Abiy Teshome, University of Virginia
**Essays on the logistics of international trade**

My dissertation tackles two complementary issues in the logistics of international trade. First, what determines transportation costs? Second, how do parties to international transactions execute the costly and often unpredictable tasks associated with cross-border manufacturing and distribution? Our understanding of these topics informs modern practices like offshoring and just-in-time production, which feature increasingly complex supply chains, and are therefore susceptible to distortions arising from market power in international shipping, and other institutional barriers to the free movement of goods across borders.

In "International trade with an oligopolistic transport sector", I endogenize transportation costs in a heterogeneous firm model of trade by introducing oligopolistic maritime carriers that move goods from manufacturers to final consumers. Within each destination, competition among manufacturers from various source countries generates a system, across source countries, of interdependent demands for transport. I then test the model using data on Ecuadorian auto imports from 2007 to 2012. Specifically, I determine whether the prevailing freight rates and the number of vehicles transported by a given number of carriers over a given length of time are jointly rationalizable by time-varying transport demands and convex, time-invariant cost functions in shipping. As expected, it is easier to rationalize shipping activity among smaller groups of carriers over shorter horizons as Cournot outcomes. I then bound carrier marginal costs using the set of rationalizable observations, and find evidence of dwindling profit margins since the beginning of the Great Recession, thus easing fears of distortions due to market power.

In "Property rights and hold-up in international shipping", I study optimal contracting in international shipping, offering the first breakdown of the delivery process into its various components. I present stylized facts using detailed Colombian transaction-level data, showing that the allocation of delivery-related tasks within buyer-seller pairs constitutes an important margin of trade. I then model the allocation of control over such tasks. The model describes a sequential production process – consisting of manufacturing and distribution – in an incomplete-contracting environment. Contracts between exporters and importers specify shipping volumes and assign responsibility for delivery to one of the parties. The pair sequentially bargain over the value added by unverifiable efforts at each production stage. Bargaining power initially resides with the exporter, but transfers to the party in charge of distribution at the factory gate, owing to the latter's residual control rights over the output from delivery related activities. Trading partners thus allocate delivery rights to minimize the distortionary effects of these bargaining externalities. In contrast to the vast holdup literature, I find that the exporter has a strong motive to over-invest in quality, and should thus be deprived of consignment rights unless its effort is particularly important in the delivery process.

*JEL Classifications:* F10, D23, L91

*Keywords:* international shipping, transport costs, incomplete contracts, organizations and trade