HIGHLIGHTS from Spotlight:

**WHO BEARS THE BURDEN OF CLIMATE CHANGE AND HOW?
A SYSTEMATIC REVIEW**

Key Points

- *South Asia is highly vulnerable to climate change, with the poor typically suffering greater damage from climate shocks.*
- *Households, farmers, and firms adapt to climate change using a variety of strategies which have, on average, offset 46 percent of climate damage.*
- *The most effective adaptation strategies involve public goods that provide resilient access to essential services or markets, and technologies.*
- *Fiscally constrained governments in South Asia can best facilitate adaptation by addressing barriers to private sector adaptation and focusing scarce public resources on adaptations that generate double dividends.*

South Asia's vulnerability to climate change. According to the University of Notre Dame's Global Adaptation Initiative index, South Asia is the emerging market and developing economy (EMDE) regions that is most vulnerable to climate change. Poor households are often more exposed to, and typically more adversely affected by, climate shocks than more affluent ones.

Adaptation strategies. A systematic literature review finds that individuals and firms are adapting to climate change in many ways. For example, households move to safer places, reallocate labor toward less vulnerable activities to avoid damage from climate shocks, and use loans or transfers to cope with shocks. Farmers adjust cropping patterns, adopt climate smart agricultural practices, and use irrigated water. Firms relocate, diversify supply chains, and adopt resilient technologies and management practices.

Effectiveness of adaptation strategies. On average, adaptation strategies have offset 46 percent of climate damages. Firms have had access to the most effective adaptation strategies (offsetting 72 percent of climate damage), which typically involve technology adoption. Farmers' strategies have been the least effective (offsetting 38 percent of the damage), in part because of challenges in finding jobs in the nonagricultural sector. Household adaptation has been most effective when supported by public goods that make access to markets and basic services more resilient to shocks. Public adaptation strategies—comprising both public goods and government transfers—have tended to be more effective than purely private ones.

Policy implications. A wide range of policy interventions will be needed to facilitate climate change adaptation effectively and comprehensively. Policies that enhance access to public goods and technologies that aid private sector adaptation are most likely to generate double dividends and should be prioritized. It is important to design policies that target non-climate goals in a manner that does not set back climate-related goals. Addressing major knowledge gaps on constraints to adaptation and cost-effectiveness of adaptation mechanisms is also important.

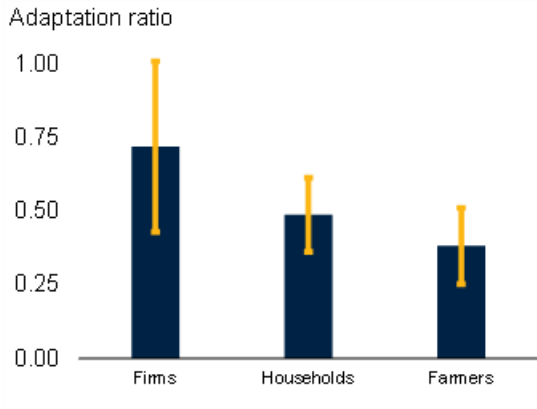**FIGURE 1.** Climate change adaptation

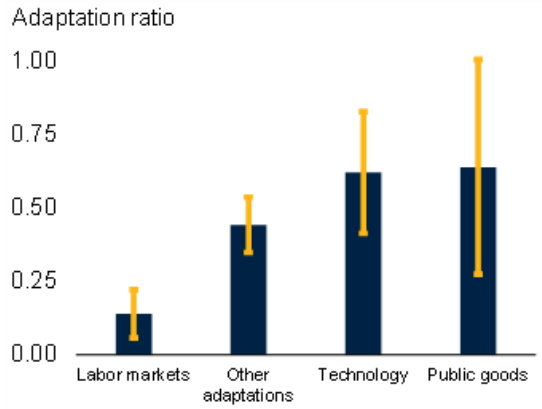**A. Climate Change Vulnerability Index, 2017-21 average**
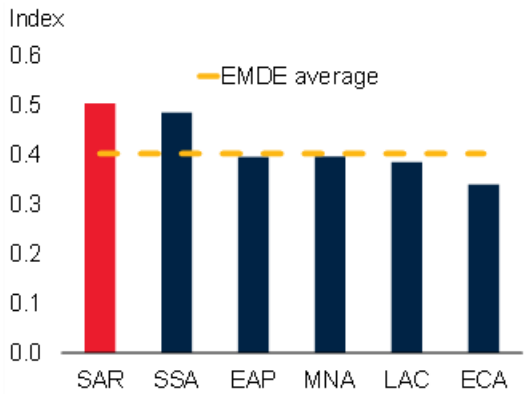
B. Share of studies that document that the poor are more exposed to, or more adversely affected by, climate shocks
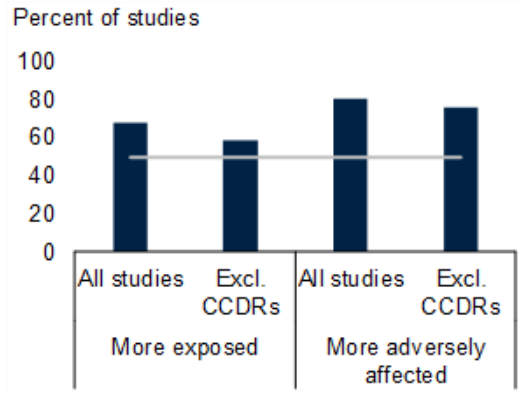
C. Mean adaptation ratio among firms, households, and farmers

D. Mean adaptation ratio, by adaptation mechanism

Sources: International Disaster database (EM-DAT); *World Economic Outlook* database, International Monetary Fund; Notre Dame Vulnerability Index; national sources; *World Development Indicators* database, World Bank; Rexer and Sharma (2024).

Note: EMDEs= emerging market and developing economies. EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = sub-Saharan Africa; BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan; CCDR = Country Climate and Development Report; Adaption ratio = the share of the damage from a climate shock that is offset by adaptation;

A. Bars shows the population-weighted climate vulnerability index of the Notre Dame Global Adaptation Initiative, averaged over 2017–21. Regional aggregates are GDP-weighted by country GDP in 2015.

B. The first two bars show the percentage of reviewed studies that document that the poor are more exposed to climate shocks. Sample covers 33 studies, of which 22 are CCDRs. The last two bars show percentage of reviewed studies that document that the poor are more affected by climate shocks. Sample covers 61 studies, of which 34 are CCDRs. Gray line indicates 50 percent.

C. The bars represent the mean adaptation ratios disaggregated by agent type. The yellow lines represent their 95 percent confidence intervals. The total sample consists of 118 estimates from 52 papers included in the meta-analysis of adaptation in Rexer and Sharma (2024). Adaptation ratios measure the share of climate damage that is offset by climate adaptation. Technical details are explained in Rexer and Sharma (2024).

D. The bars represent the mean adaptation ratios disaggregated by adaptation mechanism type. The yellow lines represent their 95 percent confidence intervals. The total sample consists of 118 estimates from 52 papers included in the meta-analysis of adaptation in Rexer and Sharma (2024). Adaptation ratios measure the share of climate damage that is offset by climate adaptation. Technical details are explained in Rexer and Sharma (2024).