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Climate adaptation in Argentina: Short-term instability, long-term risk

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Nota del Editor: Este artículo forma parte de una serie de publicaciones que reflexionan sobre cómo la evidencia de VoxDevLits se aplica a contextos específicos y se publica en colaboración con la iniciativa Mujeres en Liderazgo Económico de la Asociación Económica Internacional . Esta publicación explora cómo la evidencia sobre adaptación climática se relaciona con Argentina.

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Argentina faces persistent structural challenges that shape its economic and political environment. Periods of high inflation, recurrent debt crises, and political instability have created conditions in which short-term concerns dominate both policymaking and public attention. This short-run orientation complicates the response to long-horizon issues such as climate change. Effective adaptation requires investments with uncertain and delayed returns, sustained institutional commitment, and the ability to manage intertemporal trade-offs (Kala et al. 2023). Yet in Argentina, policy continuity is frequently disrupted by changes in administration, macroeconomic shocks, and fiscal constraints. As a result, long-term climate planning has proven extremely difficult to formulate, let alone implement.

Argentina is highly vulnerable to climate change

Placing climate change on the national agenda is itself a challenge. While risks are already visible in the form of rising temperatures, record droughts and floods, and other extreme events, they are often overshadowed by immediate concerns such as inflation, poverty, or exchange rate volatility.

The country's productive structure both heightens its vulnerability and creates incentives for adaptation. Agriculture accounts for roughly 6% of GDP and more than half of exports. Agricultural output is highly sensitive to climatic conditions, including changes in precipitation and temperature. At the same time, the sector is technologically advanced and profit-driven, giving farmers a direct incentive to adopt adaptive practices. In the absence of strong global or domestic climate policy, however, private-sector action alone will not generate meaningful progress.

Climate risks are already material. Between 1980 and 2020, floods were the most frequent natural hazard, affecting more than 14 million people

nationwide (World Bank n.d.). In 2023, severe flooding in Bahía Blanca – a port and the ninth most populous city in the country – killed at least 16 people and caused extensive infrastructure damage. At the aggregate level, estimates suggest that a 1°C rise in temperature reduces Argentina's real per capita GDP by 0.32–0.50% (Acevedo et al. 2020). These findings are corroborated at the subnational level: climate disasters are associated with a 0.53% reduction in night-time luminosity, a proxy for economic activity (Gonza´lez et al. 2021).

Research on agriculture also highlights substantial risks. Ahumada et. al. (2021) find that elevated atmospheric CO2 concentrations enhance crop yields via stimulated photosynthetic activity, whereas high local temperatures have negative effects on yields. Rosenzweig et al. (2014) document large negative effects of climate shocks on yields, particularly at lower latitudes and under higher warming scenarios. Empirical work has also shown significant reductions in farm profits in developing
countries (Seo et al. 2005, Kurukulasuriya et al. 2011). In Argentina, Rozenberg and Fay (2019) find that droughts have repeatedly depressed agricultural output, with particularly severe effects on maize and soybean production (Thomasz et al. 2024).

Climate shocks also affect human capital through health, education, and labour market channels. In Bahía Blanca, the 2023 floods damaged 131 of 232 public schools, leading some schools to close for up to 12 days. Mortality effects are also significant. Using data for Argentina, García-Witulski et al. (2023) show that extreme temperatures increase death rates, with hot days having larger impacts than cold ones. On average, one additional hot day increases mortality by 0.496 per 100,000 people, raising total mortality among the elderly (65+) by 0.73%. Using municipal-level data, García-Witulski et al. (2023) further find that extreme temperatures increase mortality relative to average monthly conditions, with cold shocks producing larger effects. For example, one additional day with a nationwide mean of around 5°C is associated with roughly +2.5 deaths per million in that month's mortality rate, relative to a day in the 21–27°C range.

These localised findings align with broader evidence from Latin America. Caruso (2017) shows that early-life exposure to floods negatively affects education, fertility, and employment outcomes. High temperatures have also been found to reduce academic performance (Garg et al. 2020, Fishman et al. 2019), a particularly relevant concern in Argentina where some of the hottest regions are also among the poorest and educational quality is uneven.

Climate adaptation responses and effectiveness in Argentina

Managing agricultural risks is central to any adaptation strategy in Argentina. Crop insurance is relatively developed, but broader risk management is hampered by shallow financial markets and limited credit availability. In 2023, credit to the private sector represented only 12% of GDP – the lowest in the region – constraining investment in general, and adaptive capacity in particular. Weather insurance products exist but remain underdeveloped, limiting the country's ability to absorb climate shocks through financial instruments.

Technological innovation represents another critical pillar of any adaptation strategy in Argentina. Argentina is a global leader in conservation agriculture: nearly 90% of farmland is under no-tillage management, which enhances soil carbon sequestration, reduces fossil fuel use, and improves soil health. Michler et al. (2019) find that such practices mitigate the adverse impacts of rainfall shocks. Argentina also ranks among the world's top adopters of genetically modified seeds (ISAAA 2018), with near-universal use. These crops enhance resilience to climatic stresses, including drought, heat, and excess rainfall (Kumar et al. 2020). Argentina was also the first country to approve HB4 drought-tolerant wheat, developed to strengthen resilience under water stress. International evidence further underscores the effectiveness of improved varieties; flood-tolerant rice, for instance, has

raised yields and productivity (Dar et al. 2013, Emerick et al. 2016, Glennerster and Suri 2018).

Policy implications: Investing in long-term climate adaptation in Argentina

For a country like Argentina, where institutions are relatively weak and the enforcement of property rights has historically been inconsistent, governance and infrastructure are especially critical for adaptation. Deficient transport infrastructure also raises logistics costs and limits the ability to offset localised weather shocks through trade and market integration. Comparative evidence highlights the importance of such investments: in India, rail expansion reduced famine risk by lowering trade costs (Burgess and Donaldson 2010), while in Nicaragua, the construction of new bridges helped buffer local labour markets from the impacts of flooding (Brooks and Donovan 2020).

These forms of long-term investment require a stable political horizon and strategic planning that extend beyond short-term crises and electoral cycles. Ultimately, this tension between immediate political pressures and the need for durable, forward-looking investment defines Argentina's central challenge in climate adaptation.

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