$$= \sigma - 1 \overline{k-(\sigma-1)f+(\varphi^*)^k f_x \left[k \left(\frac{\tau}{\varphi_x^*} + t \right)^{\sigma-1} \left[1+(k(\varphi_x^*)^k g(\varphi_x^*))^{\frac{1}{\sigma-1}} \right]^{1-\sigma} - \left(\varphi_x^* \right)^{-k} \right]} (1)$$

$$\mathrm{g}(\varphi_x^*) = \int_{\varphi_x^*}^{\infty} \varphi^{\sigma-1-(k+1)} (\tau + t\varphi)^{1-\sigma} d\varphi (2)$$

$$\varphi_x^* \overline{\tau + t\varphi_x^* = \varphi^* \left[\frac{f}{f_x} \right]^{\frac{1}{1-\sigma}}} (3)$$

$$= \delta f_e \left(\frac{\varphi^*}{\varphi_{\min}} \right)^k$$

(4)