THE MANUFACTURING SECTOR UNDER ENERGY PRICE UNCERTAINTY

Objective:

- This paper provides theoretical and empirical analysis under energy price uncertainty.
- It shows the impact of the energy price volatility on the U.S. manufacturing output and the manufacturing sector's demand for energy.
- This method allows the derivation of empirical comparative statics results that can be compared to the theoretical results.

The model:

$$\underset{\mathbf{x}}{SupEU}\left(pf\left(\mathbf{x}^{*}\right)-\tilde{w}_{e}x_{e}^{*}-\sum_{i}w_{i}x_{i}^{*}+s\right)$$

$$f\left(\mathbf{x}^{*}\right)=\frac{G_{p}\left(\Gamma\right)+G_{pp}\hat{p}+G_{e}\left(\Gamma\right)\hat{w}_{e}+G_{p\sigma}\hat{\sigma}+G_{pl}\hat{w}_{l}+G_{pm}\hat{w}_{m}+G_{pk}\hat{w}_{k}}{-1+G_{sp}\hat{p}+G_{se}\hat{w}_{e}+G_{s\sigma}\hat{\sigma}+G_{sm}\hat{w}_{m}+G_{sl}\hat{w}_{l}+G_{sk}\hat{w}_{k}}, \quad (1)$$

$$x_{e}^{*}=-\frac{G_{e}\left(\Gamma\right)+G_{ep}\hat{p}+G_{e}\left(\Gamma\right)\hat{w}_{e}+G_{e\sigma}\hat{\sigma}+G_{el}\hat{w}_{l}+G_{em}\hat{w}_{m}+G_{ek}\hat{w}_{k}}{-1+G_{sp}\hat{p}+G_{se}\hat{w}_{e}+G_{s\sigma}\hat{\sigma}+G_{sm}\hat{w}_{m}+G_{sl}\hat{w}_{l}+G_{sk}\hat{w}_{k}}. \quad (2)$$

Results and conclusions:

Table 1. Empirical Comparative Statics			
$\partial f(\mathbf{x}^*)/\partial\sigma$	-.0344	$\partial x_e^*/\partial\sigma$	-.7876
$\partial f(\mathbf{x}^*)/\partial\bar{w}_e$	-.1283	$\partial x_e^*/\partial\bar{w}_e$	-.5552
$\partial f(\mathbf{x}^*)/\partial p$	1.0244	$\partial x_e^*/\partial p$	.0091