ZERO PROFIT CONDITION

$$p_i = \sum_k A_{ik} w_k$$

$$dp_i = \sum_k (A_{ik} dw_k + dA_{ik} w_k) \ .$$

Using the usual notation $\hat{x} = dx / x$ this can be written as

$$\hat{p}_i = dp_i / p_1 = \sum_k [(A_{ik} w_k / p_i)(dw_k / w_k) + dA_{ik} w_k / p_i] = \sum_k \theta_{ik} \hat{w}_k + \sum_k \theta_{ik} \hat{A}_{ik} \ .$$

Then the input intensity $A_{ik} = v_{ik} / Q_i$, can be differentiated to obtain

$$\hat{A}_{ik} = \hat{v}_{ik} - \hat{Q}_i \, .$$

TFP GROWTH

$$T\hat{F}P_i = \hat{Q}_i - \sum_k \theta_{ik} \hat{v}_{ik} = -\sum_k \theta_{ik} \hat{A}_{ik} \, ,$$

EQUILIBRIUM CONDITION

$$\hat{p}_i = \sum_k \theta_{ik} \hat{w}_k - T\hat{F}P_i = \theta_i' \hat{w} - T\hat{F}P_i$$

SECOND ORDER EFFECTS

$$dp_i = \sum_k (A_{ik} dw_k + dA_{ik} w_k + dw_k dA_{ik}) \ .$$

$$\hat{p}_i = dp_i / p_1 = \sum_k \theta_{ik} \hat{w}_k + \sum_k \theta_{ik} \hat{A}_{ik} + \sum_k [(A_{ik} w_k / p_i)(dA_{ik} / A_{ik})(dw_k / w_k)] \ .$$

$$\hat{p}_i = \theta_i' \hat{w} - T\hat{F}P_i + \hat{A}_i' diag(\theta_i) \hat{w}$$

DECOMPOSITION

$$\hat{p}_i(t) + \hat{p}_i(g) = \theta_i^{'}\hat{w}(t) + \theta_i^{'}\hat{w}(g) - T\hat{F}P_i$$

where

$$\hat{p}_i(t) = \theta_i^{'}\hat{w}(t) - T\hat{F}P_i$$

$$\hat{p}_i(g) = \theta_i^{'}\hat{w}(g)$$

$$\hat{p}_i = \hat{p}_i(t) + \hat{p}_i(g)$$

PASS-THROUGH

$$\hat{p}_i(t) = -\lambda \quad T\hat{F}P_i \, .$$

RESIDUAL "GLOBALIZATION" EFFECT

$$\hat{p}_i(g) = \hat{p}_i - \hat{p}_i(t)$$

INTERMEDIATE INPUTS

Zero profit identity: $\hat{p}_i = \theta_i^{'}\hat{w} + \gamma_i^{'}\hat{p} - T\hat{F}P_i$

Pass-Through Assumption: $\hat{p}_i(t) - \gamma_i{'}\,\hat{p}(t) = -\lambda \quad T\hat{F}P_i$

FIRST-ROUND ADJUSTMENTS

$$\hat{p}_i(t) - \gamma_i{'}\left\{-\lambda \quad T\hat{F}P_i \quad\right\} = -\lambda \quad T\hat{F}P_i\,,$$

TECHNOLOGY EFFECT ON WAGES

$-\lambda \quad T\hat{F}P_i = \theta_i^{'}\hat{w}(t) - T\hat{F}P_i$, or equivalently

$$(1-\lambda)T\hat{F}P_i = \theta_i^{'}\hat{w}(t) .$$

GLOBALIZATION EFFECT ON WAGES

$\hat{p}_i(g) - \gamma_i{}'\hat{p}(g) = (\hat{p}_i - \gamma_i^{'}\hat{p}) - (\hat{p}_i(t) - \gamma_i{}'\hat{p}(t)) = \hat{p}_i - \gamma_i{}'\hat{p} + \lambda \quad T\hat{F}P_i$.

$$\hat{p}_i + \lambda \quad T\hat{F}P_i = \theta_i^{'}\hat{w}(g) + \gamma_i{}'\hat{p}$$