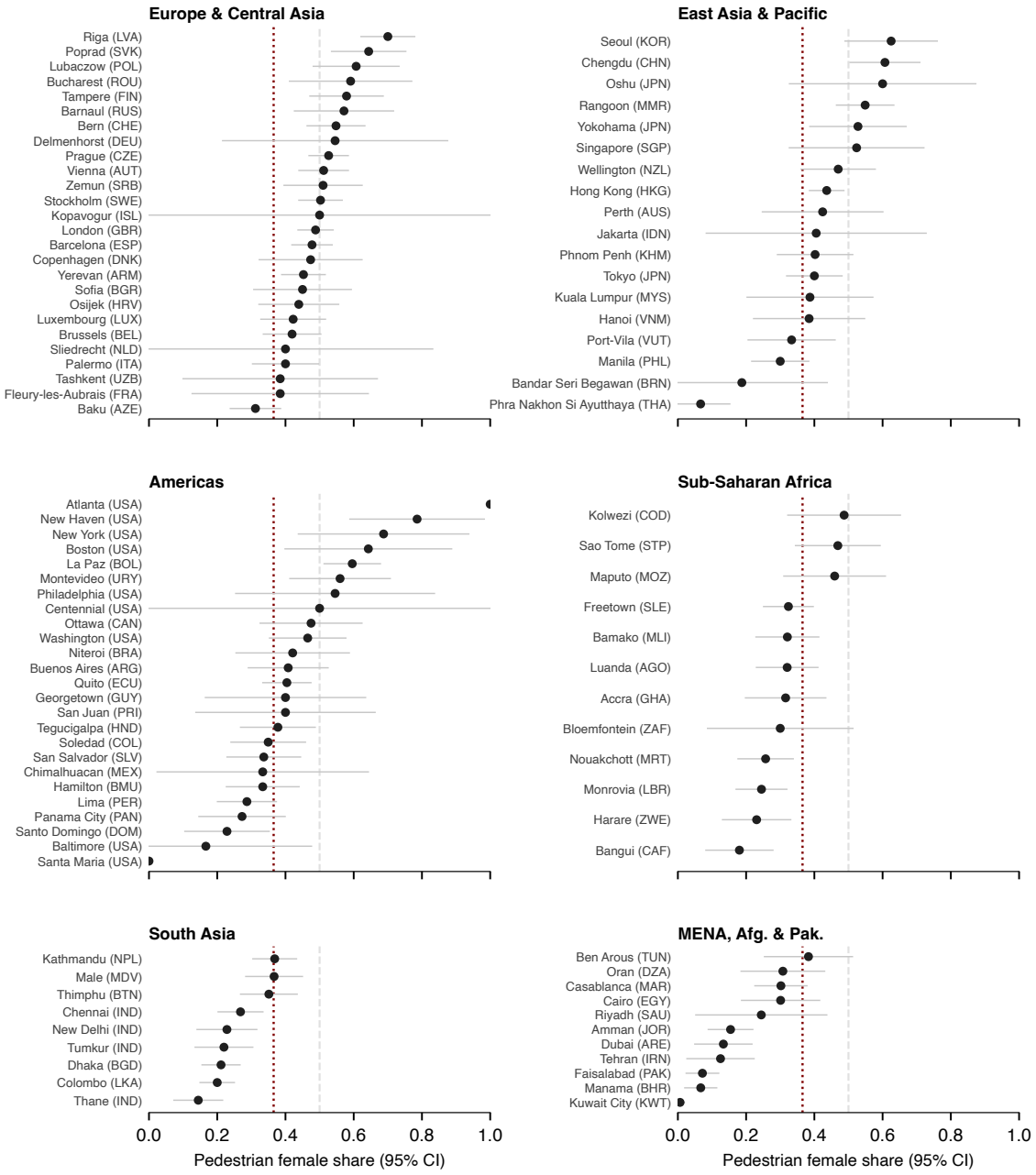


Figure 2: Distribution of pedestrian female share across 101 sampled cities (95% CIs clustered by image).

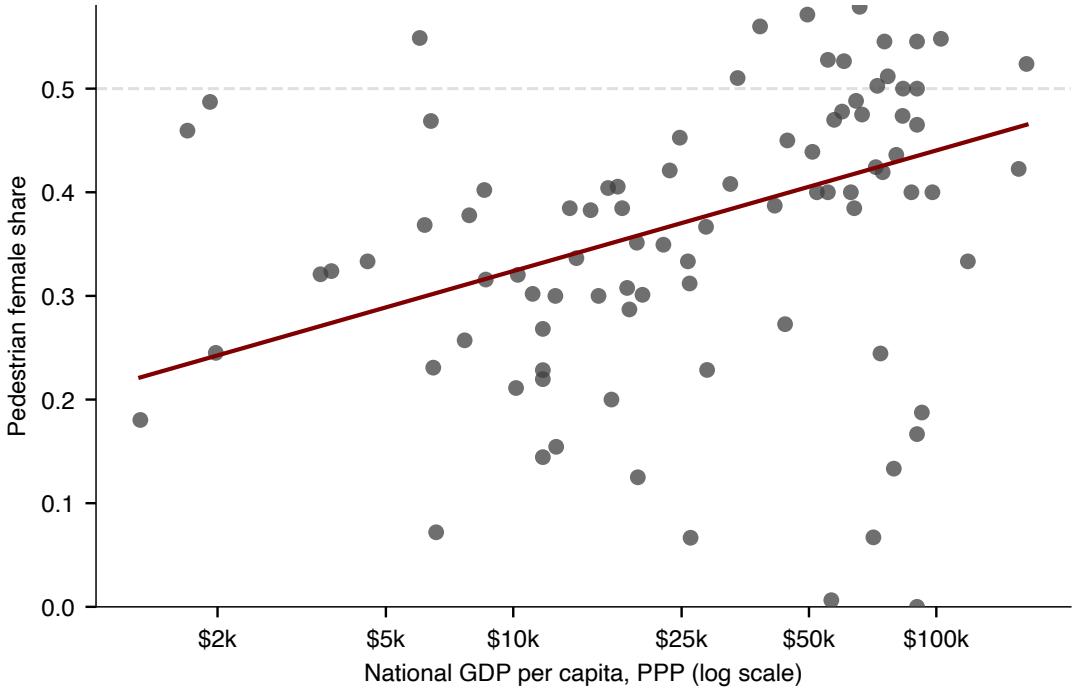


Figure 3: National GDP per capita PPP (log scale) versus city-level pedestrian female share.

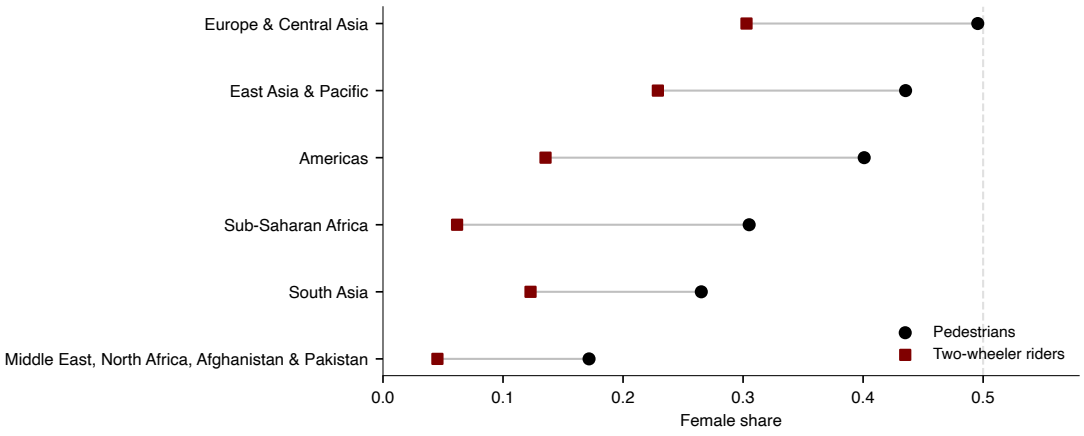


Figure 4: Female share among pedestrians (circles) versus two-wheeler riders (squares) by region.

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A Pixel-Area Threshold Sensitivity

Table 2: Sensitivity of Round 1 counts and pedestrian female share to Mask2Former person-pixel thresholds.

Panel A: Global yield and female share across pixel thresholds

Threshold (pixels)	Images kept	Classified ped.	Unclear	Ped. female share
≥ 0	9,835 (100.0%)	9,364 (100.0%)	28,399	36.53%
$\geq 1,000$	8,465 (86.1%)	9,311 (99.4%)	26,973	36.64%
$\geq 2,000$	7,590 (77.2%)	9,235 (98.6%)	25,632	36.72%
$\geq 5,000$	5,835 (59.3%)	8,907 (95.1%)	21,940	36.77%
$\geq 10,000$	4,403 (44.8%)	8,197 (87.5%)	18,172	37.34%
$\geq 20,000$	3,097 (31.5%)	7,102 (75.8%)	13,822	37.82%

Panel B: Regional invariance at $\geq$ 5,000 *person/rider pixels*

Region	All ($\geq$ 0 px)	Filtered ($\geq$ 5,000 px)	Difference
Americas	40.09% ($n = 1,302$)	40.30% ($n = 1,196$)	+0.21 pp
East Asia & Pacific	43.54% ($n = 1,254$)	44.22% ($n = 1,203$)	+0.68 pp
Europe & Central Asia	49.55% ($n = 2,686$)	49.31% ($n = 2,614$)	-0.24 pp
MENA, Afg. & Pak.	17.17% ($n = 1,264$)	17.33% ($n = 1,160$)	+0.16 pp
South Asia	26.52% ($n = 1,678$)	26.60% ($n = 1,654$)	+0.08 pp
Sub-Saharan Africa	30.51% ($n = 1,180$)	30.65% ($n = 1,080$)	+0.14 pp

Notes: Pixel counts sum Mask2Former `Person`, `Bicyclist`, `Motorcyclist`, and `Other-Rider` pixels from `segmentation.parquet` across the 9,721 Round 1 images.