

# International Interconnection issues

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*The views expressed in this presentation are those of the author and do not necessarily reflect the opinions of the ITU or its membership. The author can be contacted at [tim.kelly@itu.int](mailto:tim.kelly@itu.int).*



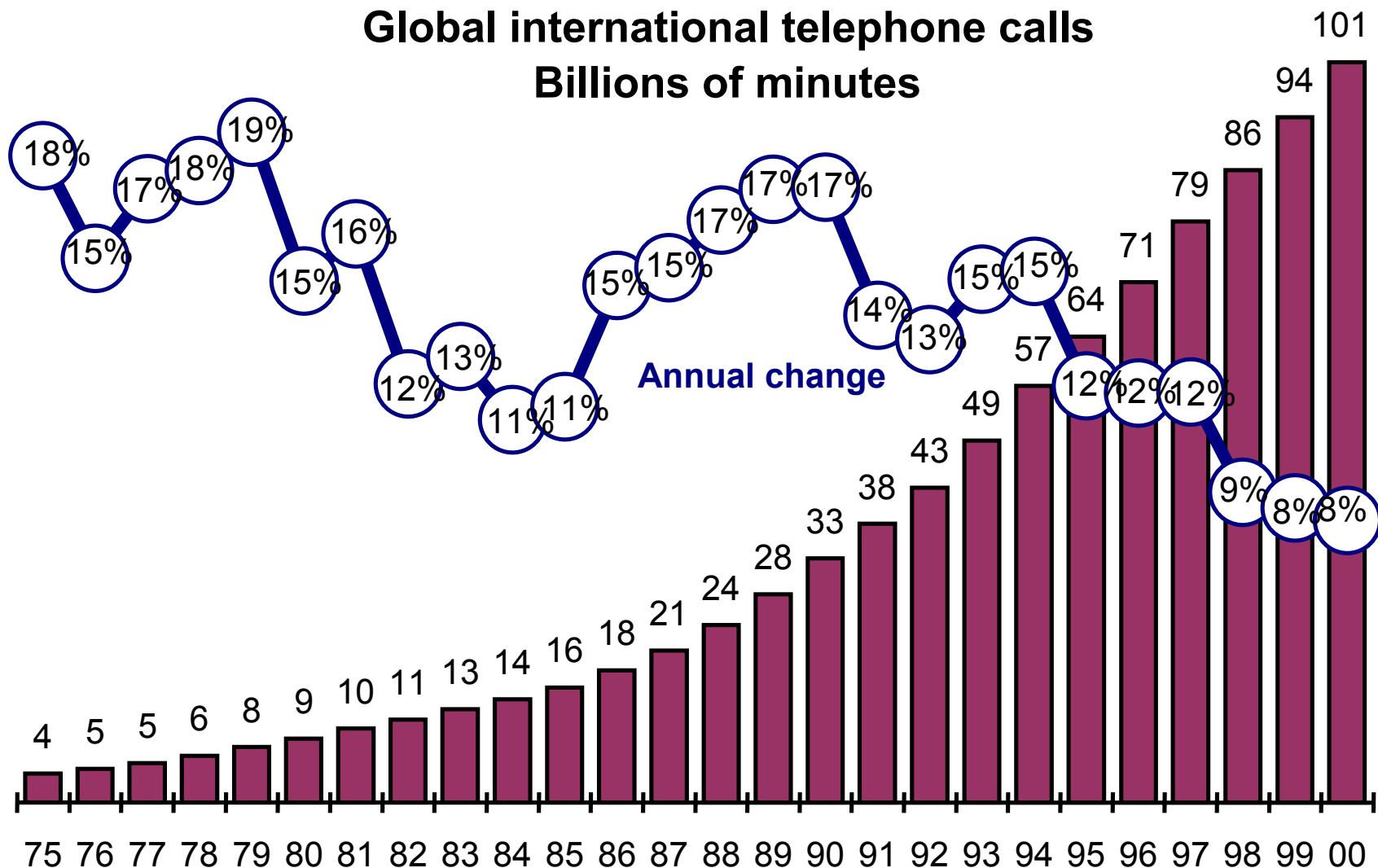
# *International Interconnection*

- **Trends in international telecom traffic and prices**
  - ⇒ **Worldwide**
  - ⇒ **In China and Hongkong SAR**
- **From the old world ...**
  - ⇒ **The bilateral accounting rate system**
  - ⇒ **Accounting rate reform**
- **... to the new world**
  - ⇒ **Cost-oriented, facilities-based interconnection**
  - ⇒ **IP Telephony**
- **Issues for regulators**

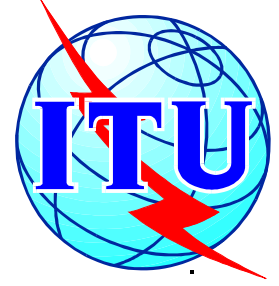


# The International Telecom Traffic Roller-coaster

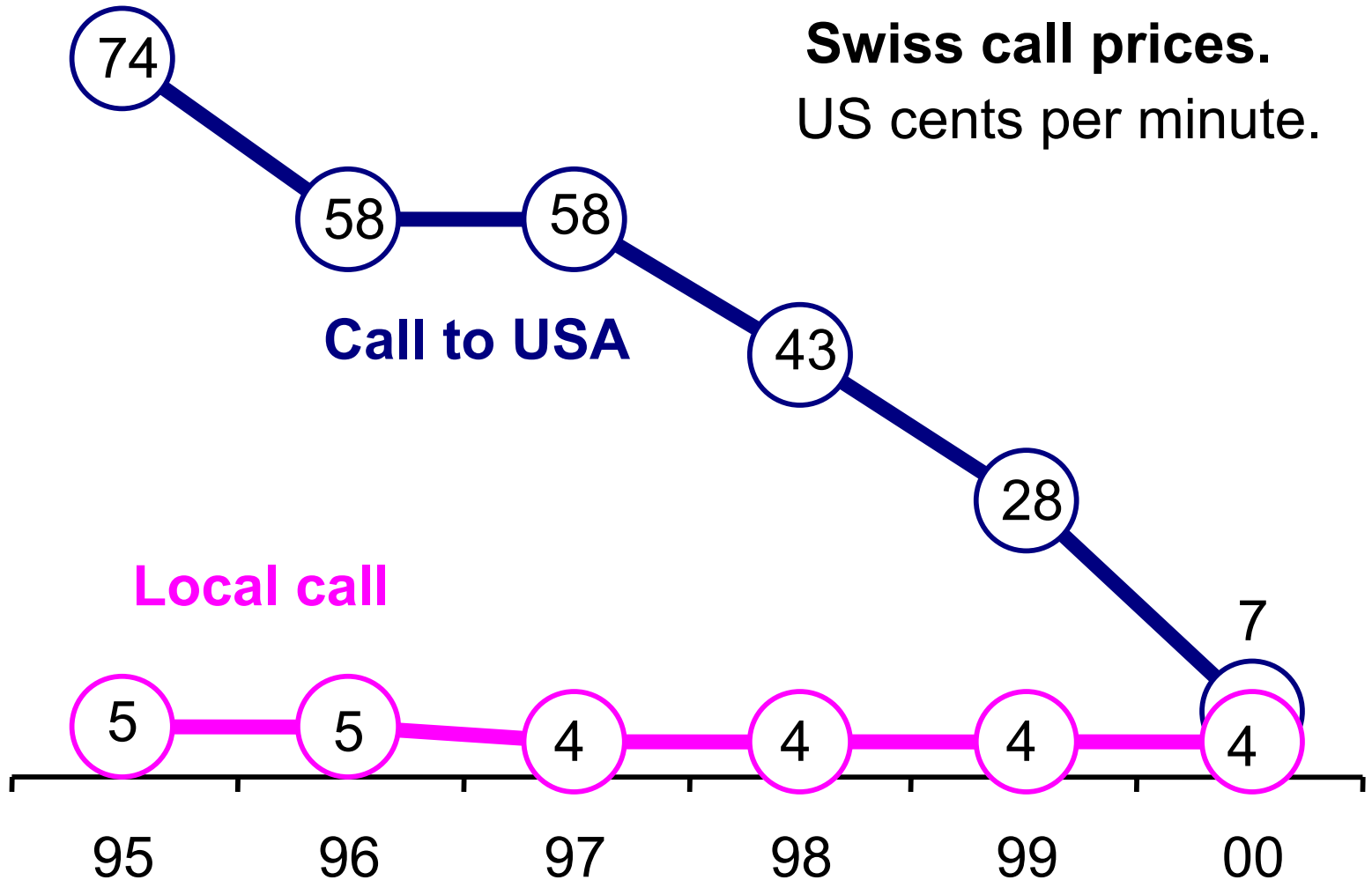
Global international telephone calls  
Billions of minutes



Source: ITU "Trends in Telecom Reform, 2000/01"



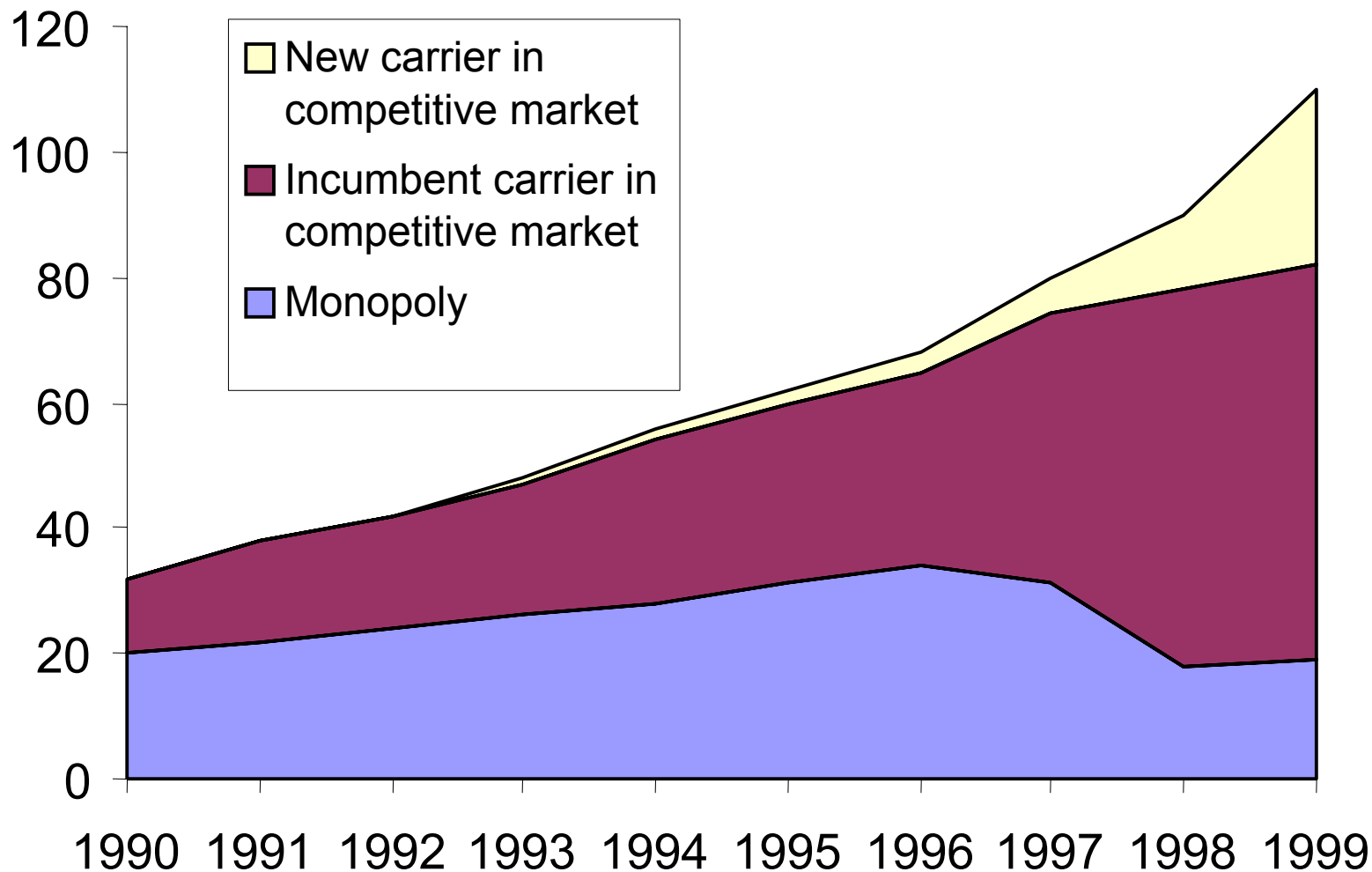
# *The international call price squeeze*





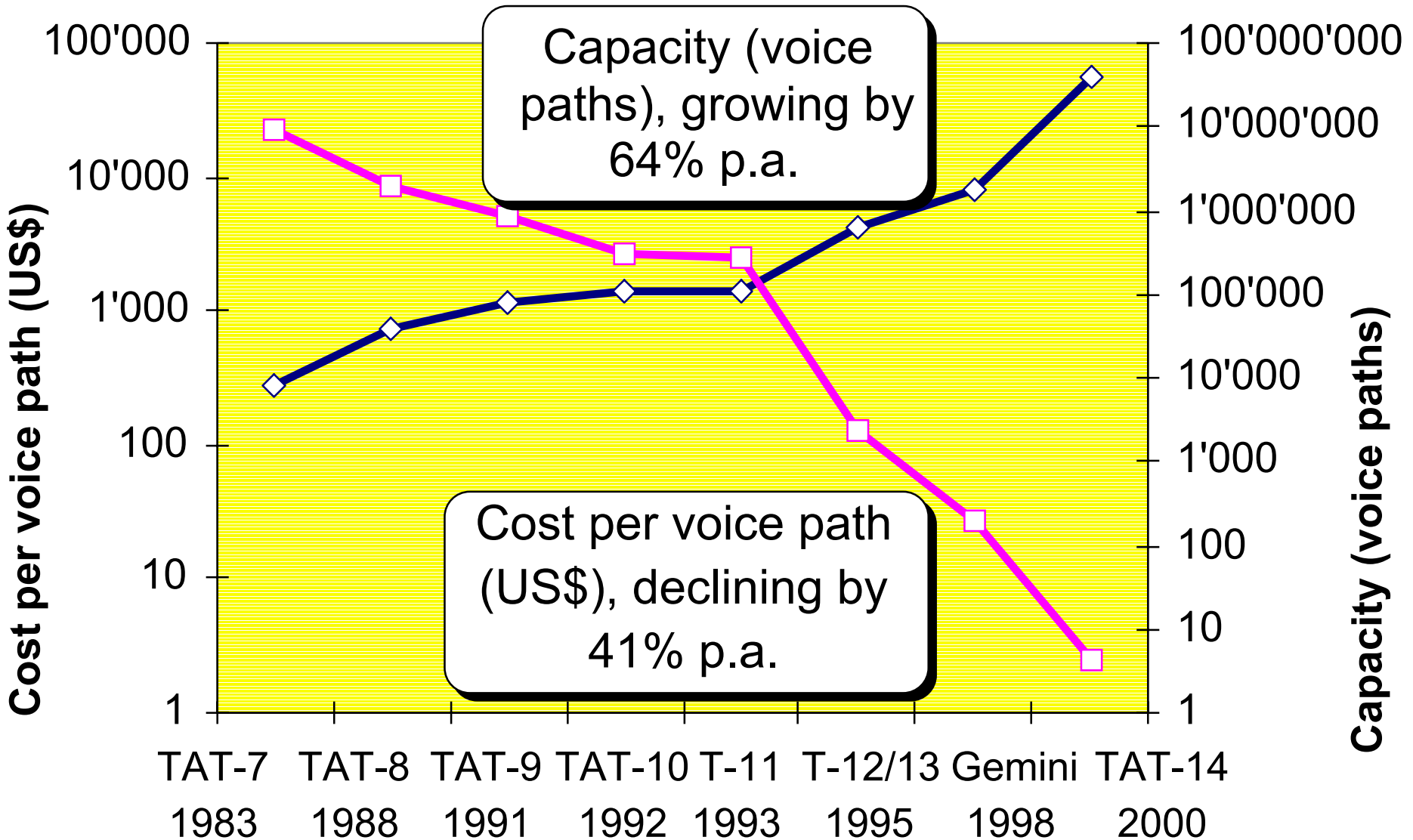
# ***Increasingly competitive markets***

## ***International traffic by carrier type, in billions of minutes***



# Declining costs of bandwidth

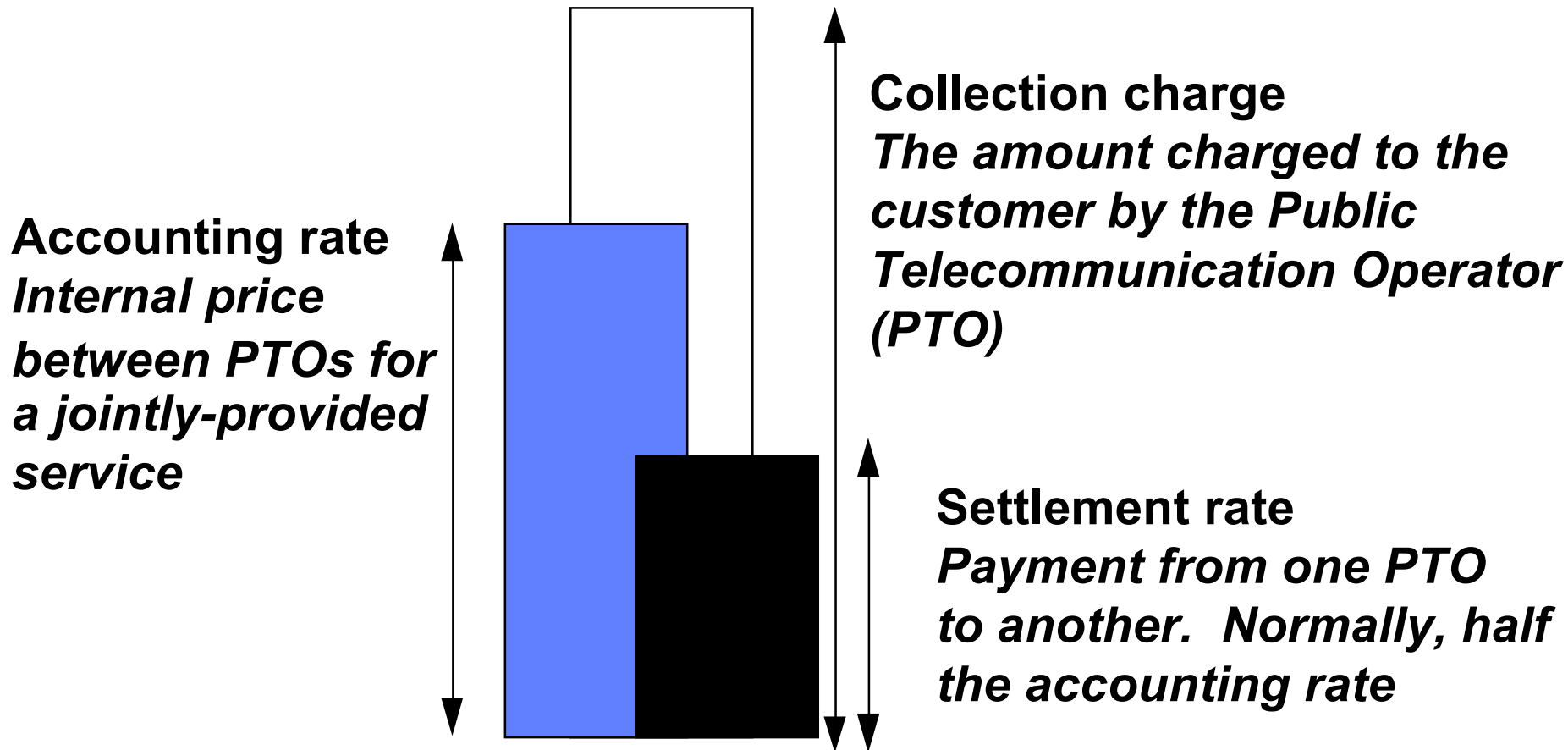
## TransAtlantic cables, 1983-2000



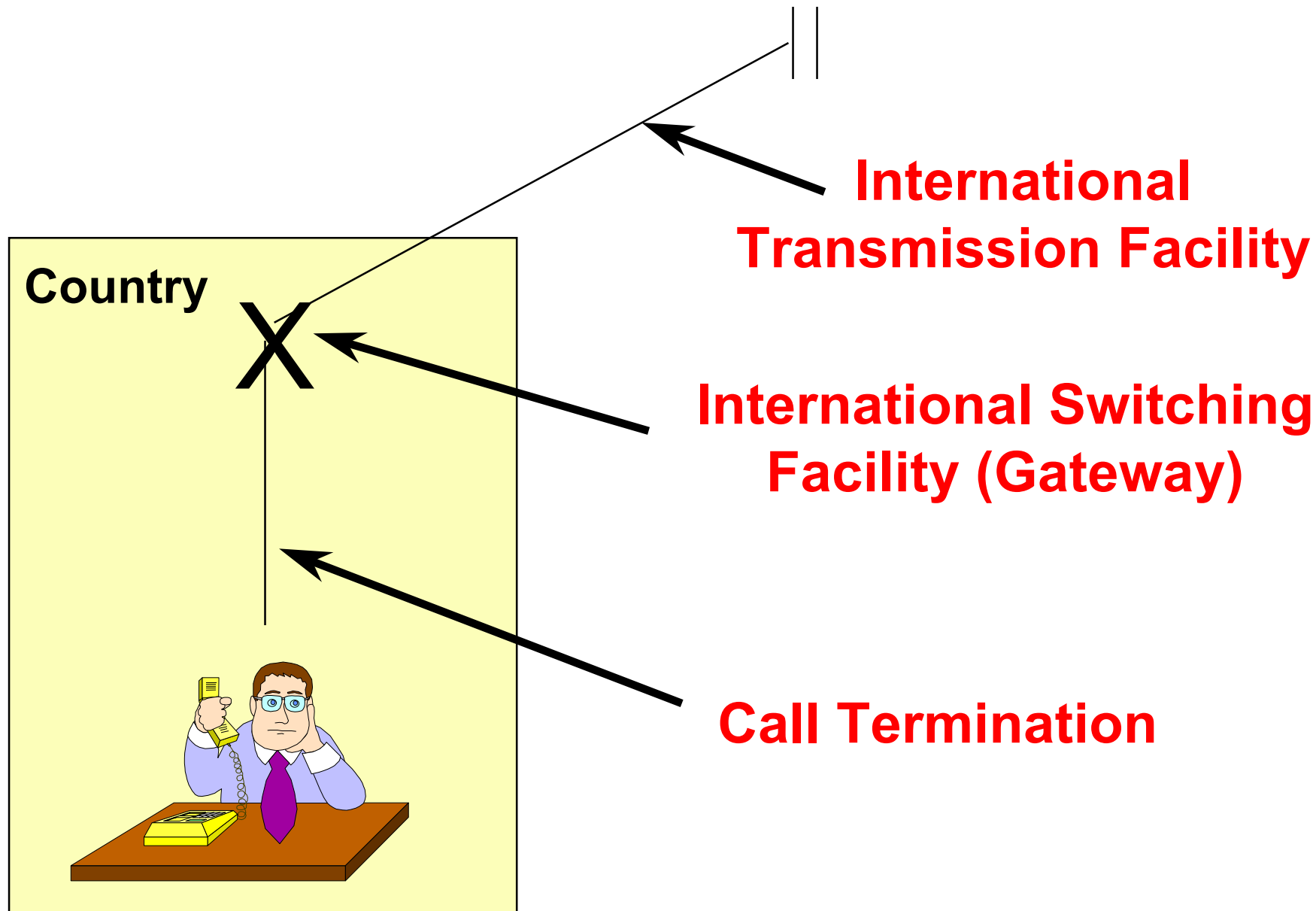
Source: ITU, TeleGeography Inc., FCC.

Note: Voice-path numbers assume a compression ratio of 5:1 to number of circuits.

# ***What are accounting and settlement rates?***

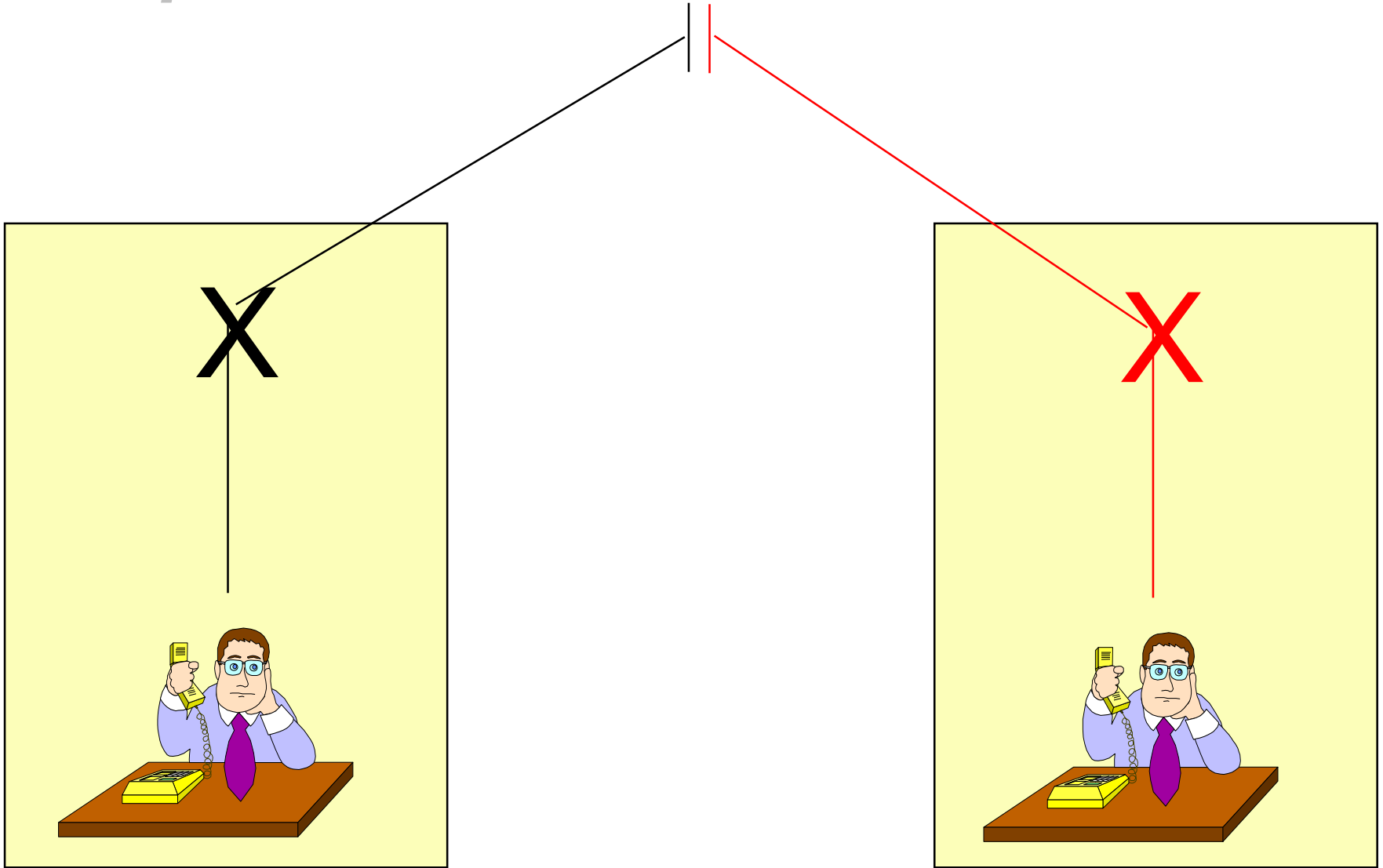


# ***What the accounting rate covers***

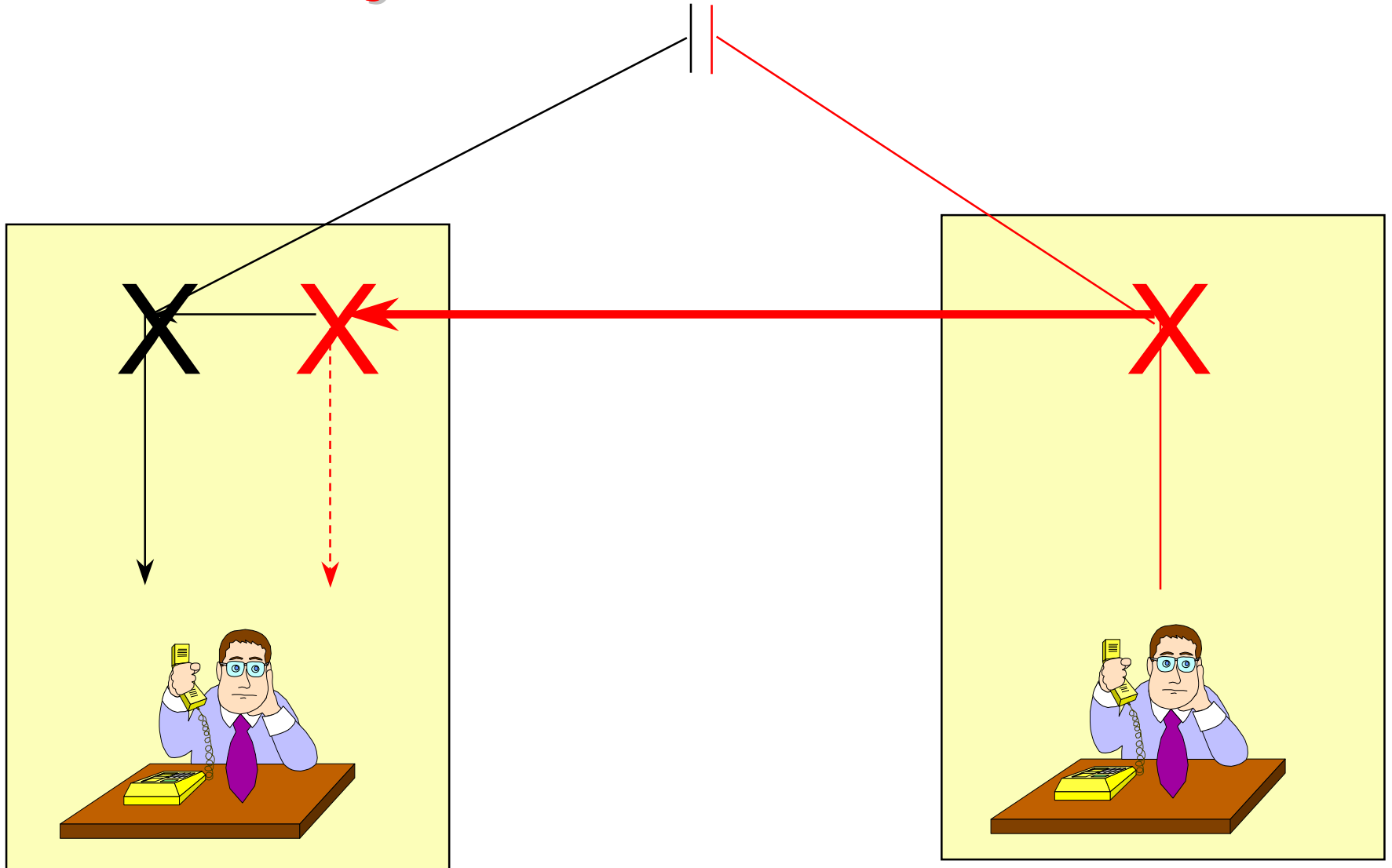




# ***Traditional regime: Joint provision of service***



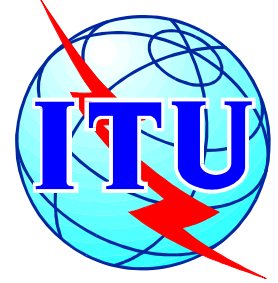
# ***Emerging regime: Market entry and interconnection***



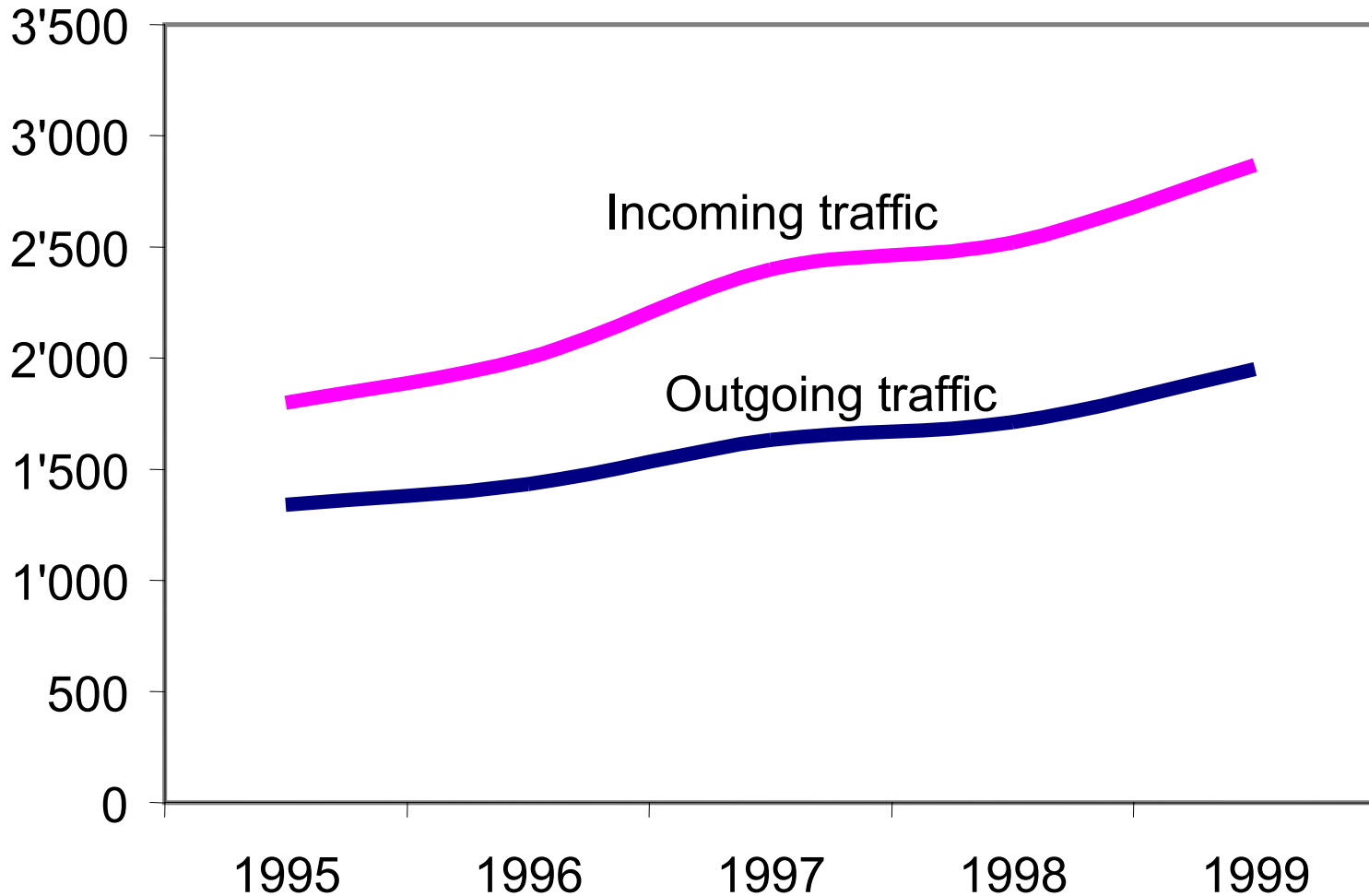


# *Accounting rate reform*

- **Accounting rates are traditional way of sharing revenues from int'l services**
  - ⇒ **BUT, creates incentives among recipient countries to sustain rates at high level**
  - ⇒ **Accounting rate system not well-adapted to competitive market environment**
  - ⇒ **Large imbalances in traffic and settlement payments**
- **Strong pressure to move towards a cost-oriented system**
  - ⇒ **BUT, many developing countries are heavily dependent on net settlement payments**
  - ⇒ **Transition may be quicker for some than others**
  - ⇒ **Cost-oriented system may well be asymmetric**



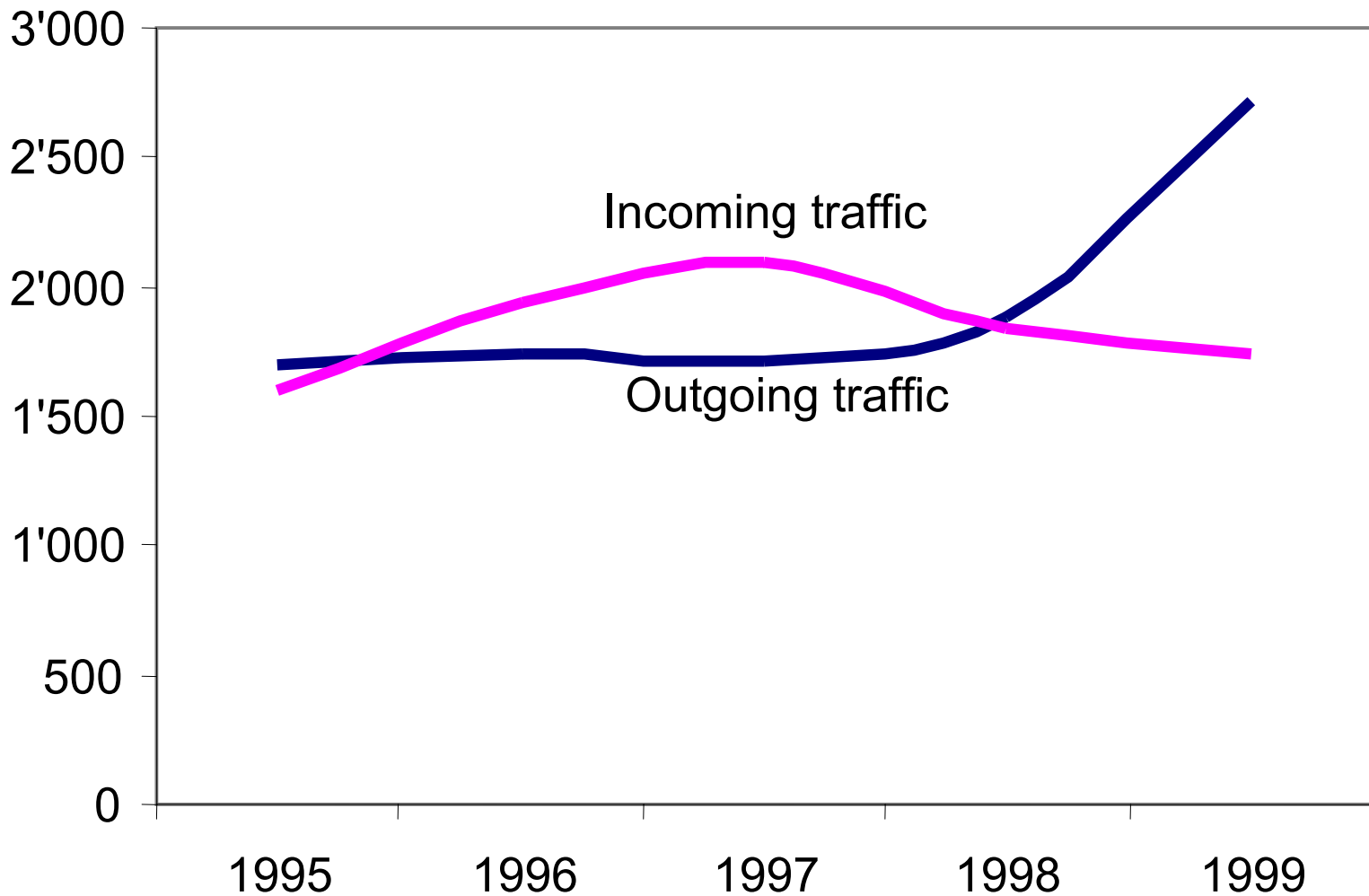
# *China's international traffic (in millions of minutes)*



Note: Excluding Hongkong SAR. Source: ITU/TeleGeography Inc. "Direction of Traffic" Database.



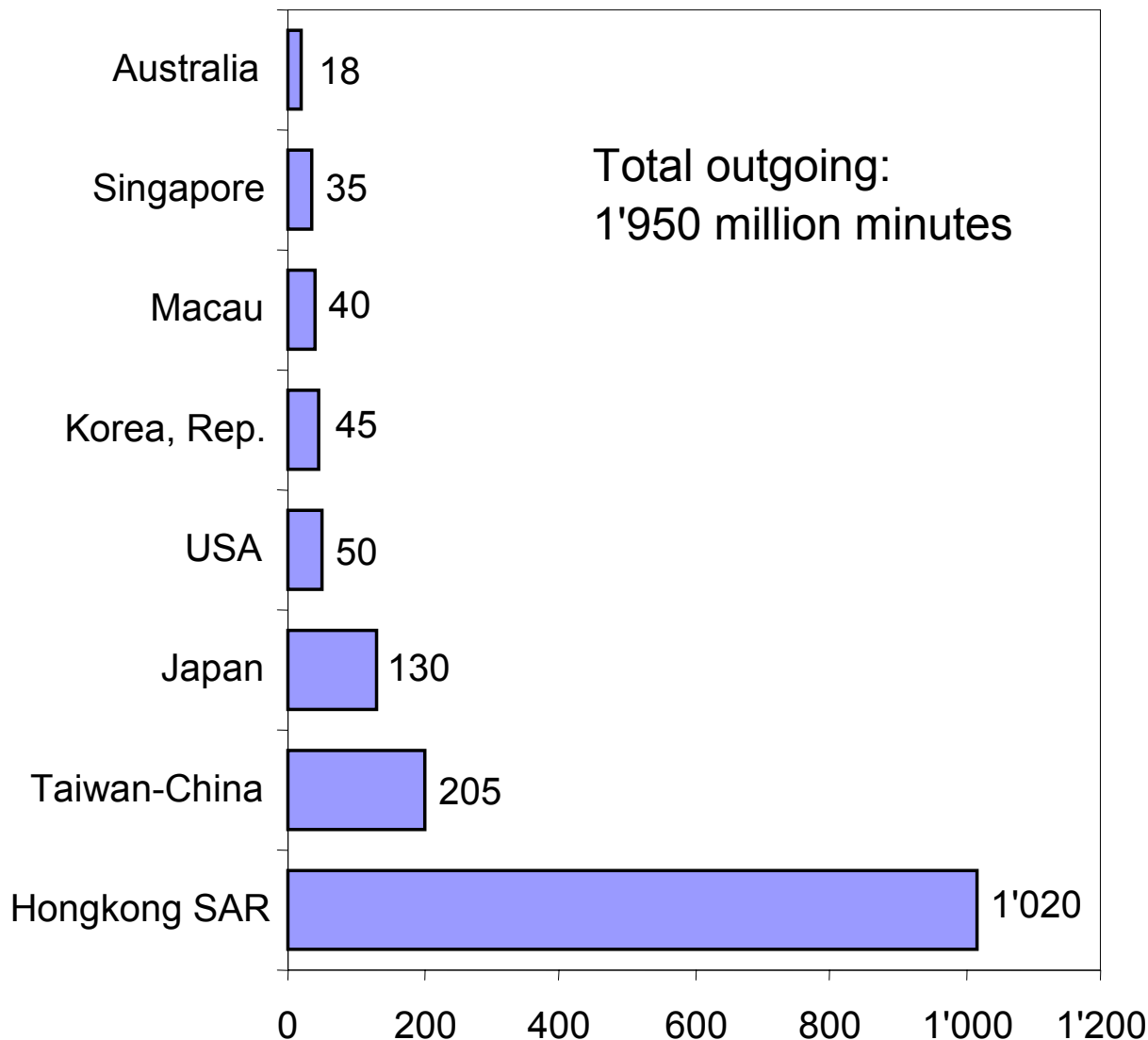
# *Hongkong SAR's international traffic (in millions of minutes)*



Note: Excluding rest of China. Source: ITU/TeleGeography Inc. "Direction of Traffic" Database.

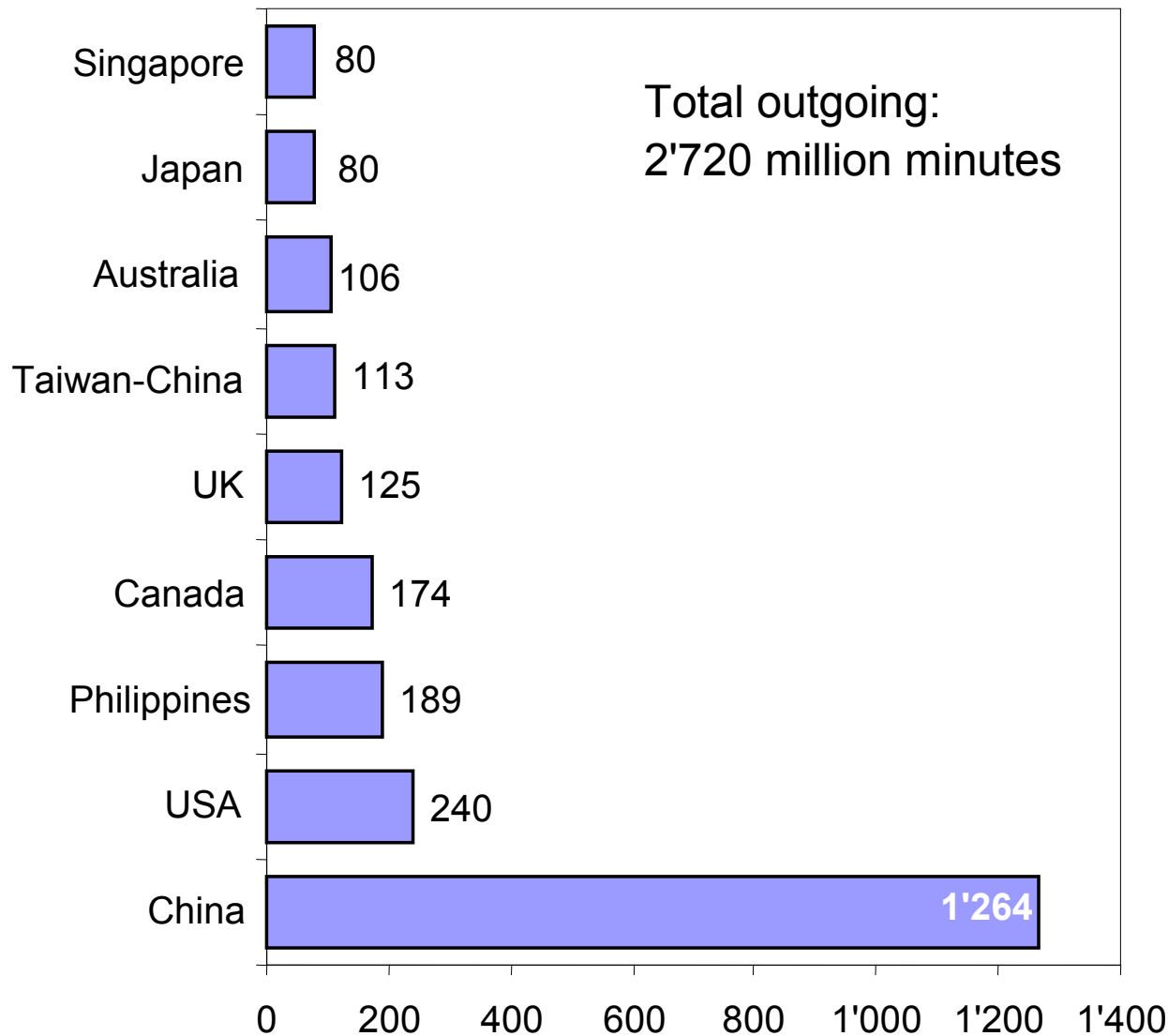


# ***China's main traffic partners: Outgoing traffic, 1999, mill. mins***





# *Hongkong's main traffic partners: Outgoing traffic, 1999, mill. mins*





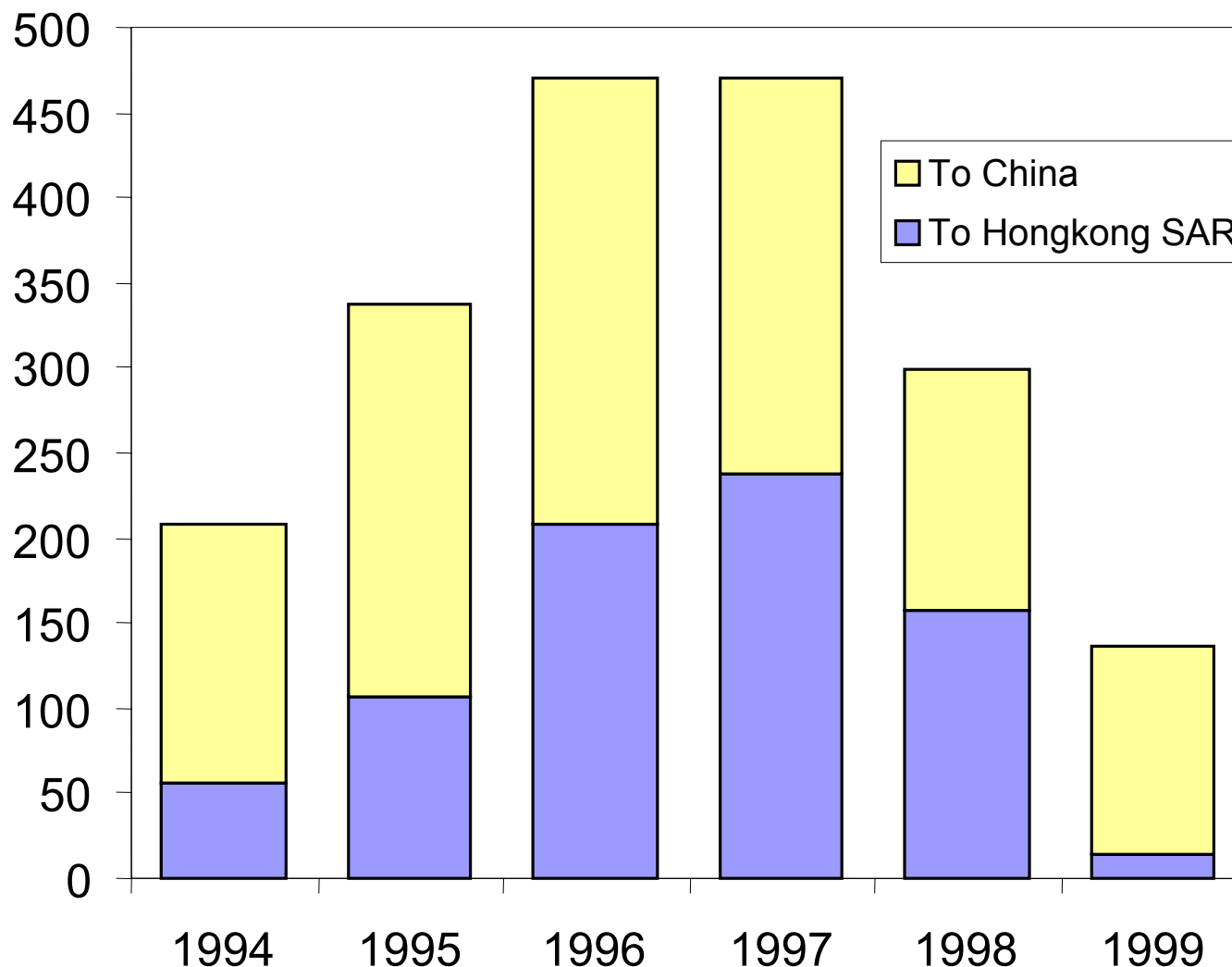
# *The accounting rate regime unravels*

- **The bilateral accounting rate regime**
  - ⇒ **More than 100 years old**
  - ⇒ **Rates negotiated and accounts settled bilaterally**
  - ⇒ **Worked well in time of monopolies, state control and balanced traffic flows**
- **As market liberalisation increases ...**
  - ⇒ **Price imbalances and traffic imbalances grow**
  - ⇒ **Net settlements increase, creating incentives for operators receiving more traffic than they send to keep prices high**
- **... pressure for a multilateral agreement grows**
  - ⇒ **WTO basic telecommunications agreement creates possibility for direct interconnection, but agreement avoids discussing accounting rates**



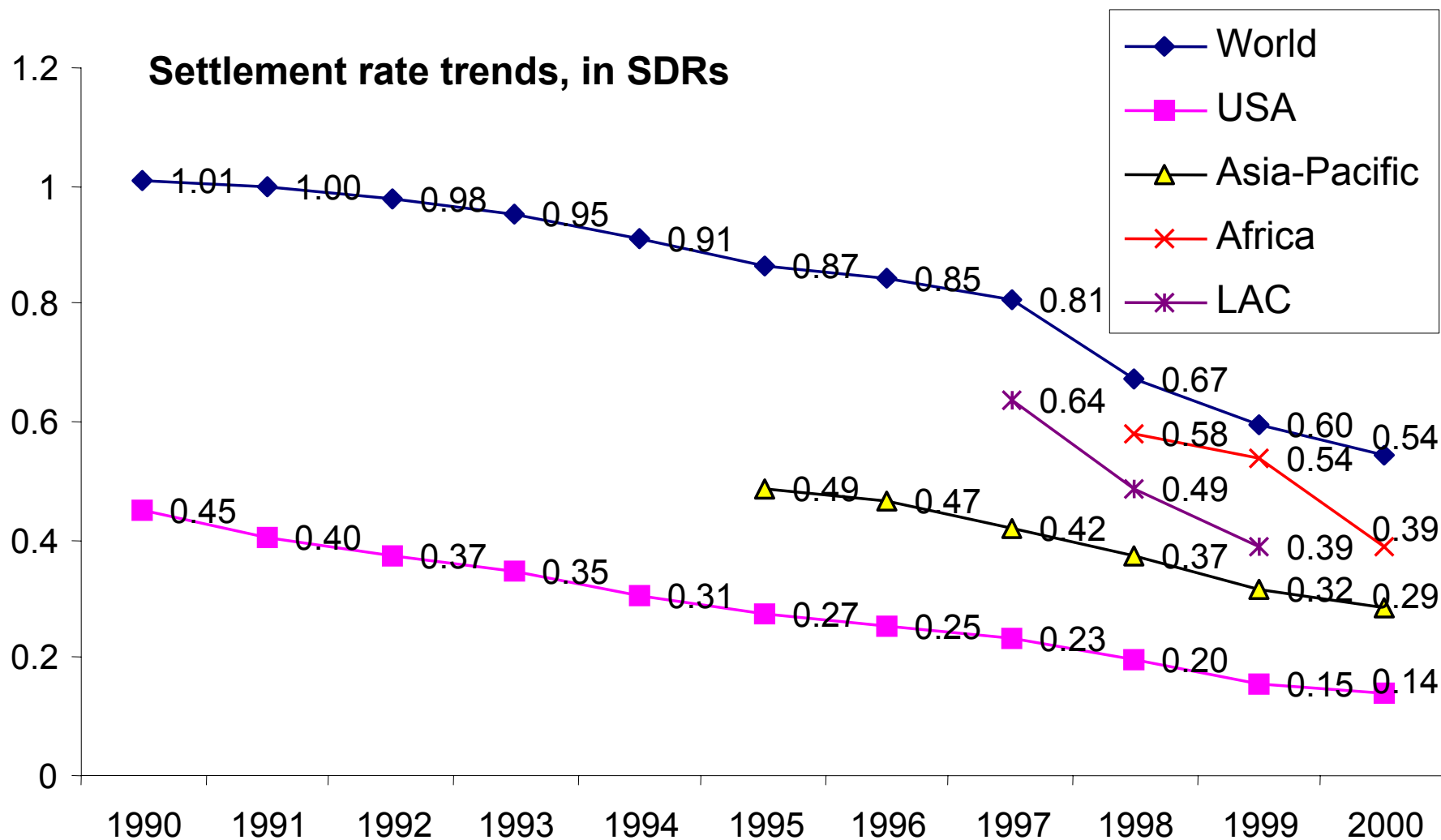


# Net settlement payments from the USA (in US\$ million)

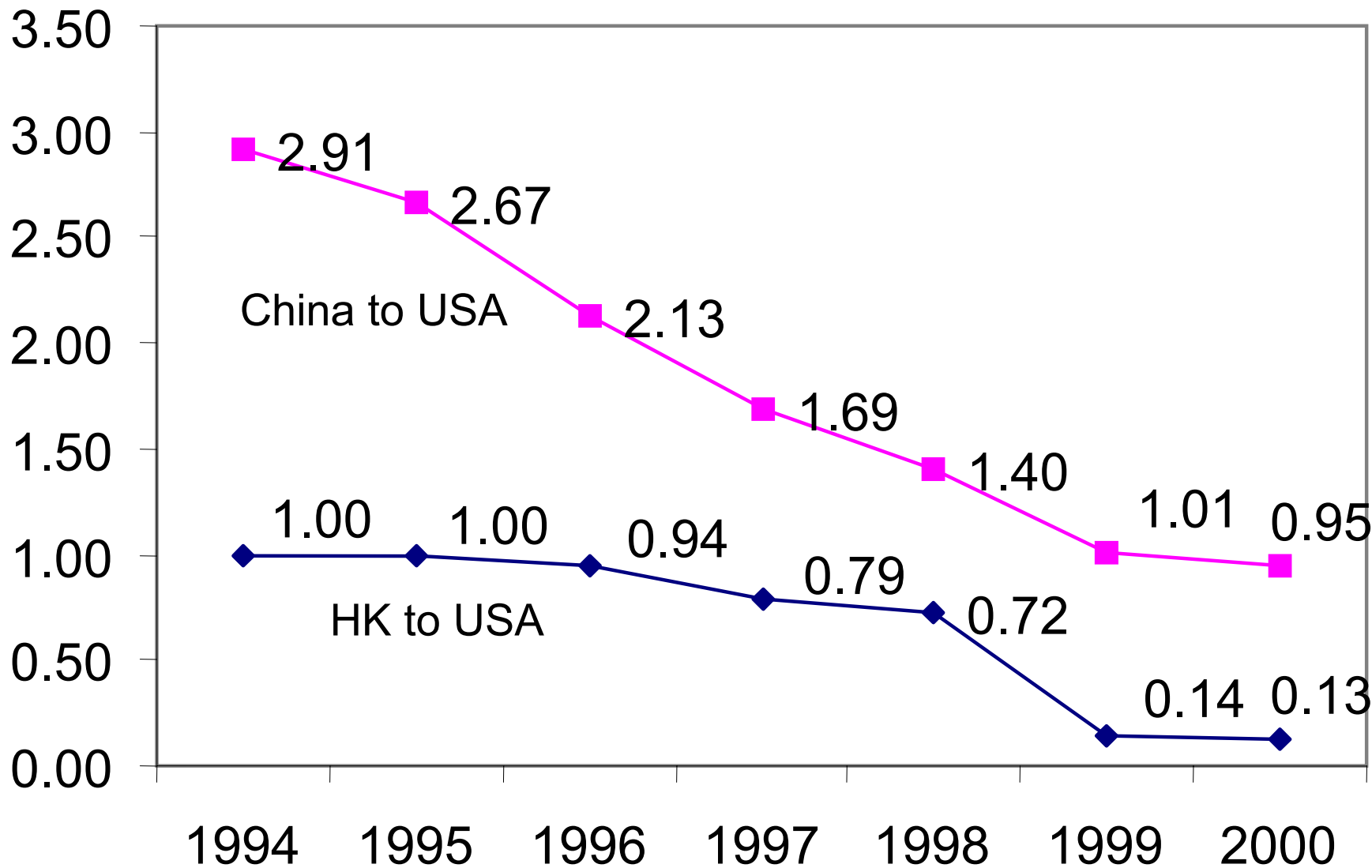




# Accounting rates are falling; *but not fast enough to avoid by-pass?*



# Accounting rates, in US\$





# ***Three-track approach to accounting rate reform***

- **Within WTO, basic telecoms agreement**
  - ⇒ **4<sup>th</sup> Protocol to GATS, implemented on 5 Feb 1998, ushers in new multilateral trade regime**
  - ⇒ **Agreement for a moratorium on disputes related to accounting rates until 2000**
- **Within ITU, work on “indicative target rates” for transition towards cost-orientation**
  - ⇒ **A range of rates, of between 6 – 44 US cents per minute established, for countries with differing teledensity, with a target date of end 2001**
  - ⇒ **Strong opposition from the United States**
- **The United States FCC imposes unilateral benchmarks**
  - ⇒ **Ranging between 15-23 US cents per minute for countries in different income groups, with target dates between end 1998 and end 2002**

## ***Two alternative scenarios:***

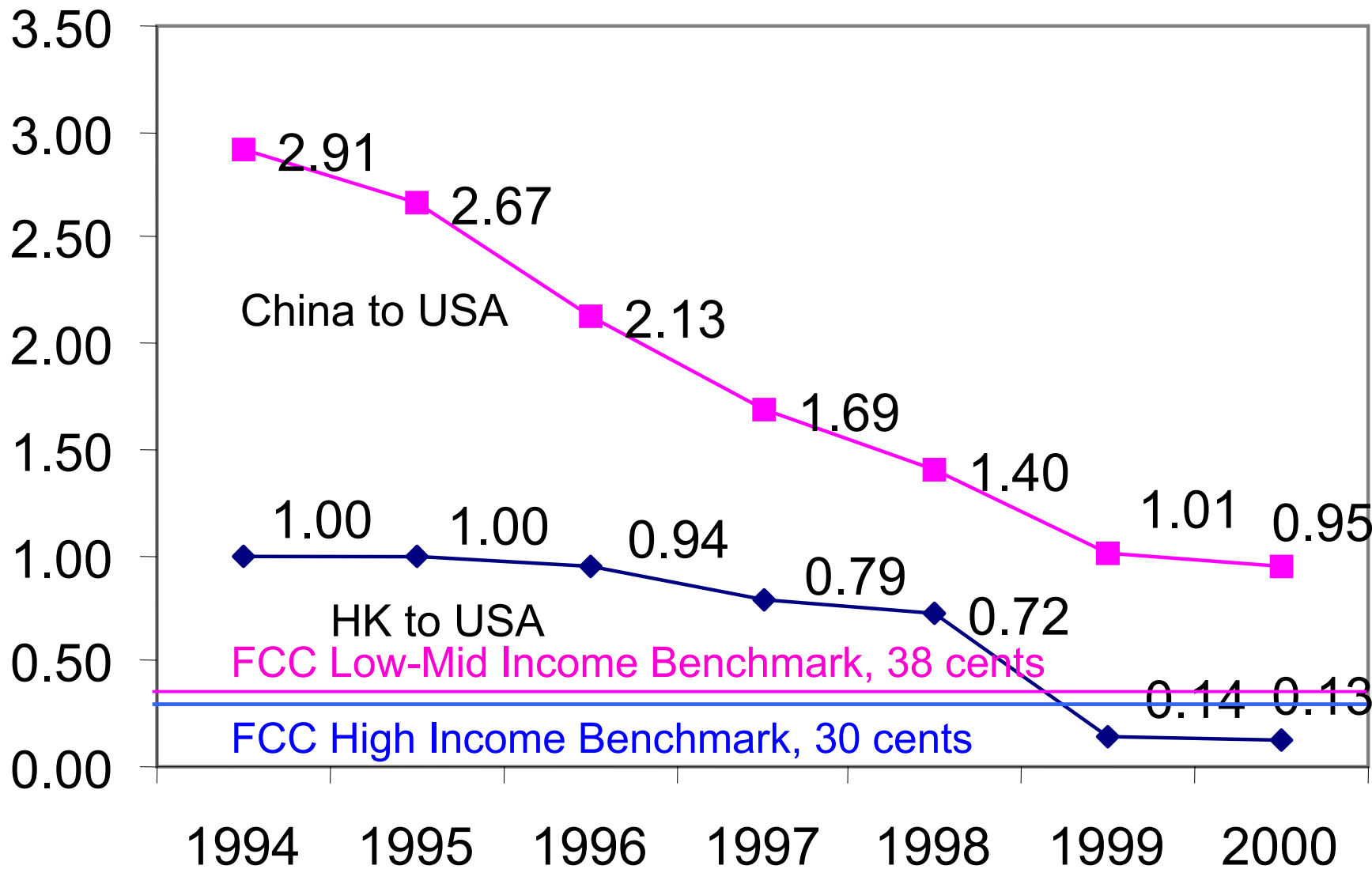
### ***ITU Focus Group targets, by teledensity (T), to be achieved by 2001 (2004)***

<b>T &lt; 1</b>	<b>1&lt;T&lt;5</b>	<b>5&lt;T&lt;10</b>	<b>10&lt;T&lt;20</b>	<b>20&lt;T&lt;35</b>	<b>35&lt;T&lt;50</b>	<b>T&gt;50</b>
\$0.45	\$0.35	\$0.29	\$0.23	\$0.16	\$0.12	\$0.06

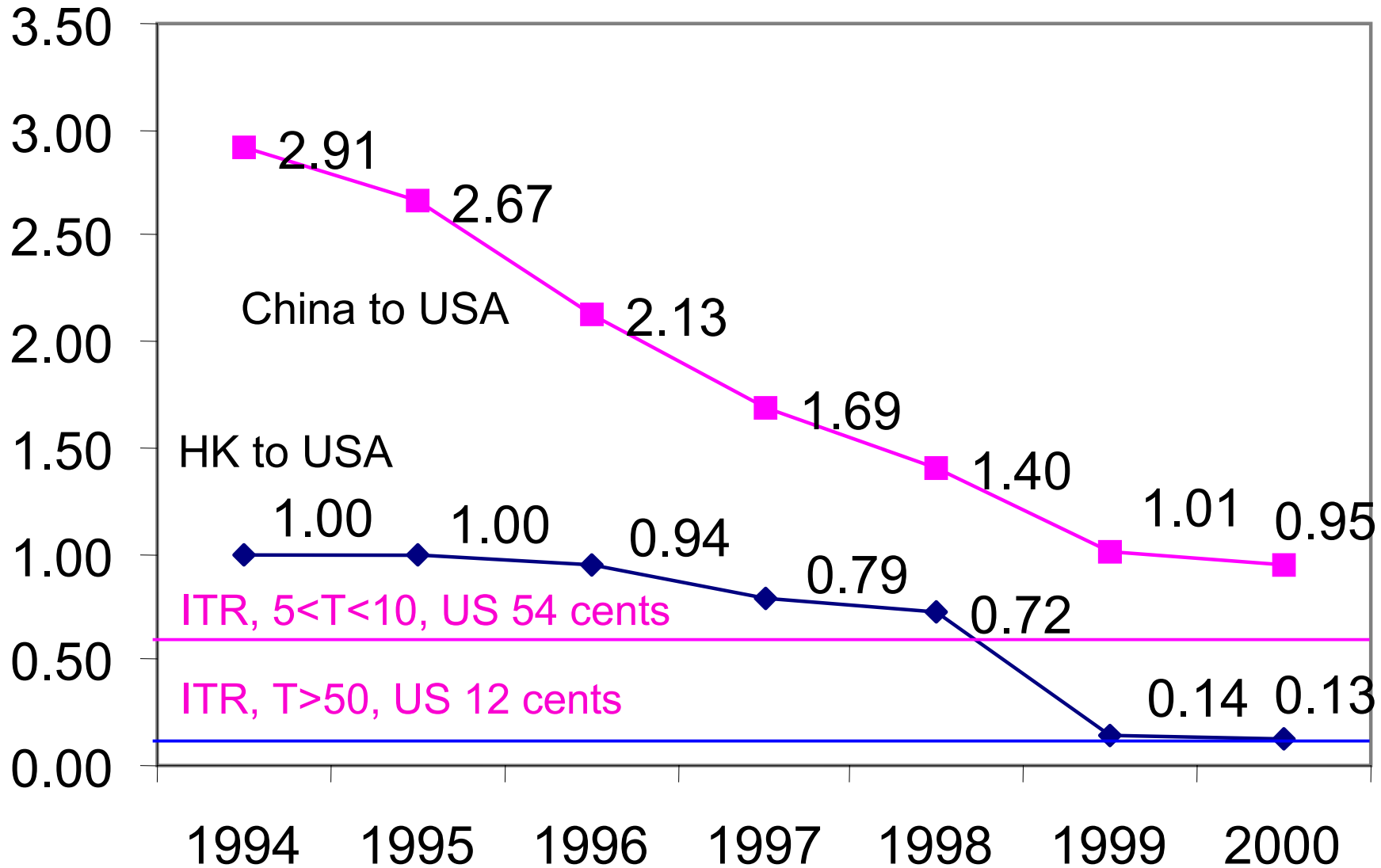
### ***FCC Benchmarks, by income group***

<b>Low income, T&lt;1</b>	<b>Low income</b>	<b>Low-mid income</b>	<b>Upper- mid income</b>	<b>High income</b>
\$0.23	\$0.23	\$0.19	\$0.19	\$0.15
2002	2001	2000	1999	1998

# Accounting rates, in US\$ and FCC Benchmarks



# Accounting rates, in US\$ and ITU Indicative Target Rates



Teledensity rates shown were valid for China and Hongkong SAR on 1 January 1998 (as defined in ITU-T Recommendation D.140 Annex E).

# ***Focus Group Final Report and FCC Benchmarks compared***

	<b><i>FCC Benchmarks</i></b>	<b><i>ITU Focus Group</i></b>
<b>Coverage of analysis</b>	<b>72 countries</b>	<b>224 countries / territories</b>
<b>Range of rates (direct relations)</b>	<b>0.11-0.16 SDR</b>	<b>0.043-0.327 SDR</b>
<b>Transit shares</b>	<b>Not covered</b>	<b>0.03-0.06 SDR</b>
<b>Groups</b>	<b>4 by income + 1 by teledensity</b>	<b>7 by teledensity + 2 others</b>
<b>Target years</b>	<b>Multi-year: 1998, - 99, 2000, -01, -02</b>	<b>Year-end 2001 (2004)</b>
<b>Dependency on net settlements</b>	<b>Not covered</b>	<b>Extended transition</b>



# ***Developing country fears concerning accounting rate reform...***

## **If the rate of reduction is too low ...**

- **Traffic will migrate to “least cost routes”**
- **Increasing volumes of traffic will flow outside the accounting rate system (e.g., via Internet)**
- **Local consumers will not benefit from lower call charges**
- **Foreign correspondents may refuse to pay for traffic terminated**

## **If the rate of reduction is too fast ...**

- **There may be a sudden reduction in the volume of net settlement payments**
- **This may reduce the ability of the incumbent operator to finance its network build-out**
- **It may reduce the value of the operator ahead of possible privatisation**
- **National tariffs may need to increase to compensate**



## ***New issues: IP Telephony***

- **IP Telephony means telephone and fax calls carried partially or wholly over IP-based networks, such as the Internet**
- **For developing countries it represents a dilemma:**
  - ⇒ **On the one hand, IP Telephony promise lower prices and lower costs for operators**
  - ⇒ **On the other hand, it could involve bypass of the accounting rate system**
- **IP Telephony was the topic of ITU World Telecommunication Policy Forum, held 7-9 March 2001**



# ***International interconnection: Issues for regulators***

- **Transparency:** Should regulators require the publication or disclosure of settlement rates and/or interconnection rates?
- **Intervention:** What circumstances might justify intervention in negotiation of accounting rates or establishment of interconnect rates?
- **Unilateral action:** How should regulators respond to possible unilateral action by foreign regulators in setting benchmark rates?
- **Mobile international connection:** Does the development of 3G services require special attention from regulators?