

Singapore Management University

## Institutional Knowledge at Singapore Management University

---

Research Collection Yong Pung How School Of  
Law

Yong Pung How School of Law

---

1-2007

### Paradoxical impact of asymmetric regulation in Taiwan's mobile communications

Yuntsai CHOU

Kung-chung LIU

Singapore Management University, [kcliu@smu.edu.sg](mailto:kcliu@smu.edu.sg)

Follow this and additional works at: [https://ink.library.smu.edu.sg/sol\\_research](https://ink.library.smu.edu.sg/sol_research)



Part of the [Communications Law Commons](#), and the [Technology and Innovation Commons](#)

---

#### Citation

CHOU, Yuntsai and LIU, Kung-chung. Paradoxical impact of asymmetric regulation in Taiwan's mobile communications. (2007). *A collection of essays on competition and regulation with asymmetries in mobile markets*. 1, 68-83.

Available at: [https://ink.library.smu.edu.sg/sol\\_research/3129](https://ink.library.smu.edu.sg/sol_research/3129)

This Book Chapter is brought to you for free and open access by the Yong Pung How School of Law at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection Yong Pung How School Of Law by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email [cherylds@smu.edu.sg](mailto:cherylds@smu.edu.sg).

# Paradoxical impact of asymmetric regulation in Taiwan's mobile communications

Yuntsai Chou

Associate Professor at the Yuan Ze University

Kung-Chung Liu

Commissioner, National Communications Commission, Taipei

---

## ABSTRACT<sup>23</sup>

---

*The mobile penetration rate in Taiwan has climbed from 6.86 to 112.15 mobile phone accounts per 100 capita in the first six years of market competition, during which the state-owned incumbent Chunghua Telecom was dethroned by a new entrant, Taiwan Cellular Corp. This paper addresses the cause of Taiwan's unprecedented mobile growth, and provides policy solutions for countries that strive to improve their telecommunications sectors in a short time. The authors highlight the fundamental role of asymmetric regulation, rather than pure liberalization, in the creation of the deregulated telecommunications industry in Taiwan. The asymmetric regulation in Taiwan is manifested in a twofold framework: the dominant carrier versus competitors, and the fixed-line carrier versus mobile companies. An econometric analysis concludes that dualistic asymmetric regulation leads to higher growth for mobile competitors and raises the total mobile penetration rate. However, the authors warn against the paradoxical consequences of dualistic asymmetric regulation. The regulatory benefits which mobile entrants received evolved into rents when they successfully lobbied to end the follow-me call service, the pricing scheme of which contradicts the asymmetric revenue-sharing constraint. The paper calls for a sunset clause for dualistic asymmetric regulation in order to take full advantage of its strengths, while at the same time preventing rent-seeking by the firms which benefit.*

---

23 This paper is rewritten from Chou & Liu (2006)

## INTRODUCTION: ON THE WAVE OF THE WIRELESS SOCIETY

---

Driven by the policy goal of building Taiwan as the Asia-Pacific Telecommunications Hub and obtaining WTO membership, the Taiwan government passed three telecommunications reform acts since the early 1990s in order to restructure the market. Together these acts established a liberalization framework by introducing private competition, the separation of the public telecommunications operator from the regulatory regime, and the categorization of telecommunications services. In early 1997, eight mobile licenses were awarded to six out of twenty-two enterprises via a beauty contest. In each region, four new entrants competed with the state-owned incumbent—Chunghua Telecom—for a share of its market<sup>24</sup>.

Within only six years of opening the market, mobile subscription in Taiwan has escalated from 6.86 percent to 112.15 percent<sup>25</sup> (as of September 2003). An additional 20 million users signed up for the service, and the number of mobile subscribers has grown 16.02 times. The unmet demand for mobile telephony before 1998—a waiting list of over one million—has vanished entirely. Meanwhile, Chunghua Telecom's market share plummeted to about 30 percent. The leader status of Chunghua Telecom has been snatched away by a private entrant, Taiwan Cellular Corp, which now holds a stable 30 percent market share, equivalent to 9 million subscribers. Table 1 summarizes the development of mobile communications in Taiwan.

---

*24 Among the eight, two nationwide licenses went to Taiwan Cellular Corp and FarEastTone, and six regional licenses went to KG Telecom, Tuntex, TransAsia, MobiTai, Taiwan Cellular Corp, and FarEastTone. The licenses are ratified with the standard of the Global System for Mobile communications (GSM). Nationwide operators use the 1900 GSM standard, while regional operators deploy the 900 GSM standard.*

*25 A percentage over 100 means that some users have more than one mobile account*

	<b>Mobile Subscribers</b>	<b>Penetration Rate (subscribers/p er hundred persons)</b>	<b>Market Share of Entrants</b>	<b>Market Share of the Incumbent</b>
<b>Dec. 2005</b>	19,876,128	86.93	60.45%	39.55%
<b>Dec. 2004</b>	21,527,933	94.88	61.95%	38.05%
<b>Dec. 2003</b>	25,089,644	110.99	67.60%	32.40%
<b>Dec. 2002</b>	23,905,409	106.15	71.87%	28.13%
<b>Dec. 2001</b>	21,632,980	96.55	73.80%	26.20%
<b>Dec. 2000</b>	17,874,000	80.24	73.90%	26.10%
<b>Dec. 1999</b>	11,541,139	52.24	69.85%	30.15%
<b>Dec. 1998</b>	4,727,045	21.56	53.89%	46.11%
<b>Dec. 1997</b>	1,492,000	6.86	0.00%	100.00%

Source: DGT <<http://www.dgt.gov.tw/Chinese/Data-statistics/11.3/graph3.shtml>>

Table 1. Mobile Communications in Taiwan

It has been said that the liberalization policy implemented by the Ministry of Transportation and Communication (MOTC) and Directorate General of Telecommunications (DGT) constitutes a breathtaking development (Chou, 2000:35)<sup>26</sup>. An examination of liberalization precedents worldwide finds that Taiwan's experience is exceptional. Among the countries that have undergone telecommunications reforms, none of them has ever achieved so high a mobile penetration rate or reversed the dominant status of the incumbent in such a short time.

This paper addresses the "real" cause behind the unprecedented mobile development in Taiwan, and discusses feasible solutions for other countries planning to improve their telecommunications in a short time. The asymmetric features inherent in Taiwan's communications regulations are highlighted for the first time, and based upon a perspective of

---

<sup>26</sup> National Communications Commission was inaugurated in January 2006 to incorporate two separate regulatory administrations on telecommunications, DGT, and on broadcasting/TV, Government Information Office (GIO), into one independent agency that regulates information and communications businesses. All the commissioners must be nominated by the Prime Minister of the Executive Yuan, and confirmed by the Congress.

contractarianism and institutional economics, it is contended that this dualistic asymmetric regulation is in fact the key institutional component which fostered the growth in Taiwan's mobile telephony. The telecommunications regulator places restraints, including price caps and interconnection mandates, on the dominant carrier alone, and yet gives mobile providers the authority to set their own tariffs and interconnection charges. This asymmetry in regulations allows fixed-line end users to be easily lured to switch to mobile services, as mobile companies set high tariffs for fixed-line-to-mobile communications. Subsequently, the traffic of mobile communications has surged, with revenues surpassing those of fixed-line telephony (DGT, 2003).

The dualistic asymmetric regulation in Taiwan is thus a potential model for policymakers in other countries wishing to expand telecommunications. The question which remains is, should countries embrace this approach without reservation? In response, this paper investigates the paradoxical consequences which the dualistic asymmetric regulation brings about, and finds that the asymmetric regulation could entail rents for mobile competitors, even though it successfully grows mobile services. The rival competitors thus have incentive to secure these rents through uneconomic activities such as political lobbies or entangling lawsuits.

## **DUALISTIC ASYMMETRIC REGULATION AND ITS POLICY IMPACT**

---

Diagram 1 portrays the twofold framework of the asymmetric regulation: dominant/non-dominant carrier<sup>27</sup> and fixed-line/mobile service provider. The letters A, B, C, and D individually represent different types of telecommunications service providers (TSPs). Diagram 1 also shows six types of communications transmission and termination between A, B, C, and D. In 1997, the DGT declared Chunghua Telecom, the only fixed-line carrier thus far, to be the dominant carrier, and other mobile service providers to be non-dominant carriers. Accordingly, the dualistic framework of asymmetric regulation is manifested in Line 2 as Chunghua Telecom versus non-dominant mobile firms. Compared with its counterparts, Chunghua Telecom

---

*27 The term "dominant carrier" is defined by Article 5 of the "Administrative Regulation Governing Tariffs of Type I Telecommunications Enterprises" as a TSP that meets any of the following criteria:*

*having control over essential facilities, or*

*having dominant market power over prices, or*

*having subscribers or turnover that account for at least 25 percent in the relevant market.*

bears excessive regulatory oversight from the DGT. The asymmetric constraints on the dominant carrier and on the fixed-line service provider are respectively analyzed as follows.

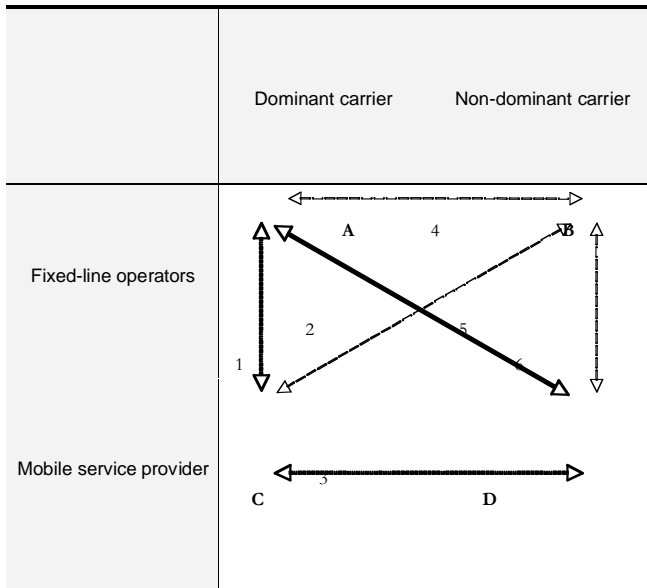


Diagram 1. Dualistic Asymmetric Regulation in Taiwan

- A: the fixed-line operator with the dominant status;
  - B: the non-dominant fixed-line operator;
  - C: the mobile company with the dominant status; and
  - D: the non-dominant mobile firm.
- Line 1: communication originated, transmitted, or terminated between A and C;
  - Line 2: communication originated, transmitted, or terminated between A and D;
  - Line 3: communication originated, transmitted, or terminated between C and D;
  - Line 4: communication originated, transmitted, or terminated between A and B;
  - Line 5: communication originated, transmitted, or terminated between B and C; and
  - Line 6: communication originated, transmitted, or terminated between B and D;
- **Notice:** Three new fixed-line licenses were awarded on March 19, 2000 and these non-dominant firms started local service in April 2001.

### **Asymmetric Constraints on the Dominant Carrier**

Article 26.1 of the Telecommunications Act (1999) forbids the dominant carrier from refusing interconnection and abusing its market power. The dominant carrier is obligated to disclose certain cost information, sell bottleneck services, and provide unbundled access to its network (Liu, 2001).<sup>28 29</sup> Article 9 of the “Administrative Regulation Governing Tariffs of Type I Telecommunications Enterprises” promulgates that the dominant carrier must set its tariffs based on the price caps approved by the DGT.

As is well known, unbundled access may deprive the incumbent of economies of scope and scale while providing cost savings to its rivals. Total element long-run incremental cost (TELRIC) pricing, which charges unbundled elements at long-run marginal costs, does not compensate for the incumbent’s opportunity costs of providing such access (Brock & Katz, 1997:114-5). Sidak and Spulber also argue that unbundled access infringes upon the incumbent’s property rights as protected by the Constitution (1998:34). In addition, asymmetric disclosure of cost information empowers rivals in competing against the dominant carrier, as they can behave strategically by setting prices slightly below the incumbent’s (Besen & Farrell, 1994:127). Our previous study demonstrates that the mandate of *symmetric* information disclosure otherwise deflates the market values of competitive rivals as they are unable to engage in strategic behaviours (Chou, 1999:304-5). As far as price caps are concerned, they function closer to the requirement of information disclosure in a competitive market. Such regulation enables rival competitors to obtain information regarding the incumbent’s tariff schemes at reduced costs and to strategically price their services. Admittedly, market entrants prefer asymmetric constraints on the dominant carrier so that they can realize a competitive advantage in capturing market share.

---

*28 Article 26.1 states that a designated dominant carrier is prohibited from: refusing, directly or indirectly, interconnection requested by other facility-based TSPs by reason of proprietary technology; refusing to disclose information to other facility-based TSPs regarding the measurements of interconnection charges and relevant costs thereof; improperly determining, maintaining, or altering the prices charged for telecommunications services; refusing, without due cause, access to network elements requested by other facility-based TSPs; rejecting, without due cause, the lease requests of transmission circuits made by TSPs or subscribers; rejecting, without due cause, testing requests made by TSPs or subscribers; and, abusing market power or engaging in unfair competition.*

*29 This provision corresponds to Article 10 of the Fair Trade Law that prohibits anti-competitive conduct by the dominant carrier.*

### ***Asymmetric Restrictions on the Fixed-line Service Provider***

The determining feature of the dualistic asymmetric regulation lies in the restriction on the fixed-line operator. This regulation distinguishes Taiwan from all other regulatory governances worldwide. In the DGT's view, the fixed-line network is the basic infrastructure over which long-distance, international, and mobile services are originated, transmitted, or terminated. Like long-distance and international services, mobile communications are treated as the downstream service of local telephony. As the "access charge" model is used for revenue allocation between upstream and downstream services, the DGT applied the same rule to mobile communications generated from Chunghua Telecom's fixed-line network.

Article 19 of "The Administrative Rules for Network Interconnection Between Type I Telecommunications Carriers" stipulates that: Except for international communications, ownership of tariffs for communications between mobile communications networks and fixed-line communications networks shall be governed by the following principles:

- Tariffs shall be collected by the call-originating telecommunications carrier from its subscribers pursuant to the tariff schedules set by mobile communications network carriers, and the revenue from tariffs shall go to the mobile communications network carriers; and
- Bad debts shall be assumed by the call-originating telecommunications carrier and such carrier shall not be relieved of its responsibility to pay relevant charges to the call-terminating telecommunications carriers.

While the calling party pays all the communications charges, Article 19 delegates to mobile firms the pricing authority over all outgoing and incoming mobile services, and allocates such revenues to them. Under this pricing scheme, Chunghua Telecom cannot retain the revenues of the outgoing mobile communications originated from its fixed-line network but is mandated to collect the charges on behalf of the mobile firms.

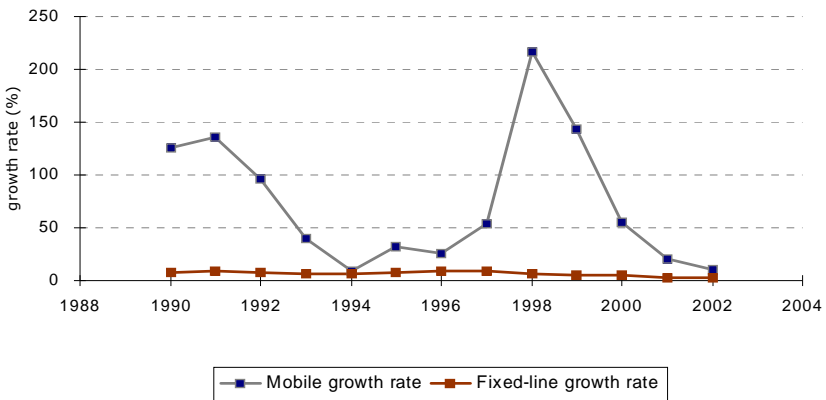
Chunghua Telecom is then paid access charges by the mobile firms for transmitting calls to their mobile networks. Since the establishment of the asymmetric revenue-sharing scheme between mobile and fixed-line communications, the mobile market has grown very quickly, while local telephony has experienced stagnant growth (see Diagram 2). Indeed, the growth of both types of communications is interdependent, as they entail substantial effects of substitution for each other (Kelly, 1996:11).<sup>30</sup> Table 2

---

<sup>30</sup> *Mobile substitution takes place at the level of (1) marginal choice over a second fixed-line telephone and (2) replacement of fixed-line telephony (Kelly, 1996:11).*



delineates four calling patterns between fixed-line and mobile communications. Chunghua Telecom can only set the tariff of the calling pattern A (fixed-line-to-fixed-line communications), while the pricing authority of the other three goes to mobile firms. Chunghua Telecom under this asymmetric revenue-sharing scheme retains only the revenues of Pattern A. Unlike in most countries, where Pattern B's (mobile-to- fixed-line communications) tariff is set higher than C's (fixed-line-to-mobile communications) due to a concern with universal service, those tariffs in Taiwan are identical. Because mobile firms collect the revenues of both Patterns B and C, they have no incentive to differentiate the tariffs.



Source: DGT statistics (<http://www.dgt.gov.tw>)

Diagram 2. Mobile and Fixed-line Communications in Taiwan

Supposing a consumer's choice of mobile telephony is a function of the price and the quantity of outgoing and incoming calls (Shih, 2000:8-10), a higher tariff of Pattern C inevitably reduces the calling volume from the fixed-line network to mobile systems while multiplying the calls made from mobile networks. By setting a lower tariff for Pattern D (mobile-to-mobile communications) than C, mobile carriers further encourage the fixed-line users to migrate to mobile-to-mobile communications. Currently, the number of mobile subscribers has exceeded that of fixed-line telephony by ten million (DGT, 2003). When telephone users migrate from the calling pattern C to D, Chunghua Telecom hardly obtains any access charges from mobile service providers, and its expected revenues are seriously truncated. Accordingly, this asymmetric tariff scheme enables mobile firms to sign up customers more quickly and allows mobile-to-mobile service to prevail. While mobile

service providers have enjoyed extraordinarily high profits over the last five years, Chunghua Telecom is experiencing a decline in calls and traffic volume of local voice telephony.

To	From	Fixed-line Network	Mobile Network
	<b>Fixed-line Network</b>	<b>A</b> (NT\$0.34/min)	<b>B</b> (NT\$5.00/min)
	<b>Mobile Network</b>	<b>C</b> (NT\$5.60/min)	<b>D</b> (NT\$4.8/min)

Source: <http://www.dgt.gov.tw>

Table 2. Calling Patterns from Fixed-line to Mobile Communications

When making a call terminated by the local exchange carrier, the caller will adopt either the calling pattern A or B, depending on availability of access to the local exchange network. When making a call terminated by mobile service providers, the caller will definitely choose Pattern D as long as he/she has mobile access. It is imperative to notice that Pattern A will not be replaced by B, because the former's tariff is much cheaper than the latter's. However, the calling pattern D is more likely to replace C if the latter's tariff is more expensive than the former's.

## THE EMPIRICAL STUDY OF THE DUALISTIC ASYMMETRIC REGULATION

---

The authors run regression tests which are used to measure the impacts of the dualistic asymmetric regulation on mobile communications development, indicated by the mobile penetration rate and its growth rate. The fixed effects model runs an ordinary least square (OLS) estimation on two dummy policy variables—the asymmetric constraints on the dominant carrier and on the fixed-line carrier—and their interaction term. The regression analyses were performed on panel data designated by country and by year (1981 to 2002). Eight OECD countries with different mobile pricing schemes—Japan, Hong Kong, Singapore, France, Germany, Portugal, Britain and the U.S.—are selected as the benchmark of regulatory governance. Among those countries, Portugal has a tariff regime similar to Taiwan's, in which the fixed-line operators retain only interconnection charges for their outbound traffic terminated at the mobile network. In contrast, France, Germany, and the UK set up the "caller pays" tariff scheme, in which outgoing traffic is charged by its originator and mobile firms retain only the revenues of their own outgoing

calls. Japan, Hong Kong, Singapore, and the U.S. on the other hand have adopted the “both-ends-pay” (or “mobile party pays”) principle, in which mobile phone users pay for both outgoing and incoming calls but mobile firms are not authorized to set the tariff for fixed-line-to-mobile communications and do not own such revenues.

As far as the asymmetric restraints on the incumbent are concerned, in 1993, the OFTEL of Hong Kong issued a price cap regulation on the dominant carrier, Hong Kong Telecom, until 2002. Japan did not impose restrictions on the incumbent, NTT, until 1998, although mobile services were provided early in 1981. Singapore has not yet considered asymmetric regulation since it opened its telecommunications market in 1996. France initiated asymmetric restrictions on the dominant carrier in 1995 but ended them in 1998, and Germany began asymmetric regulation in 1993. Portugal followed the WTO basic telecommunications service agreement to adopt the dominant carrier restriction in 1998. The United Kingdom took the asymmetric regulation approach on BT since its privatization in 1984. And the US promulgated the price cap regulation against the Baby Bells and AT&T in 1989 and repealed it by the enactment of the Telecommunications Act in 1996.

VARIABLES	MOBILE SUBSCRIPTION PER CAPITA [A]	PENETRATION RATE OF THE INCUMBENT [B]	PENETRATION RATE OF THE COMPETITORS [C]
MARKET OPENNESS (NO. OF FIRMS)	x	x	x
DOMINANT-CARRIER RESTRAINT			
REVENUE-SHARING CONSTRAINT			
INTERACTION EFFECT	x		x
OBSERVATIONS	136	116	116

X: the variable has a statistically significant and positive impact on the mobile penetration rate.  
 Data source: ITU Telecommunication Indicators (2003); DGT statistics (<http://www.dgt.gov.tw>)

Table 3. Regulatory Impact on the Mobile Penetration Rate

Table 3 presents the regression results for the mobile penetration rate, and Table 4 reports the results for the growth rate.<sup>31</sup> Column A in Table 3 validates the effectiveness of the dualistic asymmetric regulation on a country's mobile penetration level. Neither the restraint on the incumbent nor that on the fixed-line operator can by itself generate significant impact; whereas, their interaction term (i.e., the dualistic asymmetric regulation) raises the penetration rate per capita. Likewise, Column C of Table 3 shows that this regulatory asymmetry increases the competitors' subscription level per capita. However, neither of the dual regulatory asymmetries significantly causes the incumbent's subscription level per head to plummet (see Column B in Table 3). That is, simultaneous introduction of both asymmetric restraints is confirmed to develop a country's mobile communications, and seemingly, it does not accomplish this at the expense of its incumbent's advances.

The results in Table 4 then reveal the other part of the story. Although the dominant-carrier restraint and the implementation of the twofold asymmetric regulation do not affect the incumbent's mobile penetration level, they do have significant and negative impacts on its growth pattern (see Column A of Table 4). In contrast, Column B in Table 4 demonstrates a much stronger impact on the development of the competitors' mobile voice services. Simultaneous introduction of both asymmetric regulations increases the competitors' growth rate.

The regression results combined lead us to conclude that the implementation of the dualistic asymmetric regulation will foster rapid development in mobile communications in a short period of time. It allows us to recommend a policy solution for countries with underdeveloped telecommunications. They are advised to simultaneously implement the twofold asymmetric regulation in hopes of rapidly expanding mobile voice services in a short time. The question which remains is whether or not implementation of such dualistic asymmetric regulation is justified based on the outcome of rapid penetration in mobile communications. The findings in Table 4 affirm that, while the competitors gain from the twofold asymmetric regulation in the form of a boost in their subscription level, the incumbent's ability to grow its customer base is devastated by the same regulatory framework. That is, the swift expansion of mobile communications is made possible at the expense of the incumbent's growth. The next section explores the drawbacks which the asymmetric regulation entails.

---

*31 The two proxy variables for the asymmetric regulation on the incumbent, caps and xcaps, produced similar and consistent findings, although the dummy one gave a slightly larger impact. This paper thus presented the regression results generated by the dummy variable caps.*

Variables	Growth rate of the incumbent's mobile subscription [A]	Growth rate of the competitors' mobile subscription [B]
Market Openness		x
Dominant-carrier restraint	-x	
Revenue-sharing constraint		
Interaction effect 1	-x	x
Mobile-party-pays principal		
Interaction effect 2	-x	
Observations	112	47

X: the variable has a statistically significant and positive impact on the mobile growth rate.

-X: the variable has a statistically significant and negative impact on the mobile growth rate.

Data source: ITU Telecommunication Indicators (2003); DGT statistics (<http://www.dgt.gov.tw>).

Table 4. Regulatory Impact on the Growth Rate of Mobile Communications

## SEEKING REGULATORY RENTS

In the last decade, the contractarian approach has made itself a presence in policy analysis in response to the call for regulatory devolution and renovation. It views industrial regulation as a contract between the regulator and the regulated firm. Both parties *ex ante* specify the substantive terms and conditions of regulation and *ex post* implement and enforce the regulation (Moe, 1984:750). Indeed, each telecommunications operator has a unique incentive intensity concerning service provision. If the incentive scheme with which a policy alternative is associated corresponds to its incentive intensity, its opportunity costs are greatly reduced and its expected payoffs increase. Otherwise, the policy alternative will distort the firm's incentive to undertake telecommunications. As evidenced by the above

analysis, the twofold asymmetric regulation in Taiwan increases the expected payoffs of mobile entrants by granting them the right to charge and collect tariffs of fixed-line-to-mobile communications, and as a result, they are more likely to make telecommunications investment. Since the promulgation of the regulation, mobile competitors have signed up 2.32 times more subscribers than Chunghua Telecom (DGT, 2003). Chunghua Telecom so far has lost nearly 70 percent of the mobile market to the entrants.

From the contractarian point of view, the regulatory asymmetry enables the mobile entrants in Taiwan to reduce business risks and take advantage of the unequal terms of competition to behave opportunistically, since the incumbent is obligated to disclose all cost information and to provide full network access. The asymmetric revenue-sharing constraint even acts like a wealth transfer from Chunghua Telecom to the competitors. The mobile competitors are thus greatly better off in the asymmetric regulatory governance and they have strong incentives to preserve this governance.

Policy scholars have long observed that interest group politics play an influential role in policy formation and implementation. Since policies inevitably allocate costs and benefits among regulated firms, the firms as interest groups will make efforts to direct the policy agenda toward their own benefits. The winners in the current regulatory regime desire to sustain influence over policymaking and deter policy changes that do not reward them. On the contrary, losers tend to expand the scope of conflict. By mobilizing countervailing forces, these firms struggle to redefine policy images and change policy agendas (Baumgartner & Jones, 1993:83-9). Accordingly, the telecommunications firm has incentive to invest in non-economic activities, such as lobbies or public affairs, in exchange for regulations in their favour.

However, such non-economic activities do not necessarily lead to socially desirable outcomes even if they benefit individual firms (Mbaku, 1998:195). Especially when the benefited firms successfully lobby against the deployment of new services or technologies, the regulatory benefits they receive evolve into rents, that is, abnormal profits. The economic output will decrease when the firms allocate resources towards rent seeking rather than production and innovation (Shleifer & Vishny, 1998:81-9). Sidak and Spulber argue against regulations that encourage entry by subsidizing entrants or applying rules asymmetrically on incumbents because they may create the potential for uneconomic bypass. The entry would be uneconomic without subsidies or asymmetric regulation (1998:30).

This dualistic asymmetric regulation places Taiwanese mobile entrants in an advantageous position to compete with Chunghua Telecom and, as is evidenced by the analysis, entails regulatory benefits for them. They

undoubtedly will engage in lobbies to preserve the benefits. The case of the follow-me call service (the 099 service) is then examined to illustrate how mobile entrants “lobbied against” a new service whose pricing scheme contradicts the dualistic asymmetric regulation.

The 099 call service offered by Chunghua Telecom since 1999 allows consumers to be fully connected with only one number.<sup>32</sup> Consumers' utilities are indeed increased through its full access. When the 099 number is set on the consumer's mobile phone, the traffic is terminated at the mobile system and the mobile service provider must grant Chunghua Telecom interconnection with its system. Chunghua Telecom's original rate for the 099 call service was \$NT3.60 per minute and the company contributed an NT\$2.00 access charge to the mobile firm for traffic termination.

From the viewpoint of the mobile rival competitors, the allocation of the revenues of the 099 call service and access charges nonetheless infringes on their right to retain the revenues from all mobile communications. The mobile firm earns a net profit of about NT\$5.00 per minute for the mobile service terminated over its network, while obtaining only an NT\$2.00 access charge for the 099 call service. In addition, the 099 call service shares certain characteristic of a mobile service and yet costs less than mobile telephony, so that mobile subscribers are easily lured to the service. The mobile competitors were set to lose profits if the 099 call service became more popular. Therefore, mobile rivals lobbied the DGT to raise the tariff and the access charge on the 099 call service. The mandated high tariffs of the 099 call service then led to a huge decline in subscription right after its debut. This case demonstrates that the regulated firms will invest in non-economic activities to deter service renovation that conflicts with their interests and to maintain their privileges induced by the *status quo* policy regime.

## **CONCLUSION: PARADOXICAL IMPACT ON TELECOMMUNICATIONS DEVELOPMENT**

---

This paper examined the paradoxical impact which dualistic asymmetric regulation in Taiwan has had on telecommunications development. The empirical analysis allows us to recommend a policy solution for countries with underdeveloped telecommunications. Simultaneously implementing the

---

<sup>32</sup> *The 099 call service operates via setting up the 099 number either on the consumer's home phone, office phone, or mobile phone. In such a case, the consumer can be reached anywhere.*

twofold asymmetric regulation will bring about rapid penetration in mobile communications. It is notable, however, that this prompt development of mobile communications is achieved at the expense of the incumbent's growth. Designated as a competition safeguard, the asymmetric regulation entails policy benefits for mobile entrants, enabling them to earn a higher penetration rate and abnormal profits. These beneficiaries, through the lobbying venue, may then forestall value-added services whose pricing scheme infringes on the asymmetric revenue-sharing constraint. The regulatory gains may thus evolve into rents when the benefited firms lobby against a newly invented value-added service.

The dualistic asymmetric regulation even creates disincentive for telecommunications firms to deploy fixed-line technologies and services, since the local exchange carrier is prohibited from setting and collecting tariffs for its outgoing traffic. As the fixed-line network involves specific assets, the firm is more likely to forego providing service if it is deprived of the opportunity to earn a fair return on this irreversible investment. The regulation therefore impedes competition in local telephony. In the long run, it may hinder telecommunications development since it distorts companies' incentive to invest in local exchange service and directs their efforts to rent-seeking activities.

Policymakers must be alert about the rent-seeking behaviors by the rival competitors when promulgating the twofold asymmetric regulation in hopes of rapid growth in communications services. The present empirical analysis does imply that there should be an deactivating point for the regulation, such that it no longer applies once a certain point in market development (defined, for example, in terms of penetration rate) has been reached. It is suggested that policymakers insert such "sunset clauses" along these lines in dualistic asymmetric regulation in order to fully utilize its merits while avoiding rent-seeking activities by the beneficiaries. However, the asymmetric revenue-sharing constraint should not be repealed until after the mobile market has consolidated. Telecommunications officials must also refrain from arbitrary discretion when promulgating regulations on the dominant carrier in the competitive market. By following these recommendations, regulators could create policy credibility and mitigate business risks for the companies, thus creating an even playing field in which companies are equally affected by regulations and can thus focus on providing service and developing telecommunications in a way which maximizes public benefit.



## REFERENCES

- 
- Besen, Stanley & Joseph Farrell. (1994). "Choosing How to Compete: Strategies and Tactics in Standardization" *Journal of Economic Perspectives* 8:2 pp.117-31.
- Baumgartner, R. Frank & Bryan D. Jones. (1993). *Agendas and Instability in American Politics*. London : The University of Chicago Press
- Brock, Gerald W. & Michael Katz. (1997). "Regulation to Promote Competition: A First Look at the FCC's implementation of the Local Competition Provision of the Telecommunications Act of 1996" *Information Economics and Policy* 9:2 pp.103-17
- Chou Y. & Liu K.-C. (2006). *Paradoxical impact of asymmetric regulation in Taiwan's telecommunications industry: Restriction and rent seeking*. *Telecommunications Policy*, Vol. 30, pp. 171-182
- Chou, Ji. (2000). "Economic Benefits of Telecommunications Liberalization in Taiwan" report for Directorate General of Telecommunication, Taipei: Chung Hua Institution for Economic Research (Chinese)
- Chou, Yuntsai. (1999). *Policy Mandates and Their Efficacy in Restructuring Telecommunications: The Transaction Cost Approach Applied to An International Study* Ph.D. Dissertation of Public Policy, The George Washington University
- Chou, Yuntsai & Gerald W. Brock. (1998). "An Econometric Analysis of Institutional Factors in Telecommunication Reform" paper delivered at the 26<sup>th</sup> Telecommunication Policy Research Conference, Alexandria, Va
- DGT (2003). "Growth of Cellular Phone Service in the ROC" accessed at <<http://www.dgt.gov.tw/Chinese/Data-statistics/11.3/graph3.shtml>> August 30, 2003
- Kelly, Tim. (1996). "Forecasting the Mobile Communications Market: A Finger in the Airwaves?" paper prepared for IIR conference downloaded on June 14, 1996 at <<http://www.itu.int/ti/papers/hkmobile/hjmobile.htm>>
- Liu, Kung-Chung. (2001). "A Critical Review of the Policy and Regulations of the Telecom Reform" in *Regulatory Reform*, Kung-Chung Liu & Jun-Ji Shih edited, pp. 113-149 Taipei: Academia Sinica (Chinese)
- Mbaku, John M. (1998). "Corruption and Rent-Seeking" in *The Politics of Economic Growth* edited by Silvio Borner & Martin Paldam p.193-211 London: MacMillan
- Moe, Terry. (1984). "The New Economics of Organization" *American Journal of Political Science* Vol. 28 pp.739-75
- Shih, JunJi. (2000). "Network Economy: The Principle of Tariff Attribution of Cross-Network Communications". Mimeo, Academia Sinica (Chinese)
- Shleifer, Andrei & Robert W. Vishny. (1998). *The Grabbing Hand: Government Pathologies and Their Cures*. Cambridge: Harvard Univ. Press
- Sidak, J.Gregory & Daniel F. Spulber. (1998). *Regulatory Takings and the Regulatory Contract*. NY: Cambridge Univ. Press