

An Analysis of Hong Kong Export Performance

By

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- Modeling the behavior of Hong Kong exports

- Motivation

General

- Transmission of economic activity and prices
- Income/price elasticities
- Real exchange rate volatility
- Effects of policies on trade balance

Hong Kong

- An excellent case study
- Small open economy
- Exports and growth
- Unique features; types of exports, price indexes

- Framework

Canonical Specification: $y_t = f(x_t, r_t)$

- y_t : quantity of Hong Kong exports
- x_t : foreign country's real income
- r_t : Hong Kong real exchange rate

- Single equation approach
- No money illusion; “no” inferior good
- Small country/perfect competition assumption
- Existing studies: “large” and developed countries

Augmented Specification: $y_t = f(x_t, r_t, z_t)$

- Volatility
- “Third” country effect
- Wages

- Choices of Variables

Trade Volume

- Domestic exports, re-exports, total exports
- Japan, the US, aggregate
- Quantum indexes

Income

- Industrial production indexes (Japan, the US, “world”)

Price indexes

- Japan and the US: CPI
- HK: CPI misleading?
- HK: export-type-and-destination specific UVIs

Other variables

- Estimation Strategy

Assumption: log linear $y_{i,j,t} = \alpha + \beta_{i,j} x_{j,t} + \gamma_{i,j} r_{i,j,t} + \varepsilon_{i,j,t}$

- i: domestic exports, re-exports, total exports
- j: Japan, the US, aggregate
- in logs

Cointegration and ECM

- $(Y_{i,j,t}, X_{j,t}, R_{i,j,t})$
- $Y_{i,j,t} = \alpha + \sum_{k=1}^n \alpha_{i,j,k} Y_{i,j,t-k} + \sum_{k=1}^m \beta_{i,j,k} X_{j,t-k} + \sum_{k=1}^p \gamma_{i,j,k} R_{i,j,t-k} + \theta E_{i,j,t-1} + \varepsilon_{i,j,t}$
- Endogeneity, simultaneity, long-run and short-run dynamics

- Estimation Results (I)

ADF test

- I(1)

Johansen test

- Cointegrated; exception domestic exports to Japan
- Long-run income elasticities: 2.2 to 2.7 (Japan)
0.1 to 2.6 (The US)
0.7 to 0.8 (Aggregate)
- Long-run price elasticities: 2.7 to 2.8 (Japan)
0.4 to 2.9 (The US)
0.4 to 0.7 (Aggregate)
- Exogeneity
- G7: 0.8 to 1.6 (income), 0.2 to 1.6 (price)
- Goldstein and Khan: 1 to 2 (income), 1.25 to 2.5 (price)
- Heterogeneity: within Hong Kong, across economies

- Estimation Results (II)

ECM

- $Y_{i,j,t} = \alpha + \sum_{k=1}^n \alpha_{i,j,k} Y_{i,j,t-k} + \sum_{k=1}^m \beta_{i,j,k} X_{j,t-k} + \sum_{k=1}^p \gamma_{i,j,k} R_{i,j,t-k} + \theta_{i,j} E_{i,j,t-1} + \varepsilon_{i,j,t}$
- $\alpha_{i,j,k}$: mostly negative, “mean reversing,” mostly 4 lags
- $\beta_{i,j,k}$: positive, lags 1 to 8
- $\gamma_{i,j,k}$: positive and significant in only 2 cases
- θ : significant with the expected sign, -0.09 to -0.31
- Adjusted R-squares: 38% to 56%; highest: aggregate exports

- Additional Analyses (I)

Volatility

- $$Y_{i,j,t} = \alpha + \sum_{k=1}^n \alpha_{i,j,k} Y_{i,j,t-k} + \sum_{k=1}^m \beta_{i,j,k} X_{j,t-k} + \sum_{k=1}^p \gamma_{i,j,k} R_{i,j,t-k} + \theta_{i,j} E_{i,j,t-1} + \sum_{k=0}^q \delta_{i,j,k} V_{i,j,t-k} + \varepsilon_{i,j,t}$$

- $V_{i,j,t}$: real FX volatility, GARCH specification
- Deter or promote trade?
- Mixed theoretical and empirical results
- $\delta_{i,j,k}$: positive for exports to Japan and the US (lags 4 to 8)
negative for aggregate exports (lag 1)
- Take RFX out of the DXJP equation
- Limited impact on other coefficients
- Adjusted R-squares: little to no improvement (Japan, aggregate)
some improvement (the US)

- Additional Analyses (II)

“Third” country effect

$$- Y_{i,j,t} = \alpha + \sum_{k=1}^n \alpha_{i,j,k} Y_{i,j,t-k} + \sum_{k=1}^m \beta_{i,j,k} X_{j,t-k} + \sum_{k=1}^p \gamma_{i,j,k} R_{i,j,t-k} + \theta_{ij} E_{i,j,t-1} + \sum_{k=0}^q \delta_{i,j,k} V_{i,j,t-k} + \sum_{k=1}^s \gamma_{i,j,k}^* R_{i,j,t-k}^* + \varepsilon_{i,j,t}$$

– Compete for the same export market

– $\gamma_{i,j,k}^*$: positive (Japan and the US), expected

negative (aggregate), puzzling

– Take out RFX out of the RXUS equation

– Take out Vol. Out of the DXJP equation

– Limited impact on other coefficients

– Adjusted R-squares: little to no improvement (Japan, the US)

some improvement (aggregate)

- Additional Analyses (III)

- Wages

- $$Y_{i,j,t} = \alpha + \sum_{k=1}^n \alpha_{i,j,k} Y_{i,j,t-k} + \sum_{k=1}^m \beta_{i,j,k} X_{j,t-k} + \sum_{k=1}^p \gamma_{i,j,k} R_{i,j,t-k} + \theta_{ij} E_{i,j,t-1} + \sum_{k=0}^q \delta_{i,j,k} V_{i,j,t-k} + \sum_{k=1}^s \gamma_{i,j,k}^* R_{i,j,t-k}^* + \sum_{k=1}^r \lambda_k W_{t-k} + \varepsilon_{i,j,t}$$

- Costs

- λ_k : negative (Japan, the US)

- negative – short lags; positive – long lags (aggregate)

- Limited impact on other coefficients

- Adjusted R-squares: little to no improvement (Japan,)

- some improvement (the US, aggregate)

- Relative Contributions

A heuristic approach

- $Y_{i,j,t-k}$
- $X_{j,t-k}, R_{i,j,t-k}$
- $Y_{i,j,t-k}, E_{i,j,t-1}$
- $V_{i,j,t-k}, R_{i,j,t-k}^*, W_{t-k}$
- the significant role of $Y_{i,j,t-k}$'s

- Concluding Remarks
 - Dynamics of Hong Kong exports
 - Types of exports (goods)
 - Destinations
 - Choices of deflators
 - Major factors: Interpretations?

- Additional Issues
 - Disaggregated exports
 - Data quality; price/volume
 - Stability
 - Institutional setting
 - Macro models
 - Forecasting
 - Imports

Figure 1. Hong Kong Real Effective Exchange Rates

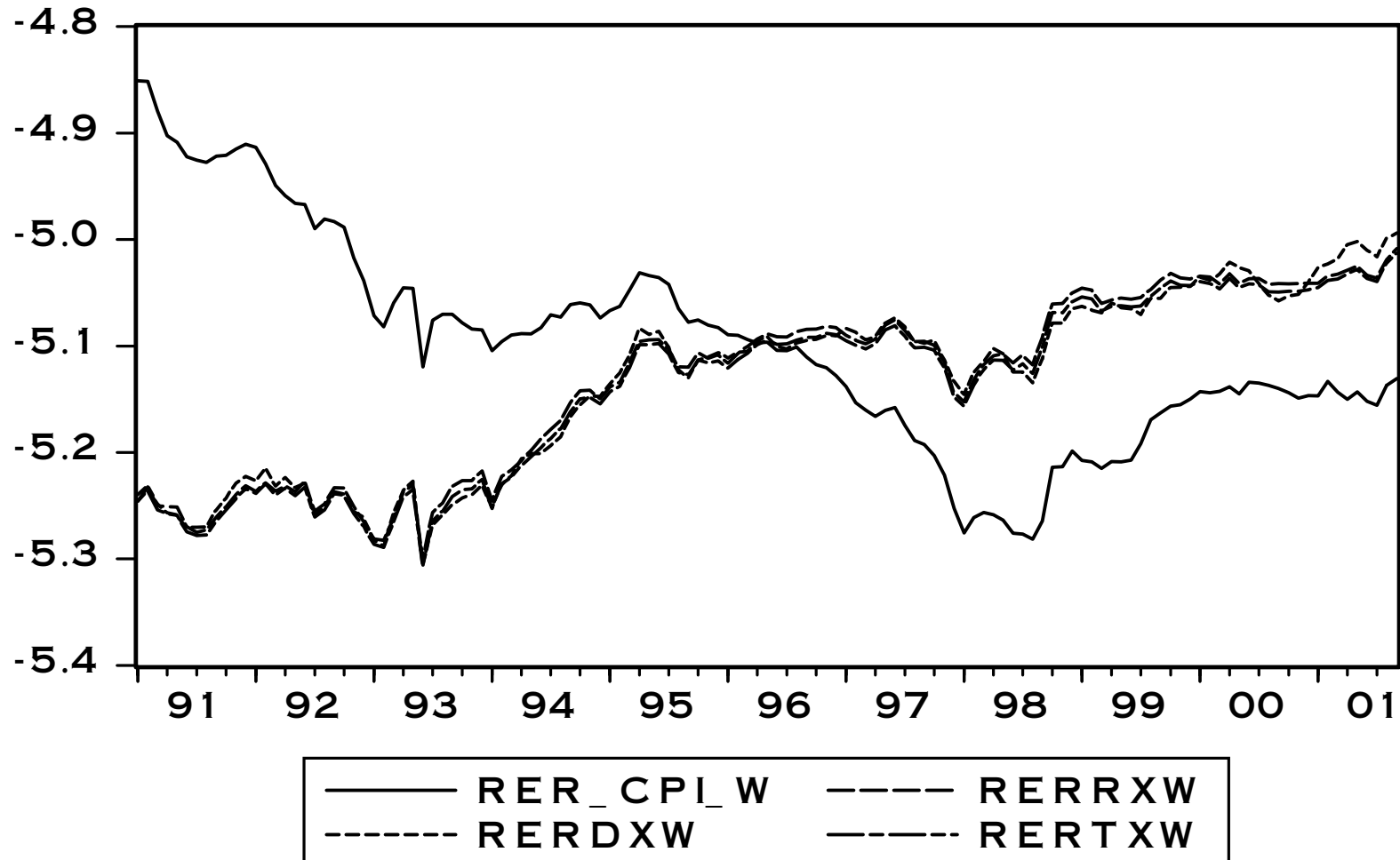


Figure 2. Hong Kong Aggregate Exports, Quantum Indexes

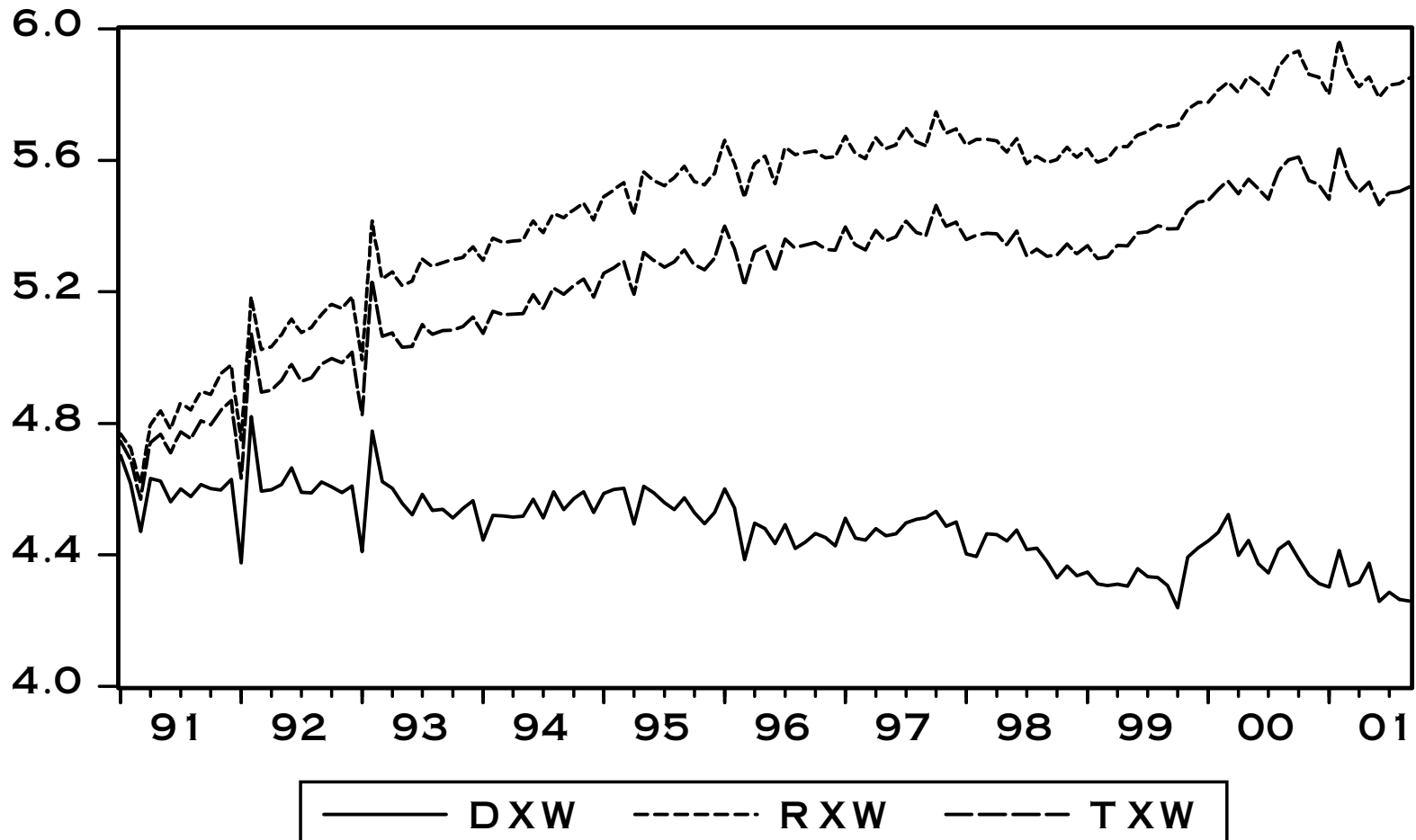


Figure 3. Hong Kong Real Exchange Rates (Against Japan)

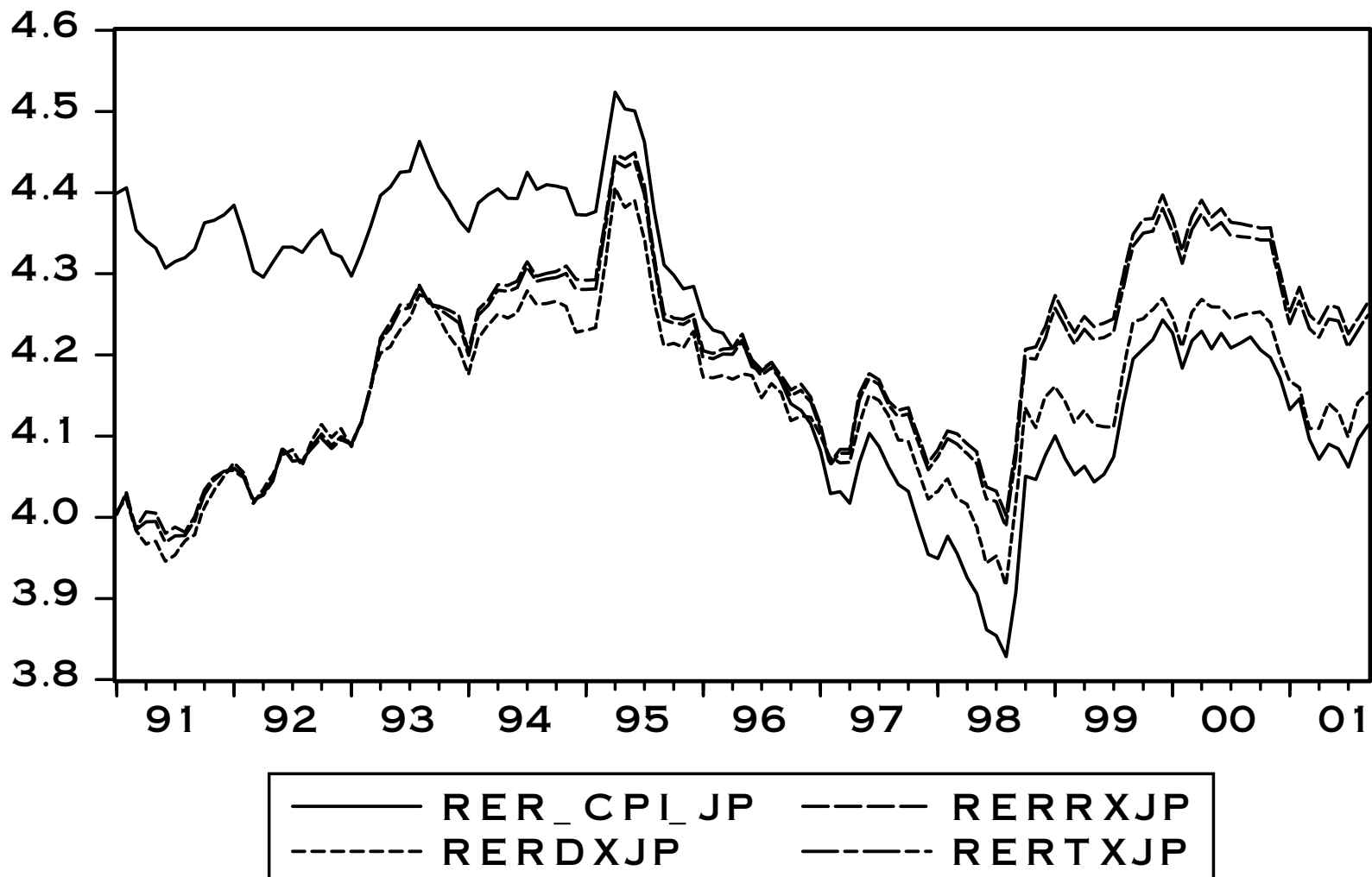


Figure 4. Hong Kong Exports to Japan, Quantum Indexes

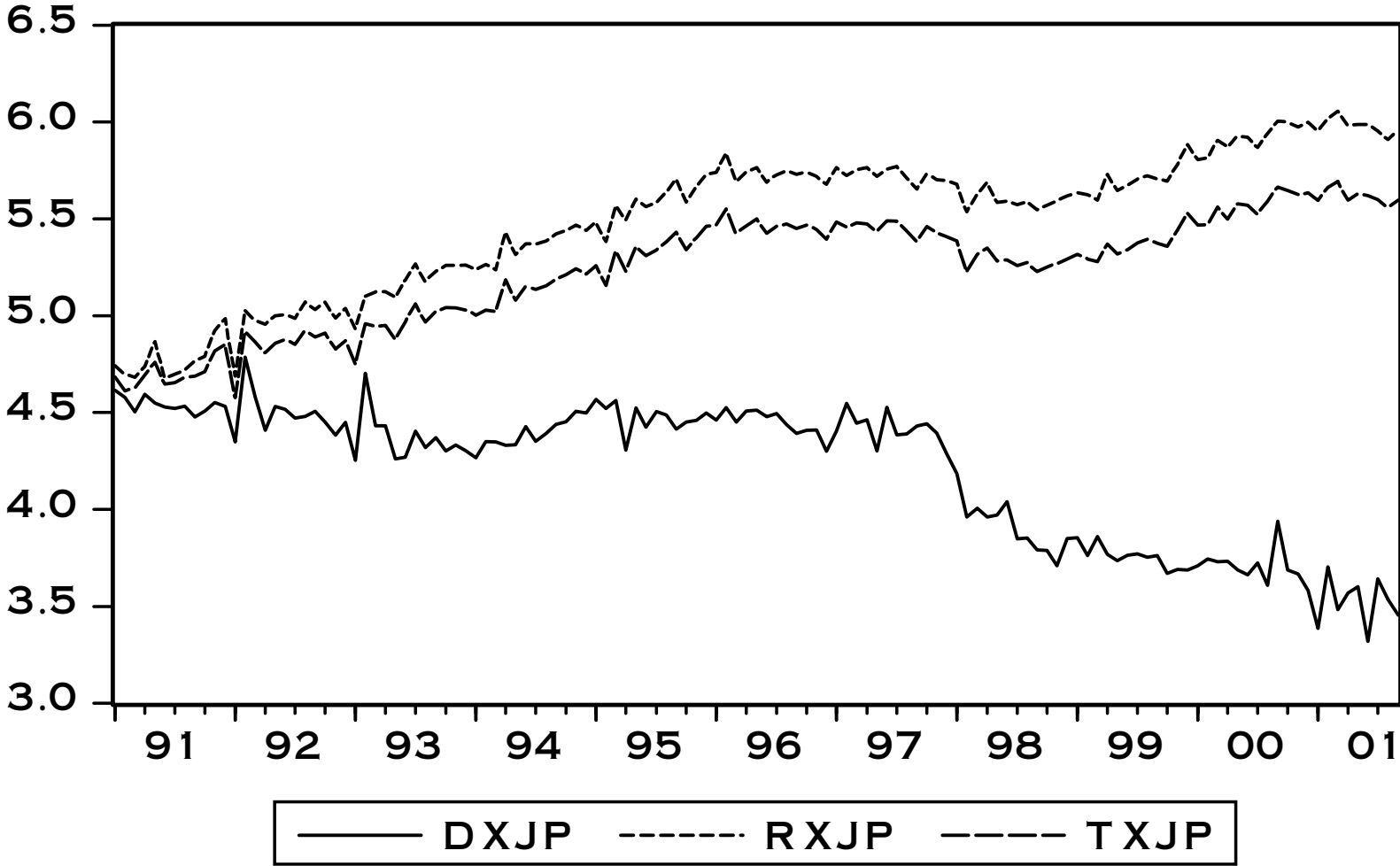


Figure 5. Hong Kong Real Exchange Rates (Against U.S.)

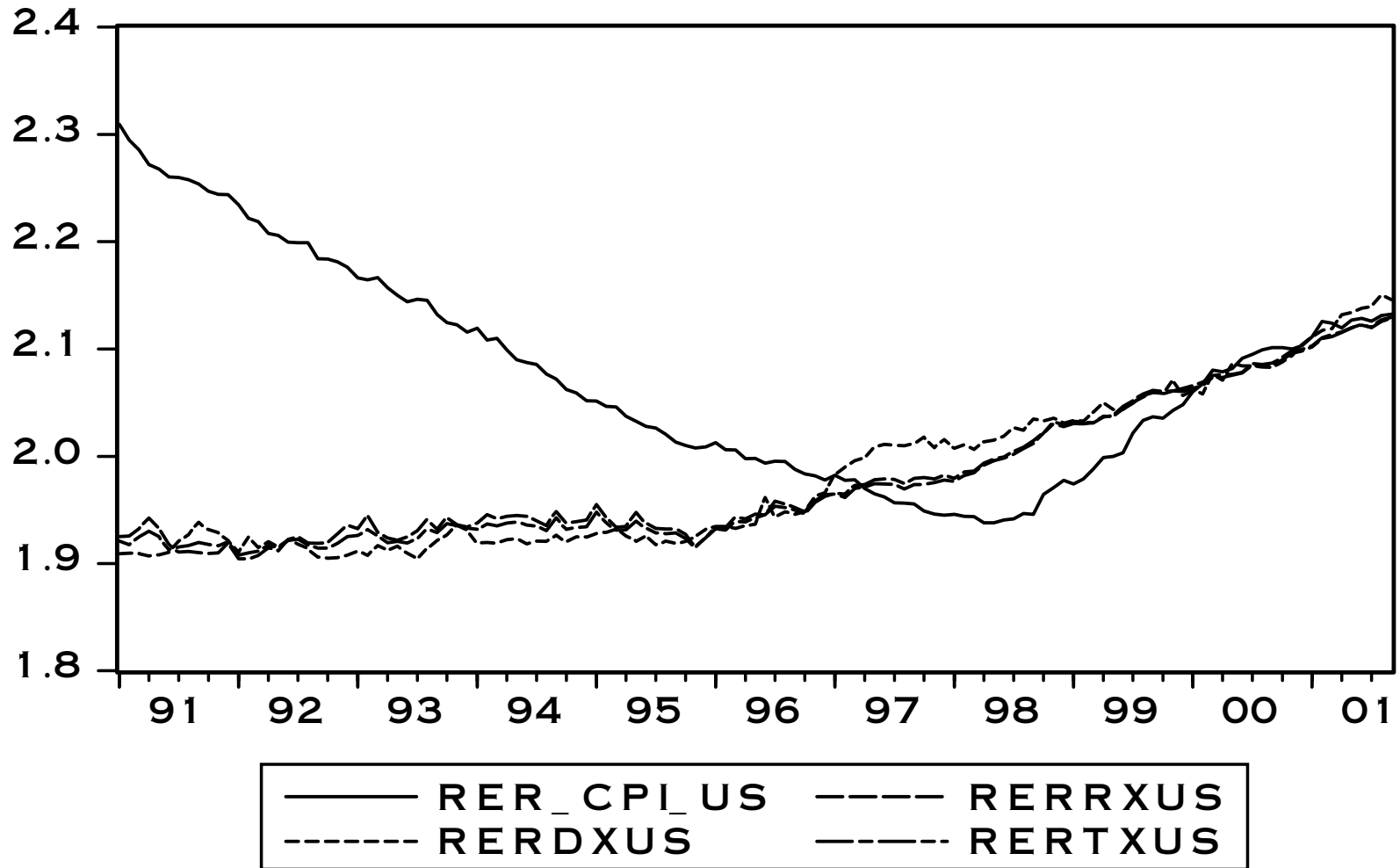


Figure 6. Hong Kong Exports to U.S., Quantum Indexes

