Discussion of: Marginal Tax Rates and Income: New Time Series Evidence, by K. Mertens

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Existing Results

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$$\Delta \ln \left(e_t^s\right) = \varepsilon \Delta \ln \left(1 - \tau_t^s\right) + r_t^s$$

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  - τ_t^s = average marginal tax rate

OLS Regression Results

Table II OLS Regression Results

	All Tax Units Series 1	All Tax Units Series 2	Top 1%	Top 5%	Top 10%	Top 5-1%	Top 10-5%	Btm. 99%	Btm. 90%
				A. *1951-2010*					
Wage Inc.	-0.57^{*}	-0.63^{**}	0.45	0.13	-0.01	-0.15	-0.32	-0.75^{**}	-0.97^{***}
	$(-1.18, 0.03)$	$(-1.19, -0.07)$	$(-0.10, 0.99)$	$(-0.32, 0.59)$	$(-0.43, 0.42)$	$(-0.40, 0.11)$	$(-0.86, 0.22)$	$(-1.33, -0.16)$	$(-1.66, -0.28)$
Total Inc.	-0.33	-0.42	0.58^{*}	0.28	0.14	-0.14	-0.27^{*}	-0.60^{**}	-0.80^{***}
	$(-0.89, 0.23)$	$(-0.95, 0.11)$	$(-0.08, 1.25)$	$(-0.37, 0.94)$	$(-0.44, 0.72)$	$(-0.46, 0.17)$	$(-0.58, 0.04)$	$(-1.08, -0.12)$	$(-1.37, -0.23)$

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- For most income groups, estimates are negative, that is tax increases => higher income growth
- The problem is that there might be endogeneity, and thus the estimate may be biased.

Plan of the Discussion

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- 2. Other potentially interesting/useful things to do? Things I am curious about, etc...

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- The paper proposes SVAR identification to overcome the bias

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- We care about:
  - (i) $v_t^\tau =$ the exogenous variation in average marginal tax rates
  - (ii) H_{12} – in fact, e.g. VAR no lags:

$$\begin{pmatrix} \ln(e_t) \\ \ln(1-\tau_t) \end{pmatrix} = \begin{pmatrix} H_{11} & \mathbf{H}_{12} \\ H_{21} & H_{22} \end{pmatrix} \begin{pmatrix} v_t^o \\ v_t^\tau \end{pmatrix}$$

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- Let m_t = exogenous narrative policy shocks s.t.:

$$\begin{aligned} E\left(v_t^{\tau} m_t\right) &= \alpha \neq 0 \;\; (\textit{relevance}) \\ E\left(v_t^{o} m_t\right) &= 0 \;\; (\textit{exogeneity}) \end{aligned}$$

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- **Fitted value**: $E\left(m_t u_t\right)' E\left(u_t u_t'\right)^{-1} u_t = \underbrace{\alpha \begin{pmatrix} H_{12} \\ 1 \end{pmatrix}' H'^{-1}}_{=[0,1]} \underbrace{H^{-1} u_t}_{v_t} = \alpha\left[0,1\right] v_t = \alpha v_t^\tau$

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- $E\left(u_t m_t\right) = E\left(\begin{pmatrix} u_t^e \\ u_t^\tau \end{pmatrix} m_t\right) = \begin{pmatrix} H_{12} \\ 1 \end{pmatrix} \alpha$

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  - (iii) $E\left(u_t^e m_t\right) = H_{12}\alpha$ gives an estimate of H_{12}
  - (iv) estimate impulse responses by tracing the effect of v_t^τ on Y_t.

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- Bottom line: why not comparing the results of alternative procedures? Are there advantages relative to the simpler procedure?

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Three-stage Regression Estimated in This Paper

- Regress u_t^e on u_t^τ using m_t as instruments, and get the residuals
- Regress u_t^τ onto u_t^e using the residuals in the previous step as instruments, and get the residual, which is v_t^τ
- Regress the variables you are interested in onto $v_t^\tau, v_{t-1}^\tau, \ldots$ to get IRFs

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  - The paper reports first-stage F-tests on elasticities estimated from $\Delta \ln\left(e_t^s\right) = \varepsilon \Delta \ln\left(1 - \tau_t^s\right) + r_t^s$ using v_t^τ as instrument – more later...

Question III. Model Specification: Nonlinearities

- Here we are imposing that one additional contemporaneous unanticipated shock in taxes v_t^{τ} has a constant (linear) effect H_{12} on the log of aggregate income $ln\left(e_t\right)$.

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- Test whether there is empirical evidence of non-linearities?

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  2. the paper also looks at dynamic responses of different income percentiles to the shock:

     $$\Delta \ln \left(e_t^s\right) = \gamma_0 v_t^\tau + \gamma_1 v_{t-1}^\tau + \ldots$$

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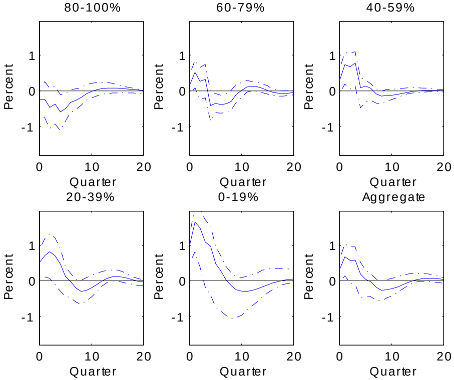
3. The paper reports first-stage F-tests on elasticities estimated from $\Delta \ln \left(e_t^s\right) = \varepsilon \Delta \ln \left(1 - \tau_t^s\right) + r_t^s$ using v_t^τ as instrument – but v_t^τ is estimated in the aggregate VAR – has the first stage F-statistics been corrected for that?

- 4. Heterogeneity. Anderson, Inoue and Rossi (2012) show that the response of consumption is very different across income groups.

IRF of Consumption to Gov. Spending Shock by Income Group



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- The individuals in the top 1% might have different characteristics (age, ...) – is it possible that the response of the top 1% be different depending on their characteristics? Would that be interesting to investigate?

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- I wonder if it would be useful to support the claims in this paper with micro evidence based on survey data (if available)

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