An approach to measuring informal activity in California

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ECON221 Economic slack
Early results presentation

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Question and positioning

Data and model

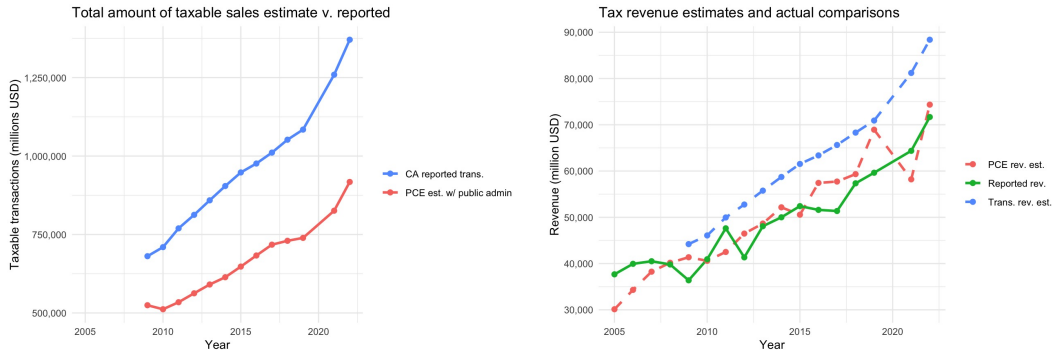| Measure		Description	Source
GDP (nominal)	GDP_t	Output in current prices	FRED FED (1999-2023)
Collected tax	T_t	Collected tax revenue	FRED FED (1999-2023)
Compliance rate	ϕ_t	$Rev_t / \sum_i \tau_{ti}(c_{it} \cdot i_t)$	calc (2003-2024)
County quintiles	τ_{it}	y_t grouped	BLS PCE - CA (2000-2023)
GVA	GVA_t	GSP	BEA NAICS (1999-)
Export share	x_t	CA export val	CA TFA, (2005-2024
Incidence	i_t	Share y_t taxable	BLS PCE - CA

Figure 1: *Left plot shows estimated taxable receipts $\sum_i \tau_{ti}(c_{it} \cdot i_t)$ at county level, and industry level $\tau_t(c_t \cdot i_t)$. Right panel plots modeled revenue using both PCE and transaction-based incidence calculation, against actual tax receipts.*
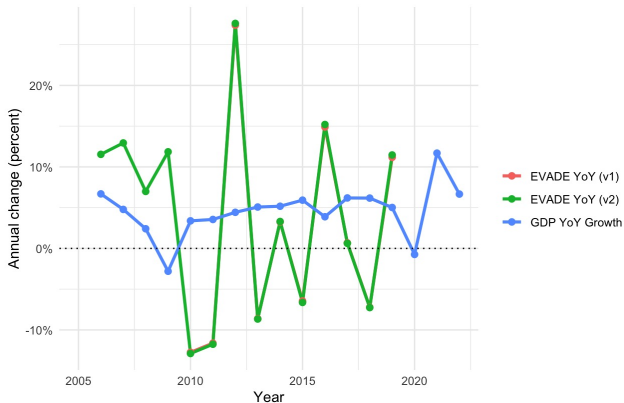
formula 1

$$GDP_t^{full} = GSP_t + NTprod_t$$
$$+(1 - \delta_t)(1 - x_t)GVA_t$$
$$+(\phi_t - 1)T_t$$

formula 2

$$EVADE_t = \frac{GDP_t^{full} - GDP_t}{GDP_t}$$

$\Rightarrow$ Large swings in EVADE measure present.

EVADE measures vs. nominal GDP annual rate of change in CA

Next steps

- Continue to **improve the EVADE measur**e:
  - ▶ Distinguish measurement error from informality between *projected tax revenue figures* between the PCE and the transaction-based estimates
  - ▶ Disaggregate GDP, potentially imports to the county level for full alignment with PCE-approach
  - ▶ Include consumer-level subsidies on products for further refinement
- **Refine interpretation**: what does it mean for the EVADE measure to be volatile?
- **Provide more descriptives:** Plot against other raw data series, including collected income tax, and try to match model estimates with total tax incidence in CA

100 %