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**Immigration and Agricultural Labor Market:  
A Case Study of Oregon Nursery**

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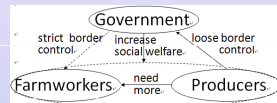
# Immigration and Agricultural Labor Market: A Case Study of Oregon Nursery

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## Introduction

Despite the current, recession-led labor surplus, labor-intensive farm sectors face persistent shortages of low and semi-skilled workers, most of them from south of the border. Worker, producer, and government interests in farm labor policy are reciprocal and partly contradictory.



## Objectives

The major drivers of labor supply and demand in the Oregon nursery industry are

- **Foreign-born workers:** relocation decisions
- **Nursery producers:** technology and product-line choices
- **Government:** immigration & low-skilled labor policy

## Methods

We estimate a simultaneous labor supply-demand model, using panel data from 61 nurseries, 1991-2008.

- **Labor supply**

Wage rate workers demand is a function labor hours, border controls, immigration incentives, and labor policies.

- **Labor demand**

Labor hours nurseries demand are a function of wage rate, prices of alternative production factors, and final product demand.

## Estimation Results

The simultaneous equation system illustrates the interactions between labor supply and demand as well as the effects of important exogenous supply and demand factors.

**Figure 1 Wage rate has positive effect on labor supply quantity, negative effect on labor demand quantity**



- **High labor supply elasticity (above 5.0)**

Small wage-rate increases attract large numbers of additional foreign workers, consistent with the ineffectiveness (also observed in our model) of U.S. border control efforts. Labor supply is sensitive to macroeconomic conditions in the U.S. and Mexico.

- **Moderate labor demand elasticity (0.76)**

Large wage-rate rises reduce labor demand quantity only moderately, consistent with inelastic final product demands and low substitutability between labor and non-labor factors. In particular, we find a rather low elasticity between fertilizer prices and labor demand.

- **Seasonal patterns**

Seasonal factors in labor demand are only moderate, demand in the spring being 20% higher than in the fall.

## Implications for Min Wage Policy

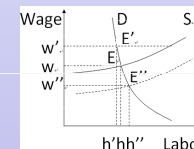
- **Minimum wage policy in Oregon**

- At \$8.40 (in 2010), the Oregon minimum wage is higher than the federal minimum (\$7.25 in 2009), and the second-highest in the U.S.

- It therefore is a positive attractant to farm workers.

- We find a one-percent minimum-wage boost lifts the mean wage workers demand by only 0.18% (from  $w$  to  $w'$  in Figure 2). Nurseries' labor demand falls by 0.14% (from  $h$  to  $h'$  in Figure 2).

**Figure 2 Labor market equilibrium after positive and negative shock**



- **Minimum wage policy in Mexico**

- The Mexican minimum wage is a measure of potential immigrants' opportunity costs.

- One percent decrease in the Mexican minimum wage lifts Oregon nursery labor volume by 0.12% ( $h$  to  $h''$  in Figure 2) and reduces the mean wage by 0.09% ( $w$  to  $w''$ ).

- The very large gap between the Oregon and Mexican minimum wage (\$8.40 vs. \$0.57 in 2010) reflects the macroeconomic gap driving immigration.

## Implications for Ag Labor Market

- **Depend on economic conditions**

We examine the wage and labor-demand impacts of the U.S. housing industry, one of the main factors in nursery product demand.

- **Labor mobility**

Workers can turn to other low-skilled jobs – such as in construction, tourism, and catering – during the off-peak nursery season, then return during the peak. Cross elasticity between construction and nursery labor supply is moderate but statistically significant.

- **Nursery size**

Large nurseries generally pay higher average wage rates than do small nurseries.

## Conclusions

We develop a framework for identifying labor demand and supply in a simultaneous setting, and use it to analyze the effects of policy and other shocks on the nursery labor market.

**Workers:** The benefit of obtaining a U.S. job greatly exceeds foreign-born workers' expected deportation and relocation costs.

**Nurseries:** Reducing nursery dependence on an unstable labor force would require substantial technical change in nursery production.

**Labor Policy:** Boosting the Oregon minimum wage attracts more potential workers. And because demand elasticity is low, labor demand quantity declines only moderately.