

# Learning in Online Trade

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The recent rise of online trade intermediary is fundamentally reforming the ways exporters and importers search, learn and trade. Firms and retailers of all sizes can now make their products visible to foreign markets with ease. Buyers, who traditionally undergo high costs to search for suppliers, can now learn information of numerous suppliers instantly. However, still little is known about how online trade intermediary, by addressing information frictions prevalent in trade, affects the decisions of exporters and importers and the patterns of international trade.

In this project, we plan to investigate the role of learning—enabled by online intermediary—in trade. We will first document new stylized facts of online trade using a unique online trade transaction dataset obtained from Aliexpress.com, a branch of Alibaba and the world’s leading online platform for B2C cross-border trade. The website, founded in April 2010 and based in mainland China, has more than 1.1 million active sellers from China and more than 3.8 million consumer flow each day from over 220 countries, generating 113 billion orders and over 20 billion dollars of transactions in 2013. Over 50 million products are sold on the platform, ranging from clothes and shoes to electronics and automobile accessories.

As an online trade intermediary, Aliexpress offers a unique setting for studying buyer learning. In offline trade, learning between buyers is usually difficult to realize due to information frictions and when it does occur, it is often not observable or quantifiable. In contrast, online trade intermediary like Aliexpress provides an environment in which buyers can directly observe and learn from other buyers’ experience through product transaction history and feedback records and subsequently enables us to quantify the information flow between buyers.

Our preliminary analysis shows five new stylized facts emerging from the online trade transaction data: first, compared to offline exports, online exports are more concentrated in "superstar" exporters with top 5-percent exporters accounting for 73 percent of total exports (as opposed to 53 percent in offline exports); second, across different export margins, the buyer extensive margin, measured by the number of buyers, contributes the most to online export growth; third, product listings with greater information disclosed by the sellers and previous buyers sell more,

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enter more markets, and obtain a larger number of buyers online; fourth, online prices, especially those of high-quality products, tend to rise over time with the volume of previous sales; fifth, countries exhibiting stronger trust on people of other nationalities import more online.

To explain the stylized facts, we will in the next step present a dynamic model that incorporates information frictions and the buyer learning feature of online trade intermediary to examine their implications for the behavior of exporters and importers and the patterns of trade. In the model, we introduce information frictions by assuming that importers cannot observe the true quality of the product and buyer learning by assuming that importers can learn from the information provided by other importers and update their belief over time following a Bayesian learning process. In the presence of information frictions and buyer learning, exporters endogenously set the prices in each period and choose the information to disclose to the importers. The model will investigate how exporters might use dynamic pricing and information disclosing strategies to influence the speed of buyer learning and information diffusion and how the exporter and the importer behavior could explain the stylized facts. Finally, we will structurally estimate the model to quantify the importance of online learning in international trade.

This project is closely related to a new emerging literature that explores the role of information in international trade. Several recent studies show that information frictions can distort trade, resulting in regional price dispersion (Allen, 2014), a deviation from the law of one price (Steinwender, 2013), and risk-sharing trade flows (Baley et al., 2014). Information frictions can arise from both the exporter and the importer side. Recent empirical analysis, focusing primarily on exporter learning, shows that exporters can address the frictions by learning either from their own exports (e.g., Eaton et al., 2009; Albornoz et al., 2012; Timoshenko, 2013) or from the experience of neighbouring exporters (e.g., Fernandes and Tang, 2014). Our project extends the above literature by investigating how, in the presence of information frictions, buyer learning through online trade intermediary could influence patterns of international trade. Exploring the unique features of online trade intermediary which allow us to directly observe and quantify the information provided by the sellers and the other buyers, the project will offer new insights into the role of information and learning in exporter and importer behavior.

This project is also related to a recent literature that sheds light on the patterns of online international trade; see, Hortaçsu et al. (2009) and Lendle et al. (2013, 2014). In contrast to these studies which focus on aggregate trade patterns and the role of country characteristics such as distance, this project will use detailed disaggregated transaction-level data featuring rich transaction price, quantity, quality, and feedback information to investigate both empirically and theoretically the role of buyer learning in the patterns of online trade.