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Entrepreneurs, jobs, and trade

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ABSTRACT

We propose a simple theory of endogenous firm productivity, unemployment, and top income inequality. High-talented individuals choose to become self-employed entrepreneurs and acquire more managerial (human) capital; whereas low-talented individuals become workers and face the prospect of equilibrium unemployment. In a two-country global economy, trade openness raises firm productivity, increases top income inequality, and may reduce welfare in the country exporting the good with lower relative labor-market frictions. Trade openness reduces firm productivity, lowers top income inequality, and necessarily raises welfare in the other country. The effect of trade on unemployment is ambiguous. Unilateral job-creating policies increase welfare in both countries. However, they reduce unemployment and raise top income inequality in the policy-active country; and reduce top income inequality while increasing unemployment in the policy-passive country.

1. Introduction

Globalization has steadily intensified in the postwar period primarily due to technological progress and reduction in trade barriers. During the same period, top income inequality in the U.S. and Europe has been increasing as well with the U.S. experiencing a steeper rise in top 10 percent inequality index (Piketty and Saez, 2014). As a result, the gap in top income inequality between the U.S. and Europe has widened. In addition, the 2007–08 financial crisis and its offspring, the great trade collapse of 2008-09, generated high persistent unemployment in the U.S. and several European countries.[2]

These concurrent developments have generated renewed interest among economists and policy makers in addressing several questions regarding the nexus among trade, inequality, and labor-market rigidities. What are the determinants of comparative advantage in a global economy with sector-specific labor-market frictions and endogenous firm productivity? What are the effects of trade openness and unilateral job-creating policies on top income inequality, unemployment,

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[2] For instance, U.S. unemployment stayed above 7.5 percent for more than five years; and Europe experienced double-digit persistent unemployment, reaching over 25 percent in Greece and Spain. Conceptually, unemployment is a source of extreme poverty and thus it constitutes a measure of bottom income inequality. In other words, top income inequality and unemployment are upper and lower bounds of *extreme* income inequality. Interestingly, during the great recession the rise in U.S. unemployment coincided with the collapse in trade and decline in top inequality.

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productivity and welfare? Are these affects similar or different across countries? And if different, what are the sources of these differences?

The present paper proposes a new tractable two-country model of inter-industry trade featuring occupational choice, endogenous firm productivity, and labor-market frictions. Sector and country-specific sources of firm productivity and labor-market frictions govern the effects of trade openness and unilateral job-creating policies through their impact on comparative advantage. These trade and job-creating policies lead to asymmetric effects across countries because they work through each country's terms of trade.

Labor is the primary factor of production in each country consisting of a unit measure of individuals differing in innate entrepreneurial ability (managerial talent). Each economy produces two homogeneous goods under perfect competition. The assumption of perfectly competitive product markets offers analytical mileage and leads to inter-industry trade based on comparative advantage. Good 1, referred as the outside good, is produced by single-worker firms as in the standard Diamond–Mortensen–Pissarides (DMP) theory of equilibrium unemployment (Pissarides, 2004). Firm productivity is exogenous and entrepreneurs play no role in the outside good. All action takes place in good 2, which we refer to as the entrepreneur-intensive good. Output is produced by multiple-worker firms managed by self-employed entrepreneurs. The entrepreneur-intensive good exhibits endogenous firm-level productivity. Firms face labor-market frictions stemming from search and matching as in Helpman and Itskhoki (2010): hiring is costly and the wage is determined through bargaining as in Stole and Zwiebel (1996).

One methodological innovation of our work is the modeling of firm-level productivity. Inspired by the work of Griliches (1979) and endogenous growth theory, we assume that firm-specific productive efficiency is modeled by a knowledge production function according to which firm productivity increases with managerial (e.g., entrepreneurial, organization, or knowledge) capital. Managerial capital is treated as a separate, firm-specific factor of production capturing all information flows and managerial decisions influencing firm productive efficiency.[3] We assume that the costs of acquiring managerial capital decline with the entrepreneurial talent of the firm's owner and increase with managerial capital.

Worker productivity is independent of managerial talent and entrepreneurial income equals firm profit as in Lucas (1978).[4] High-talented individuals choose to become self-employed entrepreneurs, whereas individuals with low managerial talent choose to become workers facing the threat of unemployment. In addition, entrepreneurs acquire more managerial capital; manage larger, more productive, and more profitable firms and enjoy higher earnings. Differences in entrepreneurial ability generate firm and income heterogeneity among entrepreneurs which translates into top income inequality.

We begin our analysis by characterizing the closed-economy equilibrium which serves as a benchmark case for studying the effects of trade openness. We then analyze a global economy with two countries differing in the degree of labor-market frictions and cost of managerial capital. We also identify parameter restrictions under which the global economy features two regions, Home (America) with more flexible labor markets and Foreign (Europe) with less flexible labor markets. The use of America–Europe dichotomy follows the spirit of the theoretical literature analyzing the effects of cross-country asymmetries in labor-market frictions (e.g., Davis, 1998a, 1998b).[5] Specifically, we identify sufficient conditions under which Home has comparative advantage in the entrepreneur-intensive good.

The model delivers several novel results. The closed-economy market equilibrium is inefficient entailing an under-supply of entrepreneurs and leading to a lower relative price of good 2. The source of this welfare distortion comes from the Stole and Zwiebel (1996) wage bargaining solution, the standard modeling bargaining framework in multiple-worker firms. The Stole and Zwiebel solution requires that the negotiated wage is set lower than the value of the marginal product of labor. In other words, each entrepreneur acts as if she faces a lower demand for her product resulting in lower earnings and inducing less individuals to become entrepreneurs.

Trade openness (captured by a move from autarky to free trade) improves each country's terms of trade by increasing the relative price of the entrepreneur-intensive good in Home and lowering it in Foreign. Home experiences an increase in firm productivity, firm profit and top income inequality. Trade openness causes a decline in firm productivity, firm profit, and top income inequality in Foreign. Thus trade openness has asymmetric effects across the two countries because it works through changes in each country's terms of trade.

The effect of trade openness on unemployment is ambiguous. It affects unemployment through the occupational-choice channel and the worker-reallocation channel. A trade-triggered increase in the relative price of good 2 leads to a reduction in aggregate unemployment by inducing more workers, who face the threat of unemployment, to become self-employed entrepreneurs. However, the relative price increase leads to a reallocation of workers from the outside-good sector to the

[3] Gennaioli et al. (2013), using establishment-specific and regional data from 110 countries, find a robust positive correlation between entrepreneurial inputs including human capital and firm-level productivity. They conclude that human capital acquired by workers and especially entrepreneurs accounts significantly for regional differences in economic development.

[4] Firm profits and the related return on capital have played a central role in emerging models of top income inequality. One reason is that capital income including rent, dividends, business profits, capital gains accounts for much of the rise in top income inequality in the U.S. (Jones, 2015).

[5] This dichotomy is made for purely expositional purposes. Cross-country differences in labor market frictions are more complex. For instance, Botero et al. (2004) argue convincingly that countries with socialist, French, and Scandinavian legal origins have more regulated and thus less flexible labor markets than English-speaking countries. Nickell (1997) provides an empirical discussion and assessment of labor-market rigidities between Europe and North America.