Fair Trading Commission

Staff Opinion on the Competitive Dynamics of Call Termination Provision

Staff Report

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June 23, 2010

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Table of contents

1. Introduction

1. Over the past year and half the Fair Trading Commission (FTC) has received complaints regarding anticompetitive pricing of call termination on mobile networks. This paper examines the competitive dynamics of call termination provision and makes recommendations regarding possible regulatory solutions.

2. A telephone call between two end-users involves two essential components; origination and termination. Origination refers to the carriage of the call from the calling party over the network to which that end-user (calling party) is connected. Call termination refers to the carriage of the call to the person receiving the call over the network to which that end-user (called party) is connected. When the calling party and the called party subscribe to different networks then a point of interconnection is required for this call to be completed. Call termination is a specific type of interconnection service which enables users of one network to receive calls from users which are connected to other networks. Mobile call termination is therefore an essential input into the provision of calls to a mobile user where that user is on a different network from the user who originates the call.

   Mobile termination rates (MTRs) vary across countries and regions of the worlds reflecting the disparate regulatory treatment that MTRs receives. While there seems to be a general trend in bringing MTRs closer to the actual underlying cost of providing the service, in many countries the rates are still significantly above-cost. As will be discussed later there is little incentive for mobile operators to reduce these rates, particularly because of the substantial revenue which can be derived from such rates as well as the competitive impact these rates have in related markets. At present, in Jamaica, mobile call termination is an unregulated service. Under the current commercial arrangements between network operators, the originating network owner purchases termination services from the network which completes the call. The originating network will then recover the cost of the termination cost service, along with the cost incurred for originating the call from its subscriber. There are three (3) mobile network operators (MNOs) in Jamaica; Cable and Wireless Jamaica Limited, T/A LIME, Mossel Jamaica Limited, T/A Digicel and Oceanic Digital Jamaica Limited, T/A Claro. There are also three fixed operators; LIME, Digicel and Columbus Communications Limited, T/A Flow.

2. The Existence of Market Power in the Provision of Call Termination

3. Whether or not a MNO has market power in the provision of termination services is based on the definition of the relevant market in which termination services are supplied.[1] In market definition analysis the boundaries are based on the substitutable options available to the consumer which faces a price increase by a hypothetical monopolist. That is given the increase in price, can a sufficient number of consumers

[1] The market definitions discussed in this Paper are without prejudice to any subsequent market definition exercise which may be undertaken in an investigation pursuant to the Fair Competition Act.

switch from the product of a hypothetical monopolist to make this increase profitable. This switch can occur in either of two ways. The first is where the consumer switches to another product currently being produced which satisfies the preferences satisfied by the monopolist product (demand-substitution). The second is where existing firms in the market who are not currently supplying the product offered by the monopolist begin to provide the product. If a sufficient number of consumers switch then the price increase would be defeated and the products and suppliers to which he or she can switch would be included in the relevant market. In most cases, the relevant market is defined as having two dimensions: product and geographic. In some cases however, a functional dimension is also defined.[2] The relevant product market is defined by "*determining the substitute products to which customers would switch in the event of a price increase*"."[3] This is usually defined by an assessment of demand and supply-side substitution. The geographic dimension is defined by determining the physical boundaries within which a consumer could switch suppliers in the event of a price increase. The functional dimension looks at the level in the production or distribution chain at which the product is provided, e.g. wholesale or retail. It is generally based on structural characteristics and the seller-buyer relationship.

The Product Market

Demand Substitutability

4. With respect to demand substitutability at the wholesale level, network operator A whose subscriber wishes to speak with a subscriber on Network B has no option but to terminate the call on Network B. Any attempt to do otherwise would result in the call being unsuccessful. The operator of Network A has the option of either direct termination or transit termination. In the first case, the call will leave directly from the originating network onto the terminating network. In the latter case, the call is transferred from the originating network to a third party network (the transit network) which then transfers the call to the destined network.[4] The feasibility of using the transit termination option will be dependent on cost and traffic volume considerations. However, the need to direct traffic to a specific mobile operator ensures that at the wholesale level there are no realistic demand-side substitutes for an operator seeking to terminate traffic on a particular mobile network.

5. At the retail level, possible demand-side substitutes which have been mentioned in the MTR debate include calls to fixed line numbers and sending messages via email or SMS. However, these options offer only a limited form of substitutability. With regards to calling a fixed line number instead of a mobile number , the former does not match the mobility and convenience of the latter . In the case of emails, this is not immediate and the user would need to acquire a data package in addition to their

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[2] See ACCC, Anti-competitive Conduct in telecommunications markets – an Information Paper and Commerce Commission, Mergers and Acquisitions Guidelines

[3] See Fair Trading Commission (n.d.), A Guide to Anti-Competitive Practices.

[4] Note that the third party network can be either fixed or mobile or domestic or international. Prior to the regulation of MTRs in the EU, some fixed operators found it more cost-effective to send domestic fixed-to-mobile traffic via international routes to bypass domestic interconnection rates.

voice packages. Given that in Jamaica most users are prepaid users emails are unlikely to act as an effective constraint on mobile termination rates. With respect to SMS the fact that such communication is abbreviated and is not guaranteed to be immediate makes it an ineffective constraint on mobile call termination rates.

Supply-side substitutability

6. With respect to supply-side substitutability, another mobile network cannot terminate calls intended for the recipient mobile network if it does not have access to the user profile data which is housed on the SIM card belonging to that network's subscriber. It is not foreseeable that any substitute in this regard will develop within the next two years. Therefore, given that the emergence of a supply-side substitute must be immediate and persistent to act as a constraint on a dominant operator there are no supply-side substitutes for the call termination service provided by each network.

The Geographic Market

7. Given that the call termination service provided by each MNO constitutes a separate relevant product market, it is reasonable to conclude that the geographic dimension of each market coincides with the geographic coverage of each MNO network.

The Functional Market

8. As mentioned earlier, mobile termination is an input in the provision of the end-to-end retail services such as mobile to mobile or fixed to mobile services. Given that call termination is an input service the functional market would be at the wholesale level. This is not to suggest that there are no inter-relationships between the termination service provided by the network operator and the retail services which it provides, such as mobile origination. However, such relationships are generally considered when assessing the competitive effect that a dominant supplier of mobile call termination service can have on related retail markets.

Summary

9. The relevant market is the provision of wholesale call termination service on each individual mobile network. The geographic dimension of each market will be based on the scope of the relevant MNO's network. Given this definition the relevant markets would be:

- Wholesale call termination service on Lime's mobile network;
- Wholesale call termination service on Digicel's mobile network; and
- Wholesale call termination on Claro's network.

Relevant Market in Other Jurisdictions

10. The views expressed above regarding the relevant market are shared by other regulators. The European Commission concluded that:

> *"... whilst it is apparent that end-users who subscribe to mobile services have a choice about the network to which they subscribe and that it is relatively easy to*

switch between networks, there is limited evidence of widespread constraints on the pricing of wholesale call termination. The first option for the scope of the market definition is one for call termination on each mobile network. This would imply that currently each mobile network operator is a single supplier on each market. The conclusion at the current time (under a calling party pays system) is that call termination on individual networks is the appropriate relevant market."5

11. In Australia, the Australian Competition and Consumer Commission (ACCC) concluded that:

> *"…providers of the Mobile Termination Access Services (MTAS) have 'bottleneck' control over access to an essential input in the provision of fixed-to-mobile and mobile-to-mobile (MTM) calls. Further, the Commission finds that the MTAS is a wholesale service sold to consumers directly connected to other service providers. More specifically, the Commission finds that the termination services of individual MNOs are not substitutable for each other. This is the case irrespective of the size of individual mobile operators, or the type of network technology they employ."*[6]

12. In New Zealand, the Commerce Commission concluded that the relevant market is:

> *"the national wholesale market for mobile termination services on each mobile network.*[7]

Assessment of Market Power

13. After a relevant market has been defined, it is generally necessary to examine whether any entity holds a dominant position in the market, i.e. the state of competition in the relevant market. If there is already effective competition in the market then regulatory intervention may not have a significant impact on the level of competition. In assessing the state of competition in a market the FTC considers the following structural criteria:

   - Market share/concentration;
   - Entry Barriers; and
   - Countervailing buyer power.

14. In some jurisdictions, there have been discussions about whether an operator can be considered dominant in a wholesale market for termination if there is effective competition in the mobile access and mobile origination markets. The assumption is that if these markets are competitive then any excessive profits earned from the wholesale termination market is competed away in these retail markets. This effect, it is claimed, is proof that the mobile operators are not dominant in the relevant termination market. However, the fact that the operator is unable to retain the excessive profit earned in a wholesale market due to competition in related markets is not proof of lack of dominance in the relevant wholesale market. Rather, the

[5] See European Commission (2003), Commission Recommendation on relevant product and service. markets within the electronic communications sector, Explanatory Memorandum.
[6] See ACCC (2004), Mobile Services Review: Mobile Terminating Access Service
[7] See Commerce Commission (2005), Report on whether mobile termination should become a designated or specified service.

operator's ability to earn the excessive profit in the wholesale market in the first place is proof of its dominance in that market. The fact that this profit may be competed away in a retail market does not hold any significance to the determination of dominance in the wholesale market.[8]

Market Share/Concentration

15. According to the market power theory where there are several independent providers of a particular product to consumers, a provider is unlikely to be able to exercise its market power by setting rates at a level which is higher than that which would be in the public's interest. This is based on the system of incentives and rewards which is embodied in a competitive market. According to the theory, the other independent providers, by setting lower prices could either drive the high price supplier out of business or at least drive down its rates to competitive levels. The level of market concentration is therefore one indicator of the existing or likely level of competition in a market. The higher the number of players in a market the less likely is it that one firm will have sufficient market share to influence the level of prices paid by customers. Given that the relevant market definition is the provision of wholesale call termination service on each individual networks it stands to reason that each operator has a monopoly over the provision of termination services on its network. It therefore follows that each MNO has the ability to set termination rates that are well in excess of the underlying costs of supplying termination services.

Entry barriers

16. The individual mobile network operator is currently the only supplier of termination service on its network. The potential competition for this market will be based on the significance of barriers to entry into that market. In the absence of technological developments which gives an operator direct access to the subscriber of another network in order to terminate calls there seems to be an absolute barrier to entry into the relevant market.

Countervailing buyer power

17. In the assessment of market power it is necessary to consider whether the customers of the MNO providing access have any countervailing power. In the case of mobile termination, the possible sources of countervailing power to be considered are at both the wholesale or retail level.

Buyer Power at the Wholesale Level

18. At the wholesale level the question to be answered is whether the originating operator has sufficient countervailing buyer power. The concept of buyer power at the wholesale level has been formalized in the bargaining model developed by Binmore

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[8] In a Section 20 analysis this issue would be taken into consideration in the assessment of the competitive effects of any abusive conduct (such as excessive or discriminatory wholesale termination rates) of the dominant enterprise.

and Harbord (2005).[9] According to the Binmore and Harbord model, the MTRs for the smallest entrants should not be higher than the average of the other operators. In their assessment of whether the bargaining model is manifested in mobile markets in the EU, Cave and Doyle (2005) looked at the data for three countries in which none of the operators had been designated as being dominant or having significant market power (SMP) in 2003, namely Austria, Germany and Switzerland.[10] They found that in all three countries the termination rates of the last entrant were more than 100% of the average rates of other operators (see table below).

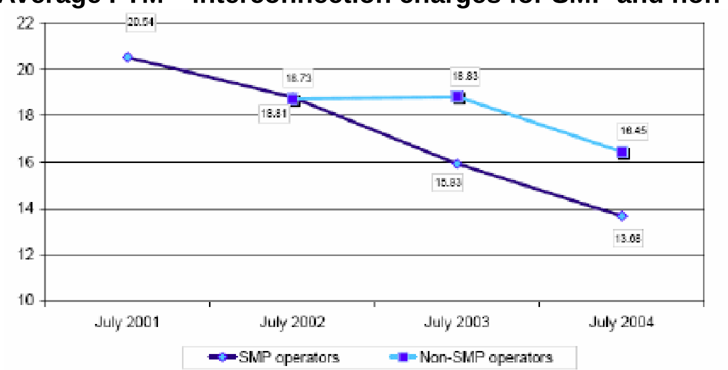
Table 1: Last Entrant's Termination Rate as % of Incumbents' Average Termination Rate

Country	Operator	Year of Entry	Entrant Number	Mobile termination rate as % of average rate
Austria	tele.ring	May 2000	4	153%
Germany	Viag	October 1998	4	118%
Switzerland	Orange	June 1999	3	105%

Source: Cave and Doyle (2005)

19. In a wider study of termination rates, Cave and Doyle (2005) noted that in general, mobile entrants within the EU15[11] were able to negotiate fixed to mobile termination rates which were higher than the rates charged by existing mobile operators. In fact it is estimated that the entrants' rates were at least 20% higher than those set by mobile operators which had been designated as having SMP (see Figure 1 below).

Figure 1. E15 Average FTM[12] interconnection charges for SMP and non-SMP Operators



Source: Cave and Doyle (2005)

20. The findings of Cave and Doyle refute the argument that originating operators have countervailing buyer power. In the case of an incumbent fixed operator the lack of

9 See Binmore and Harbord (2005), Bargaining Over Fixed-to-Mobile Termination Rates in the Shadow of the Regulator

10 See Cave and Doyle (2005), Mobile Termination Rates: An Economic Analysis.

11 The European Community member states prior to the ascension of Eastern European countries.

12 Fixed to Mobile.

bargaining power stems from the fact that it does not have any discretion regarding whether or not to interconnect with other operators. This is due to the fact that in most if not all countries, the incumbent fixed operator has been declared a dominant operator. In Jamaica, LIME has been declared dominant in several fixed markets including the market for termination on its network. LIME is therefore obliged to interconnect with other operators in the market. In addition, LIME's termination rates are subject to the cost-oriented and non-discriminatory charging principles outlined in Section 30 of the Telecommunications Act (TA) [2000]. This means that LIME's fixed network is unable to retaliate against mobile networks with high termination rates. Several regulators have already rejected the argument that the incumbent fixed operator has any buyer power.

21. The Irish regulator, ComReg made the following pronouncement: "*eircom does not have the alternative not to purchase, as it is obliged to provide interconnection to all operators, nor does it have much scope to retaliate; at the wholesale level its termination rates are subject to the principle of cost-orientation*".[13]

22. The Commerce Commission in New Zealand concluded that: "*However, the ability of the fixed network to raise its termination price in retaliation against any increase in the mobile termination rates is limited, as fixed interconnection is subject to regulatory pressure. This indicates that countervailing buyer power in the hands of fixed network operators is unlikely to constrain the mobile networks in supplying termination services*."[14]

23. The buyer power argument also does not hold in cases where both the access seeker and provider are unregulated. According to Section 29 of the TA every operator <u>must</u> provide any to any connectivity and cannot refuse to send calls to or to receive calls from another network. Therefore a refusal to deal is not an option available to the originating network as it is bargaining in the shadow of the law. The threat of being in breach of the law therefore weakens the ability of operators to exert countervailing power. With respect to the terms and conditions upon which the interconnection is granted, pre-contract disputes can be brought before the OUR under Section 34 of the TA but where neither of the party to the dispute is dominant the OUR may decline to act as an arbitrator. Therefore, bargaining in the shadow of the regulator, i.e., the threat of the matter being referred to the OUR will be less of a constraint on the exercise of market power where none of the disputing parties has been declared dominant. In addition to being legally obligated to purchase termination, from a commercial standpoint it is difficult to imagine any operator informing its subscribers that it is boycotting a particular network because of its high termination rates. This would be an untenable situation for subscribers, especially business subscribers.

[13] See Decision No: 02/05 of the Electronic Communications Appeals Panel in respect of Appeal No: ECAP 2004/01

[14] See Commerce Commission (2005), Report on whether or not mobile termination should become a designated or specified service.

Given the absence of any legal or practical standing on which to refuse to route calls to a particular network, it is fair to say that the access seeker has little power to constrain the pricing of the access provider.

Buyer Power at the Retail Level

24. At the retail level, the question is whether the possibility for the calling network to compete for the recipient subscriber on the called network, constrains the ability of the terminating network to set a high termination rate. The thinking here is that consumers in the retail markets will substitute away from the network with the high termination rate towards one with a lower termination rate (all things being equal). This is likely to happen if mobile customers are concerned about those who call them. Only then they are they likely to consider choosing operators with lower termination rates. This would be limited to persons who make most of their calls to persons with whom they share a common bond such as a familial or corporate relationship. Generally in this scenario, one customer makes the subscription decision and pays for the calls within the particular group. The MNO however, is able to readily identify these subscribers and can offer special discounts to attract such groups. The converse could also be true, in that callers may churn off from other networks onto the high termination rate network, if regardless of these relations being on the same network they still make a significant amount of their calls to the network with the high rates.

25. The lack of retail buyer power is exacerbated by the calling party pays (CPP) regime. Based on the CPP regime a network operator has the ability to raise termination rates due to the fact that the consumer facing the price increase in termination services does not purchase any other mobile services from the terminating network and has no option but to call the network to which the recipient of the call subscribes. Unlike the case of the receiving party pays regime, there is a disconnect between the person making the call and the one who chooses the termination network, in that the former pays the entire price of the call, but it is the latter which has the potential to influence the termination rate. Therefore while the mobile operators have an incentive to maintain low charges faced by their subscribers, such as subscription, call origination and text messaging, lthey have less incentive to keep the rates paid for calls made to their networks from other networks low. This strategy allows them to attract and retain subscribers. The development of the Jamaican mobile sector seems to belie the view that retail buyer power can constrain the ability of these operators. Currently, the mobile operator which has the highest termination rates in the sector has the largest number of subscribers. The network has managed to grow its market share while keeping its termination rates high in spite of comparable service offerings (type and quality) from the other operators. This provides anecdotal evidence that although MNOs compete to provide subscribers with retail mobile services such as origination this does not prevent them from charging higher termination rates.

Summary

26. Based on the market definition each MNO is effectively a monopolist in the market for call termination on its network. This will remain unchanged in the short to medium term due to the fact that existing technologies do not allow other suppliers to offer call termination service on networks other than their own. This creates an absolute barrier to entry into the relevant market. There is also insufficient buyer power at the relevant wholesale and retail level to constrain the ability of the termination network to raise its wholesale termination rates above the competitive level. As such, a MNO has both the incentive and ability to set termination rates at a level which is well above the underlying cost of providing the service. While the rates may not be set at the monopoly level the rates are likely to exceed the competitive level.

3. Detrimental Effects Arising from Dominance in Termination Markets

27. A call for the regulatory intervention in the wholesale mobile call termination market must rest on the belief that MTRs are likely to be set too high in the absence of intervention and that this is likely to have a negative impact on competition in the related retail markets. The global experience has shown that given dominance in call termination markets, there is a risk of adverse effects arising from price distortions in the wholesale as well as the related retail markets. That is, MNOs tend to charge excessive or discriminatory rates to the detriment of final consumers (see Table 2 below). As such one should be concerned about the effects of excessive (or discriminatory) termination rates for the following reasons: excessive termination rates reduce economic efficiency; excessive and discriminatory termination rates distort consumer choices; and the retail markets are not sufficiently competitive for all the excess profits to be competed away.

Table 2: Termination Rates Mark-up Over Cost

Country	Year	Mark-up over cost%
United Kingdom	2002	30-40
France	2001	66
Ireland	1999-2003	>43
Netherlands	2003	100
Australia	2004	>100
New Zealand	2004	75
Europe (average)	2004	>100

Source: Littlechild (2005)[15]

[15] Littlechild, Stephen (2005), “Mobile Termination Charges: Calling Party Pays versus Receiving Party Pays”.

Excessive Wholesale Termination Rates Reduces Economic Efficiency

28. In telecommunications, efficient rates typically consist of the recovery of the variable costs of the product, plus mark-ups to recover the product's fixed costs, and any shared or common costs.[16] In the absence of regulation, MNO's have the incentive to charge excessive rates for termination. The excessive profits earned in the termination markets are then used to reduce retail rates and to engage in activities aimed at retaining most profitable consumers or encouraging them to switch. Boreggi et al (2009) refers to this behaviour as inefficient cream skimming.[17] In its review of termination rates, OFCOM noted that the pricing structure in UK retail mobile markets was unbalanced. Although many retail costs were incremental solely to the provision of retail services they were being recovered from wholesale call termination rates. This meant that there was a divergence between the cost and price of retail products such as subscriptions and handsets. In effect these products were being subsidized by the subscribers of the originating networks. Bomsel et al (2003) estimated that in the UK, France and Germany, there has been a transfer of €19 billion from the fixed to the mobile sector over the period of 1998-2002.[18]

29. The divergence between costs and prices in mobile markets creates distorted price signals. This in turn can result in the volume of calls from fixed to mobiles being below the efficient level while the level of handset replacement and switching between mobile networks are above the optimal level. While switching between suppliers can be indicative of a competitive market, it can also be sub-optimal. For switching to be optimal it should be due to a decrease in price which is caused either by a reduction in mark-up or a cost reduction or by improvements in the quality of service being provided by the beneficiary network. For the most part, the type of switching that occurs in an unregulated mobile sector is due to distorted price signals.

30. Where an MNO uses the excess profit earned from wholesale termination to significantly reduce the price of subscription and handsets, the increased switching behaviour and handset replacement signifies a reduction in allocative efficiency. There would be welfare losses associated with below-cost provision of handsets and access and above-cost provision of termination services. Further, given that the price reduction has nothing to do with a reduction in the costs of providing the product, such a reduction would not be indicative of an improvement in productive efficiency. As such, switching behaviour and handset behaviour caused by inflated termination rates are not likely to result in the promotion of maximized efficiency. With respect to the effect of the cross-subsidization on dynamic efficiency, it distorts the investment decisions of networks and can encourage inefficient entry and expansion of networks while discouraging investment on the part of the subsidizing network.

[16] See http://www.ictregulationtoolkit.org/en/Section.2166.html
[17] See Boreggi et al (2009), Asymmetric termination charges to support small networks.
[18] See Bomsel (2003), How mobile termination charges shape the dynamics of the telecom sector.

Excessive and Discriminatory Termination Rates Distorts Consumer Choice

31. Given that termination is an input into retail services, the pricing freedom enjoyed by an MNO can distort and reduce competition in the retail mobile services market (outgoing calls and access markets). Excessive fixedto mobile (FTM) termination rates distort consumers' choice between making a fixed to mobile or a mobile to mobile call. Given such rates it is likely that consumers who have both mobile and fixed lines will use the former to make calls to mobiles. In Jamaica, since liberalization there has been persistent growth in the penetration level and usage of mobile telephony, whereas in the fixed telephony there has been a steady decrease in access lines and usage. It can be assumed that the main driver of these developments is the substitution of fixed line service by mobile telephony. In some cases this substitution is likely to be driven by distorted price signals caused by excessive FTM rates.

32. Excessive mobile termination rates also distort consumers' choice between making an off-net or an on-net mobile to mobile call. In Jamaica, the marked difference between on-net and off-net rates on some networks has resulted in mobile subscribers having multiple subscriptions. This is not unique to Jamaica. In a study commissioned by OFCOM, Analysys Mason noted that in CPP countries with unregulated mobile termination rates, there is an incentive for subscribers to keep multiple subscriptions in order to take advantage of the lower on-net rates.[19] They further noted that while this was historically the case in Europe the regulation of termination rates have resulted in a reduction in the discrepancy between off-net and on-net rates as well as the need to keep separate SIM cards[20]. For mobile networks with smaller subscriber base, most of the outgoing calls will be off-net calls. This asymmetric market position and the high termination rates could place such MNOs at a disadvantage in terms of its provision of retail mobile access and out-going call services. Such operators will have a problem attracting subscribers by offering low on-net rates relative to MNOs with a large subscriber base.

33. Discriminatory FTM rates can also distort consumer choice between the fixed telephony services of an unregulated integrated fixed/mobile operator (FMO) and that of other fixed telephony providers (such as non-integrated fixed operators or regulated FMOs). In such cases, the unregulated FMO could cross-subsidize calls from its fixed network by way of discriminatory termination rates. The distortion of competition in the fixed telephony market is likely to be more significant in the business access segment where there is unlikely to be much substitution between fixed and mobile access. Using market data from Austria, Briglauer et al (2010) found that Fixed-to-Mobile Substitution (FMS) is more evident among a particular subset of predominantly residential customers, i.e. the decline in fixed line access and

[19] See Analysys Mason (2008), Case Studies of Mobile Termination in Canada, Hong Kong, Singapore and the USA. http://www.ofcom.org.uk/consult/condocs/mobilecallterm/annex8_1.pdf

[20] Where the latter is observed the primary reason is no longer the cost of calls but rather tied to factors such as the need to maintain different numbers for work and home.

minutes for business customers was much lower than that of residential customers.[21] Similar results have been had for transitioning countries in Europe.[22] In that study it was shown that complementary rather than substitution effects dominated in the business segment of the market due to the fact that mobile solutions were viewed as a good substitute for voice services but not for other services. Another reason is that studies have shown that consumers attach less confidence to companies which can be reached only on mobile numbers.[23] By charging discriminatory termination rates a non-regulated FMO constrains the ability of a regulated FMO or a non-integrated fixed operator to compete effectively for customers who assign a greater importance to characteristics of the fixed network.

Retail Markets are not Sufficiently Competitive to Compete Away Excess Profits made in the Wholesale Termination Market

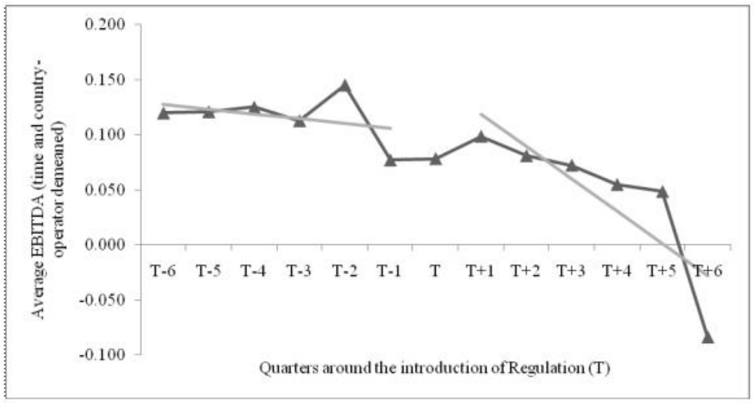
34. Mobile operators have argued that high termination rates facilitate the subsidization of connection and acquisition costs for new subscribers. According to this argument, the excess profits from termination rates are passed onto subscribers in the retail market and that this profit will be competed away in the competition among mobile operators. That is, MNOs will be unable to retain the excess profits earned in the wholesale markets due to the intense competition in the related retail markets. The follow-on argument is that if regulators reduced termination rates, retail mobile rates would increase. This phenomenon is referred to in the literature as the waterbed effect. Over the last decade both academics and regulators have mulled over the impact of the waterbed effect, in assessing whether to regulate termination rates. The Commerce Commission as well as OFCOM has addressed this matter in their review of termination rates. In both cases the regulators acknowledge the presence of this issue but questioned how important it was in terms of the "completeness" of the effect. Both regulators are of the opinion that the related retail markets were not competitive enough for the waterbed effect to be significant.[24]

35. Wernick et al (2010) studied the effect of mobile termination rates on retail prices and demand for 61 MNOs from 16 EU countries during the period of 2003 - 2008. [25] They found that rather than leading to an increase in higher retail prices, lower mobile termination rates within a CPP billing regime tend to yield lower retail prices. They also found that the lower termination rates, operating through lower retail prices tend to result in a higher consumption of mobile services. In a 2010 paper Genakos and Valletti found that in several EU countries accounting profits were positively related

[21] Briglauer et al (2010), Is Fixed-Mobile Substitution strong enough to de-regulate Fixed Voice Telephony: Evidence from the Austrian Markets.
[22] Taubman and Vagliasindi (n.d), Fixed and Mobile Competition in Transition Economies.
[23] Briglauer et al.
[24] See OFCOM (2006), "Mobile call termination, Proposals for consultation".
[25] Wernick et al, (2010), The Effects of Lower Mobile Termination Rates (MTRs) on Retail Price and Demand.

to mobile termination rates and that the operators' profits[26] decreased significantly in countries which introduced regulation (See graph below).[27] This proved that the waterbed effect was not complete and that MNO's are able to retain some of the excess profits earned in the termination market.

Figure 2: Average profits around the introduction of regulation



Source: Genakos and Valletti (2010)

36. Genakos and Valletti also examined the impact of the regulation of fixed to mobile termination rates and the prices and profits of mobile operators in more than twenty countries over a decade long period culminating in 2006.[28] They noted that the waterbed effect is lower the higher the level of mobile penetration in the market. That is, as the markets move closer to saturation the waterbed effect decreases due to the presence of different customer types in the subscriber pool. Genakos and Valletti also found that the waterbed effect had less of an impact where the subscriber base is largely pre-paid users. These characteristics mentioned above can be found in the Jamaican mobile sector in that the sector is characterized by a high penetration rate and a subscriber base which is mainly prepaid users. In addition, there is evidence that the Jamaican market is not sufficiently competitive for the excess profits made at the wholesale level of the sector to be competed away at the retail level of the sector. The sector is highly concentrated. Also, despite similar service offerings and what seems to be a high level of rivalry among the players (based on advertising intensity) LIME and Claro have found it difficult to gain market share.[29]

Summary

37. Based on the discussion in this section of the paper, there is sufficient justification for some form of regulatory intervention in the wholesale termination market. MNOs have the ability and the incentive to create a divergence between the price and cost of

[26] They used earnings before interest, taxes, depreciation and amortization.
[27] See Genakos and Valletti (2010) Mobile regulation and the "waterbed effect" - http://voxeu.org/index.php?q=node/4448
[28] Genakos and Valletti (2007). "Testing the "Waterbed" Effect in Mobile Telephony,"
[29] Based on data available to the FTC.

wholesale termination services and this will likely give rise to a retail price structure which reduces economic efficiency and distorts consumer choice. In addition, the probability of MNOs engaging in anti-competitive conduct in the retail markets is high. Regulatory intervention with respect to mobile termination rates will eliminate the distorted price signals and allow consumers to make efficient substitution choices that are based on the relative costs of the fixed and mobile technologies. The correction of distorted prices will create competitive pressure in the retail markets and should push prices closer to their underlying costs. This in turn forces MNOs to focus on reducing these costs; the need to reduce costs will lead to efficient investment decisions. Further, if the difference between the average cost of wholesale termination services and the average price paid for such services are reduced the scope for anti-competitive discrimination and leveraging in the retail markets will be reduced.

4. Ex-Post vs. Ex-Ante Regulation

38. Intervention in call termination is possible under both the Fair Competition Act (FCA) and the Telecommunications Act (TA). The timing of the intervention differs under both Acts. In the case of the FCA, the intervention is ex-post while it is ex-ante under the TA. The existence of dominance does not create an offence *per se* under the FCA. Rather, it is the manner in which it seeks to maintain that dominance which is reviewable under Section 20 of the FCA.[30] Thus if an entity has gained market power and is able to maintain it by means of its superior competitive performance in the relevant markets, it will not be found to be in breach of the FCA. Where it attempts to maintain this market power by way of anti-competitive conduct such as predatory pricing, excessive pricing and discrimination (price or quality) and this has led to or is likely to lead to a substantial lessening of competition in a market, then it could be in breach of the FCA.

39. The current remedies under the FCA are inadequate to constrain a MNO from abusing its dominance in the call termination market. Given the remedies available to the FTC, rational enterprises will have a strong incentive to breach the FCA. For mobile providers, a fine which is capped at five million Jamaican dollars is an insignificant figure, compared to what they spend on promotions. In the case where the infringement is a conduct which "raises rivals' costs" over a sustained period, a mere prohibition order will be an inadequate remedy. It does not have a deterrence effect. A rational MNO which is aware that it can engage in such an activity without any sanctions beyond a prohibition will engage in the activity. By doing so the protagonist would have successfully weakened its rivals thus reducing their ability to act as a competitive constraint on its actions. Ex-post regulation is also not the most efficient way of dealing with the anti-competitive pricing of an essential input by a monopolist or dominant provider. This is due to the extreme monitoring and compliance requirements that are involved in assessing and implementing cost-oriented rates.

40. Given the inherent weaknesses of ex-post intervention in this scenario, it is proposed that the ex-ante approach under the TA is the more appropriate regulatory intervention. However, it should be noted that for reasons discussed earlier[31], the mere threat of regulatory intervention in the form of pre-contract arbitration as provided for in Section 34 of the TA is inadequate to constrain the pricing of mobile termination services. It is the view of the Staff that the appropriate regulatory intervention is a dominance declaration under Section 28 and the subsequent regulation of termination rates based on the principles outlined in Section 29-33 of the TA. In particular Section 30, which mandates that the termination rates of dominant providers must be: non-discriminatory; cost-oriented and do not allow for any unfair arrangements for cross-subsidies.

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[30] According to Section 20, an enterprise abuses a dominant position if it impedes the maintenance or development of effective competition in a market.
[31] See page 8.

5. Conclusion and Recommendation

41. The Staff recommends that the ex-ante remedies outlined in Sections 29-33 of the Telecommunications Act be imposed on all MNOs. It is the Staff's view that ex-ante regulation of mobile termination rates will yield substantial long-term benefits to final consumers. The cost-oriented regulation of mobile termination rates will reduce barriers to expansion and entry in the related downstream markets. This recommendation is based on the following conclusions:

    - There seems to be a bottleneck in the wholesale call termination market in that the calling party has no choice but to call the network to which the called party subscribes;
    - The CPP billing regime used in Jamaica creates a disconnect between the party paying for call termination and the one making the subscription decision which determines who supplies the termination service;
    - There is an absence of countervailing buyer power both at the wholesale and retail level;
    - The existence of dominance in the wholesale call termination market creates a risk of adverse effects arising from price distortions in both the wholesale and retail markets;
    - Evidence to date does not suggest that there is sufficient competition in the related retail markets to compete away excess profits earned in the termination market; and
    - Given the characteristics of the relevant market ex-post regulation is not the most efficient form of regulation as there is a case for intervention once dominance is proven.