Exaggerated population ageing and understated fertility decline - Addressing the need for valid demographic indicators Global demographic change inaccurately portrayed – new metrics to address this suggested

International agencies typically use old age dependency ratios (OADR) to measure ageing - and TFR as a proxy for fertility (e.g., UNPD, NSOs).

OADR (typically 65+/20-64) is a less relevant measure of ageing ageing metrics should include health and functioning.

The OADR fails to include these dimensions -

# Health and ageing – the average health differs by nation

Chang, Skirbekk et al, Lancet Public Health 2019

#### Health-adjusted dependency ratio (HADR) and old-age dependency ratio (OADR) by world region. Higher values indicate higher ageing burden.



Skirbekk et al., 2022, Lancet Healthy Longevity

### Fertility should be measured for both genders

Childbearing metrics commonly only include women

As the sex ratio at birth and in typical reproductive ages is not 1:1, typically higher, TFRw is a weak proxy for «two sex TFR» and male fertility

TFR, NRR, CEB, other measures of reproduction typically reported are all based on number of children per *woman* 

change over time

Childbearing equally important for men (e.g., health, lifestyles, wellbeing) Using only TFRw fails to emphasize gender equality

# Skewed sex ratios -> TFR is misleading for men and for both sexes

The higher the sex ratios (more men than women) -> the lower the

### Sex ratio imbalances large

Sex ratios differ globally (more boys than girls born, higher male mortality)

- Sex ratios differ by region (more girls born in some regions).
- Sex selective abortion increased SR at birth (several countries)
- Childlessness higher among men compared to women (e.g., Norway)
- Regional sex ratios differ due to mobility e.g., men may migrate more internationally, women may urbanize more in richer countries



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### Relevance of using two sex fertility measures

Assume reproductive age SRs are close to 1.2 (males per female).

Assume there are 2 children born per woman (TFRw).

This means male fertility (TFRm) would bechildren for every man.Both gender fertility (2STFR) would bechildren.

Assume there would be 1 child born per woman (TFRw).

This means male fertility (TFRm) would be children for every man. be

#### In sum

Ageing is fairly equally distributed across the world ageing in East-Asia, Americas, W-Europe likely exaggerated (as discussions are based on OADR metric). Better measures are needed.

Fertility, when measured for both genders (e.g., 2STFR), is lower than what TFRw suggests as there are more men than women of reproductive age. This phenomenon is particularly important in low fertility countries such as South Korea or China.