



# Broadband as a platform for development: Lessons from Asia

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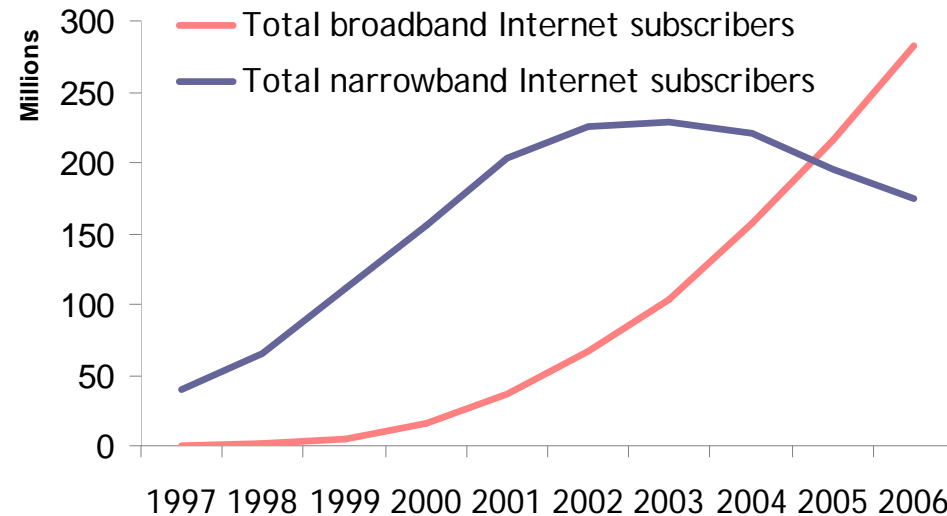
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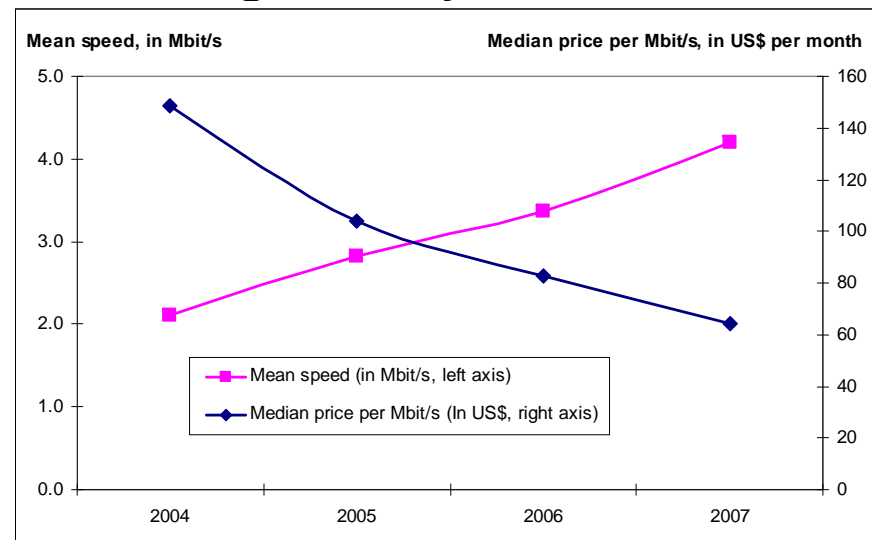


- **Why broadband?**
  - What, Where,
- **Why Asia?**
  - Asian Pioneers
  - Developing Asia
- **Broadband and economic growth**
  - The evidence
  - Performance/price ratios
  - The wider picture
- **Conclusions**

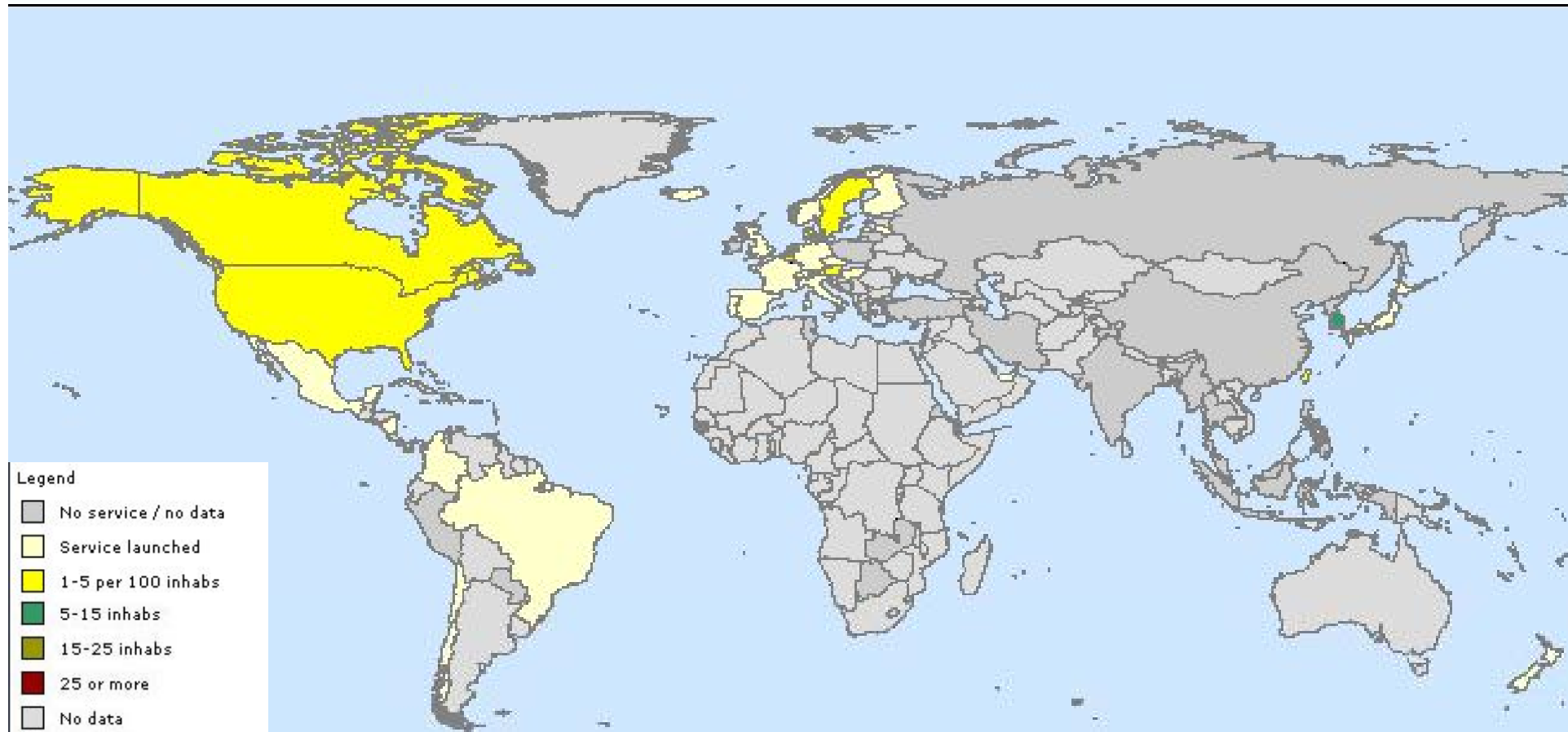


Broadband subscribers overtook narrowband subscribers in 2005

- Price/performance ratio doubling every 12-18 months
- Always-on
- Distance neutral
- Both fixed and mobile
- More than 500 million subscribers and heading towards ubiquity
- A platform for many other applications (eg e-commerce, video-on-demand, e-gaming, etc)
- Still in the early stages of its growth cycle
- **A new driver of long-term economic growth?**

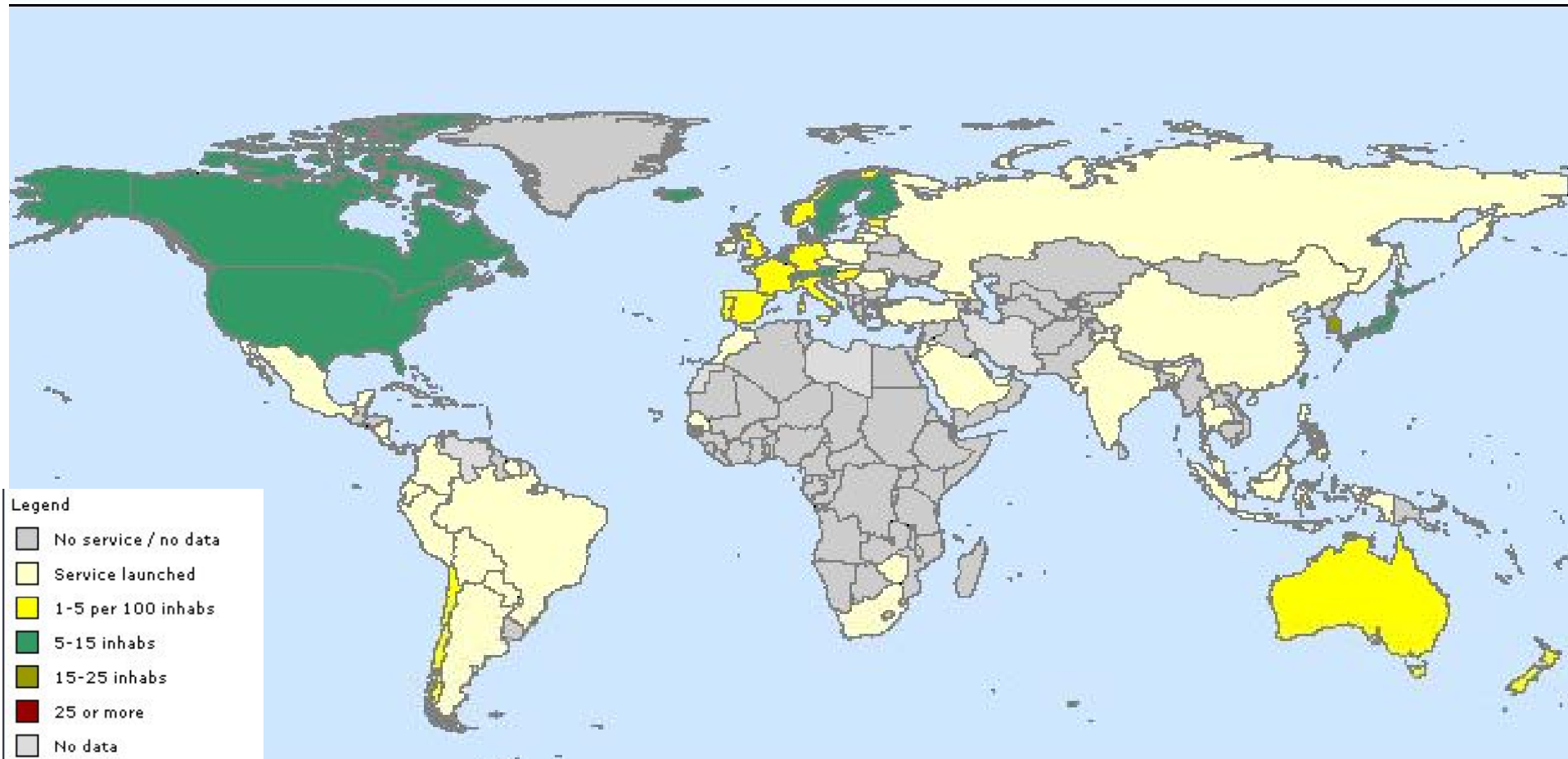


## Broadband penetration in 2000



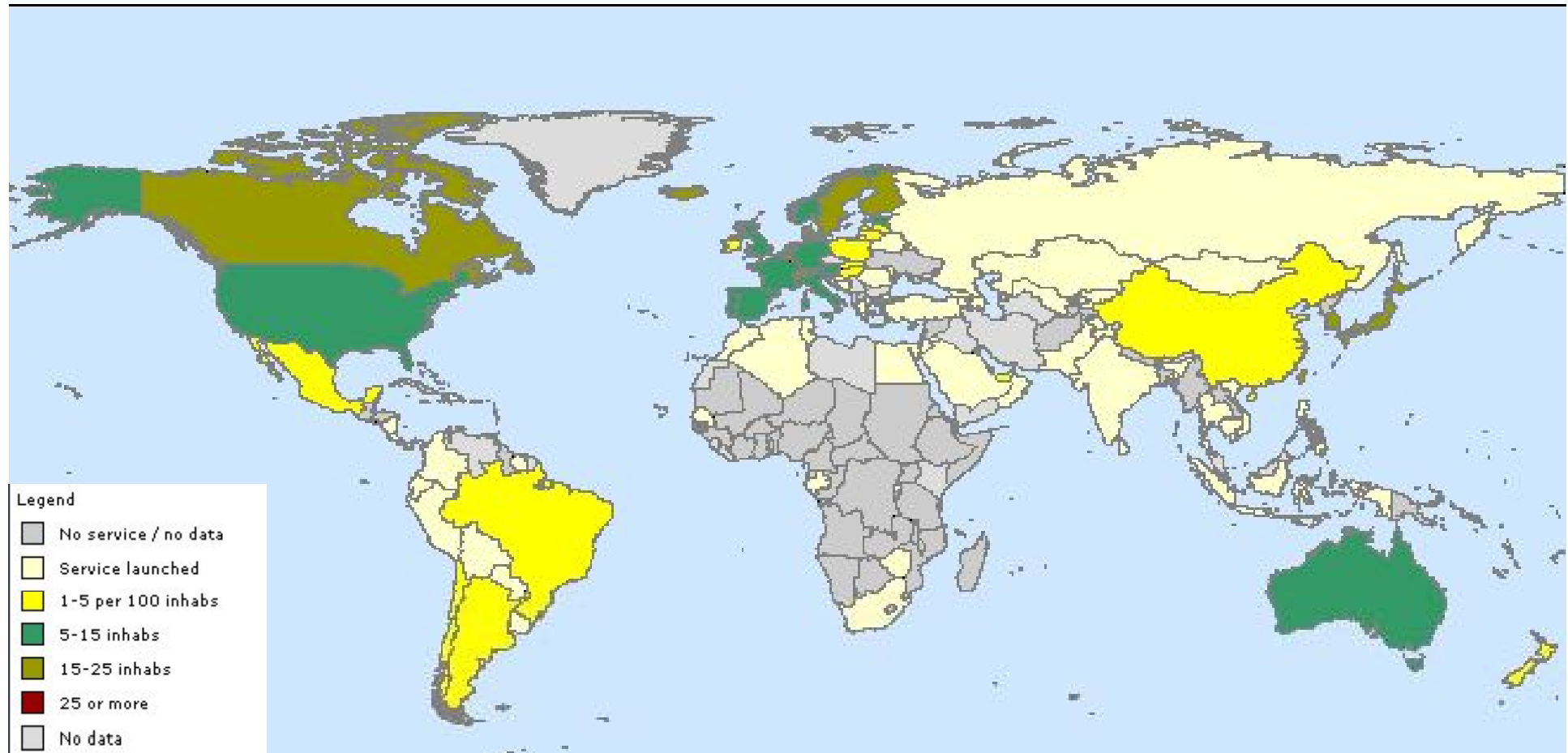
Source: ITU World Telecommunication Indicators Database.

## Broadband penetration in 2002



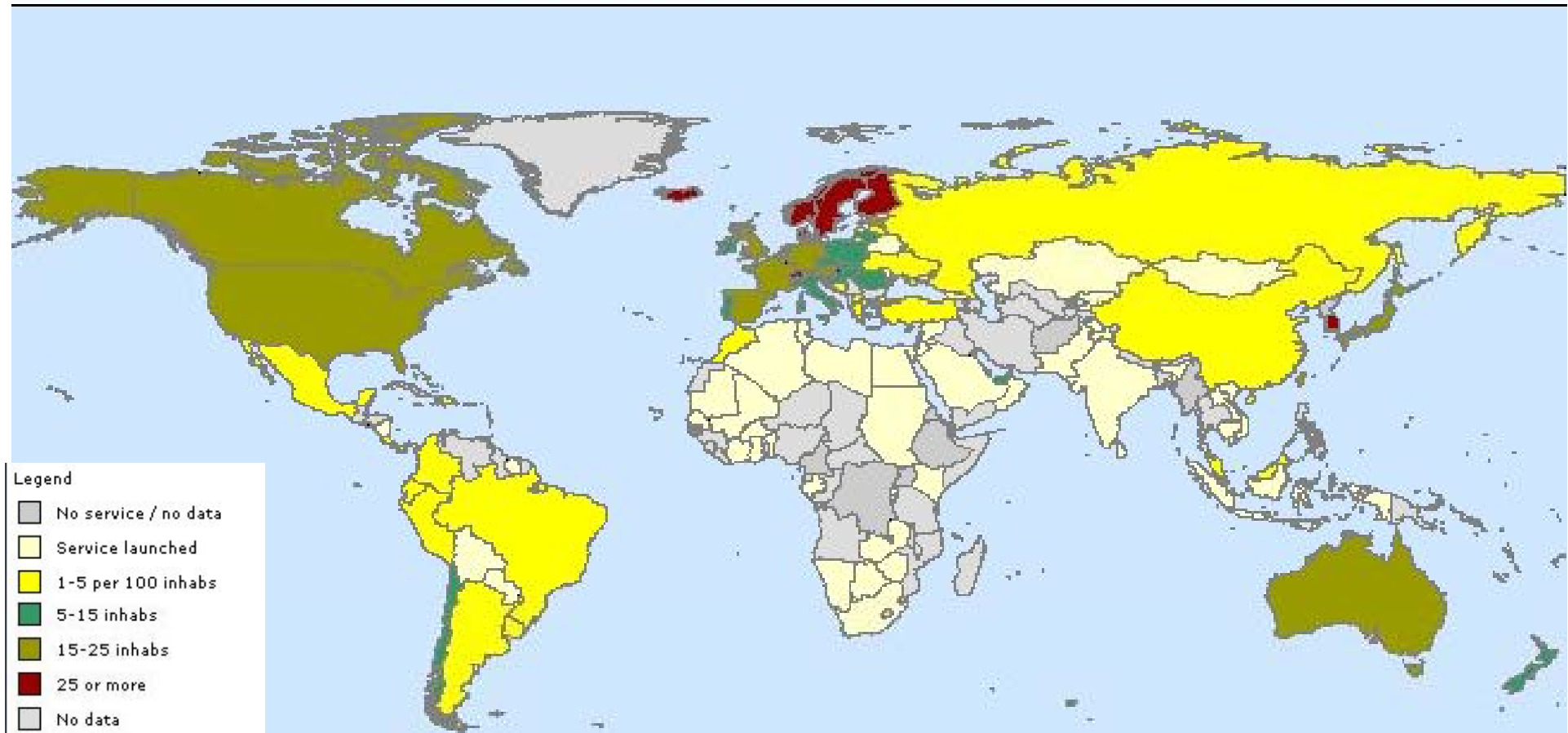
Source: ITU World Telecommunication Indicators Database.

## Broadband penetration in 2004

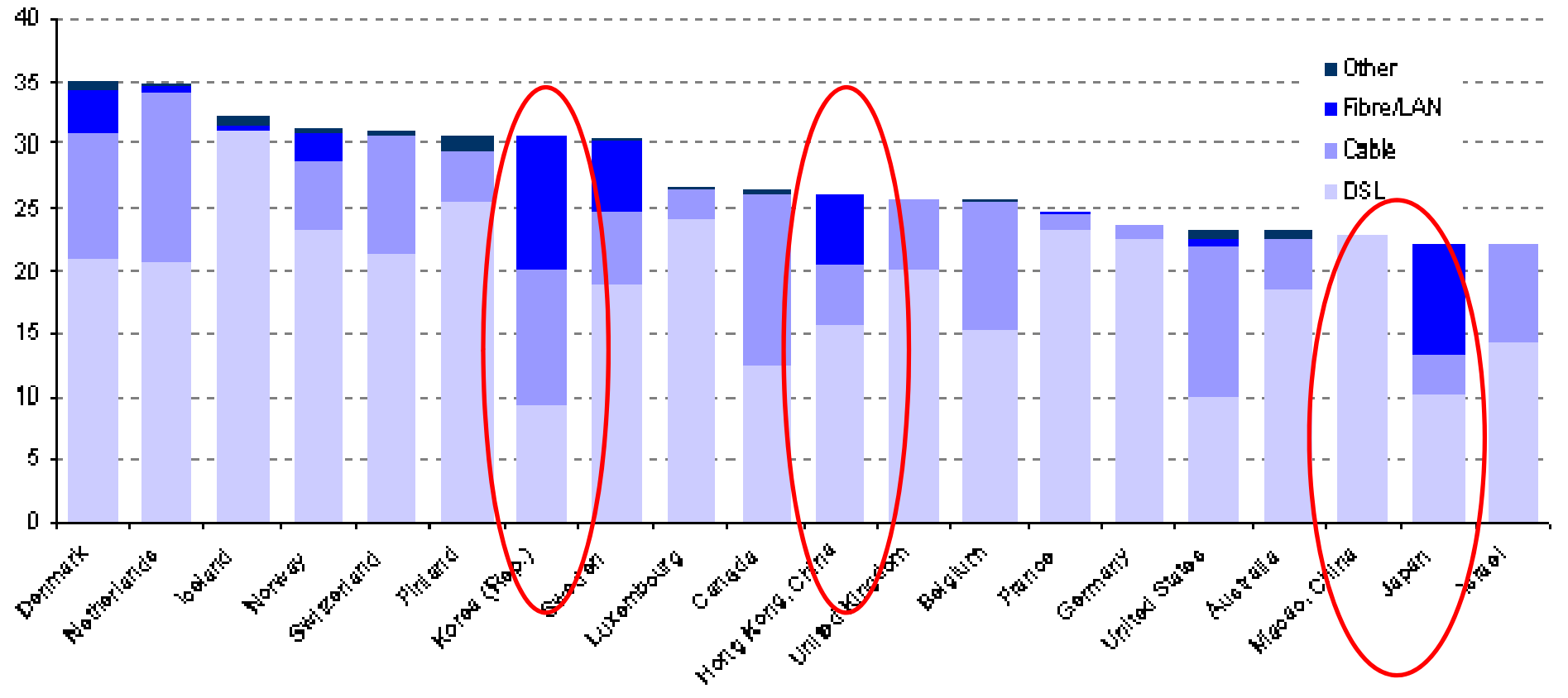


Source: ITU World Telecommunication Indicators Database.

## Broadband penetration in 2006



Source: ITU World Telecommunication Indicators Database.



- Asian economies benefit from inter-modal competition
- Have a high percentage of fibre-optic subscribers
- Frequently pay the lowest prices

# Low broadband prices in Asia

Rank	Lower speed		Higher speed		Lowest sampled cost		ISP
	Monthly charge	Speed (kbit/s)	Monthly charge	Speed (kbit/s)	US\$ per 1 Mbit/s	as a % of monthly income (GNI)	
	US\$ 2007	Down 2007	US\$ 2007	Down 2007	2007		
1 Japan	28.57	8'192	35.70	51'200	0.70	0.00	Yahoo BB
2 Korea (Rep.)	29.94	10'240	48.11	51'200	0.94	0.01	KT
3 Netherlands	12.25	4'000	27.30	20'000	1.36	0.00	Orange
4 Taiwan, China	6.08	256	22.20	12'288	1.81	0.02	Chunghwa
5 Sweden	14.65	1'000	44.23	24'000	1.84	0.01	Tele2
6 France	20.39	2'000	40.91	20'000	2.05	0.01	Neuf telecom
7 Singapore	13.49	512	80.81	30'720	2.63	0.01	StarHub
8 Viet Nam	4.34	1'536	4.34	1'536	2.82	0.62	FPT Communications
9 Finland	34.07	1'024	68.28	24'000	2.84	0.11	Elisa-Lajaakaista
10 Switzerland	40.82	3'500	57.48	20'000	2.87		Bluewin
<b>World Average</b>	<b>107.95</b>	<b>759</b>	<b>278.18</b>	<b>4'392</b>	<b>299.21</b>		

Five out of the ten cheapest broadband economies are in Asia

Broadband users in Japan and Korea pay less than 1 per cent of the global average price

# Low prices too in developing Asia

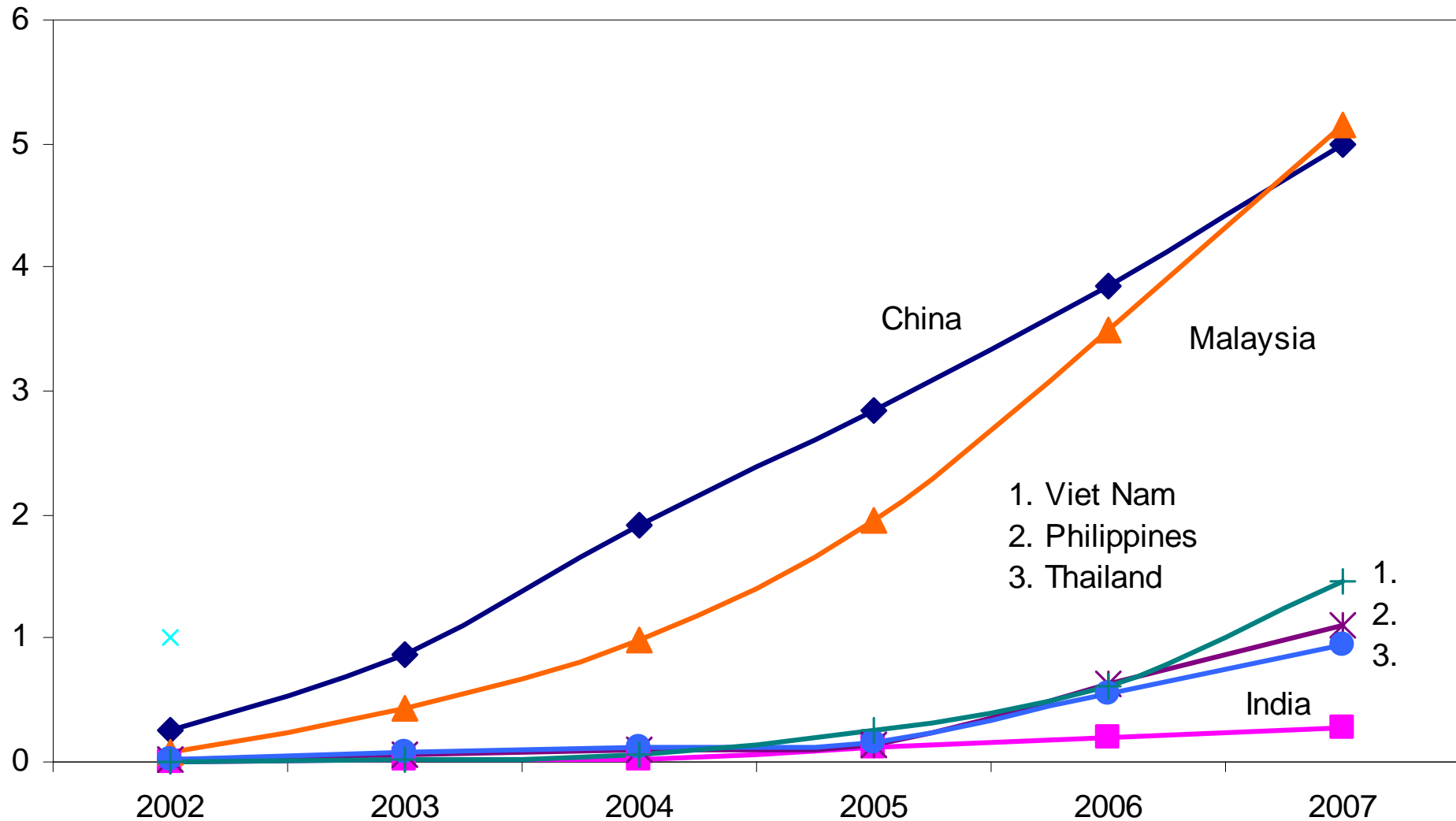
	<i>Lower speed</i>		<i>Higher speed</i>		<i>US\$ per 1 Mbit/s 2007</i>	<i>Lowest sampled cost as a % of monthly income (GNI)</i>	<i>ISP</i>
	<i>Monthly charge US\$ 2007</i>	<i>Speed (kbit/s) Down 2007</i>	<i>Monthly charge US\$ 2007</i>	<i>Speed (kbit/s) Down 2007</i>			
1 Viet Nam	4.34	1'536	4.34	1'536	2.82	0.62	FPT Communications
2 Malaysia	5.80	384	5.80	384	15.11	0.39	TMNET
3 Taiwan, China	6.08	256	22.20	12'288	1.81	0.02	Chunghwa
4 China	7.88	512	7.88	512	15.38	1.43	E-NET
5 Sri Lanka	9.01	512	9.01	512	17.60	2.09	SLTnet
6 Maldives	9.27	256	15.38	512	30.03	1.44	Dhiraagu
7 India	9.65	256	37.48	2'048	18.30	3.54	Tata Indicom
<b>Asia</b>	<b>70.06</b>	<b>818</b>	<b>222.36</b>	<b>4'587</b>	<b>278.89</b>	<b>85</b>	
<b>World</b>	<b>107.95</b>	<b>759</b>	<b>278.18</b>	<b>4'392</b>	<b>299.21</b>		

Seven developing Asian economies have entry-level prices below US\$10 per month

Developing Asia prices typically <10% of global average

# Low prices generate faster growth

Broadband subscribers per 100 inhabitants



Year in which 5% penetration attained: USA and China

Country	Fixed-line	PC	Internet users	Mobile	Broad band
USA	1912	1983	1994	1993	2002
China	1997	2005	2002	2000	2007
Gap (years)	85	22	8	7	5

The gap between USA and China is shorter in broadband than for any other ICT service

- Shift from intermittent to “always-on” service
- Higher speeds for lower unit costs
- Shorter waiting times for files to download
- Enhanced user experience (multimedia)
- Access to global markets (eg for outsourcing, access to information, leading to real time, transparent competition)
- Ability of broadband to cannibalize other services:
  - Downloaded video-on-demand substituting for live TV
  - Voice over broadband substituting for public switched telephone network
- Delivery of multiple play leading to cost-savings and efficiencies

# Where's the evidence?

- Broadband users tend to visit more sites than narrowband users and make better use of interactive features
- Broadband can generate business savings and reduce costs (eg relative to leased lines)
- Broadband is driving e-commerce and creating new product markets (e.g., online poker)
- Productivity savings, especially from mobile broadband
- US studies show broadband added 1-1.4 percentage points in job growth, 1998-2002
- Broadband facilitates “clean growth” (eg through substitution of travel of physical delivery of goods)



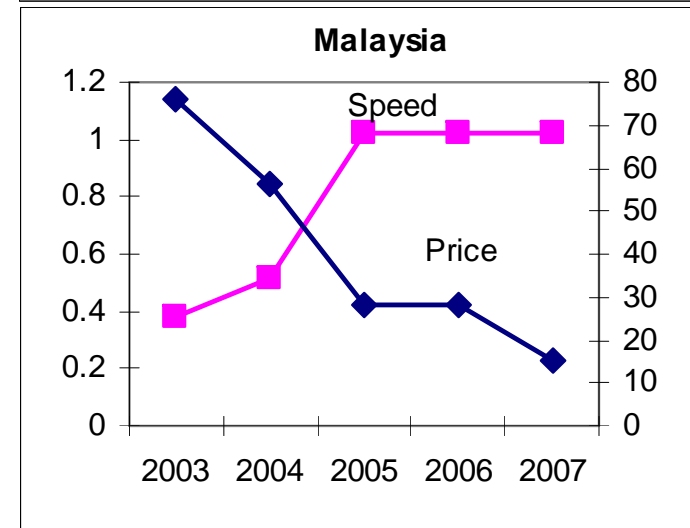
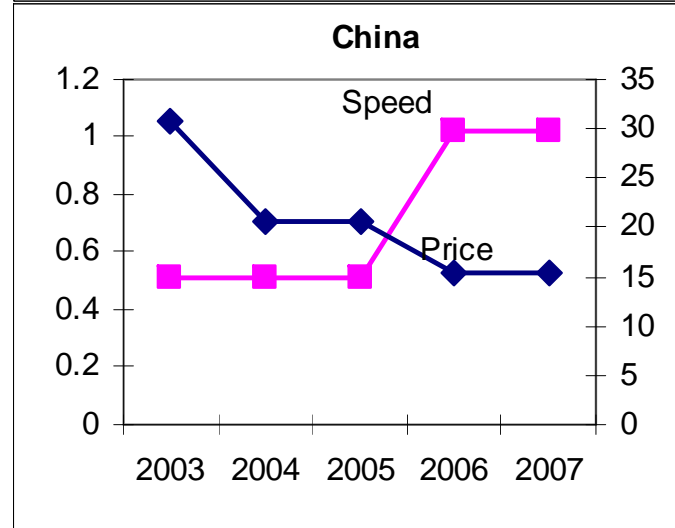
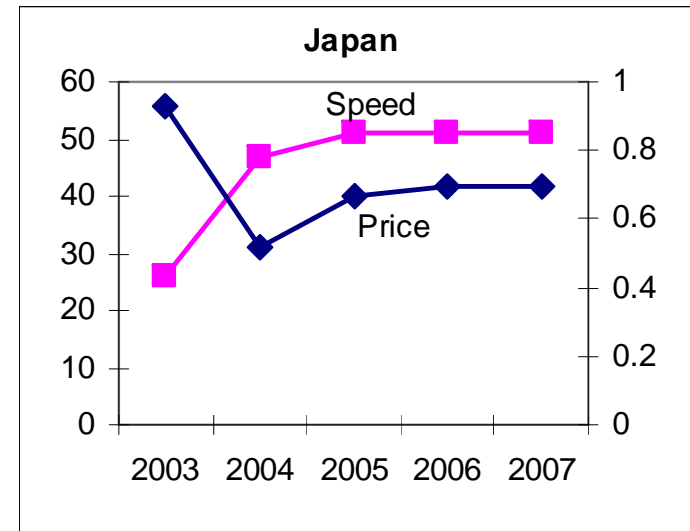
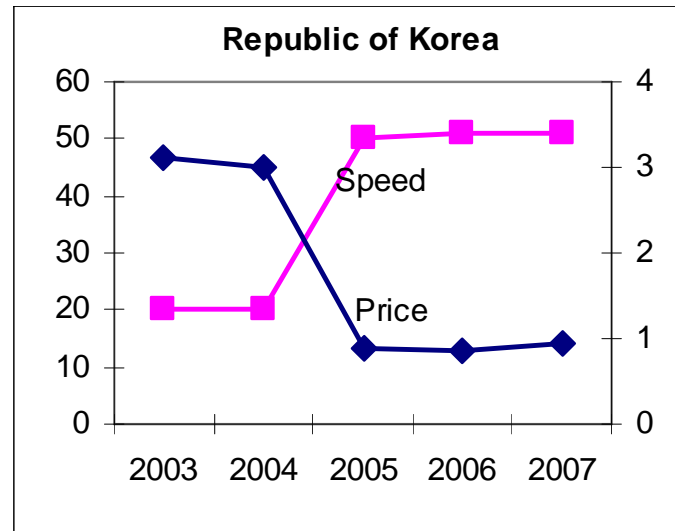
**facebook**



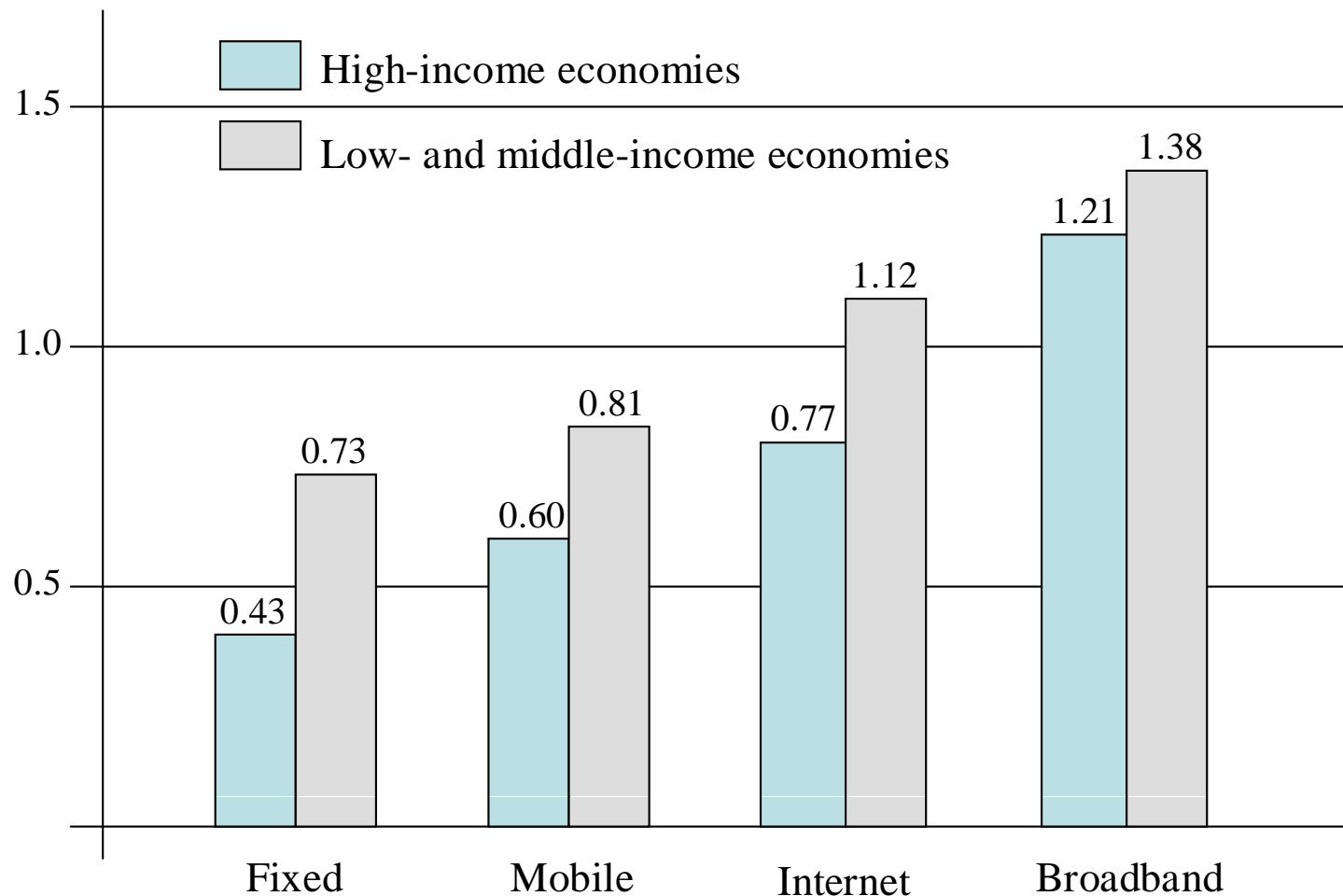
## Broadband speed and price, Aug 2007, selected economies

- Broadband speed in Mbit/s (left axis)
- Typical price in Mbit/s per month (right axis)

Source: Biggs and Kelly (forthcoming)



## Percentage point increase in GDP per capita for every ten percentage point increase in ICT penetration, 1980-2006



Source: Qiang and Rossotto, 2008

- Broadband is an important driver of economic, social and cultural growth now
  - But it will be much more important in the future because of trends in price/performance
  - It can become a General Purpose Technology enabler
- Developed Asian economies helped pioneer broadband applications in the early 2000s
  - Developing Asian economies will drive growth in the coming decade
  - Developing Asia will also drive new applications, especially for mobile broadband
- There is a growing body of literature and research on the developmental impact of broadband
  - But there is a lack of research from Asia and developing countries
  - OECD / World Bank cooperation could push forward this research agenda