

RESEARCH INSIGHTS



How Do Job and Worker Flows Respond to Firms' Idiosyncratic Technology and Demand Shocks?



Permanent demand shocks are the main driver of labor adjustments. A one standard deviation demand shock increases the net employment rate by 6 percentage points in the long run, while a technology shock increases it by 0.5.



Transitory demand shocks have much smaller impacts.



When hit by a permanent demand shock, firms adjust fast and symmetrically. Most of the labor change occurs within a year. If the shock is positive, firms adjust by increasing hires. If the shock is negative, they increase separations without reducing hires.

CONTEXT

Every year, one out of five jobs is either created or destroyed. Even in sectors with stable net employment, firms are rapidly growing or shrinking, suggesting that firms' labor adjustment is truly idiosyncratic. A large literature describes how job creation and destruction are linked to workers' hires and separations, but evidence is scant on the relationship between labor flows and well-identified structural shocks at the firm level. This paper is the first to show how permanent firm-level technology and demand shocks affect firms' labor adjustment through hires and separations.

THE PROJECT

This research project uses detailed Swedish data to evaluate how firms' structural shocks affect labor flows. Using a stylized model of monopolistically competitive firms to derive long-run restrictions on a structural vector autoregression framework, we estimate permanent demand and technology shocks and assess their effects on the net employment rate and worker flows (hiring and separation rates). Technology shocks are defined as changes in the firms' ability to produce without changing inputs, whereas demand shocks are changes in the firms' ability to sell without changing prices. We use flexible regression specifications that allow for non-linear and asymmetric effects of shocks on hires and separations. Short and long-run labor responses are differentiated. We discuss different economic models that are consistent with the findings.

Key Concept



TECHNOLOGY SHOCKS

Changes in the ability of companies to produce without modifying inputs.

RESULTS

1. The main driving force behind firms' employment decisions is permanent demand shocks (Figure 1).
2. Labor adjustments to permanent demand shocks are fast. A positive demand shock (shift of the product demand curve) of one standard deviation increases net employment by 5.6 percent in the following year, and by 6 percentage points in the long run (Figure 1).
3. Permanent firm-level technology shocks, by comparison, have much smaller impacts. In the short run, a one standard deviation positive shock increases net employment by 0.11, an effect not statistically different from 0. In the long run, employment increases by 0.5 percentage points, a statistically significant effect that is more than 10 orders of magnitude smaller than the estimated long-run impact of a demand shock (Figure 1).

Key Concept

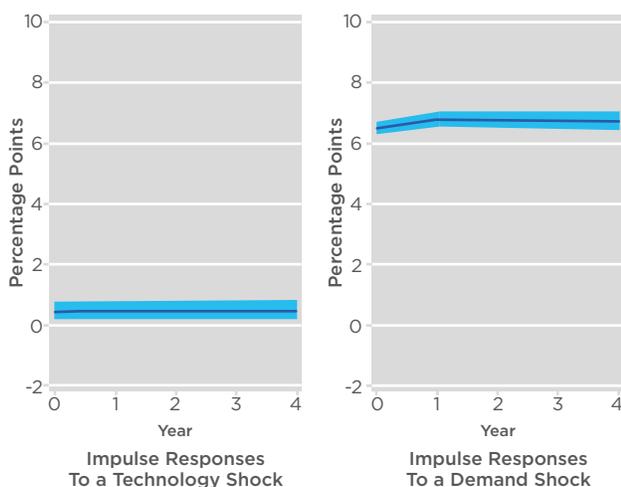


DEMAND SHOCKS

Changes in the ability of companies to sell without modifying prices.

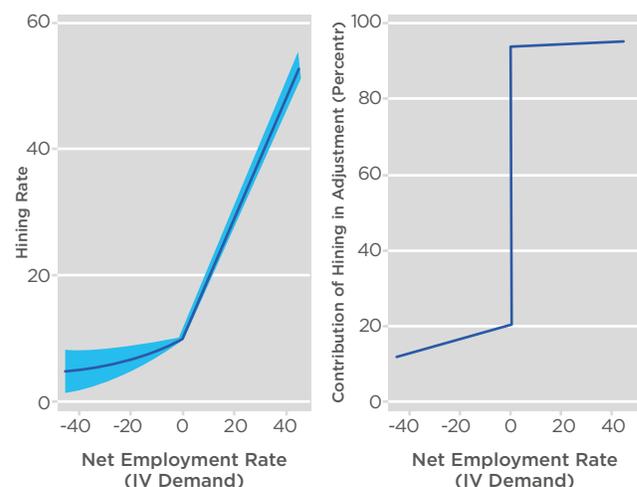
4. Transitory demand shocks have a more muted effect on employment (half as large as permanent shocks).
5. Firms rely on both hiring and separations to react to permanent demand shocks. Fifty-two and 48 percent of the net employment adjustment come from hiring and separation margins, respectively.
6. Worker flows adjustments to permanent demand shocks are symmetric depending on the sign of the underlying shock. Firms increase hires as a response to positive demand shocks. The adjustment to permanent negative shocks is through increased separations instead of cutting down hires. Even when negative shocks are large, the hiring rate remains close to its average, while separations are boosted (Figure 2).

Employment Responses to Technology and Demand Shocks



Note: Each line represents the response of the net employment rate in percentage units as a (nonlinear) function of an x standard deviation technology or demand shock. Shaded areas depict 95 percent confidence intervals.

Hiring Rate and Net Employment Changes



Note: Left-side panel: contemporaneous hiring rate in percentage units as a (nonlinear) function of employment adjustment in percentage units. Instrumental variable estimation where employment adjustments are instrumented by demand shocks. The shaded area depicts 95 percent confidence intervals. Right-side panel: implied fraction of employment adjustment achieved through changes in hiring as a function of the size and magnitude of the employment adjustment.

POLICY IMPLICATIONS

1. Comparisons over time and space of labor market flows need to consider seriously the nature of the shocks hitting the economies. Labor market responses differ markedly depending on the source of the shock (demand vs. technology), the time series properties (permanent vs. temporary) and the magnitude.
2. Well-functioning job protection systems should allow firms to adjust labor when changes in market conditions are permanent, while introducing some level of labor smoothing when those shocks are of a temporary nature.
3. In Sweden, where labor market rigidities are relatively high, firms react rapidly through hires and separations when changes to product demand are permanent. However, when the shock is transitory, they partially hoard workers.
4. Evidence for other countries with different institutional setups would shed further light on the role of job protection policies. The paper shows that careful modeling of shocks to the product market environment is a viable way forward to provide a better understanding of the process through which workers are reallocated across firms.



FULL STUDY

Carlsson, M., J. Messina, and O. Nordström Skans. 2021. "[Firm-Level Shocks and Labor Flows.](#)"

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DEPARTMENT OF RESEARCH AND CHIEF ECONOMIST

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