Online Appendix for "A Simple Model of Corporate Tax Incidence"
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A. Analytical results

In the Cobb-Douglas case, we have that $\phi_k = \phi v a k_D^{-1}$ and $\phi_l = \phi v(1-a)l^{-1}$. Combining both first-order conditions yields $al/(1-a)k_D = r^*/(1-t)w$. Then, some simple algebra allows us to compute closed-form solutions for factor demands:

$$\begin{aligned} k_D(w,t) &= (v\psi)^{\frac{1}{1-v}} \left[\frac{a(1-t)}{r^*}\right]^{\frac{1-(1-a)v}{1-v}} \left[\frac{1-a}{w}\right]^{\frac{(1-a)v}{1-v}}, \\ l(w,t) &= (v\psi)^{\frac{1}{1-v}} \left[\frac{a(1-t)}{r^*}\right]^{\frac{av}{1-v}} \left[\frac{1-a}{w}\right]^{\frac{1-av}{1-v}}. \end{aligned}$$

Taking logs and differentiating yields:

$$\begin{aligned} d\log k_D(w,t) &= \frac{1-(1-a)v}{1-v} d\log(1-t) - \frac{(1-a)v}{1-v} d\log w, \\ d\log l(w,t) &= \frac{av}{1-v} d\log(1-t) - \frac{1-av}{1-v} d\log w, \end{aligned}$$

where we assumed $d\log v = d\log\psi = d\log a = d\log r^* = 0$. Let $\epsilon^S = f(w)w/L$ denote the labor supply elasticity. Then, differentiating the labor market equilibrium yields:

$$f(w)dw = N dl(w,t) \quad \Leftrightarrow \quad \epsilon^S d\log w = d\log l(w,t).$$

Replacing in the input demands we get:

$$\begin{aligned} d\log k_D(w,t) &= \frac{1-(1-a)v}{1-v} d\log(1-t) - \frac{(1-a)v}{\epsilon^S(1-v)} d\log l(w,t), \\ d\log l(w,t) &= \frac{av}{1-v} d\log(1-t) - \frac{1-av}{\epsilon^S(1-v)} d\log l(w,t). \end{aligned}$$

Starting from the labor demand equation, we have that:

$$\varepsilon_l = \frac{d\log l(w,t)}{d\log(1-t)} = \left(1 + \frac{1-av}{\epsilon^S(1-v)}\right)^{-1} \frac{av}{1-v} = \frac{\epsilon^S av}{\epsilon^S(1-v)+1-av},$$

and $\varepsilon_w = (\epsilon^S)^{-1}\varepsilon_l$. Note that $d\log L = d\log(Nl(w,t)) = d\log N + d\log l(w,t)$, so $\varepsilon_l = \varepsilon_L$ when N is fixed. Assuming that ϵ^S is locally constant, it follows that:

$$\frac{\partial\varepsilon_l}{\partial a} = \frac{\epsilon^S v\left(\epsilon^S(1-v)+1\right)}{\left(\epsilon^S(1-v)+1-av\right)^2} = \frac{\varepsilon_l(\epsilon^S(1-v)+1)}{a(\epsilon^S(1-v)+1-av)} > 0.$$

Regarding capital, using the expressions above, it follows that:

$$\begin{aligned} \varepsilon_k = \frac{d\log k_D(w,t)}{d\log(1-t)} &= \frac{1-(1-a)v}{1-v} - \frac{(1-a)v}{\epsilon^S(1-v)} \frac{d\log l(w,t)}{d\log(1-t)}, \\ &= \frac{1}{1-v}\left(1-(1-a)v - \frac{(1-a)av^2}{\epsilon^S(1-v)+1-av}\right), \\ &= \frac{1}{1-v}\left(1 - \frac{\left(\epsilon^S(1-v)+1\right)(1-a)v}{\epsilon^S(1-v)+1-av}\right). \end{aligned}$$

Note that $\varepsilon_k > 0$ since $\left(\epsilon^S(1-v)+1\right)(1-a)v < \epsilon^S(1-v)+1-av$ if and only if $v<1$. Then:

$$\begin{aligned}
\frac{\partial \varepsilon_k}{\partial a} &= \frac{-1}{1-v}\left(\frac{-\left(\epsilon^S(1-v)+1\right)v\left(\epsilon^S(1-v)+1-av\right)+\left(\epsilon^S(1-v)+1\right)(1-a)v^2}{\left(\epsilon^S(1-v)+1-av\right)^2}\right),\\
&= \frac{-\left(\epsilon^S(1-v)+1\right)v}{1-v}\left(\frac{-\left(\epsilon^S(1-v)+1-av\right)+(1-a)v}{\left(\epsilon^S(1-v)+1-av\right)^2}\right),\\
&= \frac{-\left(\epsilon^S(1-v)+1\right)v}{1-v}\left(\frac{-\left(\epsilon^S+1\right)(1-v)}{\left(\epsilon^S(1-v)+1-av\right)^2}\right) > 0.
\end{aligned}$$

By comparing the expressions, we can also note that $\varepsilon_k > \varepsilon_l$ if and only if $\epsilon^S(1-v)+1>0$, a condition that always holds in this model.

Regarding effects on pre-tax profits, introducing the optimal factor demands in the pre-tax profits function yields, after some algebra:

$$\pi_D(w,t) = \left(\frac{a(1-t)}{r^*}\right)^{\frac{av}{1-v}}\left(\frac{1}{w}\right)^{\frac{v(1-a)}{1-v}}\Omega,$$

where $\Omega = \psi(v\psi)^{\frac{v}{1-v}}(1-a)^{\frac{v(1-a)}{1-v}} - (v\psi)^{\frac{1}{1-v}}(1-a)^{\frac{1-av}{1-v}}$ is a constant. Then:

$$d\log\pi_D(w,t) = \frac{av}{1-v}d\log(1-t) - \frac{v(1-a)}{1-v}d\log w,$$

so

$$\varepsilon_\pi = \frac{d\log\pi_D(w,t)}{d\log(1-t)} = \frac{av}{1-v} - \frac{v(1-a)}{\epsilon^S(1-v)}\varepsilon_l.$$

Then:

$$\begin{aligned}
\frac{\partial\varepsilon_\pi}{\partial a} &= \frac{v}{1-v} + \frac{v\varepsilon_l}{\epsilon^S(1-v)} - \frac{v(1-a)}{\epsilon^S(1-v)}\frac{\partial\varepsilon_l}{\partial a},\\
&= \frac{v}{1-v}\left(1+\frac{av}{\epsilon^S(1-v)+1-av} - \frac{(1-a)v(\epsilon^S(1-v)+1)}{\left(\epsilon^S(1-v)+1-av\right)^2}\right).
\end{aligned}$$

Then, $\partial\varepsilon_\pi/\partial a > 0$ if:

$$1+\frac{av}{\epsilon^S(1-v)+1-av} - \frac{(1-a)v(\epsilon^S(1-v)+1)}{\left(\epsilon^S(1-v)+1-av\right)^2} > 0,$$

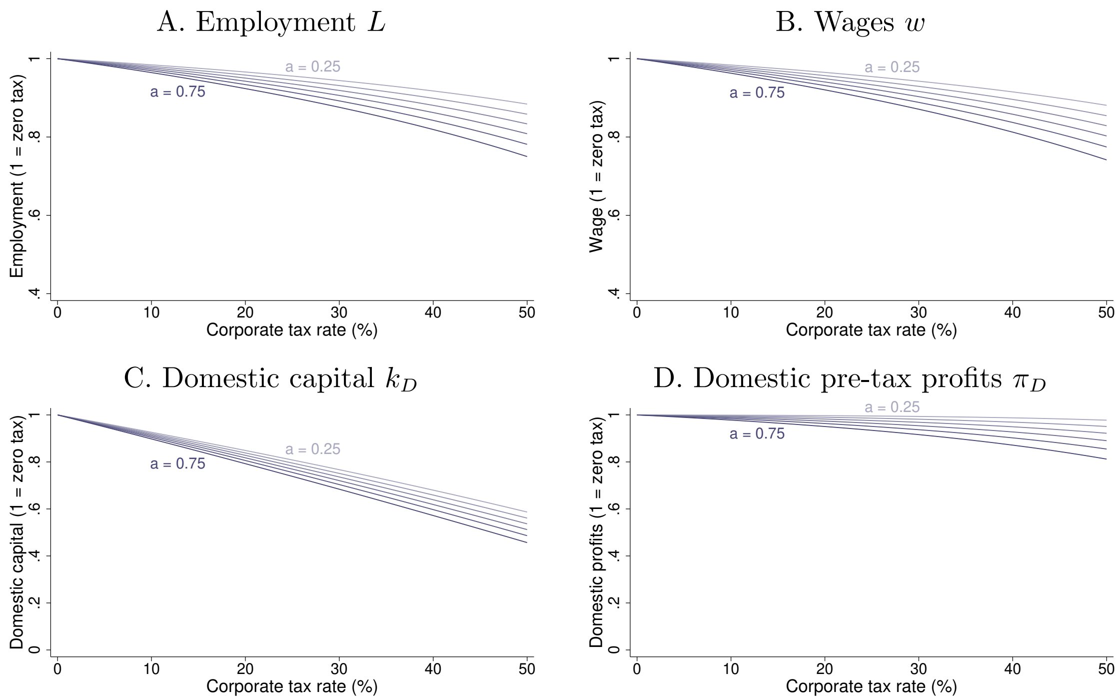
which holds if $\epsilon^S(1-v)+1>0$, a condition that is always true. Then, $\partial\varepsilon_\pi/\partial a > 0$.

Finally, to see the role of wage adjustments in mediating factor demands, we have that:

$$\begin{aligned}
\frac{\partial\varepsilon_l}{\partial\epsilon^S} &= \frac{1-av}{\left(\epsilon^S(1-v)+1-av\right)^2} > 0,\\
\frac{\partial\varepsilon_k}{\partial\epsilon^S} &= \frac{(1-a)av^2}{\left(\epsilon^S(1-v)+1-av\right)^2} > 0.
\end{aligned}$$

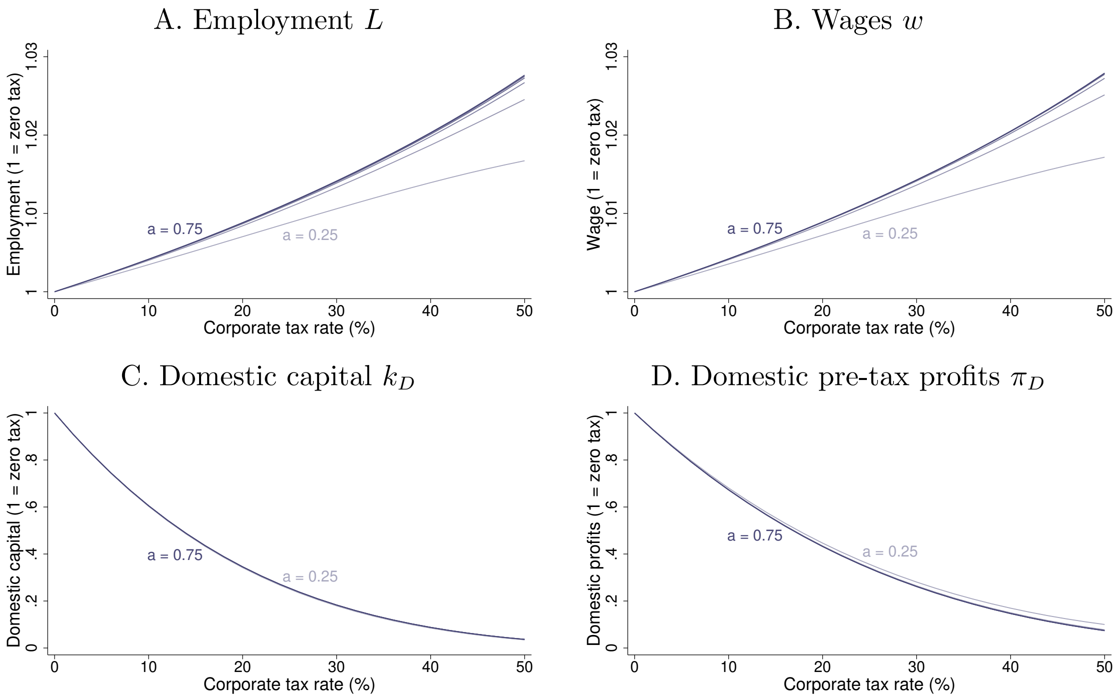
B. *Additional Figures*

FIGURE B.1. COMPARATIVE STATICS WITH RESPECT TO THE CORPORATE TAX RATE, t, LOW CAPITAL-LABOR SUBSTITUTION ($\rho = -1$)



Note: This figure shows how the employment, wage, domestic capital, and domestic pre-tax profit responses to the corporate tax depend on the capital intensity, a, of the firm. In each figure, the outcome is normalized to be equal to 1 under $t = 0$, and the different lines represent different values of a, from $a = 0.25$ (lighter) to $a = 0.75$ (darker). These figures use $\rho = -1$, $v = 0.79$, $r^* = 0.042$, $N = 10$, $\psi = 0.15$, and $c \sim \exp(0.2)$.

FIGURE B.2. COMPARATIVE STATICS WITH RESPECT TO THE CORPORATE TAX RATE, t, HIGH CAPITAL-LABOR SUBSTITUTION ($\rho = 0.8$)



Note: This figure shows how the employment, wage, domestic capital, and domestic pre-tax profit responses to the corporate tax depend on the capital intensity, a, of the firm. In each figure, the outcome is normalized to be equal to 1 under $t = 0$, and the different lines represent different values of a, from $a = 0.25$ (lighter) to $a = 0.75$ (darker). These figures use $\rho = 0.8$, $v = 0.79$, $r^* = 0.042$, $N = 10$, $\psi = 0.15$, and $c \sim \exp(0.2)$.