

Public R&D Meets Economic Development: Embrapa and Brazil's Agricultural Revolution

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Abstract :

Can public R&D investment in developing countries drive productivity growth? We study this question in the context of Brazilian agriculture and the Empresa Brasileira de Pesquisa Agropecuária (Embrapa), a public research corporation established in 1973 to develop locally suitable science and technology. First, we show that Embrapa redirected research toward prioritized staple crops and local ecological conditions, and increased research productivity, especially in remote and research-scarce regions. Second, exploiting the staggered rollout of research centers alongside heterogeneous local exposure to Embrapa's technology development, we find that Embrapa significantly increased agricultural output, driven both by higher productivity and expanded input use. Combined with a model, these estimates imply that public R&D investment increased national agricultural productivity by 110% with a benefit-cost ratio of 17. The decentralized structure, in which research labs were spread across many ecological zones instead of in a single hub, explains a large share of these benefits.