Corrigendum to "Growing Like India: The Unequal Effects of Service-Led Growth"

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Abstract

This note corrects a typographical error in an expression in Fan et al. (2023) that Sam Kortum and Tanay Kondiparthy kindly brought to our attention. The error does not affect the analysis or results of the original paper.

This corrigendum addresses a typographical error in the expression for the function $D(\mathbf{P_r})$ on the top of page 1489 of Fan et al. (2023). The original expression was stated as:

$$D(\mathbf{P_r}) = \frac{1}{\gamma}\left(\left(\sum_{s\in\{F,G,\mathrm{CS}\}} P_{rs}^{\nu_s}\right)^{\gamma} - 1\right). \tag{1}$$

The summation should be a product. The corrected expression is:

$$D(\mathbf{P_r}) = \frac{1}{\gamma}\left(\left(\prod_{s\in\{F,G,\mathrm{CS}\}} P_{rs}^{\nu_s}\right)^{\gamma} - 1\right). \tag{2}$$

Consequently, the value-added indirect utility function is:

$$\mathcal{V}(e,\mathbf{P}_{\mathrm{r}}) = \frac{1}{\varepsilon}\left(\frac{e}{P_{rF}^{\omega_F} P_{rG}^{\omega_G} P_{r\mathrm{CS}}^{\omega_{\mathrm{CS}}}}\right)^{\varepsilon} - \frac{1}{\gamma}\left(\left(\prod_{s\in\{F,G,\mathrm{CS}\}} P_{rs}^{\nu_s}\right)^{\gamma} - 1\right). \tag{3}$$

Applying Roy's identity, the subsequent expenditure function is correct, as derived from the generalized PIGL preferences in final expenditure in Online Appendix 2.1 of Fan et al. (2023). The welfare metric in Online Appendix 2.1 remains unaffected by this correction. Thus, the typographical error has no impact on any of the the analysis or results of the original paper.

1 Appendix

To illustrate the derivation of the expenditure function, consider the indirect utility function:

$$\mathcal{V}\left(e,\mathbf{P}\right)=\frac{1}{\varepsilon}\left(\frac{e}{P_F^{\omega_F}P_G^{\omega_G}P_{\mathrm{CS}}^{\omega_{\mathrm{CS}}}}\right)^{\varepsilon}-\frac{1}{\gamma}\left(\left(\prod_{s\in\{F,G,\mathrm{CS}\}}P_s^{\nu_s}\right)^{\gamma}-1\right). \tag{4}$$

Applying Roy's identity, we compute the partial derivatives:

$$\frac{\partial\mathcal{V}\left(e,\mathbf{P}\right)}{\partial P_s}=-\frac{\omega_s}{P_s}\left(\frac{e}{P_F^{\omega_F}P_G^{\omega_G}P_{\mathrm{CS}}^{\omega_{\mathrm{CS}}}}\right)^{\varepsilon}-\frac{\nu_s}{P_s}\left(\prod_{s\in\{F,G,\mathrm{CS}\}}P_s^{\nu_s}\right)^{\gamma}, \tag{5}$$

$$\frac{\partial\mathcal{V}\left(e,\mathbf{P}\right)}{\partial e}=\frac{1}{e}\left(\frac{e}{P_F^{\omega_F}P_G^{\omega_G}P_{\mathrm{CS}}^{\omega_{\mathrm{CS}}}}\right)^{\varepsilon}. \tag{6}$$

The demand for good s, x_s, is given by:

$$x_s=-\frac{\frac{\partial\mathcal{V}(e,\mathbf{P})}{\partial P_s}}{\frac{\partial\mathcal{V}(e,\mathbf{P})}{\partial e}}=\frac{\omega_s e}{P_s}+\frac{\nu_s e}{P_s}\left(\frac{e}{P_F^{\omega_F+\gamma\nu_F/\varepsilon}P_G^{\omega_G+\gamma\nu_G/\varepsilon}P_{\mathrm{CS}}^{\omega_{\mathrm{CS}}+\gamma\nu_{\mathrm{CS}}/\varepsilon}}\right)^{-\varepsilon}. \tag{7}$$

Thus, the expenditure share for sector s, ϑ_s, is:

$$\vartheta_s=\omega_s+\nu_s\left(\frac{e}{P_F^{\omega_F+\gamma\nu_F/\varepsilon}P_G^{\omega_G+\gamma\nu_G/\varepsilon}P_{\mathrm{CS}}^{\omega_{\mathrm{CS}}+\gamma\nu_{\mathrm{CS}}/\varepsilon}}\right)^{-\varepsilon}. \tag{8}$$

This derivation confirms that the expenditure function and expenditure shares are consistent with the corrected form of $D\left(\mathbf{P_r}\right)$.

References

Fan, T., Peters, M., and Zilibotti, F. (2023). "Growing Like India: The Unequal Effects of Service-Led Growth." *Econometrica*, 91(4):1457–1494.