Demand

Lecture 6

Endowments in the budget constraint

$$\max_{\mathbf{x}} \; u(\mathbf{x})$$

$$\text{such that } \mathbf{p}\mathbf{x} = \mathbf{p}\mathbf{w}$$

Endowments in the budget constraint

$$\frac{dx_i(\mathbf{p}, \mathbf{p}\boldsymbol{\omega})}{dp_j} = \frac{\partial x_i(\mathbf{p}, \mathbf{p}\boldsymbol{\omega})}{\partial p_j}\Big|_{\mathbf{p}\boldsymbol{\omega}=\text{constant}} + \frac{\partial x_i(\mathbf{p}, \mathbf{p}\boldsymbol{\omega})}{\mathrm{dm}}\boldsymbol{w_j}$$

Endowments in the budget constraint

$$\frac{dx_i(\mathbf{p}, \mathbf{p}\boldsymbol{\omega})}{dp_j} = \frac{\partial h_i(\mathbf{p}, u)}{\partial p_j} + \frac{\partial x_i(\mathbf{p}, \mathbf{p}\boldsymbol{\omega})}{\partial m}(\omega_j - x_j).$$

Labor supply

$$\max_{c,\ell} v(c, \ell)$$

$$\text{such that } \mathrm{pc} = w\ell + \mathrm{m}$$

Labor supply

$$\max_{c,\ell} \; u(c, \overline{L} - \ell)$$

such that $\mathrm{pc} + w(\overline{L} - \ell) = w\overline{L} + \mathrm{m}$.

$$\max_{c,L} \; u(c, \mathrm{L})$$

such that $pc + wL = w\overline{L} + \mathrm{m}$

$$\frac{dL(p,w,m)}{dw} = \frac{\partial L(p,w,u)}{\partial w} + \frac{\partial L(p,w,m)}{\partial m}[\overline{L} - L].$$

Inverse demand functions

$$\frac{\partial u(\mathbf{x})}{\partial x_i} - \lambda p_i = 0 \quad \text{for } i = 1, \ldots, k$$

$$\sum_{\mathbf{i=1}}^{k} p_i x_i = 1.$$

$$\sum_{i=1}^{k} \frac{\partial u(\mathbf{x})}{\partial x_i} x_i = \lambda \sum_{i=1}^{k} p_i x_i = \lambda.$$

$$p_i(\mathbf{x}) = \frac{\frac{\partial u(\mathbf{x})}{\partial x_i}}{\sum_{j=1}^{k} \frac{\partial u(\mathbf{x})}{\partial x_j} x_j}.$$

$$\frac{\partial v(\mathbf{p})}{\partial p_i} - \mu x_i = 0 \quad \text{for } i = 1, \cdots, k$$

$$\sum_{i=1}^{k} p_i x_i = 1.$$