Real Output of Bank Services: What counts is what banks do, not what they own

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Background (1)

› Measuring bank output is challenging
  - Implicit pricing
  - Hard for both nominal and real output
› Not just a statistical matter
  - Measurement depends on the conceptual model of what banks do; no consensus yet
› Particularly relevant post-crisis: what & how much do banks contribute to the economy?

Background (2)

- Financial intermediation theory: banks lower transaction costs (Allen & Santomero ’01)
  - Screening & monitoring to mitigate asymmetric information problems
  - Facilitating transactions (payment system)
- Nominal value of those services?
  - Risk-adjusted interest margin (Wang, Basu, Fernald ’09; Basu, Inklaar, Wang ‘10)
  - Role of risk is contentious (Fixler & Zieschang, ’10)

This paper

- Real output of bank services
- Conceptual discussion
  - Counts vs. Balances
- Empirical comparison
  - Multiple financial products: loans and deposits
  - US and European countries

Main results (1)

- Balances of loans and deposits are misleading as output indicators
- Loan and transaction counts are the conceptually correct measure
  - Quality-correction important but challenging as always

Main results (2)

› Notably different output growth path based on counts vs. balances
  - Balances can both overstate growth (residential mortgages) and understate growth (US business loans, deposit transactions)

› Important implication for the growth picture: US growth estimate is relatively less biased than EU growth

Intuition – analogy of the car dealership (1)

› Dealer buys and sells cars
  - Value of services is the margin between purchase and sales price

› What are real services? Two options:
  A. Number of cars sold
  B. Value of accounts receivable at the end of the period

Analogy of the car dealership (2)

› Option A:
  - Conforms with intuition about what car dealers do
  - Important to adjust for difference in service quality: e.g., better services in selling high-margin vs. low-margin cars

› Option B:
  - Requires a fixed relationship between car dealer services and accounts receivable, but why?

Empirical outline

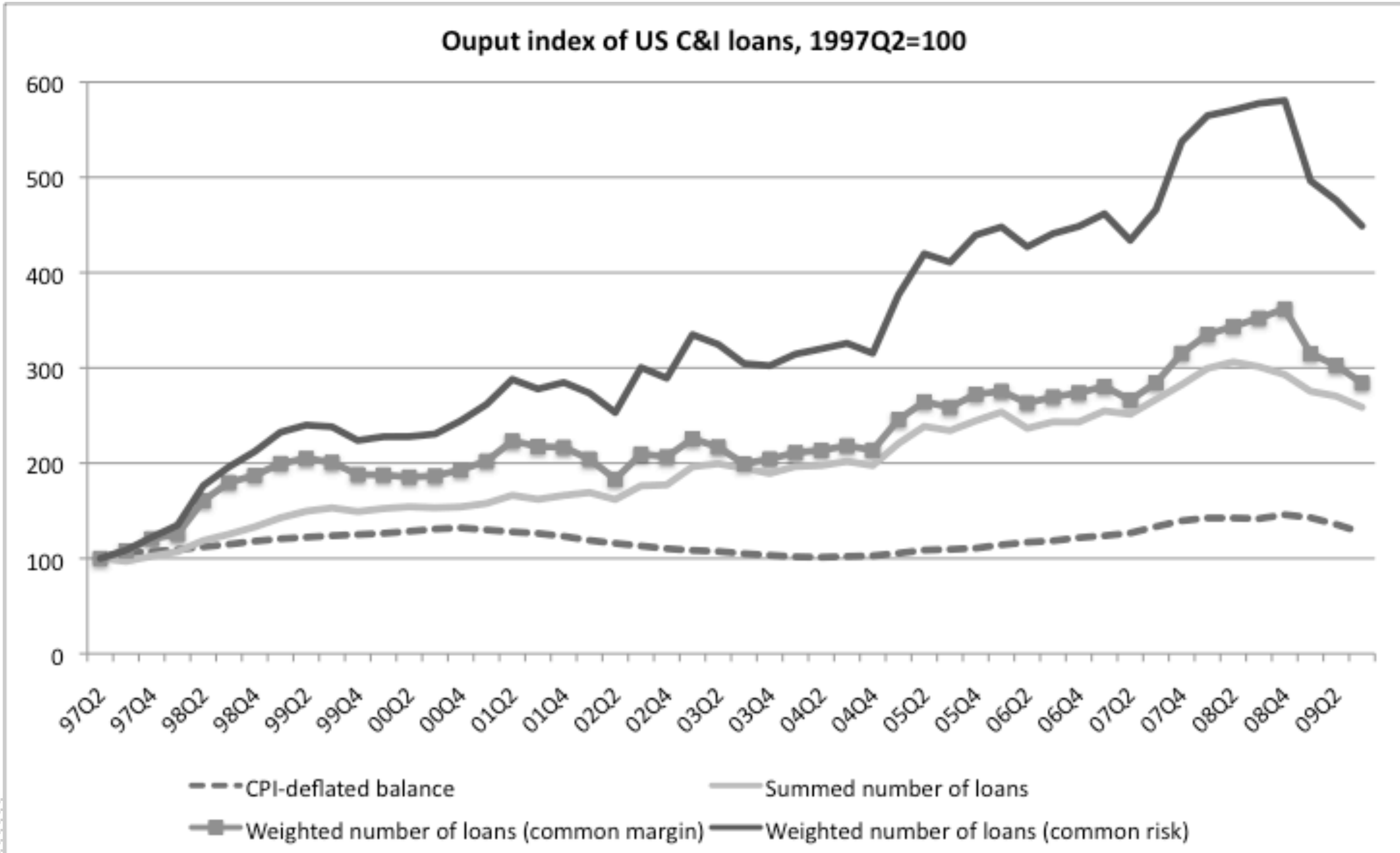
› Contrast Balances and Counts approach
  - Balances: CPI-deflated
  - Counts: for loans based on average loan size; for deposits based on universe of specific types of transactions

› Data limited
  - US: commercial & industrial (C&I) loans
  - US and European countries: residential mortgages and deposit transactions

U.S. C&I loans

- Data source: Survey of Terms of Business Lending
  - Number and balance of new loan <u>origination</u>
  - Loan characteristics: Interest rate, maturity, risk rating, repricing period, if secured, if commitment
  - Quarterly since 1997Q2
- Financial services for both new and existing loans
  - Estimates accumulation and amortization of loans
- Reference rates: based on repricing periods & risk ratings => different estimates of nominal service flow

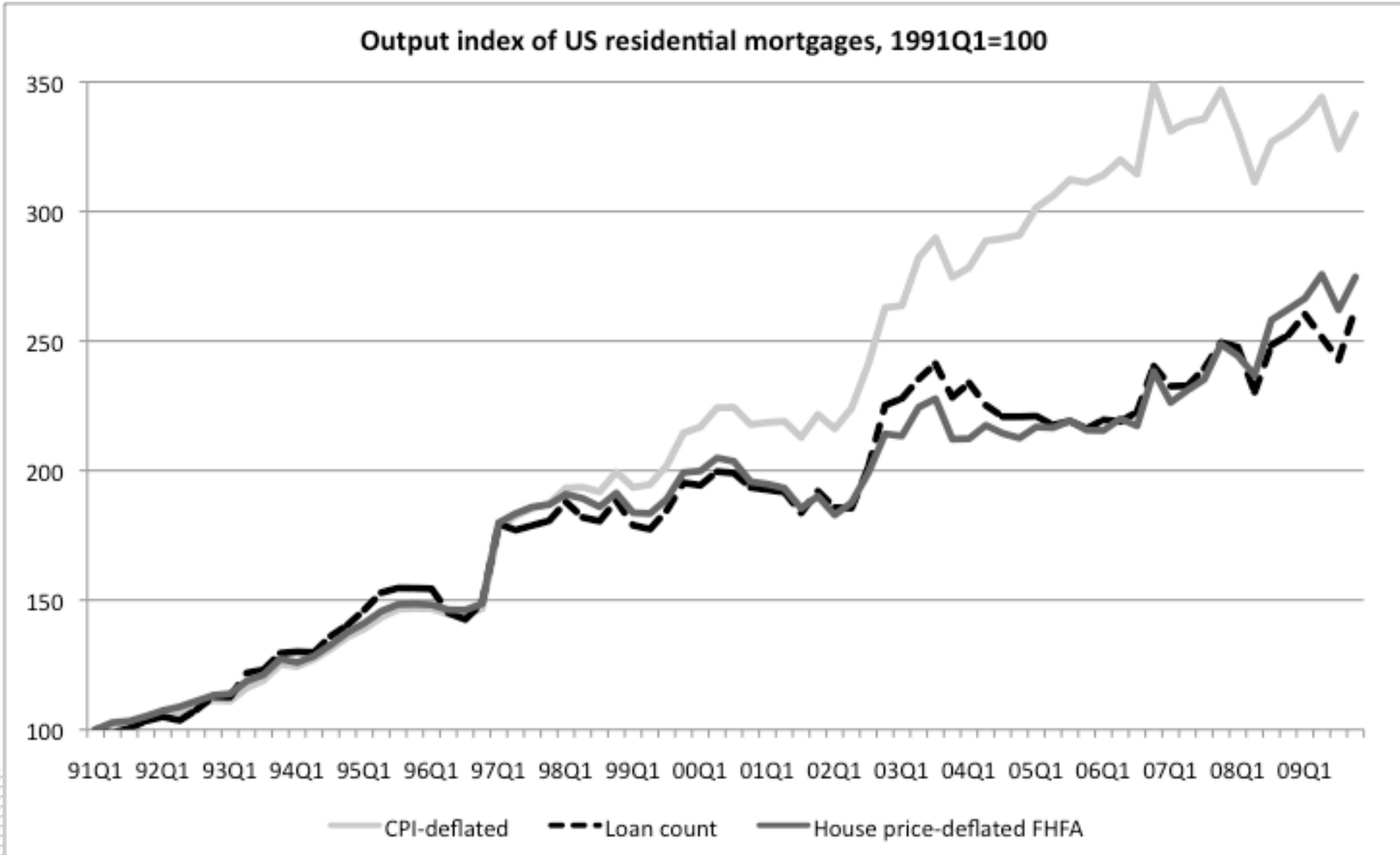
Balance-based series understates real growth



U.S. residential mortgages

- Purpose of loan (and bank services) comparatively straightforward => to buy houses
- Compare three ways to estimate output
  - CPI-deflated mortgage loan balances
  - Loan counts based on average mortgage size
  - House-price deflated mortgage balances
- House-price deflated series will be a good proxy for loan counts if the loan-to-value ratio is stable

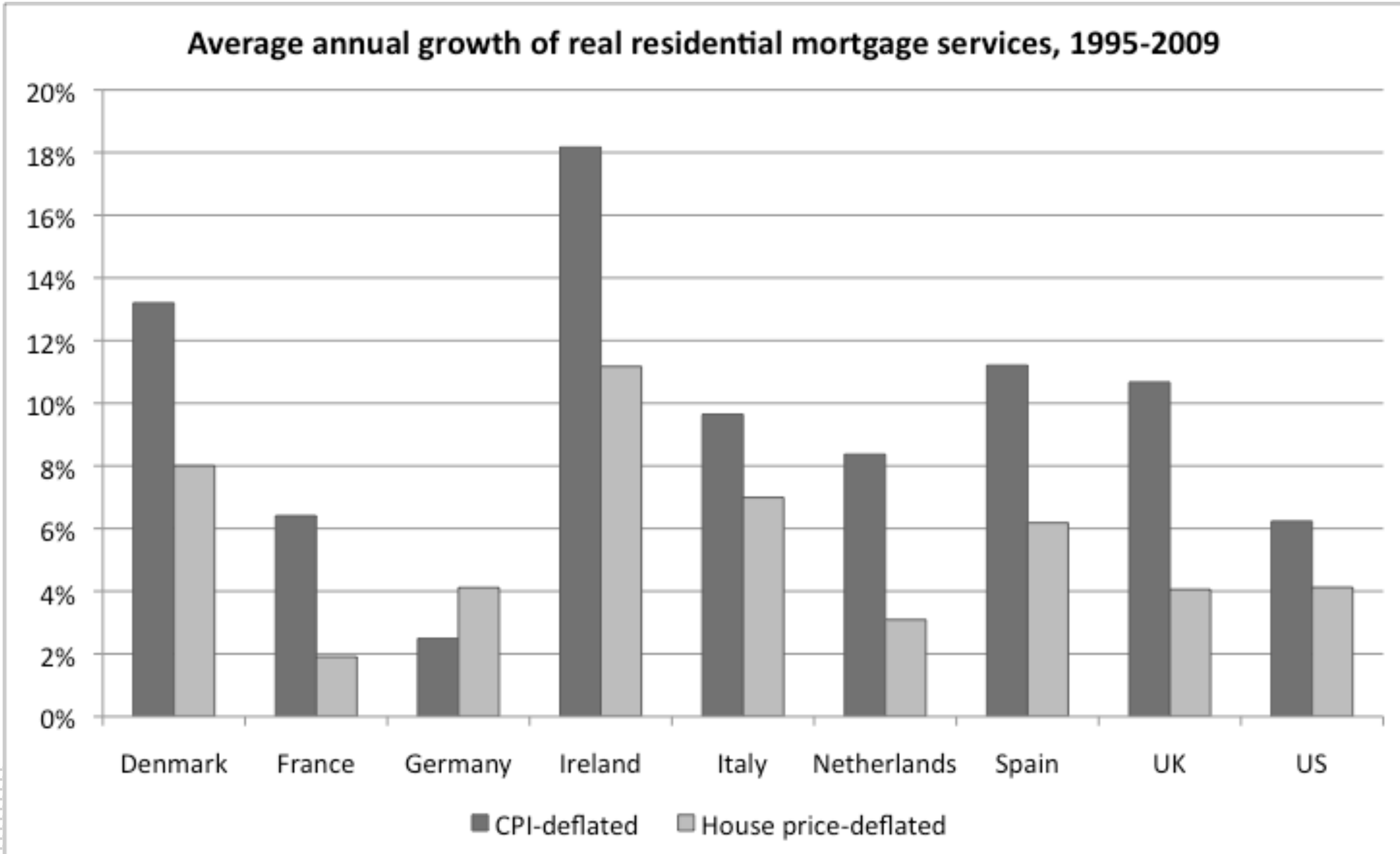
CPI-deflated series overstates mortgage lending services; house-price deflated series does not



International comparison

- Data on house prices and mortgage balances for 8 European countries, 1995-2009
  - Denmark, France, Germany, Ireland, Italy, Netherlands, Spain, UK
- Range of national sources: statistical agencies, central banks, etc.
- Real house prices increased in all countries except Germany
  - Growth overstated in all those countries

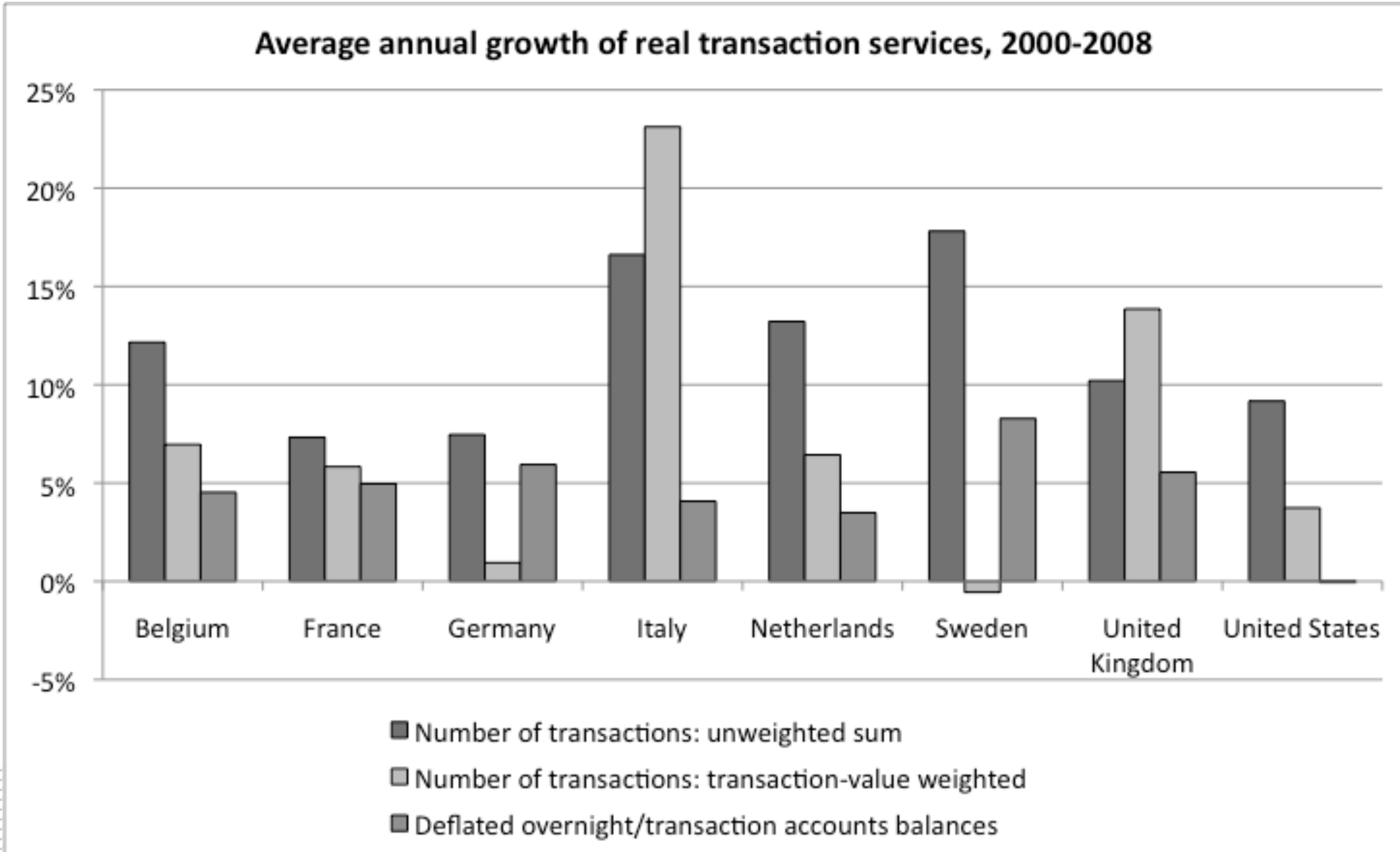
Overstatement of 2-7% (except Germany)



Deposit transactions

- Types of transactions
  - Credit transfers, direct debits, debit & credit card payments, cheques, e-money
- Tabulated in BIS Red Book
  - US and European countries (Belgium, France, Germany, Italy, Netherlands, Sweden, UK)
  - Data for this study: 2000-2008
- Two Counts series: unweighted and transaction-value weighted
  - Due to data limits; ideal weight: implicit revenue

Balance-based series understate growth



Implications

- Balance-based output estimates are biased compared with Count-based series
  - Regardless of aggregation
  - Bias can go either way
- Matters for transatlantic growth comparison
  - European countries mostly rely on Balances, US mostly on Counts
  - But data insufficient for assessment of aggregate bias

Conclusions

- Using Balances as an output indicator for bank output is conceptually problematic
- Should use Counts of loans and deposit transactions
  - Serious data limitations notwithstanding
  - Pay special attention to quality adjustments
- Way forward
  - Expand data collection => especially split by characteristic
  - Promote data consistency across countries to enable more accurate cross-country growth comparison