Including Illegal Activity in the U.S. National Economic Accounts

by Rachel Soloveichik

Three Categories of Illegal Activity:

Black market sector – *forbidden consensual transactions*

- Illegal drugs, prostitution, and gambling
- The official guidelines for national accounting, SNA 2008, recommend that black market transactions should be included in GDP
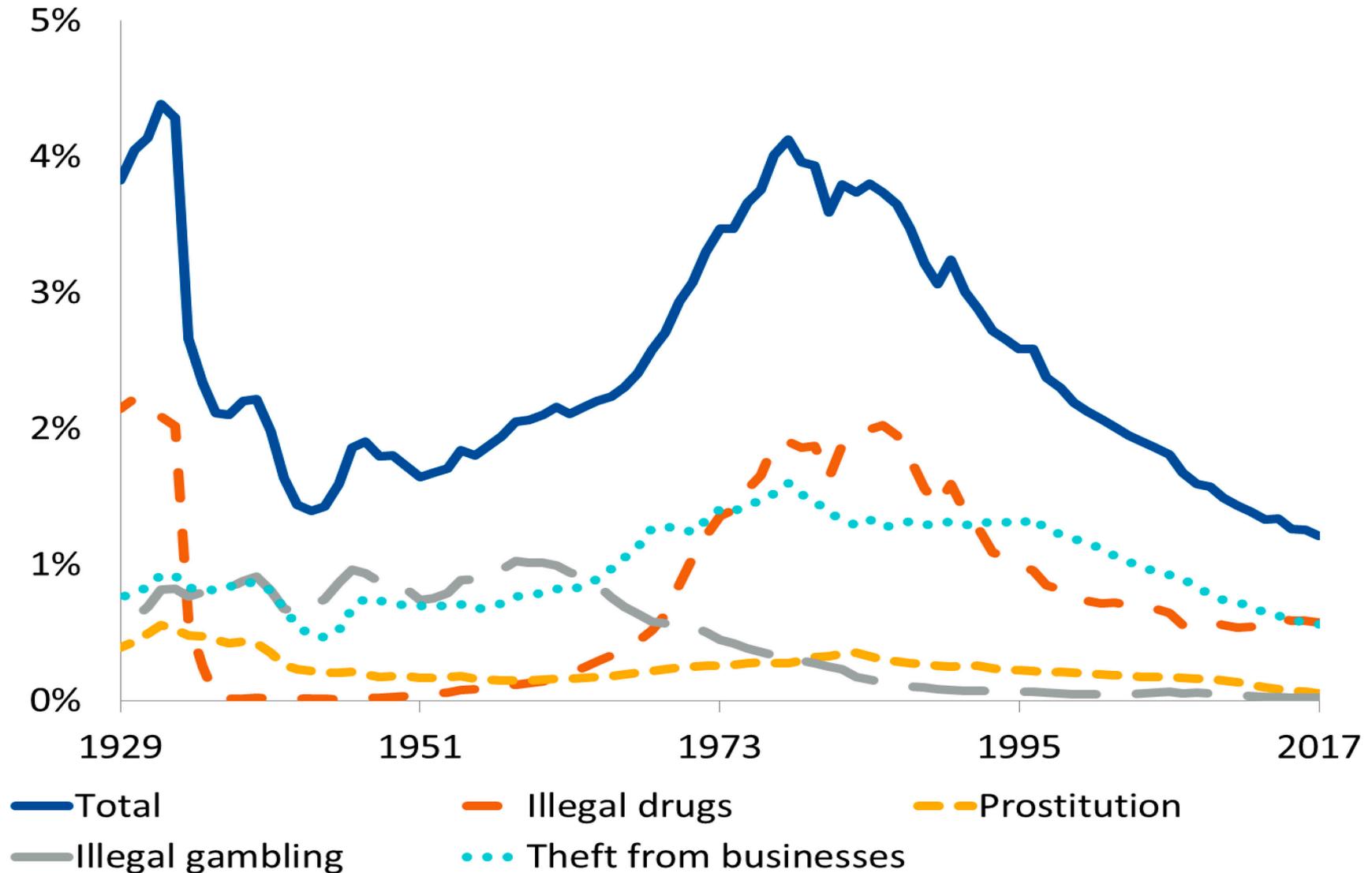
Theft from businesses – *pilferage, embezzlement, etc.*

- Theft is not productive in an economic sense (SNA 3.98)
- However, legal business sector output cannot be measured properly without tracking theft from businesses
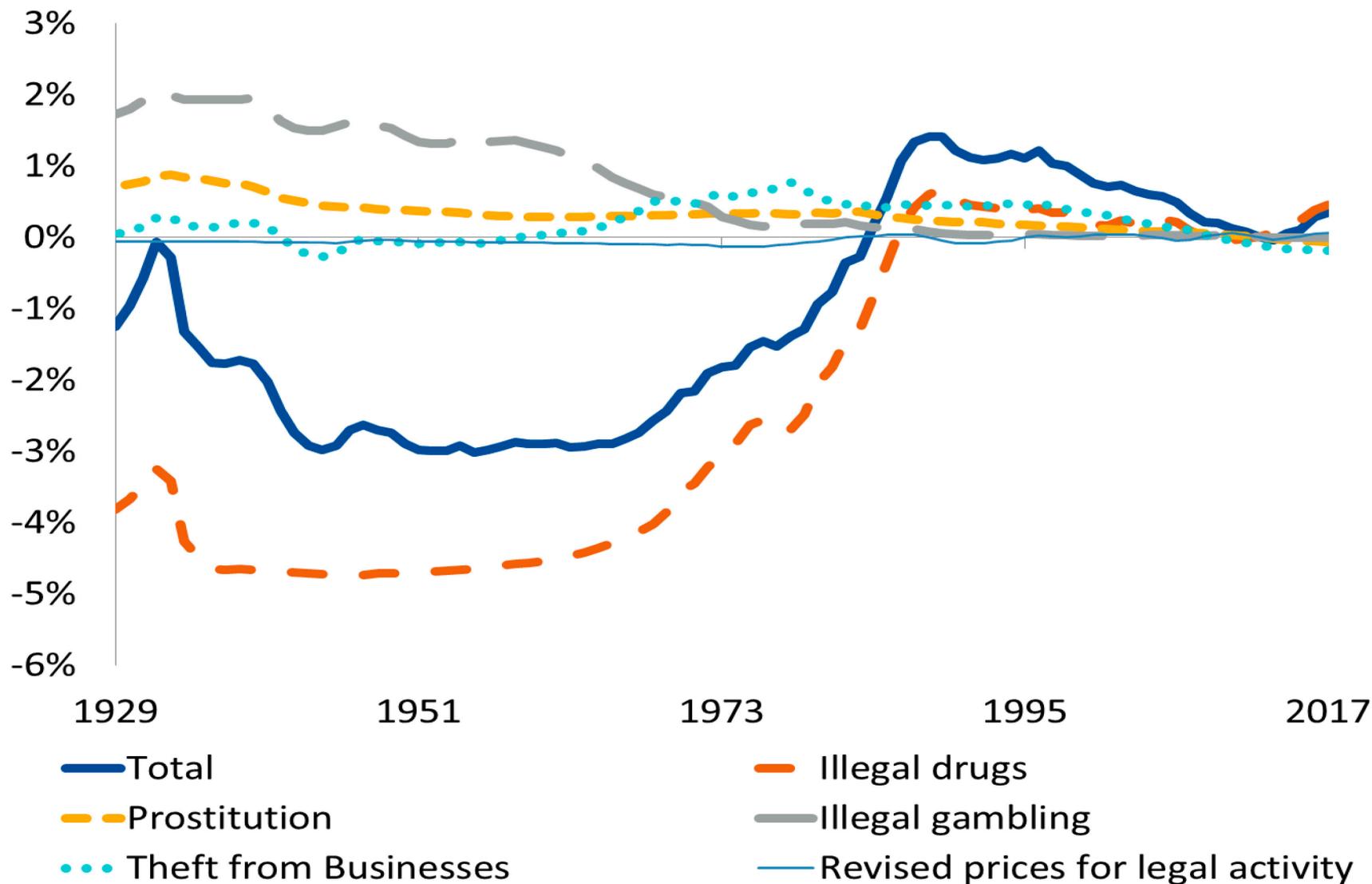
Gray market sector – *unlicensed legal activity*

- Already tracked in the national income and product accounts (NIPAs)

Nominal GDP Increase from Illegal Activity
[as a Share of Nominal GDP]

Legend:
- Total
- Illegal drugs
- Prostitution
- Illegal gambling
- Theft from businesses

Revision to GDP Quantity Index
[Relative to Overall GDP Quantity Index, 2012 Base]

Legend:
- **Total** (dark blue solid line)
- **Illegal drugs** (orange dashed line)
- **Prostitution** (yellow/orange dashed line)
- **Illegal gambling** (gray solid line)
- **Theft from Businesses** (cyan dotted line)
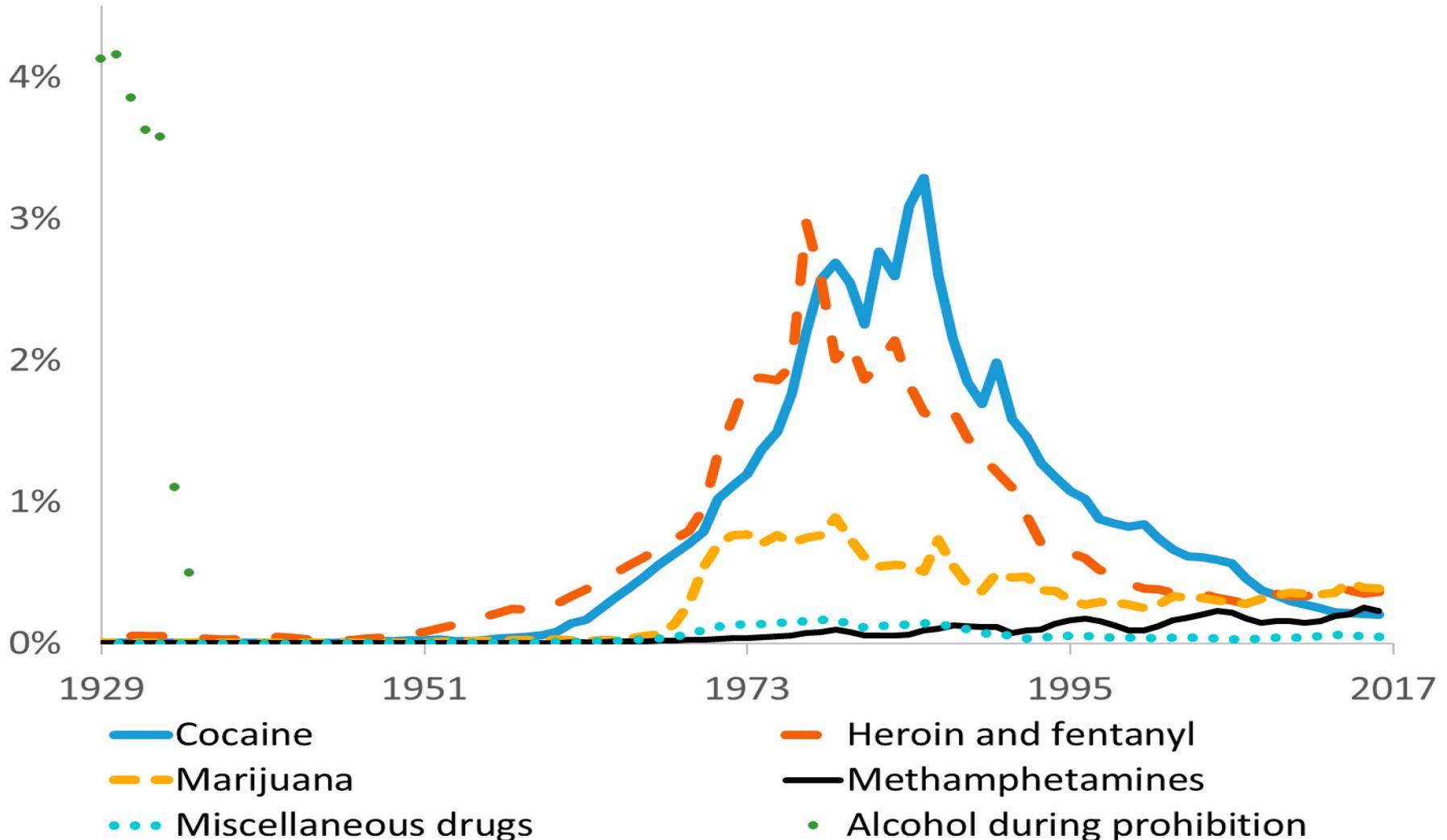- **Revised prices for legal activity** (thin blue line)

Reports from the Office of National Drug Control:

- 'What America's Users Spend on Illegal Drugs: 2006-2016'
- 'National Drug Control Strategy: Data Supplement 2016'
- 'The Price of Illicit Drugs: 1981 Through the Second Quarter of 2000'
- Reports give: personal consumption expenditures (PCE) on drugs 1988-2016, retail prices 1981-2016, and import prices 1981-2012
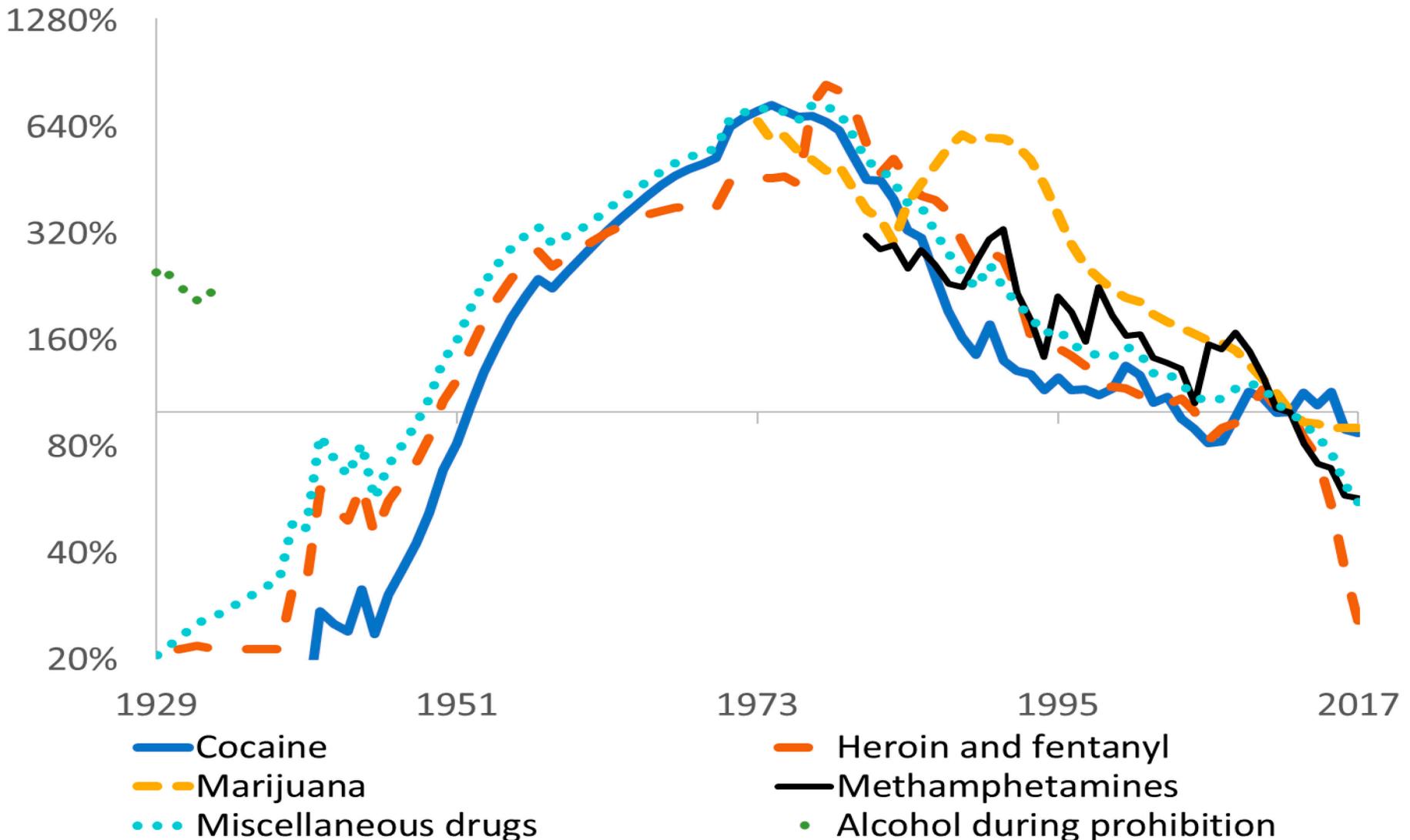
Supplemented with:

- Department of Education's 'Monitoring the Future' survey
- Drug Enforcement Agency (DEA) seizure statistics
- Government reports, academic literature, news reports and the author's best judgment
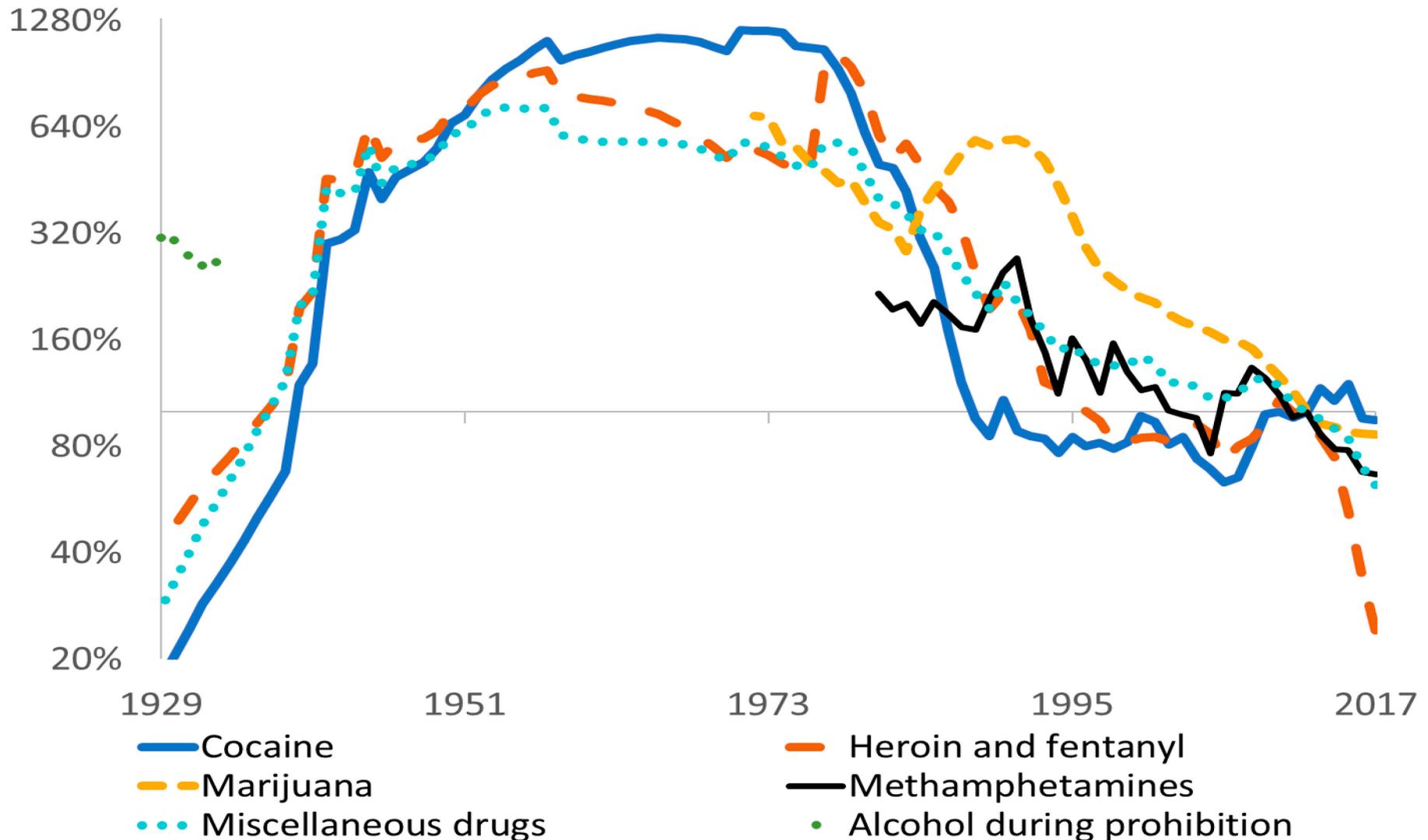
Nominal Spending on Illegal Drugs
[as a Share of Nominal PCE]

Legend:
- Cocaine
- Heroin and fentanyl
- Marijuana
- Methamphetamines
- Miscellaneous drugs
- Alcohol during prohibition

Purity-Adjusted Average Illegal Drug Prices
[Relative to Overall PCE Prices, 2012 Base]

Purity and Availability-Adjusted Drug Prices
[Relative to Overall PCE Prices, 2012 Base]

Prostitution and Other Erotic Activity

Spending data benchmarked to an IRS study *'Income Tax Compliance Research: Estimates for 1973-1981'*
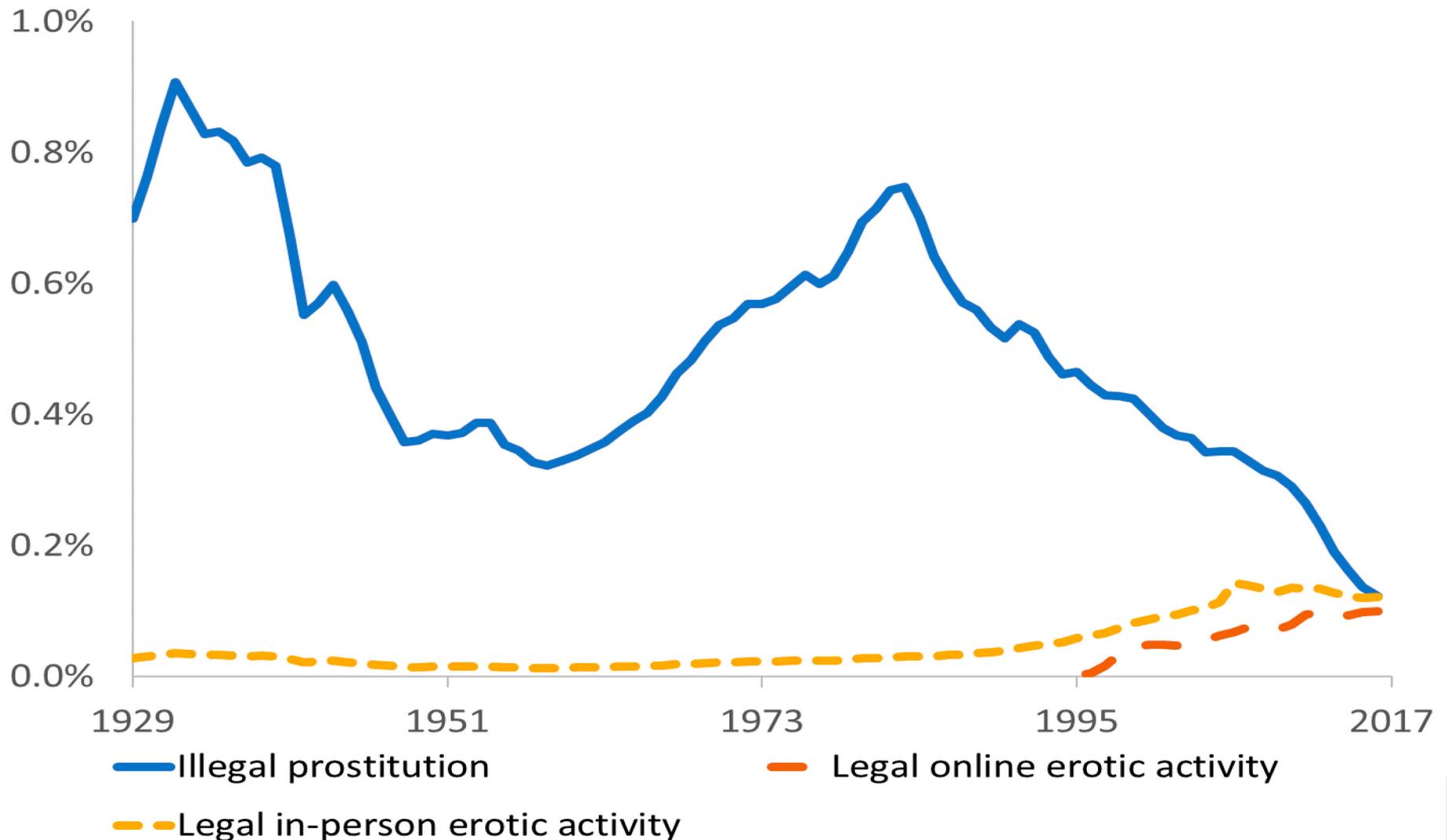
- Total arrests for 'prostitution and commercialized vice' are used to proxy labor quantities before 1973 and after 1981
- Average wages in 'Other Personal Services' are used to proxy wages
- Nominal labor share is assumed to be constant over time

Legal erotic activities are currently in the NIPAs

- No dedicated item code in PCE

Price index is based on BEA's 'personal care services' deflator and input costs

Nominal Spending on Erotic Activity
[as a Share of Nominal PCE]
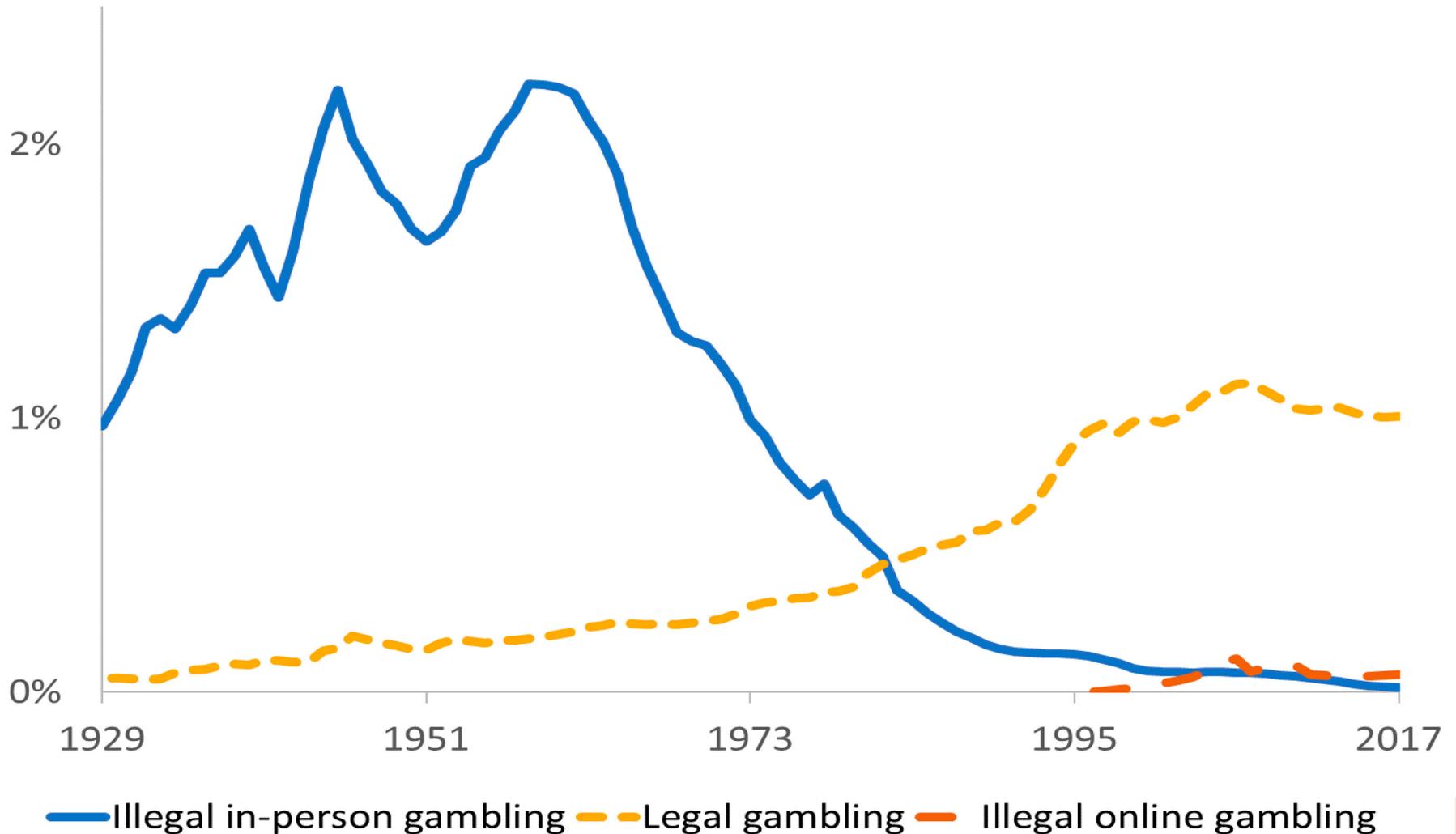
Legal and Illegal Gambling

Primary data on illegal gambling is taken from a 2006 survey (Volberg, Nysse-Carris and Gerstein)

- The time series for in-person illegal gambling is constructed from arrest data and average wage data similar to the prostitution data
- The time series for online gambling is constructed from news reports

Measuring gambling prices is hard

- The Bureau of Labor Statistics (BLS) considers gambling losses to be out of scope for the consumer price index (CPI)
- BLS's producer price index is based on the average winning share
- BEA's current deflator for legal gambling is simply the CPI-All Items
- This paper uses average daily losses in Las Vegas as the price deflator

Nominal Gambling Losses
[as a Share of Nominal PCE]

Data on Inventory Theft

Retailers track inventory theft very carefully

- Since 1991, the National Retail Federation has published an annual report tracking inventory shrinkage by cause
- Before 1991, retail industry associations tracked total industry shrinkage
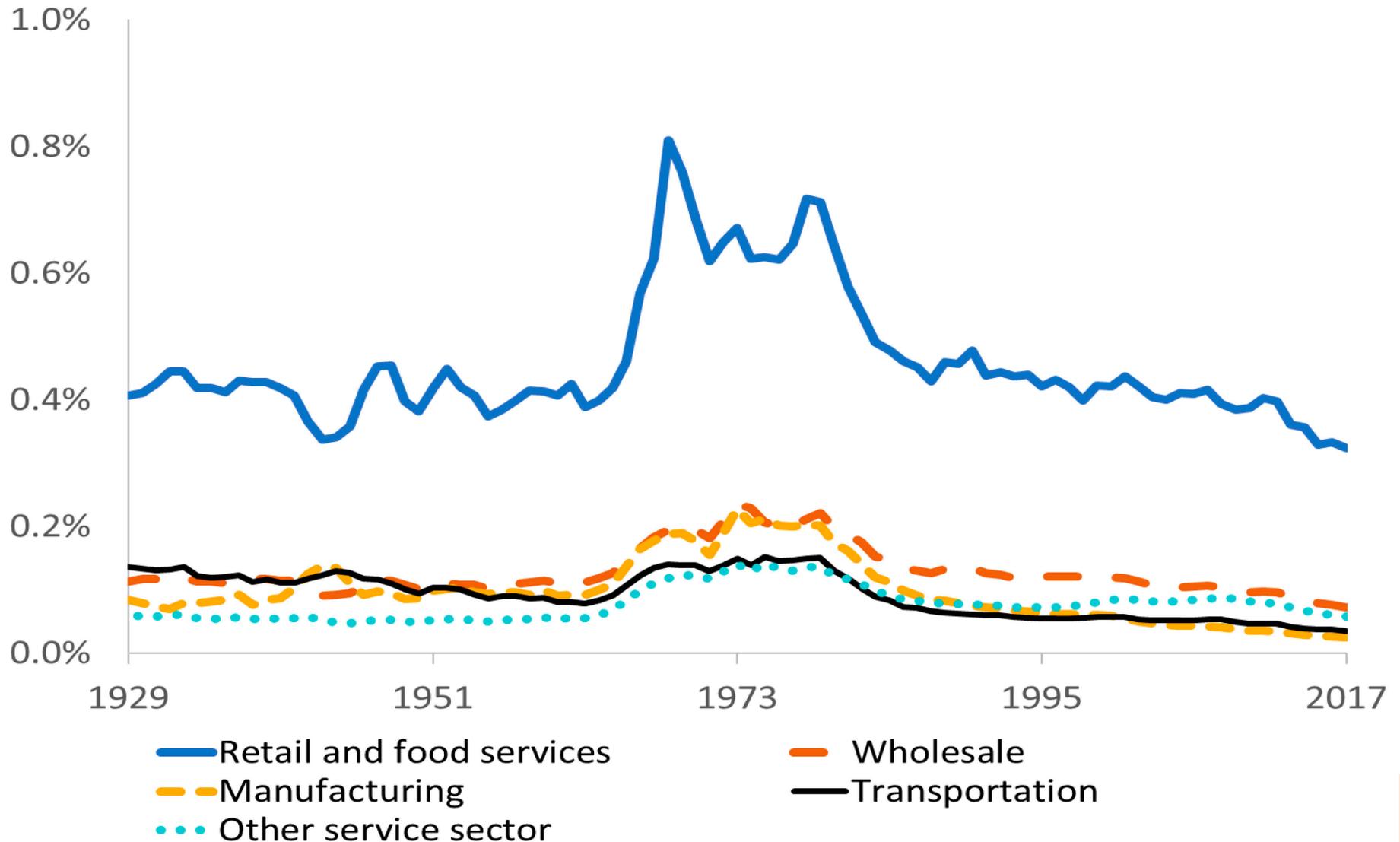
Other industries have less data on inventory theft

- A 1975 report *'The Cost of Crimes Against Businesses'* (Department of Commerce) gives a snapshot of theft by industry
- Annual theft rates by industry are imputed using Current Population Survey data on employee demographics by industry and retail theft rates

Price index for inventory theft

- Most pilfered items are almost identical to items sold legally
- The paper uses BEA's existing PCE goods price index as the deflator

Nominal Inventory Theft
[as a Share of Nominal PCE]

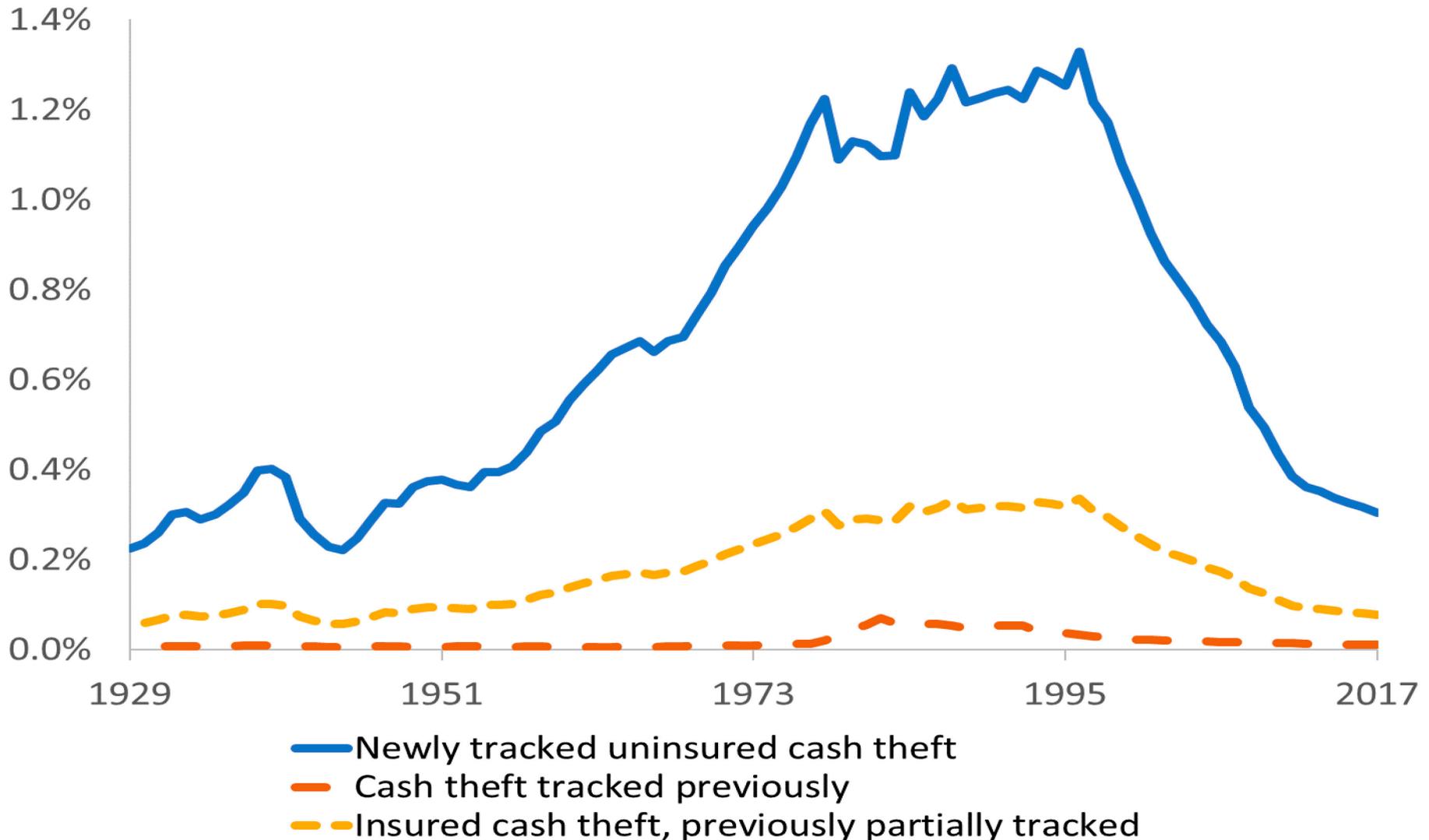## Fraud and embezzlement account for most cash theft

- A 1975 report by the American Management Association provides the primary data on fraud and embezzlement losses

- Theft trends are imputed based on arrests for fraud and embezzlement, average wages in the economy, and employee demographics

- BEA already records a small portion of cash theft as a current transfer from businesses to persons – but most theft is not currently tracked

Price index for stolen cash

- Each fraud loss may be hidden in a different false bill

- For now, intermediate input prices from the joint BEA/BLS production accounts are used to calculate a composite price index

Nominal Cash Theft
[as a Share of Nominal PCE]

Total Factor Productivity (TFP)

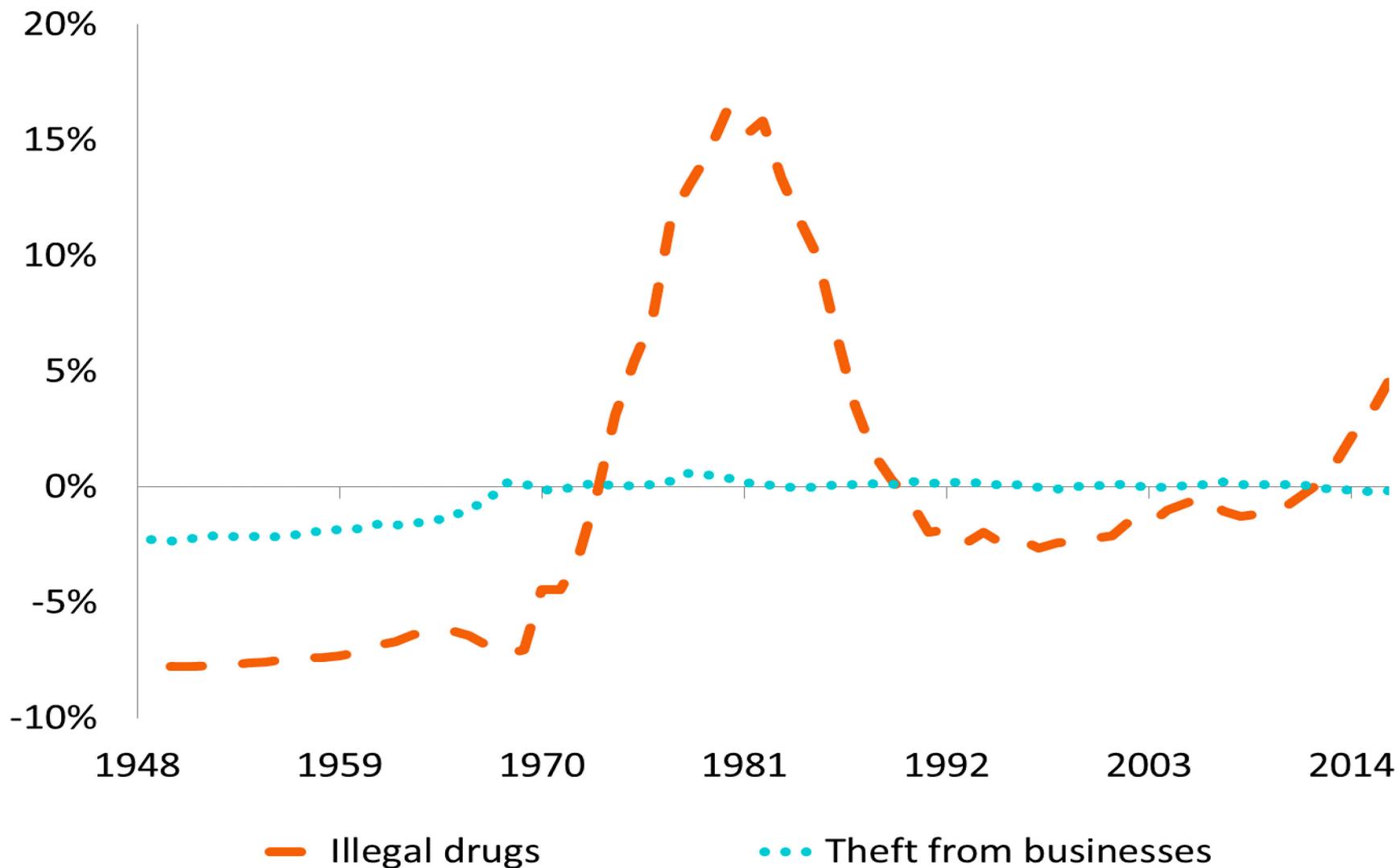## Measured TFP depends on both outputs and inputs

- Labor input quantities are needed to measure TFP reliably
- Arrest data is used to proxy for labor quantities in the drug sector, the prostitution sector and the gambling sector
- Theft is treated as a component of employee compensation

The paper tracks the impact of illegal activity on 61 separate private business sectors:

- Marijuana – agriculture; meth labs – chemical manufacturing; illegal drug selling – retail; prostitution – other services; illegal gambling – legal gambling; laundered drugs – food service
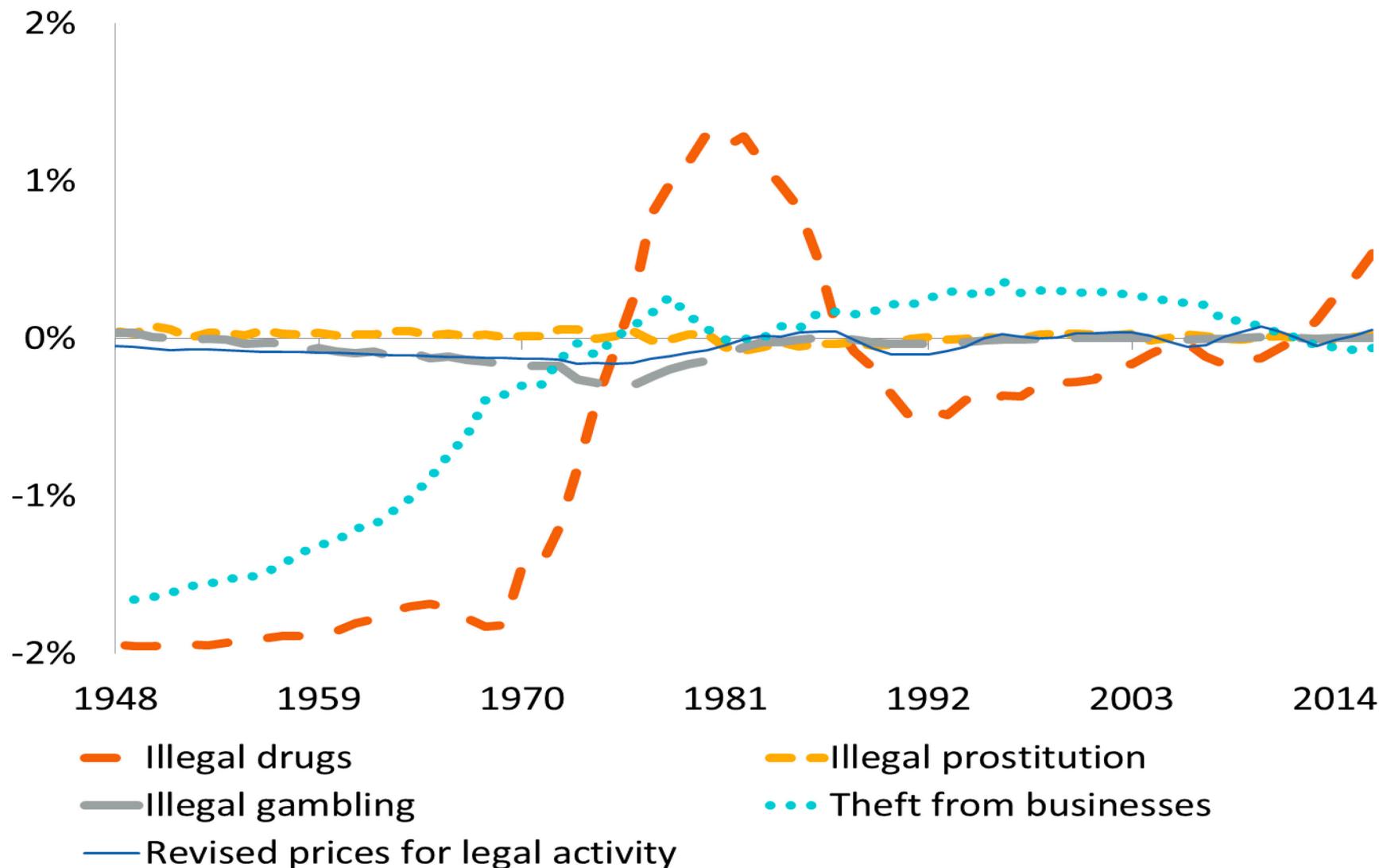- Theft impacts every legal sector industry

Revision to Retail TFP from Illegal Activity
[relative to Retail TFP Index, 2012 Base]

Revision to Aggregate TFP from Illegal Activity
[Relative to Aggregate TFP Index, 2012 Base]

Future Research: Illegal Activity by Region

Direct data on illegal income is not available, so an economic model is used for preliminary analysis

- Legal income data is taken from BEA's regional income statistics
- Illegal income will be imputed from the FBI's arrest data by region, urban status, academic literature, and aggregate illegal income

Illegal activity generally yields high hourly earnings

Tracking illegal income may raise regional inequality

- Urban areas typically show both higher legal incomes per capita, and also higher crime rates.

Conclusion

The illegal sector accounts for a small but nontrivial share of total industry output, transfers and GDP

- Illegal activity is more than just drugs and prostitution

Illegal activity grew rapidly in the 1970s and post-2008

- The 1970s slowdown is ameliorated and the post-2008 slowdown is partially ameliorated when illegal activity is tracked

Europe already includes illegal activity in their national accounts, industry accounts, and productivity statistics

- Cross-country comparisons of the retail sector may be problematic
- Illegal activity may be less volatile in Europe than in the U.S.