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Voting for pollution policy: the importance of income inequality and openness to trade

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Abstract

This paper analyzes how openness and the distribution of factor ownership interact to determine individual and aggregate demand for pollution policy. Analysis of voter preferences in autarky shows that an increased stake in either the dirty *or* the clean industry can induce an individual voter to prefer stricter environmental policy. Similarly, the paper shows that poorer voters may be the greener voters within an electorate. The model also reveals that the incidence of pollution policy depends upon a country's trade regime, with consequences for the direction in which income inequality influences aggregate demand for pollution policy.

Keywords: Trade; Environment; Voting; Income inequality

JEL classification: F18; D72

1. Introduction

Discussing the riots against the World Trade Organization in Seattle, 1999, *The Economist* summed up a common perception of how trade affects environmental policy: '...trade improves the environment, because it raises incomes, and the richer people are, the more willing they are to devote resources to cleaning up their living space' (December 4, 1999, p. 17). This conclusion derives from a

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substantial body of empirical evidence concerning an 'Environmental Kuznets Curve'. This evidence predicts that, after a turning point, higher levels of per capita income will correlate with lower levels of local ambient pollution.[1] Combined with economic theories arguing that international trade raises the scale of economic activity and hence raises aggregate incomes, the conventional logic championed by *The Economist* seems to have some grounds.[2] However, as is evident to economists versed in the Stolper–Samuelson theorem of international trade, trade can change the distribution of income within a country. Yet the question of how the distribution of income within a country alters its collective demand for environmental quality has been largely ignored.[3] This paper explores these issues, highlighting the link between pollution policy and unequal ownership of the factors of production as well as the sensitivity of this link to a region's trade regime.

This paper employs a simple analytic model in which individual agents have identical preferences over private goods and environmental quality but have heterogenous endowments of the capacities to produce clean and dirty goods. Pollution policy dictates the fraction of polluting capacity that is allocated to pollution abatement. Similar to Oates and Schwab (1988),[4] policy is set via majority rule voting and voters are assumed to be aware of the general equilibrium consequences of policy and vote according to their own self interest. Analysis focuses on the manner in which individual self interest, and hence induced preferences for environmental policy, varies with the composition of individual endowments, and predictions are made as to how the stringency of elected environmental policy will vary with the distribution of endowments as well as with the economy's trade regime.

This approach offers several new insights. Firstly, the model demonstrates that, in a closed economy, an increase in a voter's share of an economy's capacity to produce dirty *or* clean goods can make that voter prefer weaker environmental policy. In the case of a larger ownership share in the polluting industry, this possibility is unsurprising: pollution control reduces the profitability of polluting industries and this will be viewed with less favor by voters with bigger stakes in these industries. But this may also be the outcome when a voter gets a larger ownership share in the clean industry. When goods prices are determined in a closed economy, or 'autarky', pollution policy affects the rate of exchange

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[1]See, for example, Grossman and Krueger (1995) and Moomaw and Unruh (1997).

[2]Antweiler et al. (2001) test this hypothesis using data on sulfur dioxide, concluding that 'if trade liberalization raises GDP per person by 1%, then pollution concentrations fall by about 1%' (p. 878).

[3]Exceptions are Torras and Boyce (1998), Magnani (2000), Marsiliani and Renström (2000).

[4]Oates and Schwab (1988) address the impact of voter heterogeneity on elected capital and environmental policy, finding that, relative to non-wage earners, wage earners prefer lower (negative) capital taxes because these increase the size of the local capital stock. Their framework differs from that in the present paper in that they only consider the open economy case and assume perfect mobility of capital across countries.