

## **What's the cost of regulating the environment? Aggregate implications of cap-and-trade programs**

**Evangelina Dardati<sup>1</sup> and Meryem Saygili<sup>2</sup>**

### **Abstract**

We use a firm dynamics model with heterogeneous firms to study the effect on the aggregate economic outcomes and welfare of different allocation schemes in a cap-and-trade program. In particular, we quantify the long-run effects of allocating permits through auctions, grandfathering, and output-based allocations. We calibrate the model with US data on firm size distribution and firm emissions. A 30% reduction in emissions is associated with a welfare cost that is highest for auctioning, followed by output-based allocation and, finally, grandfathering. When we introduce an abatement option, the loss is smaller, but the ordering remains the same.

**Keywords:** plant heterogeneity, cap-and-trade program, welfare

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<sup>1</sup>**Corresponding Author** Universidad Alberto Hurtado, Santiago, Chile. [edardati@gmail.com](mailto:edardati@gmail.com)

<sup>2</sup>University of Texas at Tyler, Tyler, United States. [tekinmrym@gmail.com](mailto:tekinmrym@gmail.com)