Financial Repression and Laffer Curves

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Introduction

- The term financial repression was introduced by McKinnon(1973) and Shaw(1973) to characterize a hard regulation of financial markets in developing economies;
- Financial repression is the regulation of financial system, which allows the government to substitute the market mechanism of interest rate determination;
- The forms of financial repression:
  - Direct low-interest lending to the government or a placement of the public debt in captive financial institutions;
  - Setting the credit policy of the state-owned national banks or the pressure on the private commercial banks;
  - Tightening of the capital requirements with a preferential treatment of public debt (e.g., Basel 3);
  - Direct or indirect deposit interest rate ceilings;
  - Excessively high reserve requirement ratio.

Motivation/Literature

- Modern developed economies: Fiscal stress and Huge government debt
- FR(indirect taxation) provides additional revenue (Reinhart, 2012)
- Estimation of revenue from financial repression (Giovannini and de Melo, 1993; Reinhart and Sbrancia, 2015) 2.42%(2.10%) of output, 8.65%(5.47%) of government spending for USA(EU-14)
- but FR affects revenues from ordinary taxes
- **Could it be that while raising extra revenue from financial repression the government loses even more from the shortfall of other taxes?**
- Estimation of Laffer curves (Trabandt and Uhlig, 2011)

The Model

- modified Hansen model
- consumption, capital and labor taxes
- requirement to hold government bonds in a proportion of capital
- without financial intermediaries (short-cut)

Households

The representative household

$$\max \sum_{t=0}^{\infty} \beta^t (\sigma \ln c_t(j) + (1-\sigma) \ln(1-h_t(j)) + \gamma \ln G_t)$$

cash-in-advance constraint

$$(1+\tau^c)\pi_t c_t(j) = m_{t-1}(j)$$

capital accumulation

$$k_{t+1}(j) = (1-\delta)k_t(j) + i_t(j)$$

budget constraint

$$i_t(j) + m_t(j) + b_t(j) =$$

$$= (1-\tau^h)w_t h_t(j) + (1-\tau^k)(r_t - \delta)k_t(j) + \delta k_t(j) + \frac{R^b}{\pi_t} b_{t-1}(j).$$

Production

$$Y_t = K_t^{\theta} H_t^{1-\theta}$$

where $K_t = \int_0^1 k_t(j)dj$ and $H_t = \int_0^1 h_t(j)dj$

$$r_t = \theta K_t^{\theta-1} H_t^{1-\theta}$$

$$w_t = (1-\theta) K_t^{\theta} H_t^{-\theta}$$

Aggregates

Government debt

$$B_t = \int_0^1 b_t(i)di$$

Money base(supply)

$$M_t = \int_0^1 m_t(i)di$$

Aggregate consumption

$$C_t = \int_0^1 c_t(i)di$$

Government

$$G_t + \frac{R^b}{\pi_t} B_{t-1} = B_t + T_t + \frac{\phi - 1}{\pi_t} M_{t-1},$$

where $\phi = \pi_t M_t / M_{t-1}$

$$T_t = \tau^c C_t + \tau^h w_t H_t + \tau^k (r_t - \delta) K_t,$$

$$b_t(j) = \rho k_t(j).$$

No financial repression: $\rho = 0$ or $R^b/\pi = 1/\beta$.
Financial repression: $\rho > 0$ and $R^b/\pi < 1/\beta$.

Competitive equilibrium

i. Households choose $\{c_t, h_t, m_t, k_t, i_t\}_{t=0...\infty}$ to maximize (1) s.t. (2)-(4) and (11), taking factor prices $\{w_t, r_t\}_{t=0...\infty}$, inflation $\{\pi_t\}_{t=0...\infty}$ and policy variables $\{\tau^h, \tau^k, \tau^c, \rho, R^b, \phi\}$ as given;

ii. $C_t = c_t$, $Y_t = y_t$, $H_t = h_t$, $M_t = m_t$, $K_t = k_t$, $B_t = b_t$ for all t;

iii. Factor prices are determined by (7) and (8);

iv. Government purchases are determined by (9) given $\{\tau^h, \tau^k, \tau^c, \rho, R^b, \phi\}$.

Competitive equilibrium – II

$$r = \frac{1-\beta}{\beta(1-\tau^k)} + \delta + \frac{\rho}{1-\tau^k}(1-\beta R^b/\pi)$$

$$H = \frac{\frac{\sigma}{1-\sigma}\beta}{\frac{\sigma}{1-\sigma}\beta + 1 + \frac{\theta}{1-\theta}\frac{1-\tau^k}{1-\tau^h}(1-\frac{\delta}{r}) + \frac{\rho}{r}\frac{\theta}{1-\theta}\frac{1-R^b/\pi}{1-\tau^h}}$$

$$K = \left(\frac{r}{\theta}\right)^{\frac{1}{\theta-1}} H$$

$$C = \beta\frac{\sigma}{1-\sigma}\frac{(1-\tau^h)w}{(1+\tau^c)\pi}(1-H)$$

Calibrations (Traband–Uhlig)

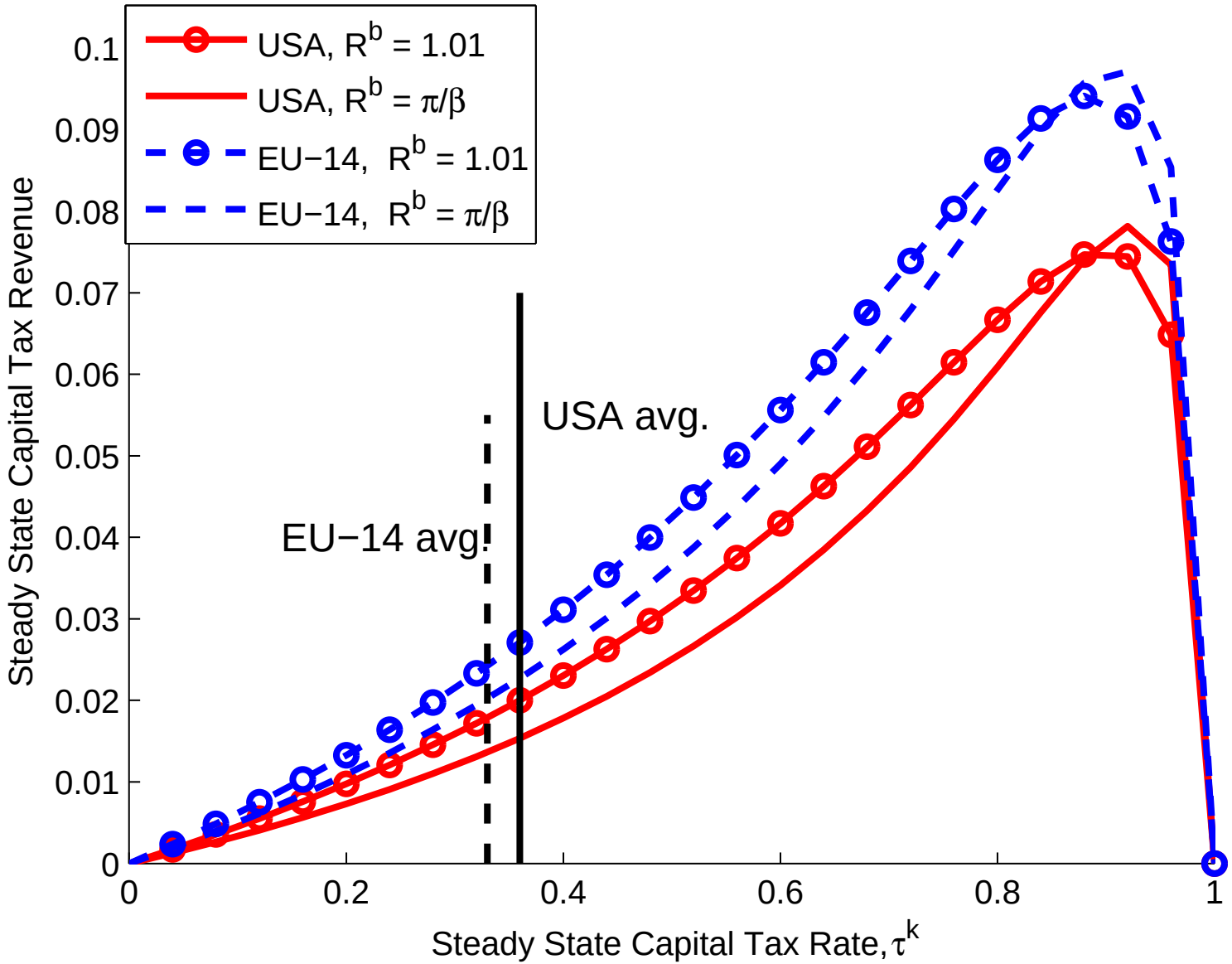
	τ^c	τ^k	τ^h	θ	δ
USA	0.05	0.36	0.28	0.35	0.08
EU-14	0.17	0.33	0.41	0.38	0.07

	σ	β	γ	ρ	R^b	π
USA	0.32	0.985	0.2	0.33	1.01	1.02
EU-14				0.22		

Note: the choice of ρ's corresponds to public debt to GDP ratio of 0.96 for USA and 0.84 for EU-14 estimated for the period 2008-2015 using AMECO database.

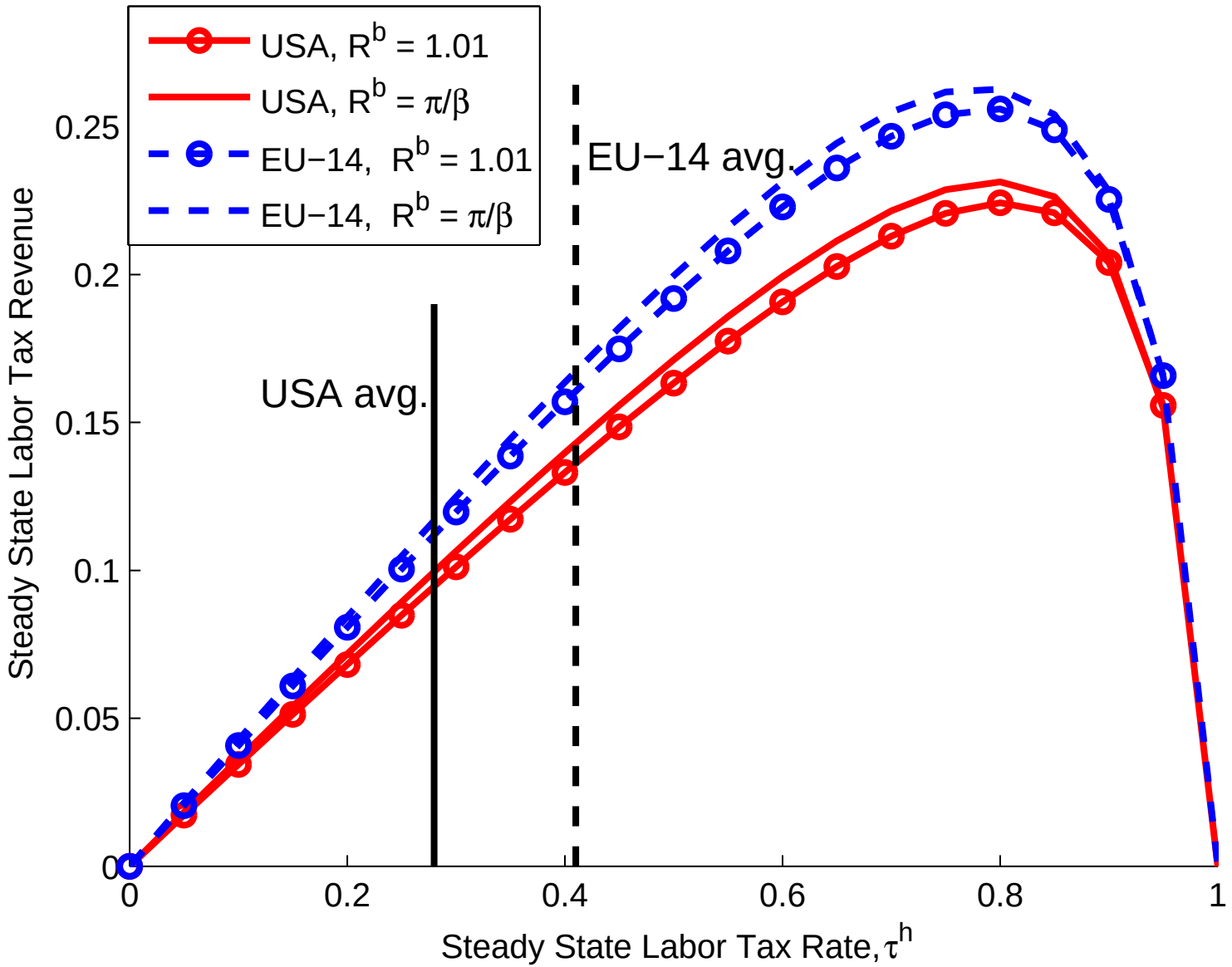
The impact on Capital Laffer curves, $R^b/\pi < 1/\beta$

Fig. 1(a) Capital Tax Laffer Curves:

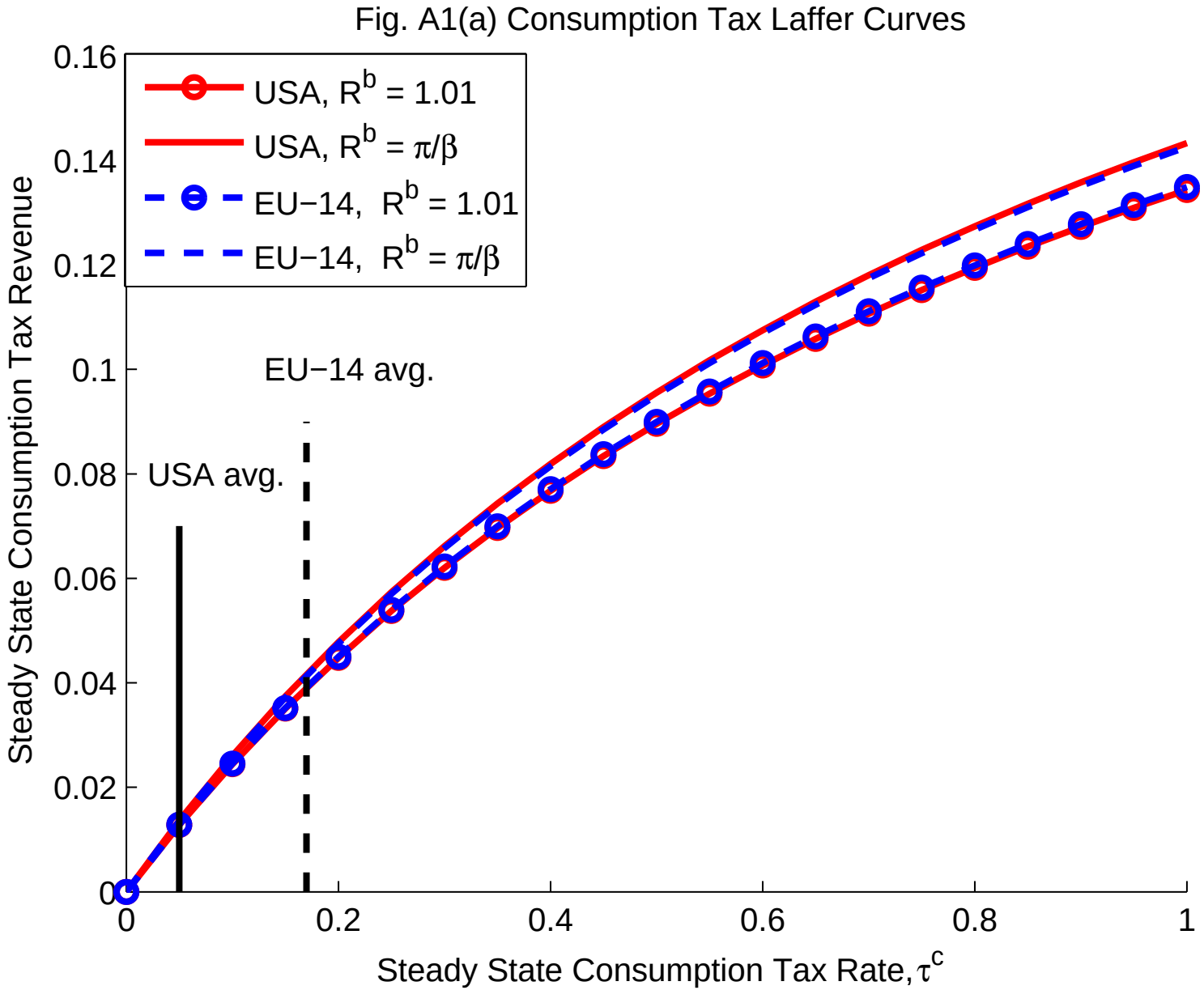


The impact on Labor Laffer curves, $R^b/\pi < 1/\beta$

Fig. 1(b) Labor Tax Laffer Curves:

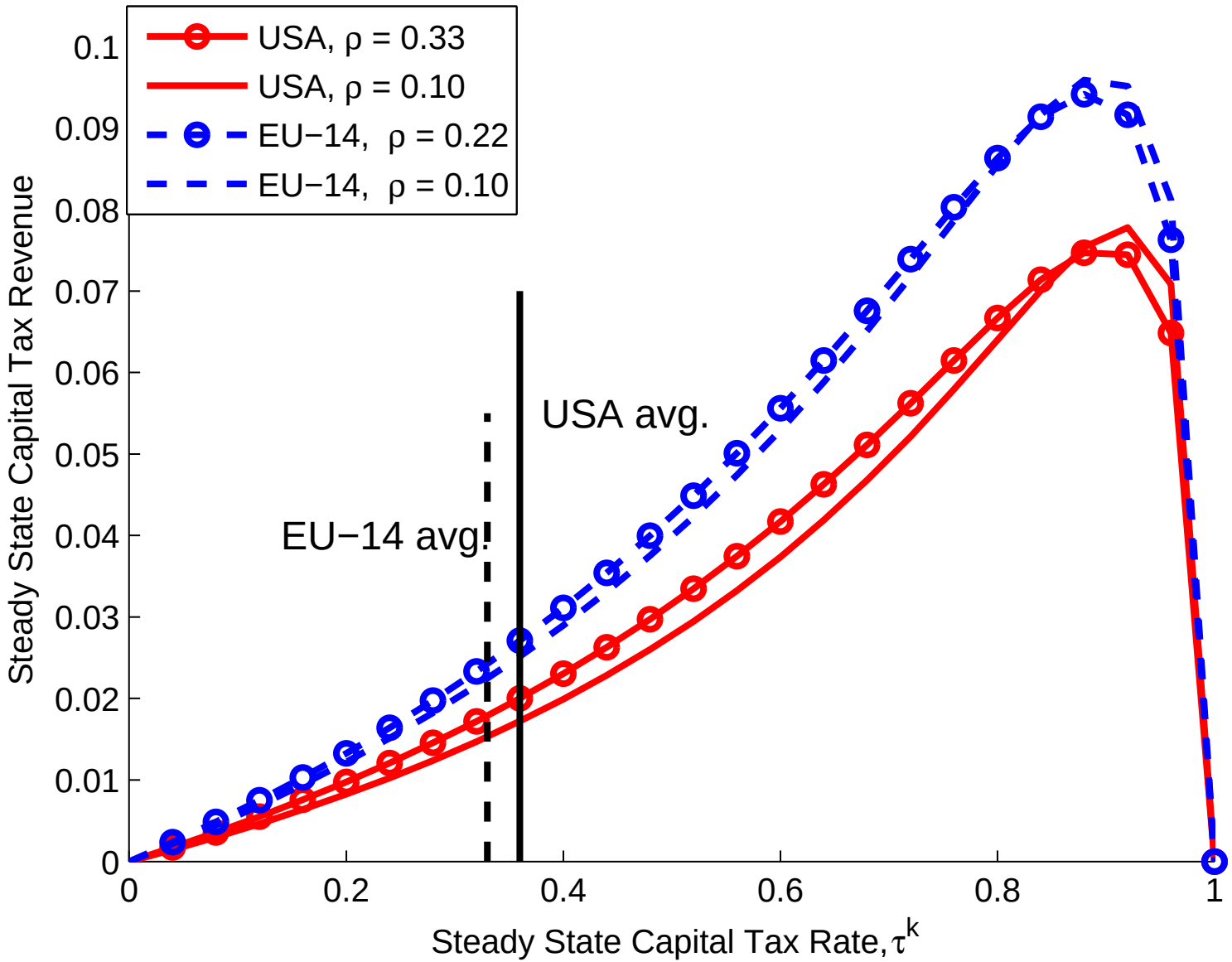


The impact on Consumption Laffer curves, $R^b/\pi < 1/\beta$



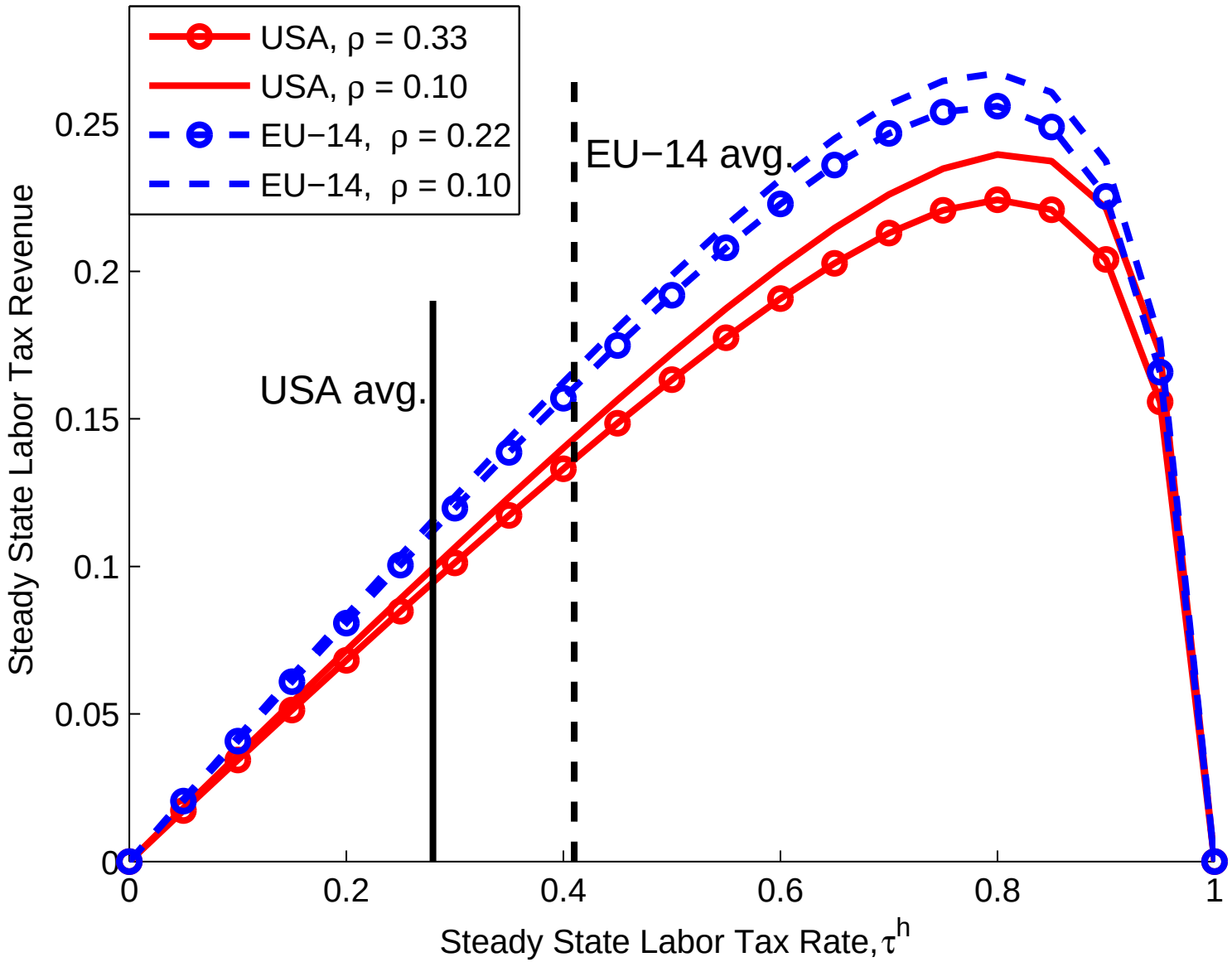
The impact on Capital Laffer curves, $\rho > 0$

Fig. 2(a) Capital Tax Laffer Curves:

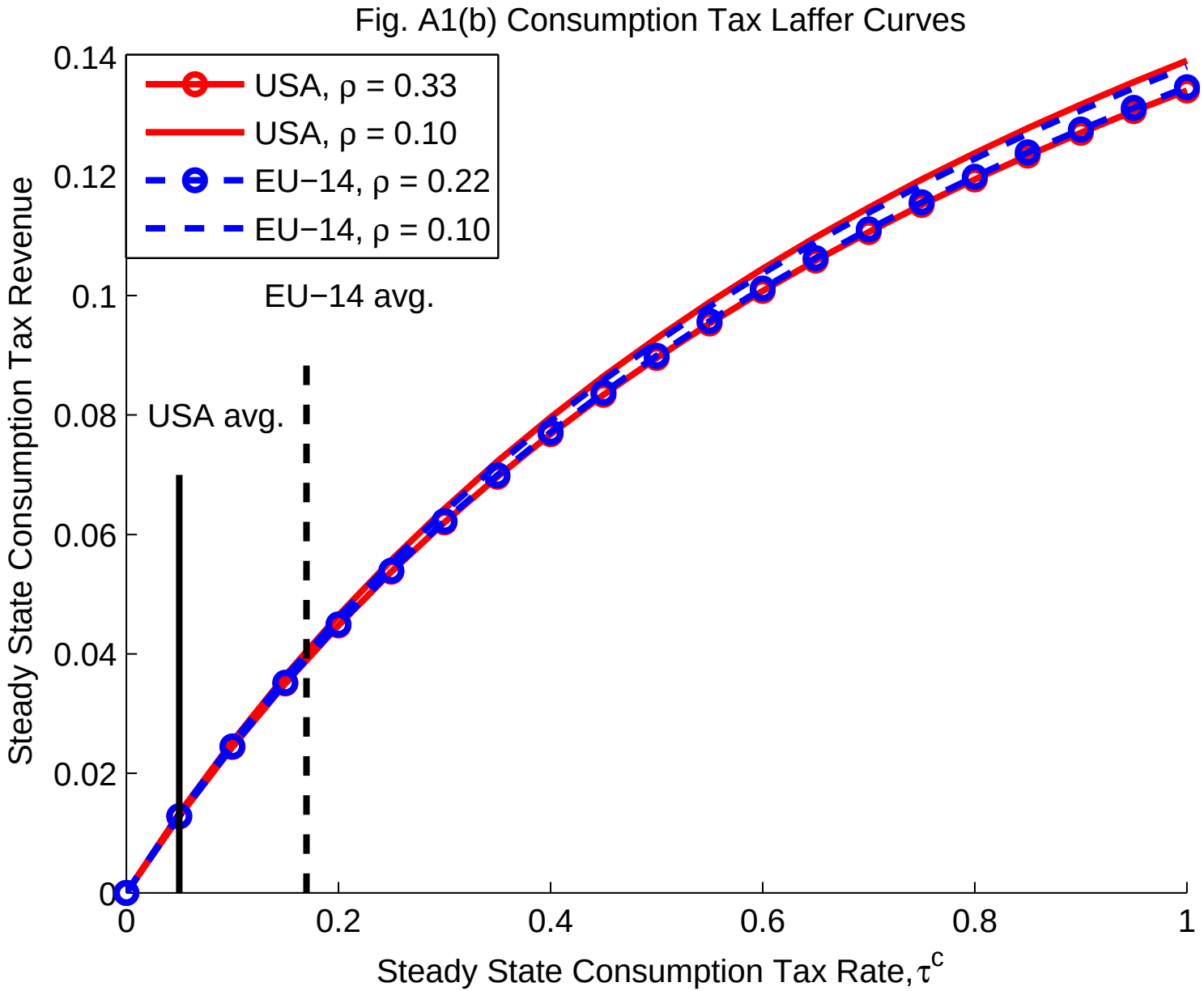


The impact on Labor Laffer curves, $\rho > 0$

Fig. 2(b) Labor Tax Laffer Curves:



The impact on Consumption Laffer curves, $\rho > 0$



Laffer hills, Net Revenue and Revenue from FR

Government budget constraint in steady-state:

$$G = (1 - \frac{R^b}{\pi})B + T + \frac{\pi - 1}{\pi}M$$

or

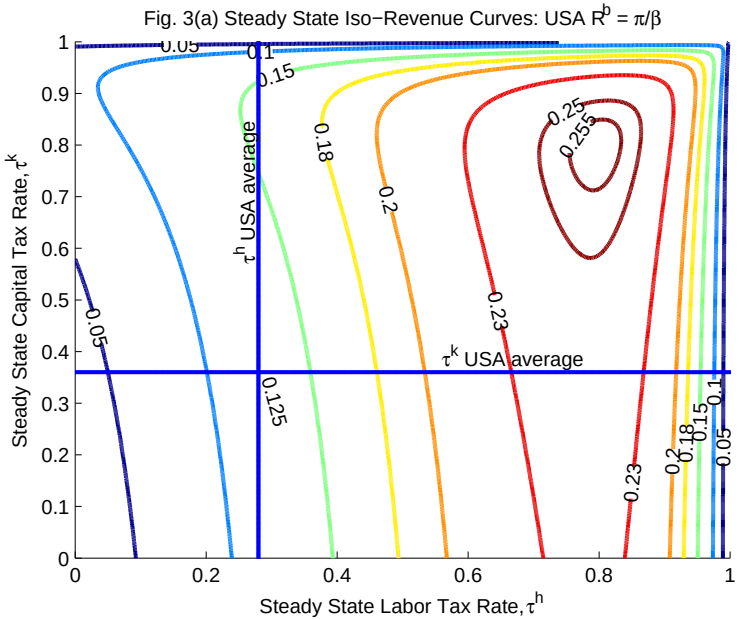
$$G + (\frac{1}{\beta} - 1)B = (\frac{1}{\beta} - \frac{R^b}{\pi})B + T + \frac{\pi - 1}{\pi}M.$$

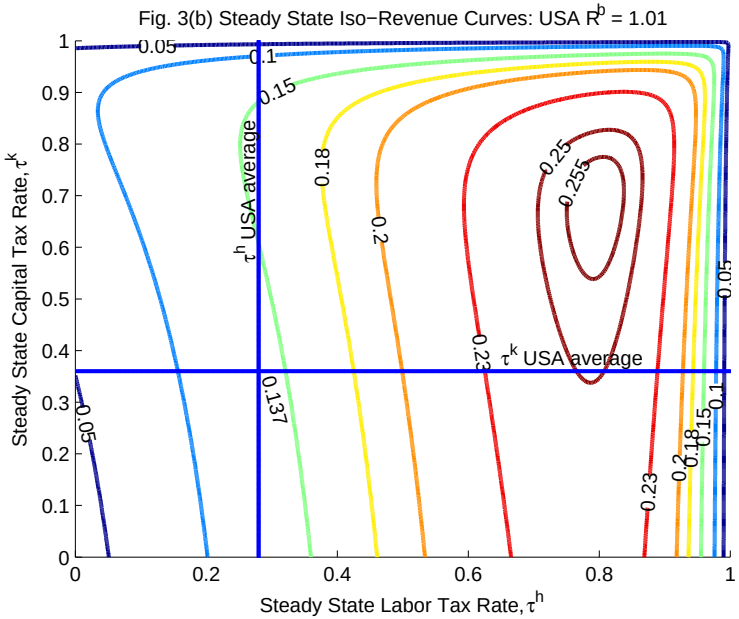
Net Revenue and Gross Revenue from Financial Repression:

$$(\frac{1}{\beta} - \frac{R^b}{\pi})B \text{ and } (1 - \frac{R^b}{\pi})B.$$

Liquidation effect for USA in our research 2.42% from GDP and Reinhart and Sbrancia(2015) 1.9%.

The Laffer hills (no/under Financial Repression)





MRS for Government Revenue and Welfare

Estimation of substitutability or complementary between policy instruments:

$$MRS_{xy}^{G} = \frac{\partial G/\partial x}{\partial G/\partial y},$$

$$MRS_{xy}^{U} = \frac{\partial U/\partial x}{\partial U/\partial y}.$$

$d\tau^k/dR^b|_{G=const} = 8.94$ for USA and 7.24 for EU-14;
$d\tau^k/dR^b|_{U=const} = 8.55$ for USA and 6.94 for EU-14;

$d\rho/dR^b|_{G=const} = 957.75$ for USA and -14.59 for EU-14;
$d\rho/dR^b|_{U=const} = 7.07$ for USA and 7.72 for EU-14.

Conclusions

- tighter financial repression shifts Laffer curves for consumption and labor taxes down, but increases the revenue from capital income tax
- if the revenue from repression finances valuable public goods, it can be welfare-improving notwithstanding it decreases output
- the substitution of financial repression revenue by heavier capital income taxation requires relatively large increase in the capital tax.