Introduction:

This chapter highlights the economical importance of MNP and infrastructure sharing among telecommunication operators. It also discusses the cost reduction of the infrastructure, also it explores the mutual benefits behind the use of MNP.

4.1 MNP (Mobile Number Portability):

In this part of the research provides a brief classification of the potential benefits of MNP, effects MNP should be expected to have effects on operators's economic aspect .

4.1 .1 Likely effects of MNP on switching and prices:

We outline the main effects that economic theory suggests MNP should have on switching propensity and retail prices.

4.1.2 MNP and retail prices:

The net effect of MNP on retail prices is in principle indeterminate. Empirically, it is likely to depend upon the interplay of three groups of effects:

- Pass-through of costs associated with the facility (increase in prices);
- Effects on competition (probably a decrease in prices); and
- Loss of customer information (increase in prices).

First, and most obviously, the implementation of MNP imposes costs on all operators employing it. Depending upon the extent of competition in a given national market, these costs are likely to be (at least partly) passed on to consumers and thereby lead to increased prices. I think that the main effect of number portability, and hence that mandating it through regulation will lead to a net reduction in welfare the welfare impact of switching cost reductions due to number portability.

They identify cases in which switching costs reductions provided by number portability (e.g. reducing the need to purchase complementary goods such as stationery) could be offset by higher marginal costs of providing call services, leaving consumers with lower surplus, Modeling the effect of MNP on switching define and estimate two econometric models of switching frequency, including proxy variables to capture the effect of MNP.

4.1.3 Explanatory variables:

Switching propensity should be positively related to the presence or absence of MNP and to the quality of the MNP service, insofar as the service reduces consumer switching costs. However, we have no theoretical prior as to the functional form of the relationship. To allow for a range of possibilities, we test two alternative proxies for MNP, both based on the target maximum porting time (MNPTM) in force in a given country.(Data on actual, rather than target, porting times would probably be a better measure of quality. Unfortunately, these data are not made public in most countries).

Also note that the decision to enact MNP regulation may be affected by market conditions, including churn levels.

The number of operators, Ops, should have a positive coefficient reflecting increased switching options and promotional activity as the number of operators rises.

4.1.4 Modeling the effect of MNP on prices:

The cross-country data available for estimating the effect of MNP on retail prices limits to a relatively simple modeling strategy. In particular, it is not possible to maintain the standard access/usage distinction and other more complex features of telephony demand models. Again we employ two models using different proxies for quality-adjusted MNP. These models are described below.

4.1.5 The price variable:

The proxy for prices is quarterly real average revenue per minute (RPM). It is an aggregate measure encompassing all revenues associated with mobile voice services (but excluding revenue from data services).

4.1.6 MNP INFRASTRUCTURE COST SAVING:

A necessary network component for mobile number portability is a database, accessible to all carriers, containing instructions on how to direct calls through the public network to dialed numbers, associated with specific consumers, irrespective of the network to which they currently belong. In most countries, the installation cost of creating mobile number portability database infrastructure is usually shared by several existing carriers. This means that new entrants would no longer need to spend money on creating routing databases. For existing carriers as well, the economies of scale inherent in one comprehensive database may reduce the costs of maintaining routing databases in-house.

4.2 Infrastructure Sharing*:*

Infrastructure sharing in telecommunication:

One of the most important policy concerns underlying the growing regulatory interest in sharing is the promotion of rapid and efficient network deployment.[17] , the network in question is the mobile network, which is increasingly becoming the dominant form of infrastructure , as well as the backbone for the provision of universal

access. the emphasis is on national broadband core and access networks and Next-Generation-Networks (NGNs). Although the modes of sharing differ and although each network raises particular policy concerns, broadly speaking, sharing facilitates a rapid, less costly and less disruptive deployment of networks, whether the network is mobile, fixed broadband, or NGN.

Maintaining and upgrading infrastructure make this risk even higher. For example, fixed network operators are migrating to next-generation networks, after most mobile network operators have to deploy the third-generation (3G) infrastructures. Therefore, infrastructure sharing can significantly reduce entrance and development risk.

Infrastructure sharing also has great impact on competition. Market becomes more attractive to new players for decreased entrance barriers. Such players can enrich the competition while investing effectively. By alleviating pressure of network deployment, sharing allows operators to turn their attention to improved innovation, better customer service and eventually better commercial offerings and healthier competition.

4.2.1 Telecom Infrastructure:

Basically a cell site consists of electronic (active) and non-electronic infrastructure.

- Electronic infrastructure includes base tower station, microwave radio equipment, switches, antennas, transceivers for signal processing and transmission.
- Non-electronic infrastructure includes tower, shelter, air-conditioning equipment, diesel electric generator, battery, electrical supply, technical premises and easements & pylons that account for nearly 60 percent of network rollout costs. See Base Station subsystem and Base Transceiver Station.

4.2.2 Telecom service providers can share infrastructure in many ways, depending on telecom regulatory and legislation.

- Passive Infrastructure sharing is sharing non-electronic infrastructure at cell site. Passive Infrastructure is becoming popular in telecom industry worldwide.
- Site sharing includes antennas and mast; this may also hold Base transceiver station (BTS), Node B in UMTS context and common equipment such as Antenna system, masts, cables, ducts, filters, power source and shelter.
- Sharing a mast is called mast sharing.
- Antenna sharing shares an antenna and all related connections (coupler, feeder cable), in addition to passive radio site elements.

- Active sharing is sharing electronic infrastructure.
- Spectrum-sharing concept is based on a lease model and is often termed ‘spectrum trading’. An operator can lease a part of its spectrum to another operator on commercial terms.
- Frequency Sharing.
- Base station sharing is prospective while each operator maintains control over logical Node B so that it will be able to operate the frequencies assigned to the carrier, fully independent from the partner operator and retains control over active base station equipment such as the TRXs that control reception/transmission over radio channels. Radio network controller and core network are not shared here.
- Radio Network Controller (RNC) sharing represents maintaining logical control over the RNC of each operator independently.
- MSC and Routers sharing or backbone sharing includes sharing switches (MSC) and routers (SGSN) on the operator's fixed network.

Increasing competition, along with investments in ever-changing technology, has been pushing telecom operators towards new ways of maintaining margins. Considering that building and operating infrastructure is a significant cost for operators, it is the ideal way to find quick wins. The estimated Capex savings resulting from tower sharing. Figure 4.1 show tower sharing.

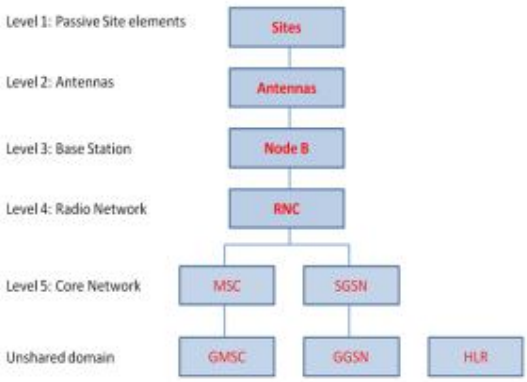

Figure 4.2: the different levels of infrastructure sharing in mobile networks,[17]

Telecoms infrastructure for operators primarily consists of:

• Active infrastructure (such as spectrum, switches, antennae)

• Passive infrastructure (such as towers, BTS shelters, power)

• Backhaul. Spectrum

• Switches
• Antenna
• Transceivers
• Microwave equipment

- Steel tower

- BTS shelter
- Power supply
- Generators
- Batteries
- Air-conditioners
- Fire extinguishers

4.2.3 Inter-operator tower sharing:

Operators generally use bilateral arrangements to execute Inter-operator sharing of passive infrastructure. Typically, bilateral agreements are on an 'in-kind' basis, with no payments made between the parties. The two parties agree to install BTSs on each other's towers. Inter-operator sharing is an operational method adopted to cut down on network costs. This makes network operations more economical by:

- Reducing network deployment costs
- Reducing time for roll-out
- Creating the potential for generating additional income through rentals earned from other operators using the towers (depending of the structure of the contract).

4.2.4 Accounting considerations:

The accounting treatment for infrastructure arrangements would depend on the model applied and the structure of the transaction. Accounting for these arrangements could be complex and a detailed analysis of the substance of the arrangement is required. Operators could:

- Retain the infrastructure assets on their books (typically if risks and rewards of ownership are retained)
- Derecognize the infrastructure assets (typically if risks and rewards of ownership are transferred to the third-party tower company)
- Recognize a portion of the assets (typically if there is joint control over the asset).

Conclusion:

Based on what've listed in the introduction to this chapter there are benefits from the application of Infrastructure sharing and MNP which reduces the number of expenses for telecom operators generally. On the other hand MNP will be also convenient for subscribers.