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## International trade and labor–demand elasticities

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### Abstract

In this paper I try to determine whether international trade has been increasing the own-price elasticity of demand for U.S. labor in recent decades. The empirical work yields three main results. First, from 1961 through 1991 demand for U.S. production labor became more elastic in manufacturing overall and in five of eight industries within manufacturing. Second, during this time U.S. nonproduction-labor demand did not become more elastic in manufacturing overall or in any of the eight industries within manufacturing. If anything, demand seems to be growing less elastic over time. Third, the hypothesis that trade contributed to increased elasticities has mixed support, at best. For production labor many trade-related variables have the predicted effect for specifications with only industry controls, but these predicted effects disappear when time controls are included as well. For nonproduction labor things are somewhat better, but time continues to be a very strong predictor of elasticity patterns. Thus the time series of labor–demand elasticities are explained largely by a residual, time itself. This result parallels the common finding in studies of rising wage inequality. Just as there seems to be a large unexplained residual for changing factor prices over time, there also seems to be a large unexplained residual for changing factor demand elasticities over time. © 2001 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

In recent years a number of economists have researched whether international trade has contributed to the ongoing rise in the U.S. relative price between more-skilled and less-skilled labor. There is still no clear consensus, however, about how much international trade has mattered. Many people find this ambiguity difficult to reconcile with the large amount of anecdotal evidence that trade has been placing substantial “pressure” on labor markets. In this paper I look for pressure not in the *prices* for labor but rather in the *elasticities of demand* for labor. I examine whether trade has been increasing firms’ equilibrium own-price elasticity of demand for labor.

In theory trade can change labor–demand elasticities without changing labor prices. As will be discussed, trade can make labor demand more elastic in two main ways: by making output markets more competitive and by making domestic labor more substitutable with foreign factors. Trade can generate these effects without also generating product-price changes and, via the Stolper-Samuelson theorem, factor price changes.<sup>1</sup> This means that finding little effect of trade on wages can be entirely consistent with finding a large effect of trade on elasticities. If this is the case then the proper interpretation of trade “pressuring” labor markets might hinge on elasticities.<sup>2</sup>

To determine trade’s effect on labor–demand elasticities the empirical work proceeds in two stages. First, using the NBER Productivity Data Base I estimate a time series from as far back as 1961 through 1991 of own-price demand elasticities for production labor and nonproduction labor for U.S. manufacturing overall and for manufacturing disaggregated into eight industries. The goal is to identify robust patterns over time in labor–demand elasticities. Second, I regress these estimated elasticities on several plausible measures of trade, technology, and institutional factors which can influence labor–demand elasticities. These stage-two regressions try to explain patterns in the stage-one elasticities with patterns in trade, technology, and labor-market institutions.

The empirical work yields three main results. First, over time demand for production labor has become more elastic in manufacturing overall and in five of eight industries within manufacturing. The elasticity fluctuated around  $-0.5$  until the mid-1970s, but then it dropped steadily to around  $-1.0$  by 1991. Second,

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<sup>1</sup>For example, in a Heckscher-Ohlin trade model if an economy’s autarky relative endowment equals that of the rest of the world then when that country opens to trade it experiences *no* change in product prices and thus (via the Stolper-Samuelson theorem) *no* change in wages. But this opening can make foreign factors more substitutable with domestic ones. If product markets are imperfectly competitive in autarky, opening can also make product markets more competitive.

<sup>2</sup>Rodrik (1997, p. 26) argues there is reason to think that the main impact of globalization on labor markets falls on elasticities rather than on prices. In a Heckscher-Ohlin world pressure on factor prices comes from trade with countries with dissimilar relative endowments. But pressure on elasticities can come from trade with *any* kind of countries.

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