



CPP Benchmark Report

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CPP Benchmark Report

1. Trend Towards CPP

In the mid 1980s mobile penetration was extremely low. Analogue networks provided little capacity. Both Mobile Party Pays and Calling Party Pays tariff systems were in operation, but because of the low penetration it did not matter what tariffs system was used. The growth in mobile communications from the early 1990s onwards is linked to the introduction of digital cellular, notably GSM. In Europe and many other markets CPP tariffing was retained or adopted from the start. This meant that charging for mobile telephone calls was no different than for fixed line telephone calls.

In contrast, in the America's mobile party pays the norm. Generally this did not change with the introduction of digital cellular. The US and initially many other markets in the Americas retained the MPP regime. However, from the mid 1990's onwards many Central and South American countries and some Asian countries moved from MPP to CPP. This turned out to be highly beneficial in terms of mobile subscriber growth and hence increased teledensity as well as revenue growth for mobile and fixed operators.

Most countries that changed to CPP also introduced interconnect regulation for fixed to mobile and mobile to fixed calls. Indeed, a change to CPP is not really possible without establishing commercial interconnect arrangement between different operators. In many cases where countries moved to CPP, fixed termination rates were set with reference to cost plus an access deficit contribution (where this was deemed necessary) and mobile termination rates were set with reference to benchmarks. Because Western Europe provided the benchmarks for mobile termination rates, mobile termination rates were relatively high, i.e. 5-20 times higher than fixed termination rates.

During 2000 / 2001 European regulators started to investigate the high mobile network termination rates. In the EU average mobile network termination rates are € 0.1908 per minute. Per minute mobile network termination rates vary substantially between countries from a low of € 0.1005 in Sweden to € 0.2681 in Greece. However, these rates are not cost based and EU national regulatory authorities (NRAs) are now forcing EU mobile operators to reduce their termination rates, for example:

- In the UK following a proposal from Ofcom, the Competition Commission has ruled that mobile operators should reduce mobile termination rates by RPI-15% until termination rates are cost based.
- The French NRA ART proposed a 40% reduction in rates over a three-year period, applicable only to Orange and SFR, the operators considered to have significant market power (SMP).

The proposed reduction will not immediately lead towards cost based termination rates. Estimates as to the cost of terminating calls on mobile networks range from € 0.05 to € 0.10 per minute.

Figure 1 – Countries That Changed to CPP

Country	Introduced
India	Introduced 1 March 2003
St. Kitts & Nevis	Introduced 1 August 2002
Cayman Islands	Introduced 9 July 2001
Pakistan	Introduced 1 December 2000
Trinidad & Tobago	Introduced 31 July 2000
Antigua & Barbuda	Introduced 25 January 2000
Jamaica	Introduced 2000
Honduras	Introduced 1 March 2000
Guatemala	Introduced 21 October 1999
Mexico	Introduced 1 May 1999
Chile	Introduced 23 February 1999
El Salvador	Introduced January 1999
Romania	Introduced 1998
Ecuador	Introduced 1998
Argentina	Introduced 15 April 1997
Paraguay	Introduced 1997
Cambodia	Introduced 1997
Mongolia	Introduced 1996
Costa Rica	Introduced 1996
Peru	Introduced May 1996
Bolivia	Introduced 1996
Czech Republic	Introduced 1996
Uruguay	Introduced 1995
Dominican Republic	Introduced 1995
Brazil	Introduced 1994
Colombia	Introduced June 1994
Venezuela	Introduced 1991

Source: Coleago Consulting

2. CPP Introduction Case Studies

2.1 Pakistan

CPP was introduced on the 1st of December 2000. According to the regulator, all the operators to follow one type of pricing regime either MPP or CPP. All the operators moved to CPP. Before CPP, the average charge paid by mobile customers for mobile terminated calls was approximately Rs. 2.5 per minute. This charge was regardless of the origin of the call.

The mobile to fixed rates has two components. One is the mobile operator portion, which on average was Rs. 5 per minute, and the second was fixed operator portion, which was for local calls local calls Rs. 2 for 5 minutes and for long distance calls Rs. 15 per min. Long distance calling charges are base on the geographic distances and rate is the weighted average. The operator would charge both these rates to the customer and pays the fixed portion to the fixed operator.

As regards mobile to mobile calls, initially there was no interconnect agreement between the mobile operators. Mobile operators were not allowed direct connectivity and they had to interconnect via the fixed operator for interconnection. This led to higher costs for the mobile operators. Then the regulator decided that there should be direct interconnection between the operators and the termination rate should be the same as for termination rate on the fixed network, which was Rs. 2.2 per minute.

As regards pricing of on-net calls, initially these did not change with the introduction of CPP. None of the operators had any CPP for on-net calls. Customers had to pay for incoming charges for every call received. Thus the average outgoing rate for on-net calls was the mobile call portion Rs. 5 minute. Only the fixed to mobile and mobile to other mobile operator rate changed under CPP.

There was no change in pricing due to CPP. Prices did drop but that was due to the new operator which launched at 35% lesser tariffs. Therefore the key change really was on fixed to mobile calls.

When CPP as introduced regulator set the rate for fixed to mobile calls with a mobile termination rate Rs 2.20 (68.75%) plus fixed operator revenue Rs 1.00 per minute. 15% GST is added to the sum to produce the retail price fro fixed to mobile calls. Following a review from the 1st of May 2002 the rates were changed to mobile termination rate Rs 2.00 (71.43%) and fixed operator revenue Rs 0.80.

Figure 2 – Tariffs in Pakistan Before and After CPP

Customer Tariffs	Before CPP	After CPP
On-Net	Rs. 5 /min	Rs. 5 /min
Mobile to Fixed	Rs. 5 /min + Rs. 2 for 5 min	Rs. 5 /min + Rs. 2 for 5 min
To Other Mobile	Rs. 5 /min + Rs. 2 for 5 min	Rs. 5 /min + Rs. 3.2/min
Fixed to Mobile	Rs. 2 for 5 min	Rs. 3.2 /min

The review of CPP conducted Pakistan Telecommunication Authority (PTA) in May 2002 provides a detailed insight into the negotiation and the effect of CPP. Due to introduction of CPP regime, the cellular mobile telephone sector has shown an unprecedented growth in the number of subscribers. In just one year, from December 2000 to November 2001, the number has gone up from about 300,000 to over 900,000.

Much of this growth can be attributed to the introduction of CPP. Mobilink, one of the GSM operators, carried out primary market research before implementation of CPP and found that one of the main reasons for not adopting cellular were incoming charges. As a result of the introduction of CPP, Mobilink's sales increased by approximately 75%. Mobilink had sales of around 10-12,000 per month before CPP. After CPP, the sales increased to 20,000 in the first month and then kept on increasing to reach 35-40,000 after a few months.

During their recent meetings with the PTA, the cellular mobile operators disclosed that under the CPP regime their operations had turned around positively and the system was functioning quite well. The stagnation of the industry had ended with the introduction of CPP and the operators were now growing fast. Both the GSM operators had rather over-sold their capacity in just few months after introduction of the CPP regime.

The Authority observed that the overall scheme of the CPP regime had worked quite well. The growth in the number of subscribers and usage of service was well above the original estimates of the Authority as well as of the operators. It was observed that the assumptions made by the Authority at the time of launching CPP were extremely conservative.

PTA concluded that as a result of free incoming calls, the overall consumer cost has fallen to some extent and the total usage of the system has also improved significantly. All this has resulted in reducing the per unit fixed cost of the operators. In the consultation paper, the operators were invited to analyse the situation and look into the ways and means whereby the benefits of the new system are shared appropriately with the consumers.

During its direct interaction with consumers in different public forums, the Authority received numerous complaints regarding high tariff of cellular mobile service. The fixed-line users were particularly concerned about high charges of fixed to mobile calls due to introduction of mobile termination charge of Rs 2.20 per minute and PTCL charges of Rs 1.00 per minute. Nevertheless there had been no huge decline in fixed to mobile calls. I.e. while these complaints may suggest that demand for fixed to mobile calls is price elastic, in reality this was not the case. Figures from Mobilink reveal only a slight drop in fixed to mobile calls.

Figure 3 – Impact of Introduction of CPP on Mobilink's Minutes of Use

	December 2000	January 2001
MO MOUs to other Mobilink	10,171,344	12,827,531
MO MOUs to local land-line	7,685,015	9,552,417
MO MOUs to long distance	3,390,448	3,002,188
MO MOUs to other mobile	904,119	1,091,705
MO MOUs to International	452,060	545,852
MT MOUs from land-line	13,798,103	12,374,837
MT MOUs from Mobilink	9,709,776	12,374,837
MT MOUs from no-dial-digit	1,277,602	1,345,091
MT MOUs from other mobile	766,561	807,055

Figure 4 – Mobilink Minutes of Use per Customer

Minutes of Use per Customer per Month	December	January	December	January	Change
MO MOUs to other Mobilink	70.2	83.3	21%	24%	19%
MO MOUs to local land-line	53.0	62.0	16%	18%	17%
MO MOUs to long distance	23.4	19.5	7%	6%	-17%
MO MOUs to other mobile	6.2	7.1	2%	2%	14%
MO MOUs to international	3.1	3.5	1%	1%	13%
MO Total	155.9	175.5	47%	50%	13%
MT MOUs from land-line	95.2	80.4	29%	23%	-16%
MT MOUs from Mobilink	67.0	80.4	20%	23%	20%
MT MOUs from no-dial-digit	8.8	8.7	3%	2%	-1%
MT MOUs from other mobile	5.3	5.2	2%	1%	-1%
MT Total	176.2	174.7	53%	50%	-1%
MO & MT Total	332.1	350.1	100%	100%	5%

When PTCL's (the fixed network operator) revenue share for fixed to mobile calls was fixed in December 2000, it was assumed that due to the introduction of a CPP premium on fixed to mobile calls the fixed line users would curtail their calls to mobiles. However, on the basis of one-year operation of CPP regime, it became apparent that there was no significant reduction in fixed to mobile calling. Before CPP many mobile users would note an incoming call number on their handset and not answer the calls, but call back from land line as it was much cheaper. In the year following the introduction of CPP the fixed to mobile traffic increased three fold due to the growth of cellular subscribers. PTCL thus earned considerable revenues on account of fixed-mobile traffic. The Authority felt that PTCL's share also needed to be reviewed in the light of increased average call duration and growth in the traffic.

Looking at the mobile originated traffic and the average spend per customer, there is clear evidence that demand for calls from mobiles is price elastic with regards to the total monthly spend. Before CPP, average spend for postpaid subscribers was approximately US\$ 34 and US\$ 17 for prepaid. After CPP when incoming became free, the monthly spend for postpaid was US\$ 28 and for prepaid it was US\$ 11. The spend on mobile originated minutes increased by approximately US\$ 3 for postpaid and US\$ 1.50 for prepaid. Hence the reduction in the average monthly spend of postpaid subscribers after CPP was US\$ 6 and for prepaid US\$ 4.5. On this basis the price elasticity coefficient was -0.5.

Figure 5 – Price Elasticity Related to Monthly Spend

US\$	Postpaid	Prepaid
Before CPP Line Rental & MO Minutes	22.0	6.5
Before CPP MT Minutes	12.0	10.5
Before CPP Total Average Monthly Spend	34.0	17.0
After CPP Total Average Monthly Spend	28.0	11.0
After CPP Increase for MO Minutes	6.0	4.5
Decline in Monthly Cost due to CPP	35%	62%
Decline in Monthly Spend due to CPP	18%	35%
Price Elasticity Coefficient Applied to Monthly Spend	0.50	0.57

The rapid growth in subscribers and led to a sharp increase in overall traffic. The Authority observed that the service quality did not match to the high price charged by the operators. The operators were not making required investment in expanding their networks for catering to the high demand after introduction of CPP.

2.2 Mexico

CPP was introduced in Mexico on the 1st of May 1999. COFETEL, the Mexican regulatory authority, set rates based on international benchmarks and this was lowest rate at that time.

For each fixed-to-mobile call a fixed subscriber had to pay the following: (i) a measured local service tariff (US\$ 0.1375 per call or MXP 1.307); (ii) a fixed-mobile tariff (US\$ 0.2631 per minute or MXP 2.50 per minute) which comprises the terminating interconnection charge per minute in the mobile network (US\$ 0.20 or MXP 1.90) and the billing and collection tariff per minute (US\$ 0.0631 or MXP 0.60).

However, in contrast to the mobile-to-fixed calls, the mobile operator rounds each fixed-to-mobile call to the nearest minute, which makes the effective price per minute higher than the nominal price. This means that fractions of a minute are rounded upwards, so that a call lasting 10 seconds or 59 seconds is billed as though it had lasted one minute, a call that takes 1.5 minutes is billed as though it had lasted two minutes and so on.

Figure 6 - Payment Scheme for Local Calls Between Mobile & Fixed (May 2000 US\$)

Call Type	Mobile User	Mobile Network	Fixed Network	Fixed Subscriber	Remarks
Mobile to Fixed	Air-time rate per minute X ¢ per minute	Pays charge for terminating call on the fixed network: 3.26 ¢ per minute	Receives charge for terminating call on the fixed network 3.26 ¢ per minute	Pays nothing 0 ¢	Interconnection fixed-mobile is at tandem level.
Fixed to Mobile	Pays nothing	Receives charge for terminating the call on the mobile network: 20¢ per minute	Receives tariff paid by fixed subscriber Pays charge for terminating the call on the mobile network: 20 ¢ per minute	Measured local service rate: 13.75 ¢ per call + Charge for terminating the call on the mobile network: 20 ¢ per minute + Billing and collection charge: 6.31 ¢	Effective fixed-to-mobile rate paid by fixed user is: 40.29 ¢ per minute

Telmex, the incumbent fixed line operator, was initially opposed to CPP. One of the Telmex arguments against the introduction of CPP was that the fixed-to-mobile traffic was going to decrease as a consequence of the increase of the fixed-mobile tariff. However, analysis of the traffic data following the introduction of CPP proved this fear was unfounded. The monthly aggregate traffic data as published by COFETEL is total number of mobile subscribers, total mobile traffic and ratios of outgoing and incoming mobile traffic. Using these data, the total minutes of use per subscriber was estimated at two points in time, March 1999 and December 1999.

It was estimated that just before the introduction of CPP in March 1999, the average mobile originated minutes of use per mobile customer was 89 and the mobile terminated minutes amounted to 73, i.e. a total of 162 minutes per month. Eight months after the introduction of the CPP system the average monthly minutes of use had changed as follows:

- Mobile originated minutes of use declined from 89 to 83 minutes per month, i.e. a decrease of 7 per cent. This was due to the increased in penetration, with more lower spending cellular customers diluting average usage.
- Mobile terminated minutes of use increased from 73 to 94 minutes per month, i.e. an appreciable increase of 29%, despite the increase in penetration.
- Overall minutes of use increased from 162 to 177 minutes per month, i.e. an increase of 9%.

The first result is not surprising given the steady decline in the average minutes of use per subscriber observed for outgoing mobile traffic since 1995. According to COFETEL data, since 1995 the evolution of monthly mobile originated minutes of user customer has been:

- December 1995: 157 minutes per month
- December 1996: 110 minutes per month
- December 1997: 89 minutes per month
- December 1998: 93 minutes per month

The persistent decline in the average minutes of use per subscriber can be explained by the incorporation of new subscribers with very low usage patterns, such that the average usage per subscriber declines each year. In turn, at least part of this may be a consequence of the massive increased in prepaid users, which added low income subscribers to the mobile subscriber stock.

During this period mobile tariffs did not change. This means there are no other factors at play which may influence trends in usage.

Figure 7 – Average Monthly Minutes of Use

Mobile Traffic	Before CPP March 1999	After CPP December 1999	Variation %
Outgoing Mobile Traffic	89	83	-7%
Incoming Mobile Traffic	73	94	29%
Total Mobile Traffic	162	177	9%

Notes: Data used: Outgoing mobile traffic: 55% (March), 47% (December); Incoming mobile traffic: 45% (March), 53% (December). Total minutes of use in million of minutes per month: 355 (March), 644 (December). Mobile subscriber 3,985,000 (March), 7,732,000 (December). Source: COFETEL, ITU documents.

What it is difficult to explain, using price elasticity of demand, is the increase of 29% of incoming mobile traffic i.e. the traffic originated by the fixed subscribers, in spite of the increase of the effective fixed-to mobile tariff. The effective fixed-to-mobile tariff went up from US\$ 0.115 per minute to US\$ 0.403 per minute, i.e. 250%, before and after the introduction of CPP, respectively. If demand for fixed to mobile calls is price elasticity, one should expect a decrease instead of an increase in demand. So there should have been other factors that have helped to more than compensate for the price effect on the traffic from fixed-to-mobile.

Two explanations can be advanced:

- Before CPP, many mobile users kept their mobile phone switched off to avoid receiving unwanted calls and mobile numbers were not well circulated. This meant that fixed subscribers were not able to complete all their calls to mobile subscribers. In effect there was a degree of unsatisfied demand for traffic from fixed-to-mobile subscribers. With the introduction of CPP, the fixed subscriber is willing to pay a higher price for a call than before, but now the call can be successfully completed because mobile subscribers keep their phones switched on. Furthermore the better circulation of mobile numbers increased the fixed to mobile calling opportunities.
- Studies in different market have shown that demand for fixed to mobile calls is price inelastic. In other words, even if prices increase demand in terms of minutes does not decline. This has been observed in low and high GDP markets.

Overall the introduction of CPP was hugely beneficial to both the fixed and mobile operators. The financial statements from mobile operators such as Iusacell, attribute much of the revenue and market growth during the second half of 1999 and Q1 2000 to the introduction of CPP:

- "The six-month trial pricing for Calling Party Pays (CPP) will end in October 1999. In the first five months since CPP was launched, Iusacell has experienced at least 8% increase in traffic due to CPP, with a considerable increase in the percentage of incoming calls and cellular to cellular calls. The Company expects to see continued growth of incoming and cellular to cellular traffic volumes." Source: Iusacell Q3 1999 Results.
- "Fourth quarter 1999 contract customer Minutes of Use (MOUs) and ARPUs increased 6% and 21%, respectively, compared with fourth quarter 1998. This increase was primarily driven by growth in digital subscribers (who use their phones more than the average analogue contract customer), subscription to value-added services and increased incoming calls due to Calling Party Pays (CPP)." Source: Iusacell Results for Q4 1999.
- "Iusacell's 34% revenue increase in the first quarter of 2000 was driven primarily by growth in digital contract subscribers, contract Average Revenue Per User (ARPU), and increased traffic due to the May 1999 introduction of Calling Party Pays (CPP)." Source: Iusacell Q1 2000 Results.

Mobile operators were surprised by the surge in demand in terms of number of mobile users and also the surge in mobile terminated traffic. The rapid increase in traffic caused congestion in the mobile networks and resulted in consumer dissatisfaction. As a result, COFETEL required the mobile operators to upgrade the capacity of their networks. The main cellular operators announced investments in excess of US\$ 600 million

2.3 Other Countries

2.3.1.1 Overview

The introduction of CPP in Central and South America and the Caribbean between 1995 and 2002 more or less showed the same pattern.

- CPP was a contributing factor in accelerating the growth in mobile subscribers.
- Average monthly mobile terminated minutes per customer increased.
- The introduction of CPP lead to an increase in gross margins for fixed and mobile operators.

2.3.1.2 Chile

CPP was implemented on February 23, 1999. The fixed-to-mobile interconnection charges permitted by the Undersecretary of Telecommunications for the five-year period of 1999-2003 are as follows (In Chilean pesos as of January 1999, per minute, including value-added tax):

Figure 8 – Mobile Termination Rates Chile

Year	Peak hours	Off-Peak Hours
1999	Ch\$ 85.4	Ch\$ 59.8
2000	Ch\$ 85.0	Ch\$ 59.5
2001	Ch\$ 84.6	Ch\$ 59.2
2002	Ch\$ 84.1	Ch\$ 58.9
2003	Ch\$ 83.7	Ch\$ 58.6

Mobile telephone customers can choose not to have the CPP tariff structure apply to their mobile telephone accounts, and thus continue to pay for incoming calls. Furthermore, fixed network subscribers can choose to block the ability to make calls to mobile telephones from their phones.

Despite these restrictions the introduction of CPP proved beneficial to mobile operators who experienced a surge in subscriber growth and increased inbound traffic. In financials statements published by mobile operators direct reference was made to the beneficial effect of CPP:

- "Mobile communications revenues, including CPP interconnection revenues, which are accounted for under tariff regulated services, increased 82.7% in 1999, as compared to 1998, and accounted for 18.2% of Telefónica CTC Chile's total operating revenues in 1999. This growth can be attributed to the 138.8% increase in the average number of cellular subscribers in 1999, as compared to 1998, which resulted mainly from the introduction of CPP in February 1999. Revenue increases due to subscriber growth were partly offset by lower average monthly revenues per subscriber in 1999, mainly due to the growth in the number of customers who use prepaid cards to pay their service fees. The average number of prepaid subscribers increased 304.1% in 1999 as compared to 1998." Source: Form 20-F Telefónica CTC Chile, for 1999.

2.3.1.3 Argentina

CPP was introduced on the 15th of April 1997. The effect on cellular operators was immediately positive:

- "The cellular business has shown gross, operating and net margins of 64%, 16%, and 11%, respectively, improving from 57%, 7%, and 3% in the fiscal year 1996. This was mainly due to an increase in revenues as a consequence of a full year of operation in Telecom Personal, and to the positive effects in subscriber base and cellular usage of the "Calling Party Pays" billing system." Source: Telecom Argentina Report, 21 November 1997.

2.3.1.4 Uruguay

CPP was introduced in Uruguay in 1995. Operators reported that pricing reforms, including CPP and pre-paid service packaging, have spurred strong growth in cellular uptake, with a 50% increase in subscribers from June 1999 to June 2000.

2.3.1.5 Caribbean

Cable & Wireless have a number of mobile operations in the Caribbean. The introduction of CPP resulted in increases in penetration and average monthly mobile terminated minutes of use. The introduction of CPP was very well received by mobile customers.

For example in TSTT, the incumbent mobile operator in Trinidad & Tobago where CPP was introduced on the 31st of July 2000 reports the following effects:

- The ratio of mobile originated to mobile terminated calls before CPP is 65:35; 6 to 9 months after CCP introduction it was 50:50.
- The average monthly minutes of use for MO calls increased by 50%.
- There was no significant decline in the average monthly bill.
- Revenue increased by over 60%.
- There was a 20% growth of monthly new activations.
- Churn decreased as a result of introducing CPP.

The time lag between the introduction of CPP and these effects to settle in was approximately six months.

Other evidence of the positive effect of the introduction of CPP comes from the Cable & Wireless Annual Reports and company statements:

- "Mobile revenue grew 21%, despite the onset of competition in Jamaica and Macau. Cable & Wireless Regional now has 990,000 mobile subscribers, an overall increase of 17%. The market continues to grow, fuelled by the expansion of the digital network and the continued introduction in some regions of pre-paid services and calling party pays". Source: C&W 2002 Annual Report 2002.
- "The mobile business continued to grow strongly, with revenue increasing by 38%. Mobile subscribers increased by 85% to 845,000 with most of the growth in the Caribbean and Panama. Reasons for the growth include the completion of the digital mobile network in the Caribbean, the introduction of "calling party pays" in Jamaica and the roll-out of prepaid mobile services." Source: C&W Form 20-F, Fiscal Year to 31 March 2001.
- "Our customers were extremely pleased with the introduction of CPP. Before CPP many customers kept their phones switched off, but now everyone keeps their phone on. The effect on usage was very positive." Source: Mobile Marketing, Cable & Wireless, St. Kitts & Nevis.

2.3.1.6 Peru

The ITU Americas Report for 2002 singles out the introduction as one of the key factors in increased cellular penetration in Latin America. Peru is mentioned specifically:

- "The profile of the telecommunications market in the Americas region is rapidly changing as the number of new cellular subscribers has started to exceed by far the number of new subscribers to traditional fixed line services. Unsurprisingly, the overall trend towards higher growth rates in use of mobile since 1996 is inextricably linked to increased competition and service innovations, such as Calling Party Pays (CPP) and pre-paid. The increase in subscribers as a result of implementation of CPP is striking. Peru adopted CPP in May 1996 and by the end of the year, the number of cellular subscribers increased over 150% compared to the previous year". Source: ITU Americas Report 2000

2.3.1.7 El-Salvador

El-Salvador, one of Central America's poorer countries, introduced CPP in January 1999. This led to rapid mobile subscriber and revenue growth:

- "Total revenues in the first quarter of 1999 increased by 5% for our Latin America operations, within these operations, El Salvador had a strong first quarter with revenues increasing by a significant 67% from the fourth quarter of 1998 due to the introduction of calling party pays (CPP)." Source: Millicom International, Q1 1999 Results.

2.3.1.8 Guatemala

CPP was introduced on the 21st of October 1999. The introduction of CPP was accompanied by the introduction of proper interconnect agreements between all operators. The spectacular increase in penetration (see Figure 13) in the period immediately following the introduction of CPP is at least in part due to CPP, but also due to the launch of new cellular networks.

3. The Effect of Introducing CPP on Market Growth

There is no statistical correlation between penetration and whether CPP or wireless party pays (WPP) tariffing is applied. While MPP certainly has held back growth in the US and Canada, some countries such as Hong Kong and Singapore have achieved very high penetration rates without moving to CPP. Other factors such as incomes, tariff levels, competition, promotion and cultural factors impact significantly more on differences in penetration. However, in the longer term CPP is likely to lead to more rapid market growth and higher penetration levels.

In the early stages of the product life cycle wireless telephony was an expensive business tool. Wireless services were positioned as a high value added service focusing on mobility. The term mobile phone was frequently synonymous with the term car phone. In the 1990s a consumer market began to emerge. As penetration rates are now in excess of 70% in many of the leading mobile markets, the market is dominated by consumers.

Coleago Consulting Ltd has carried out market research in markets world-wide to ascertain the potential wireless mobile telephony penetration. Surveys have consistently shown that with conventional mobile telephony positioning the highest penetration rates could not be achieved. When individuals are asked whether, regardless of price, they would be willing to adopt mobile phones as consumers or business users, a high percentage of individuals say yes. However, a significant percentage reject wireless mobile telephony regardless of price. Those who rejected wireless mobile telephony are asked a further question, namely whether they would like to have an extended cordless phone or super cordless phone which allows them to take their home line with them and make and receive calls wherever they are in their home town. A high percentage respond positively. A typical survey result would show 30% of non-users saying they become wireless mobile telephony users and another 30% saying they would become subscribers to a super cordless phone service.

The difference between the services is not technology but positioning. The super cordless concept highlights the demand for a telephone service which is convenient, delivers accessibility and is as affordable as fixed telephony. Convenience and affordability means that subscribers want to use a mobile phone in the same way as a cordless phone. In Europe some segments of the population are already using mobile telephones as their primary voice telephone. This is the point where fixed and mobile services converge. These services are often referred to as fixed-mobile convergence services (FMC services).

Fixed mobile convergent (FMC) services positioning means wireless services must be tarified similar to fixed line services, because in effect the wireless phone is used just like a fixed phone. Fixed line services are based on CPP, i.e. it is universally accepted that the recipient of calls does not pay for these calls. Clearly the vast majority of consumers fixed network subscribers and a high proportion of business fixed network subscribers would not like to pay for inbound calls. Therefore the successful positioning of FMC services is conditional upon the introduction of CPP.

The emergence of FMC services will allow wireless operators to gain a significant slice of the local telephony market. It is in therefore in the interest of wireless operators to promote CPP. In other words there is not only a demand pull but also a supply push favouring the growth of CPP tariffing for mobile services.

Setting aside theoretical considerations for longer term growth, there is substantial empirical evidence that the introduction of CPP increase net additions in the short term. It is difficult to separate the effect of CPP from other factors, such as the introduction of prepaid, lower handset prices or more competition. Nevertheless all operators who changed to CPP reported an immediate surge in customer numbers. That this is due to the introduction of CPP is supported by primary market research. Market research among potential mobile subscribers in Pakistan revealed that the fact of having to pay to receive calls was a major barrier to adoption. Once this was removed, monthly sales increased by a factor of 3 to 4.

Looking at the incremental penetration following the introduction of CPP in Chile, El-Salvador and Mexico and Pakistan, there is some difficulty of separating the effect of CPP from the general trend of the penetration curve. In all cases the product life cycle was in the accelerating growth phase. However, examining the change incremental penetration in the 12 months after introducing CPP it is apparent that there had been an above trend increase (see Figure 9 to Figure 12). The countries have been selected because the introduction of CPP is relatively recent and reliable penetration was available.

Figure 9 – Chile: Introduction of CPP & Incremental Cellular Penetration

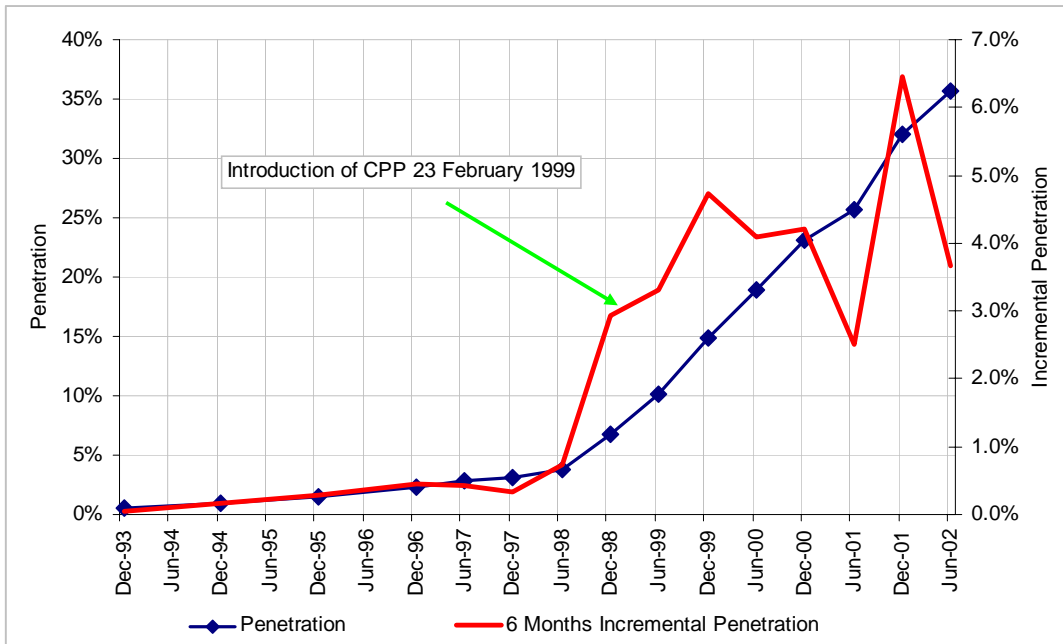


Figure 10 – El-Salvador: Introduction of CPP & Incremental Cellular Penetration

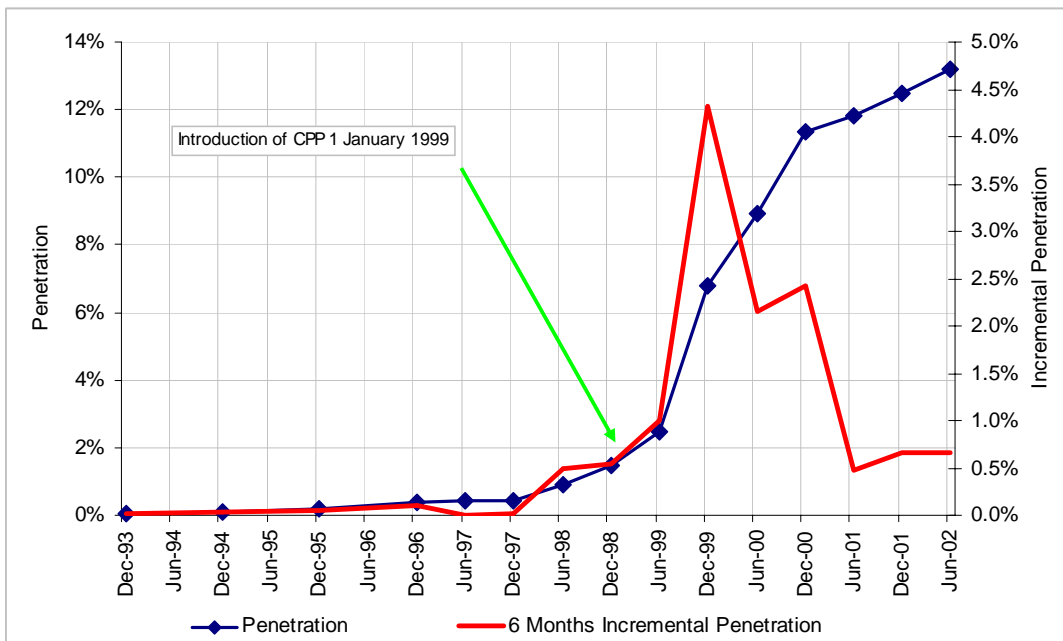


Figure 11 – Mexico: Introduction of CPP & Incremental Cellular Penetration

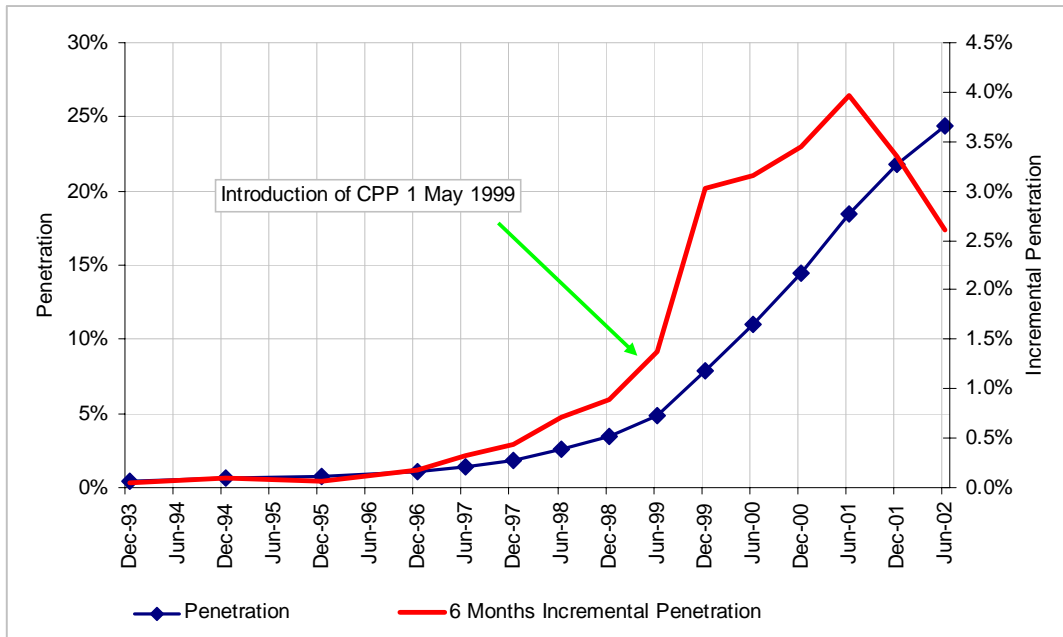


Figure 12 – Pakistan: Introduction of CPP & Incremental Cellular Penetration

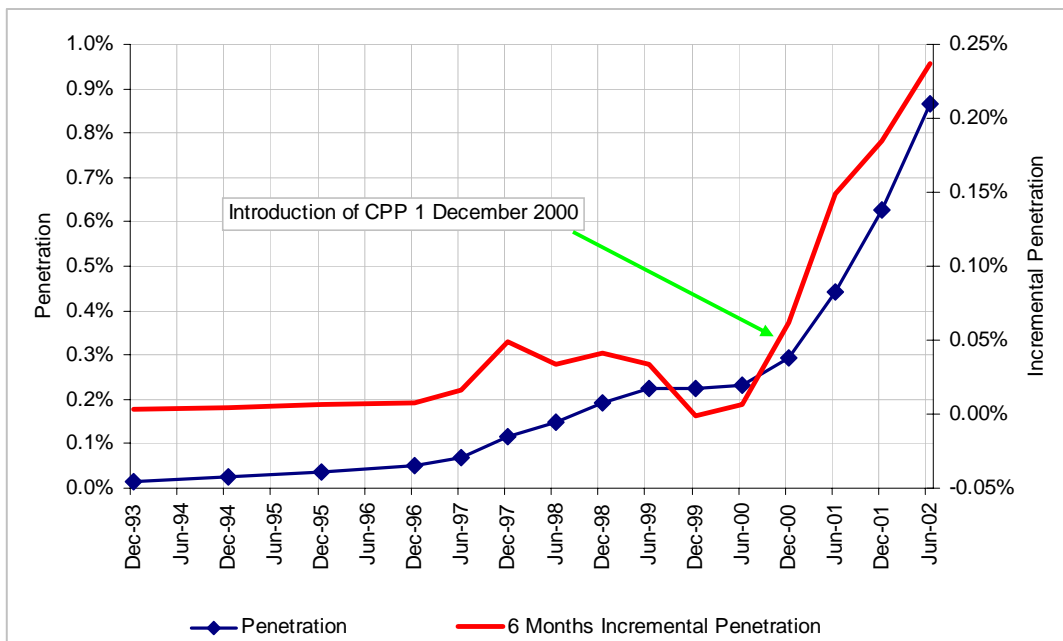
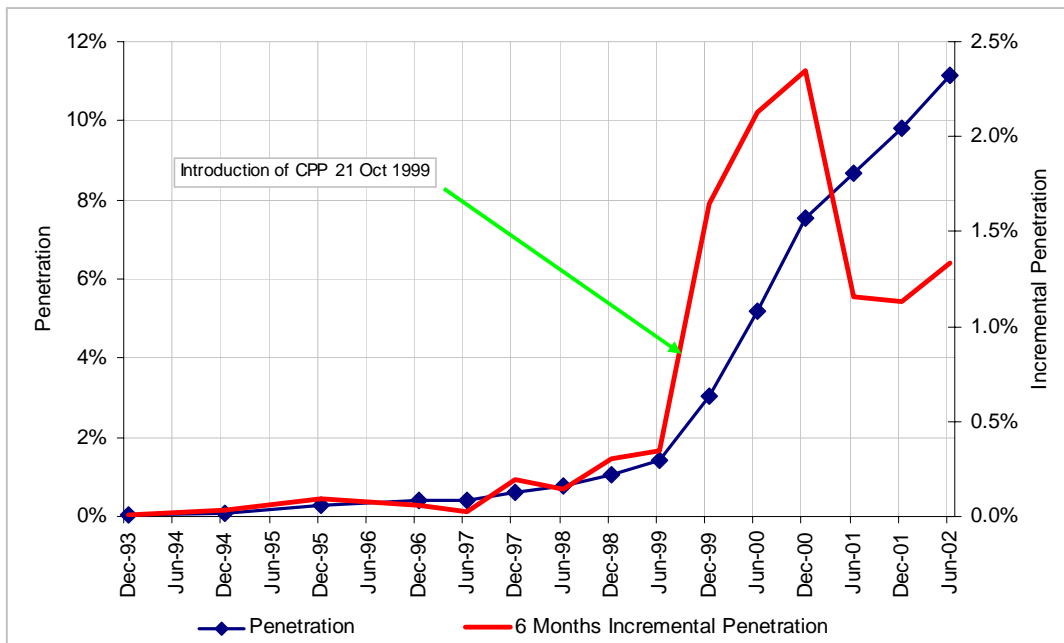


Figure 13 – Guatemala: Introduction of CPP & Incremental Cellular Penetration



4. Conclusions

The introduction of CPP will stimulate mobile market growth:

- There is compelling benchmark evidence that the introduction of CPP leads to an increase in net additions. The effect appears to be immediate and ranges from a 20% increase of net additions to an almost doubling of net additions.
- Having to pay for inbound calls is an extremely odd situation. It is hard to imagine another item of expenditure where a third party has power over how much money an individual spends. The fact that under mobile party pays cellular users have to pay for mobile terminated calls and cannot properly control costs other by switching off the phone must weigh more heavily in a price sensitive markets, such as emerging markets.

The introduction of CPP will reduce churn:

- There is evidence that the introduction of CPP reduces churn, as for example reported in Trinidad & Tobago. In a country where churn rates are fairly high, there is specific evidence that some customers churn in order to change their number, because the number became known to too many people. With CPP, a telephone number becomes an asset, rather than a potential liability. Coleago research among mobile users in various countries around the world has shown that having to change telephone numbers is a barrier to churn.
- It could therefore be expected that the introduction of CPP will reduce churn. On this basis it may be assumed that the introduction of CPP would reduce churn by 20%. For example if annual churn was 25% it would decline to 20%.

Outbound usage will increase:

- If in MPP cellular users spend roughly 50% on outbound and 50% on inbound calls. All things being equal the introduction of CPP will reduce average monthly spend per customer by 50%. Assuming the fact that henceforth mobile terminated calls will be free is communicated, cellular operators could expect an elasticity effect. The benchmarks suggest that the demand is highly price elastic, i.e. coefficients could be higher than 0.5. Assuming, for example that the price elasticity is 0.5, average monthly spend per user would only decline by 25%. This would result in increased mobile to fixed and mobile to mobile traffic.
- Since a price elasticity coefficient of 0.25 would still deliver saving to customers, there may be some cross price elasticity. Some of the money previously spend on voice calls may be spend on SMS. However, there are not good benchmarks for this effect.
- The price elasticity effect applies of course only to existing customers and if lower spending customers join the network, average monthly spend per user my decline.

Fixed to mobile traffic will increase:

- Traffic on mobile networks roughly breaks down as follows: 63% fixed to mobile, 7% mobile to mobile, 30% mobile to fixed. In many countries prior to the introduction of CPP, mobile originated minutes exceeded mobile terminated minutes. Ratios of 65:35 were not uncommon. This means that the scope for increased fixed to mobile traffic is probably more limited than, for example, in the case of Mexico. Nevertheless, based on the international experience it is probably unlikely that fixed to mobile traffic will decline as a result of the increase in retail prices for fixed to mobile calls.
- In most MPP markets many cellular users kept their phone switched off, filtered calls using calling line display, or only gave out their number to very few people because they had to pay to receive calls. This will change with the introduction of CPP. Operators must communicate the benefit of CPP to customers: "Keep your handset turned on at all times to ensure you receive all those important calls, without having to pay!" Source: Promotional message from TSTT, Trinidad & Tobago
- Depending to what extent mobile users kept their phone switched off, used calling line display to filter calls, or limited circulation of their mobile number, there may be unsatisfied demand for fixed to mobile calls. If, despite the already high percentage of fixed to mobile calls, there is some unsatisfied demand for fixed to mobile calls, the change to CPP would further increase fixed to mobile calls.
- If the price of mobile termination rate is low, the per minute price for fixed to mobile calls will also be relatively low. In the benchmarks countries, there is no evidence of price elasticity for fixed to mobile calls. It is therefore reasonable to assumed that demand for fixed to mobile calls will not be price elastic.
- On this basis the impact of the introduction of CPP on fixed to mobile call may be a slight increase in average monthly fixed to mobile minutes per customer. However, if the market is also increasing fast, this will have an opposing effect.

Operators could react to the introduction of CPP in a number of other ways:

- If termination rates are low, within the constraints of setting prices in a highly competitive market, cellular operators may start looking at ways of changing prepaid tariffs which account for the majority mobile users. For example, operators may reduce the validity period on recharges or introduce a line rental element. A line rental element for prepaid mobile users could be implemented by means of a daily charge. This would compensate for the fact that the mobile termination rate is below cost.

- Other initiatives may include differential pricing for calls between mobile networks and on network calls. However, this would send the wrong signals to regulators. For example, if mobile operators agree between each other a low mobile termination charge, this would vindicate the a low rate set by the regulator. On a costs basis mobile to mobile calls should have the highest per minute tariff.