Einav, Liran, Amy Finkelstein, and Mark R. Cullen. 2010. "Estimating Welfare in Insurance Markets Using Variation in Prices." The Quarterly Journal of Economics 125 (3):877-921. doi: 10.1162/qjec.2010.125.3.877.

EC 8854

Comments, Questions, and Discussion

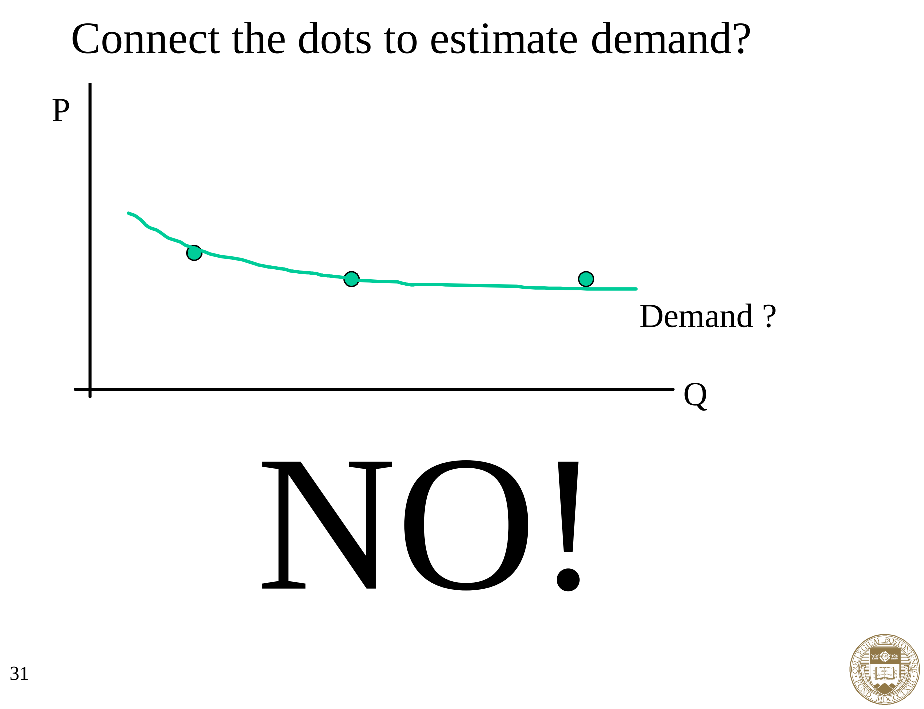
1. Discuss pros and cons of not imposing structure on preferences
   - Pro: functional form assumptions do not drive the results (as much)
   - Con: no counterfactual simulations with changes in deductibles, co-pays, etc are feasible. Can only consider premium changes. Measures of DWL relative to "efficiency" are all with respect to a notion of "constrained" efficiency that does not allow for optimal policy design, only the use of existing policies.

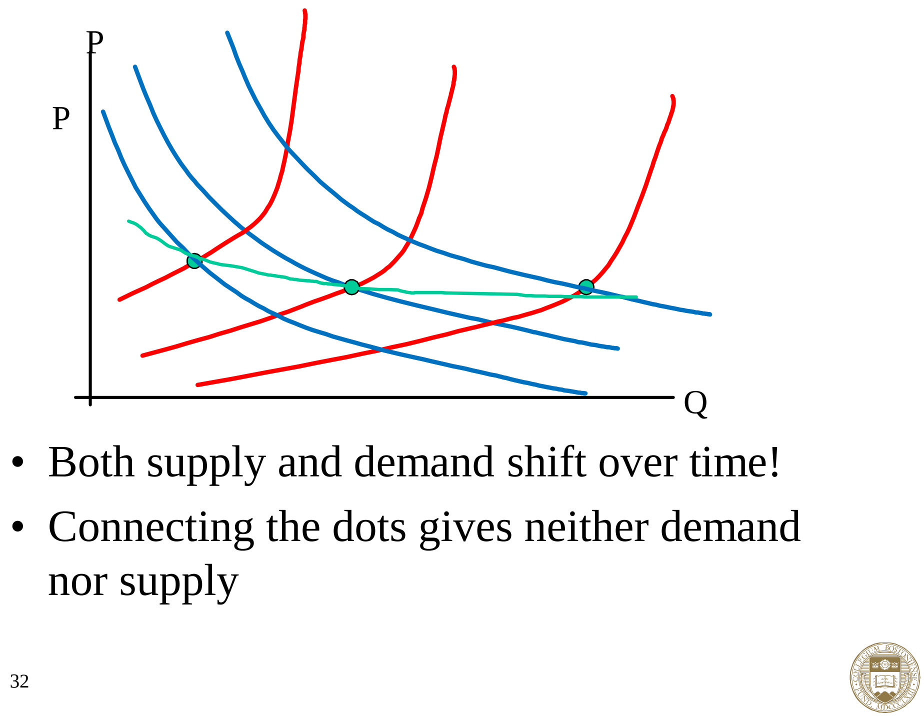
2. My question: Page 893 states,

   "With such data we can then use the same variation in prices to trace out the AC(p) curve... That is, we do not require a separate source of variation."

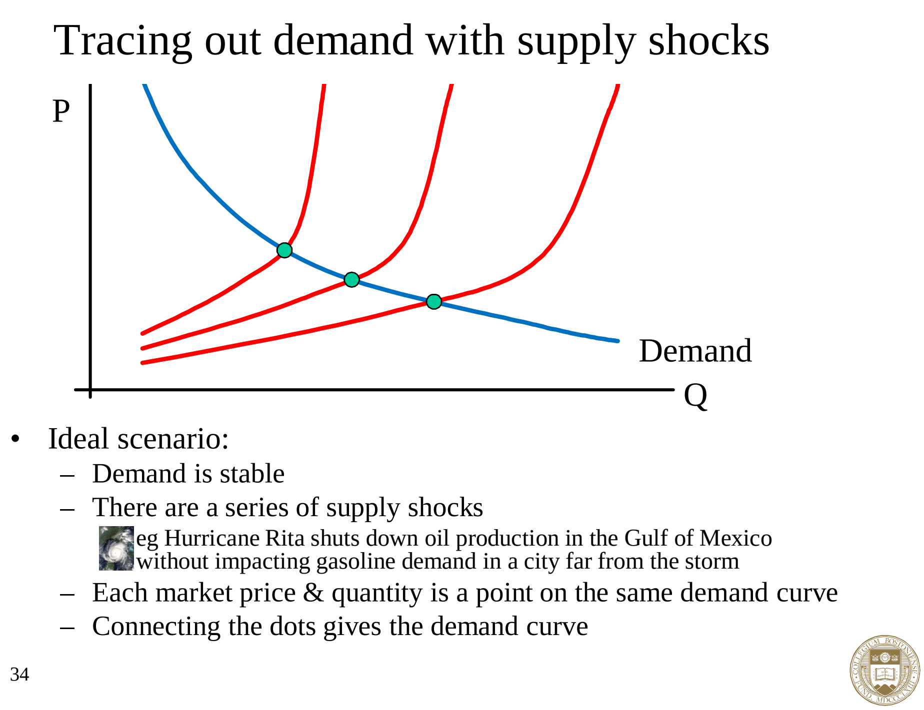
   Did this raise alarm bells for anyone, that the same price variation used to identify demand, can be used to identify the cost (supply) curve?

   (a) Show classic picture of why not to draw a line through historical price and quantity data and call it demand.





(b) Show classic picture of how to identify demand via supply shocks and vice versa



(or in setting of (a) use instrument to select only the right part of variation, while controlling for demand shifters)

(c) Statement in paper makes price variation required seem easy–don't need anything extra to get supply! However, this is only because the requirements for identifying demand are already unusually high. They note (correctly) that,

"This price variation has to be exogenous to unobservable demand characteristics... Because expected cost is likely to affect demand, any price variation that is exogenous to demand is also exogenous to insurable cost.

This makes sense, if health care cost increase, then the outside option of being uninsured worsens, and so demand for insurance increases. **So cost shocks cannot be used to trace out demand!** (What then do we use?)

(d) Figure 5: Supply and Demand are assumed stable, there is one "equilibrium" point, one monopoly price, a unique price for a wide variety of reasonable objective functions. How can we have any price variation? Key: market is not in (competitive) equilibrium, we have variation due to variation in business unit presidents' objective functions. This would not work for an actual competitive market–the one place were area CDE is arguably of interest. (Note in a counterfactual world where Aloca's employees got insurance in a competitive market, offered policies would undoubtedly be very different, in which case the area CDE would differ.)

(e) Discussion of price variation requirement on page 898 gives ideas of variation that would work elsewhere (with IV)

- state insurance price regulation
- tax subsidy variation
- field experiments
- idiosyncratic firm pricing (current study)
- changes in competitive environment (if exogenous)
- administrative cost shifters that don't affect outside option

3. My question:

(a) Draw Econ 101 demand, MC, and AC curves. Where is equilibrium? Why not at intersection of demand and AC? If at proposed demand-MC intersection, why not sell 1 more?

(b) Draw Figure II, p. 889. Why is equilibrium now at intersection of demand and AC?

Figures I and II are not as simple as they first appear, the plotted MC and AC curves are not the same curves we plot in the standard analysis in Econ 101. In Econ 101, TC, AC, and MC are all functions of Q, where $MC = dTC/dQ$. When firm(s) increase production, they first turn on factories with low MC, and later turn on factories with high MC. So when they change production Q, they change costs by the cost of the marginal factory. In this paper, TC, AC, and MC are all functions of p, and are plotted as functions of $D(p)$. Marginal cost is not $dTC(Q)/dQ$ but rather $\partial TC(p)/\partial D(p)$, as in equation (10) on page 893,

$$MC(p) = \frac{\partial TC(p)}{\partial D(p)} = \frac{\partial (AC(p)\, D(p))}{\partial D(p)} = \frac{\partial (AC(p)\, D(p))/\partial p}{\partial D(p)/\partial p}.$$

In Econ 101 land, if a firm held fixed a low price, and cut production Q (forcing demand to be rationed), it would reduce costs by the marginal cost $MC(Q)$ that is higher than its average cost $AC(Q)$ because it would cut production at its high cost plant. In this study, if a firm held fixed a low price but only made available a fixed number of policies $Q < D(p)$, it would save $AC(p)$ on each policy not sold. In this sense, at a fixed price, $AC(p)$ is actually the firm's MC in the sense of Econ 101 pictures and it is constant in Q. Hence demand=MC still survives. The reason being, when cutting the number of policies sold, the customers who fail to get policies are not the high cost consumers with cost MC(p), they are random consumers, with expected cost $AC(p)$.

Note that $AC(p)$ is estimated as a function of p (equation (12)) but it is plotted as a function of $D(p)$ in Figures I, II, V. Thus when $AC(p)$ is increasing in p, and $\hat{\delta} > 0$ as in Table III and Figure V, the plot of $AC(D(p))$ is downward sloping. This is apparent from

$$\frac{dAC(p)}{dp} = \frac{\partial AC(D(p))}{\partial D(p)} \frac{dD(p)}{dp}$$

which shows that $dAC(p)/dp > 0$ and $dD(p)/dp < 0$ require $\partial AC(D(p))/\partial D(p) < 0$. So when $AC(p)$ vs p is upward sloping, and $AC(D(p))$ vs $D(p)$ is downward sloping, we have adverse selection A higher price leads to lower $D(p)$ and higher $AC(p)$ because only the sick are willing to pay high prices.

4. Student Question: What is the significance of the linearity assumption in equations (11)-(12) on page 909?

   Answer: See Figure V page 914. Demand and cost curves are identified non-parametrically over range of price variation. Cost curve (solid black circles) looks linear. Demand curve (open circles) not clear, and they test for curvature in the online appendix. Outside this range, extrapolation of curves is entirely by functional form assumption. Areas such as CDE that extend outside the range of price variation are therefore based in part on functional form assumption.

5. Student Question: What about administrative costs?

   Answer: As long as administrative costs do not vary across the two insurance plans, they are differenced out from the incremental cost of plan H that drives the analysis. Hence ignoring them is without loss. They would matter if there were moral hazard that led to high administrative costs on plan H, and hence an incremental cost that is not included. If this moral hazard effect on administrative costs were larger for sicker individuals, this would steepen the slope as well as increase the level of the incremental cost curves.

6. Student Question: Moral hazard?

   Let insurers cost of medical expenses M be $C_H(M)$ and $C_L(M)$. (That is $C_\theta(M) = M - O_\theta(M)$, where $O_\theta(M)$ is the out-of-pocket cost plotted in Figure III(a).) For type ζ_i , there is moral hazard if expenditure on plan H is higher than on plan L: $M_H(\zeta_i) > M_L(\zeta_i)$. Incremental cost is

$$\Delta_H(\zeta_i) = C_H(M_H(\zeta_i)) - C_L(M_L(\zeta_i)),$$

which can artificially be broken down into

$$= C_H (M_H (\zeta_i)) - C_H (M_L (\zeta_i)) + C_H (M_L (\zeta_i)) - C_L (M_L (\zeta_i)),$$

where

$$\Delta_L (\zeta_i) = C_H (M_L (\zeta_i)) - C_L (M_L (\zeta_i))$$

would be the incremental cost absent moral hazard. The authors point out that their measure of incremental cost is $\Delta_H (\zeta_i)$, and that the quantity $\Delta_L (\zeta_i)$ has nor bearing on the analysis. This of course is tied to the fact that they have already given up on counterfactual simulations in which policy variables other than premiums are changed.

7. My question: Why is area CDE of interest at Alcoa, which is not a competitive market? If we had picked a competitive market, could we have identified the model? Why not make welfare comparison between choices at different business units? Why not think about optimality from HR, labor market perspective? Note, likely cannot measure whether centralization of premium choice in following year increased or decreased welfare, as the change likely wasn't isolated to premiums, but also to deductibles and co-pays, etc.