Discussion of “Ramsey Taxation in the Global Economy" by Pedro Teles

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- The paper addresses those issues in the context of a standard macro model.
- Real "tour de force" covering many alternative tax structures.

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- Analysis of the model:
  - Discuss some variants of the model that offer a different perspective on the role of consumption and capital income taxes.
  - Robustness of the results: Are consumption and labor taxes always the answer?
- How do the results apply to the taxation of robots (one of the themes)
- Where do we go from here?

Three Lines Summary of Ramsey Taxation

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- N goods and the "right" $N-1$ taxes $\longrightarrow$ "beautiful" Ramsey formulas.
- N goods and $N-2$ taxes (or the "wrong" set of $N-1$ taxes) $\longrightarrow$ a mess ... pretty much anything can happen.

Pseudo-Planner Problem

- Standard approach to solving a Ramsey problem: work with a distorted utility function that captures the key implementability condition.
- The pseudo utility function is

$$v(c,n) = u(c,n) + \varphi(u_c c + u_n n).$$

- Euler equations:

$$\begin{aligned}
\text{(Planner)}\ \frac{v_c(t)}{\beta v_c(t)} &= 1-\delta+F_k(t+1), \\
\text{(Comp Eq.)}\ \frac{u_c(t)}{\beta u_c(t)} &= \frac{1+\tau_t^c}{1+\tau_{t+1}^c}\left[1-\delta+(1-\tau_{t+1}^k)F_k(t+1)\right]
\end{aligned}$$

- Isoelastic preferences imply that $u_c(t) = Cv_c(t)$ and the planner's Euler Equation can be satisfied with $\tau_t^k = 0$ and $\tau_t^c = \tau^c$

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- Technology (adds human capital that, in turn, determines effective labor, z)

$$\begin{aligned} c_t + x_{ht} + x_{mt} + x_{kt} &\leq F(k_t, z_t), \\ h_{t+1} &\leq (1 - \delta_h) h_t + G(x_{ht}, x_{ht}, h_t), \\ k_{t+1} &\leq (1 - \delta_k) k_t + x_{kt}, \\ z_t &\leq M(x_{mt}, h_t, n_{mt}) \end{aligned}$$

F, G and M constant returns to scale.

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- In this case the planner has to raise revenue during the transition and finance expenditures out of the income of accumulated assets.

More Restrictive Tax Codes

- Standard Ramsey

$$\underbrace{v(c,n)}_{\text{no } k} = u(c,n) + \varphi(u_c c + u_n n).$$

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$$\begin{aligned}\underbrace{\hat{v}(c,n,k)}_{k} &= u(c,n_a,n_b) + \varphi(u_c c + u_a n_a + u_b n_b) \\ &\quad + \eta\left(u_a F_a - u_b F_b\right).\end{aligned}$$

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  Ramsey allocation (in general) requires intertemporal distortions.
- Do labor income and consumption suffice to implement the Ramsey allocation?
- Role of consumption taxes? (In steady state the growth tax rate would have to go to zero or infinity)

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- How does it differ from other forms of capital?
- Do the results of this paper on capital taxation extend to robots? If they do then robots should not be taxed!

Questions?

- One of the somewhat consistent findings is that Ramsey tax systems are characterized by production efficiency but ... not if there are restrictions on tax rates on different goods (example: labor).
- Trade taxes: Intermediate vs. final goods (arbitrage opportunity?)
- Harmonization of VAT: Is this feasible?

Moving Forward

- Important contribution to get started thinking about different tax systems (VAT, border adjustment ...)
- Further analysis of the fragility of some general principles (e.g. production efficiency) when modeling real world restrictions.
- What do (time inconsistent) non-cooperative solutions look like?