Consider neighborhood values $V(z)$ in an arbitrary neighborhood/zone pair, dropping i subscripts. As derived before, this is

$$\kappa(z)\beta^{-\beta}(1-\beta)^{-(1-\beta)}(R-P\bar{A})^{\beta}P^{-\beta}(wz-R)^{1-\beta}+\log b(z)$$

if regulation is binding at z (0 if housing unaffordable), and

$$\kappa(z)\frac{wz-P\bar{A}}{P^{\beta}}$$

otherwise. Let $C'(z)+\log b'(z)$ be the neighborhood value in the counterfactual equilibrium. We now want to find the compensating variation associated with a policy change. This solves the equation in τ:

$$\kappa(z)\beta^{-\beta}(1-\beta)^{-(1-\beta)}(R-P\bar{A})^{\beta}P^{-\beta}(w\tau z-R)^{1-\beta}=C'(z)+\log b'(z)$$

if $\beta w\tau z+(1-\beta)P\bar{A}<R$, or

$$\kappa(z)\frac{w\tau z-P\bar{A}}{P^{\beta}}=C'(z)+\log b'(z)$$

otherwise. If utility is zero both before and after the policy change, we take the smallest equivalent variation measure $\tau=1$. The equivalent variation τ thus has has the closed form solution:

$$\tau=\Big[\Big] \tag{1}$$

if τ satisfies $\beta w\tau z+(1-\beta)P\bar{A}<R$. Otherwise, the solution is