Determination of Revenue Streams Subject to Sharing in the Mobile Internet Market

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Abstract

Wireless operators often outsource the task of creating content to independent content providers in the mobile Internet market. Revenue streams of the mobile Internet market typically consist of two main sources, data traffic and content sales. It is often the case that only the revenue from content sales is subject to sharing between wireless operators and content providers. This paper applies the “dummy variable axiom” to the market data of a representative Korean wireless operator to show that, in some cases, data traffic revenues should also be shared between the wireless operator and content providers.

1 Introduction

With advances in the capacity and capability of wireless technology, a new digital economy is burgeoning on top of the mobile network infrastructure. While initiating and nurturing this potentially lucrative market, most wireless operators have decided to delegate the task of creating and sourcing contents to third-party providers. This is a reasonable approach, as “the producer and the distributor of the information product market have maintained rather disjoint business operations and an independent ownership structure due to radically different expertise and logistics” (Oh and Chang, 2000). In terms of the framework of richness and reach set forth by Evans and Wurster (2000), third-party content providers contribute to the richness while operators provide the reach to this market, unless one of the parties attempts to override the function of the other in order to capture a larger profit (Jonason and Eliasson, 2001). In practice, however, content providers of the mobile Internet market are facing limited growth in terms of revenue while the mobile Internet market itself is growing 20% annually in Korea (ITU, 2003; KIPA, 2006).

In retrospect, the broadband wireline Internet market had been a virtual gold rush in terms of the user growth rate. However, content providers at the consumer end have experienced considerable problems while attempting to charge for their content due to

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nearly unanimous preference for free content among the consumer population in addition to fierce competition in digital content and services markets (Oh, 2006). The bulk of the revenues from this initial gold rush went to those that "sell the shovels", that is infrastructure manufactures such as Cisco Systems. With this lesson, wireless operators equipped themselves with proprietary infrastructure for content transfer and billing as well as high-valued, focused content provision, which mitigated the task of charging end users for their content.

Whereas a problem of asymmetry in revenue sharing exists among equipment manufacturers, end users, and broadband operators in the broadband Internet market, a different asymmetric revenue sharing between wireless operators and content providers is in place in the mobile Internet market. In general, revenue streams from mobile Internet services are divided into three categories: revenue from data traffic that is charged by the amount of packets sent and received, revenue from the (optional) monthly service subscription fee, and revenue from content sales charged by the amount of content downloaded. Among these three revenue streams, only revenue from content sales is subject to revenue-sharing between the wireless operator and the content provider, whereas the first two streams are entirely taken by the wireless operator

In this situation, despite the rapid growth of the Korean mobile Internet market, many industry observers agree that the revenue structures of mobile content providers' are such that their profitability is severely squeezed for two reasons: First, although all three revenue streams are the results of joint business between these two player groups, only one is considered for sharing. Second, even in the case of content sales revenue that is currently being shared, the actual sharing proportion for the content provider is very low. As a result, most mobile content providers are experiencing either loss or very low profitability (Shin, 2003). Naturally, this situation raises two questions: whether the revenue from sources other than content sales should be subject to revenue-sharing and whether the current sharing practice on content sales is fair. Of these two questions, this paper addresses the first question of whether a particular revenue stream should, or should not, be considered for sharing.

In Section 2, the billing and sharing structure of the mobile Internet market by a representative Korean wireless operator is examined. In Section 3, a proposition concerning the determination of revenue streams subject to sharing among multiple sources of revenues is provided utilizing the "dummy variable axiom" frequently utilized in economics. Following this, in Section 4, this proposition is applied to the empirical data of a Korean wireless operator's mobile Internet service.

2 Billing and sharing structure of Korean mobile internet service market

A representative Korean mobile Internet service has the following three components in its revenue stream: packet transaction charges, optional content subscription fees, and content charges. The packet transaction charge is applied to all packets sent and received during the subscription period using three different rates, as exhibited in Table 1.

Subscribers to this representative Korean mobile Internet service pay only content charges in addition to packet transaction charges for most content. However, for certain content, such as a "color-ring", they must pay an additional monthly subscription fee of $1 for the access right. This content generates little traffic revenue but requires a significant amount of investment in terms of facilities. For this reason, the wireless operator charges an additional content subscription fee that is not subject to revenue-sharing. The content charge can be viewed as the price per item of content, and ranges from $0.5 and $2 per content item.

Group	**Rate (US$)**
Text	0.0065
Image	0.0025
Multimedia	0.0013

Table 1: Rates of packet transaction charges.

Table 2 shows content charges for typical mobile content. The wireless operator assumes the role of billing as it already possesses the necessary infrastructure for this task. The wireless operator is entitled to 10% of the content charges as a commission for billing administration, following the recommendation by the Ministry of Information and Communication (MIC) to this effect. In practice, however, this 9:1 sharing rule for content charges is not strictly kept, and the actual sharing ratio varies widely depending on the negotiation power of the content provider. Figure 1 summarizes the components of charges and revenue flows for the representative Korean mobile Internet service.

Contents	**Contents Charges (U.S.$)**
4-poly Ring-Tone	0.3
64-poly Ring-Tone	0.5
Color-Ring	1.2
Latest Games	2

Table 2: Contents charges for typical Korean mobile Internet services.

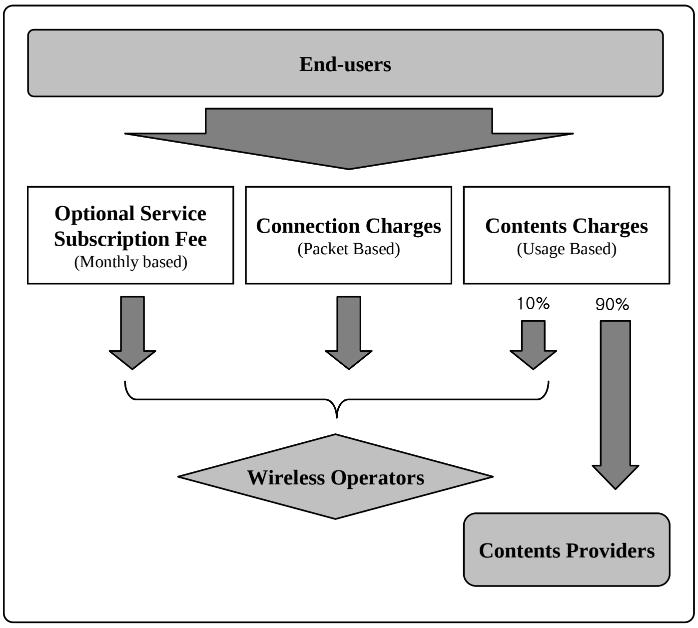

Figure 1: Components of charges and revenue flows for the representative Korean mobile internet service.

3 Proposition for determining revenue stream subject to sharing

In the mobile Internet market context described in Section 2, the revenue sharing scheme between mobile content providers and wireless operators can be determined in either of the following two ways: 1) aggregating all revenue streams that are results of joint efforts and allocating the total additional revenue between the two players according to their respective economic contribution; or 2) considering each revenue stream independently and allocating each revenue stream according to the respective contribution. From the perspective of the first scenario, it is possible to argue that content providers in the Korean mobile Internet market currently receive "some" proportion of the total additional revenue from the joint operation of a mobile data service. However, among multiple revenue streams jointly generated between the wireless operator and content providers in the Korean mobile Internet market, revenue streams other than content charges are not considered for sharing, as described in previous sections.

This exclusion of certain revenue streams in determining the sharing contract is often put forward as one of the reasons Korean mobile content providers suffer from low profitability. The practice of attributing all data traffic to wireless carriers can also result in other subtle issues. For example, wireless operators have an incentive to deliberately shift revenues from content sales to data traffic. In this situation, if all revenue streams including data traffic revenue that these two players jointly create are subject to sharing, such distortions are likely to be mitigated. Thus, in this paper, the second perspective is taken to examine each revenue stream in order to determine whether there is support for the claim that a particular revenue stream of a wireless operator is increased due to a joint operation with content providers.

The investigative process of whether a particular revenue stream is subject to sharing can be systematically conducted in a formal fashion with the following idea: If the introduction of a particular content service can be shown to have a positive impact on the particular revenue stream under consideration, the content provider of the service can claim that it is entitled to a certain share of that revenue stream. In other words, the content service under investigation is not a "dummy" service in the sense that it actually helped generate additional revenue in addition to the existing services in the portfolio of the wireless operator. Such "dummy player" criterion has been utilized frequently in economics. Most notably, it has served as one of the axioms consisting of the solution concept of the Shapley value (Shapley, 1953) which has been frequently utilized in an allocation context (Shubik, 1962).

In its original form, the dummy player axiom signifies that a player who contributes its own value to all coalitions shall be allocated the amount of this value (Eichberger, 1993). Formally,

Dummy Player Axiom For any player, $i \in I$ for whom $v(S) = v\left(S \setminus \{i\}\right) + v\left(\{i\}\right)$ for all $S \in \Gamma(i)$, $\phi_i(v) = v(\{i\})$

where I is the set of all players, S is a particular coalition, $v(S)$ is a value that can be generated by a particular colation S, $\phi_i(v)$ is a payoff allocation of the total value of v for a player i, and Γ is the set of all coalitions containing player i. In a situation where player i's own contribution to all coalitions is zero, the dummy player axiom can be restated as:

Dummy Player with Zero Stand-alone Payoff: For any dummy player, $i \in I$ for whom $v(S) = v(S \setminus \{i\}) + v(\{i\})$ for all $S \in \Gamma(i)$ and $v(\{i\}) = 0$, $\phi_i(v) = v(\{i\}) = 0$.

This modification of the dummy player axiom states that if player *i*'s stand-alone payoff is zero and this player is a dummy player, then player *i* should be entitled to an allocation of zero. In the mobile Internet market context, the stand-alone payoff of content providers is zero, as revenue can only be generated by selling the content delivered by the wireless operator's network infrastructure. Therefore, the question as to whether a particular revenue stream is subject to sharing depends on the dummy player condition. Proposition 1 formalizes this idea of the utilization of the dummy variable axiom while determining the revenue stream subject to sharing.

Proposition 1. If a player *i*'s stand-alone payoff is zero, then the question as to whether player *i* is entitled to a positive portion of a particular revenue stream is determined by whether or not player *i* is a dummy player

$$\textit{if } v(\{i\}) = 0 \textit{ and } v(S) > v(S \setminus \{i\}) + v(\{i\})$$

Additionally, player *i* is not entitled to a positive portion of the revenue stream

$$\textit{if } v(\{i\}) = 0 \textit{ and } v(S) = v(S \setminus \{i\}) + v(\{i\}).$$

In many real-world situations, coalitions are formed over time as more players join the coalitional form game. Proposition 1 can be rewritten in the following form in order to accommodate the dynamic nature of the coalitional form game formation process.

Proposition 1-1. Let $E\left[v_t(S \setminus \{i\})\right] = f\left[v_1(S \setminus \{i\}), v_2(S \setminus \{i\}), ..., v_{t-1}(S \setminus \{i\})\right]$ be the expected revenue of a coalition $S \setminus \{i\}$ at time *t* predicted at time *t-1*. If a player *i*'s stand-alone payoff is zero and player *i* joins a particular coalition at *t*, then the question as to whether player *i* is entitled to a positive portion of a particular revenue stream is determined by comparing the expected amount of revenue at *t* predicted at *t-1* with the actual amount of revenue at *t*; that is, player *i* is entitled to a positive portion of the revenue stream

$$\textit{if } v(\{i\}) = 0 \textit{ and } v_t(S) > E\left[v_t(S \setminus \{i\})\right] + v(\{i\})$$

and player *i* is not entitled to a positive portion of the revenue stream

$$\textit{if } v(\{i\}) = 0 \textit{ and } v_t(S) = E\left[v_t(S \setminus \{i\})\right] + v(\{i\}).$$

If player *i* is a dummy player, it is a valid assumption that the addition of player *i* to a coalition at time *t* will not alter the trend of the revenue growth of a coalition. In other words, the expected amount of revenue at *t* predicted at *t-1* will be a good estimate of the actual outcome at time *t*. On the other hand, if the entrance of player *i* significantly alters the revenue growth trend of a coalition, it would be reasonable to conclude that player *i* is not a dummy player; thus, player *i* should be entitled to a positive portion of the resulting revenue.

4 Analysis and findings

Publicly available revenue and event data of the representative Korean wireless operator was utilized in order to apply the logic of Proposition 1-1. From January 2001 to October 2003, this Korean operator added four major services, as illustrated in Figure 2.

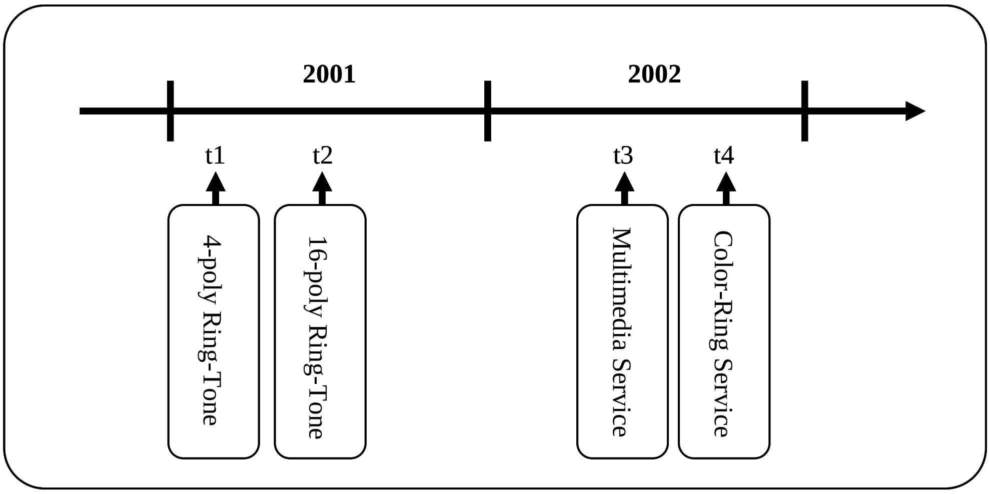

Figure 2: Mobile internet service addition history of the representative Korean wireless operator.

In this situation, each service can be regarded as being provided by an independent content provider. Four dependent variables that serve as indicators of the service trend are considered: *the number of subscribers*, *voice MOU (Minutes of Usage)*, *data MOU*, and *data sales*. A number of factors that may influence these performance variables is then selected, which belong to either of the following two categories: factors that are unrelated to the specific events or business decisions of this mobile operator[1], and firm-specific factors that pertain to significant events or decisions of the operator. Particularly, the following general factors that belong to the former category are included: 1) the general trend in the Korean mobile Internet market performance as time passes, 2) changes in the budget constraints of individual consumers and/or changes in the aggregate economic environment, and 3) changes in the business activities of the telecommunications operators. In order to incorporate these factors, the following control variables are introduced.[2]

(1) *Time*: explains linear changes in the service trend as time passes.

(2) *CI (Composite Indexes of Business Indicators)*: explains changes in the service trend due to changes in the overall economic environment.

[1] In this regard, these factors can be regarded as those related to macroeconomic market conditions surrounding the mobile operator under consideration.
[2] Definitions and data on *CI*, *PCI*, Total Amount of E-Commerce Spending and *BAI* are available from the Korea National Statistical Office (http://www.nso.go.kr). Data on the Total Number of Internet Users is available from the Internet Statistics Information System (http://isis.nic.or.kr).

(3) *PCI (Personal Consumption Index – Entertainment Related Spending)*: explains changes in the service trend due to changes in individual expenditures. Specifically, this measures subjective consumer perception concerning entertainment-related expenditures.

(4) *CPU (Consumption Per User over the wireline Internet)*: explains changes in the service trend due to changes in perceptions/preferences on spending on the Internet. Specifically,

$$CPU = \frac{\text{Total Amount of E-Commerce Spending}}{\text{Total Number of Internet Users}}$$

(5) *BAI (Business Activity Index – Telecomm Industry)*: explains changes in the service trend due to changes in the sales activity in the telecommunications industry.

Conversely, as factors related to specific business decisions and events of the mobile operator, the following are selected.[3]

(1) Price reduction: a dummy variable (denoted as *d0*), pertaining to the time when the operator decreased its mobile Internet price by 3.4%.

(2) Each service introduction: dummy variables (denoted as *d1* to *d4*) pertaining to each service introduction time (denoted as *t1* to *t4*).

(3) Changes in accounting convention: the time when the operator began to disclose the profit from its branded data service division separately.[4]

A regression analysis was then performed in order to determine if any shift in the service trends, represented by the aforementioned four dependent variables, existed due to these eleven factors. With this setup, whether a particular revenue stream is subject to sharing can be determined by comparing the expected revenue with the actual revenue at each service's introduction timing. Hypotheses were tested at a 1% significance level.

4.1 Number of subscribers

A regression of the number of subscribers on the time, CI, PCI, CPU, BAI and dummy variables revealed that the trend of the number of subscribers can be explained by the CI, PCI, and CPU, while none of the dummy variables were found to be significant at a 1% significance level (see Appendix). From this, it is possible to conclude that the four content services considered did not make any contribution to the mobile Internet business in terms of the number of subscribers.

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[3] Dummy variables are defined so that $di = 0$ for $t < ti$ and $di = 1$ for $t \geq ti$ for $i = 0$ to 4.

[4] The rationale for inclusion of this dummy variable is explained in Section 4.4.

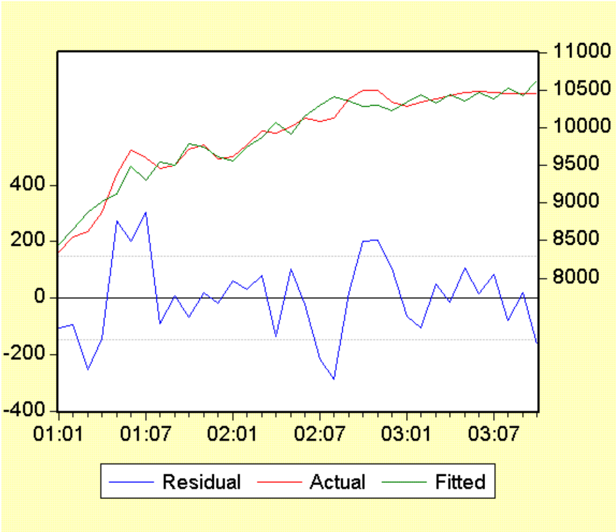

Figure 3: Comparison of the fitted results with the actual number of subscribers

4.2 Voice MOU

In order to eliminate seasonal effects from the relationship between Voice MOU and service introduction events, monthly Voice MOU data was assessed and is presented in Figure 3. By regressing Voice MOU data on dummy variables and time corresponding to each month, it was determined that most dummy variables are accepted at a 10% significance level.

In order to eliminate seasonal effects, a multiplicative time series model was utilized. After removing seasonal effects using the multiplicative model, a regression of the adjusted voice MOU on dummy variables and time revealed a simple linear relationship (see Appendix). From this, it is possible to conclude that content providers are not entitled to a positive portion of the revenue stream from voice MOU.

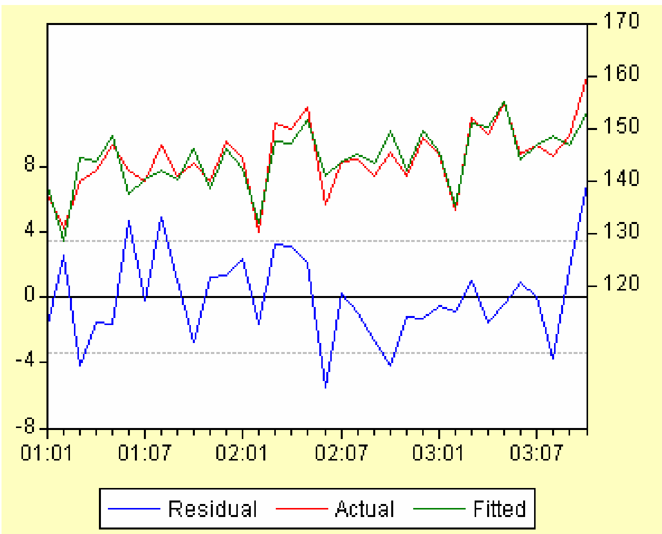

Figure 4: Seasonal effects on voice MOU

One potentially interesting implication of this result is that the voice MOU trend is not particularly affected by the launches of the four services during this period. This is likely due to the fact that 1) the mobile data service was at its early stage of the diffusion process at the time, thus its relative market usage was far lower than that of the voice telephony service and/or 2) the services launched during this period were not substitutes for voice telephony service; thus, they had no impact on the voice telephony usage trend. As new mobile data services with communications service characteristics such as Short Message Service (SMS) become widely used, a different result in which voice MOU trend is negatively affected by launches of such services might arise in the future.

4.3 Data MOU

Unlike the previous regression results, the results of a regression of the data MOU on the time, CI, PCI, CPU, BAI and dummy variables accepted variables *d1*, *d2*, *d3* at a 1% significance level (see Appendix). This indicates that services that are introduced at *t1*, *t2*, and *t3* have significantly altered the trajectory of the data MOU growth. In other words, content providers providing these services are not dummy players for the revenue stream of the data MOU. Figure 5 compares the data MOU and the fitted results.

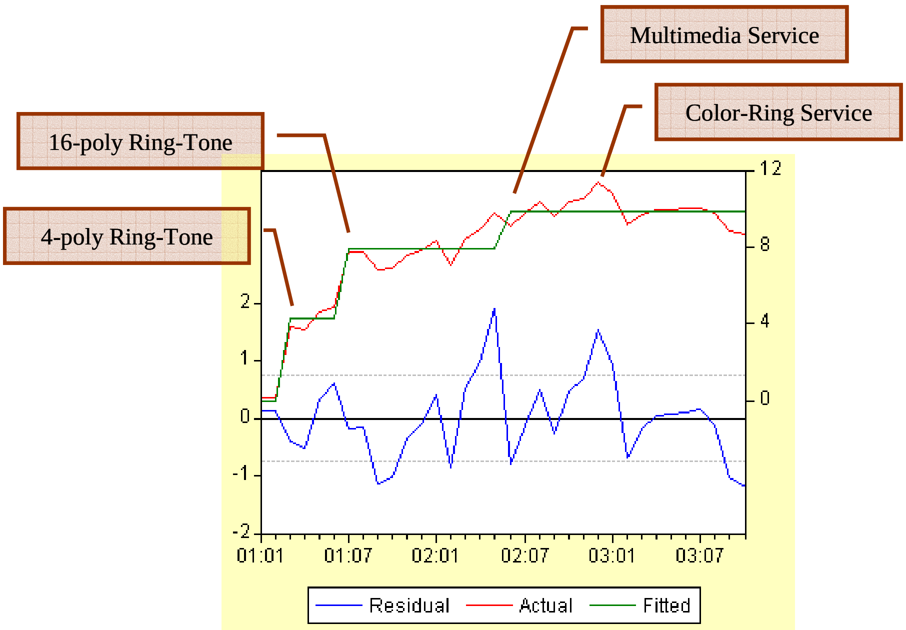

Figure 5: Comparison of the fitted results with the actual data MOU

Among the four services introduced during this period, only the color-ring service, whose introduction time corresponds to the dummy variable *d4*, has an additional subscription fee. Unlike all of the other services, it rarely generates data traffic. This accounts for the result that the content provider of the color-ring service did not make a significant contribution to the revenue stream of the data MOU. On the other hand, content providers of ring-tone services and multimedia services make a significant contribution to the revenue stream, and as such, these providers are entitled to positive portions of the data MOU revenue.

4.4 Data sales

Given that a data communication fee is charged according to the number of packets sent and received, it can be expected that the growth trend of data sales will exhibit a similar pattern to that of the data MOU. However, the growth trend for data sales resembles that of the subscribers. This is due to the fact that this Korean wireless operator bundles a significant portion of the data charges with basic voice fees. For example, one of the charge plans of the operator bundles 250KB of free data traffic with a basic voice fee of $15 per month.

For this reason, the dummy variable *d5* was included, which corresponds to the time when the operator started to disclose the profit from its branded data service division separately. A regression of data sales on the time, CI, PCI, CPU, BAI and dummy variables showed that time and *d5* were significant at a 1% significance level (see Appendix). From this result, it is possible to conclude that the data sales trend is affected by the operator's charge plan and by the separate disclosure of the profit levels of the data service division. This is more accurate than concluding that the data sales figures accurately reflect magnitudes of revenues from actual data transactions. On the other hand, this regression result for which the data sales trend is not affected by dummy variables corresponding to each service introduction time should not be interpreted to mean that content providers did not make a significant contribution to the revenue stream from the data transactions. Rather, it signifies that the change in the accounting practice exerted more influence on the trend of data sales than on the service introduction events. Figure 6 illustrates the regression results and the actual data sales.

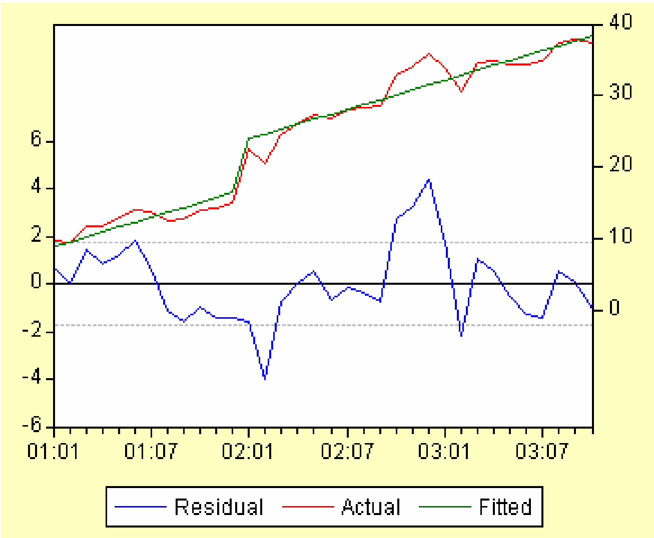

Figure 6: Comparison of the fitted result with actual data sales.

4.5 Determination of revenue streams subject to sharing

The previous results in Section 4 show that the revenue stream from data MOU should be allocated to content providers of ring-tone and multimedia services, as these providers are not dummy players. This can be verified by utilizing proposition 1-1. For example, in the case of the 16-poly ring-tone service, the stand-alone profit of its content provider is zero. Given this result, by utilizing regression coefficients generated with the time series data up to time $t2 - 1$, a prediction of the size of the data MOU at time $t2$ can be made. According to this prediction, the predicted data MOU of $t2$ made at $t2 - 1$ is 4.25. However, the actual data MOU of $t2$ is 7.72, which is significantly larger than the expected data MOU. In sum,

$$v(\{i\}) = 0 \text{ and } v_{t2}^{data\,MOU}(S) = 7.72 > E\left[v_{t2}^{data\,MOU}(S \setminus \{i\})\right] + v(\{i\}) = 4.25 + 0 = 4.25$$

From this, it can be easily verified that the content provider of the 16-poly ring-tone service should be allocated a positive portion of the revenue stream of the data MOU.

5 Discussion and conclusion

The literature on revenue-sharing has concentrated on the optimal sharing rule and proportion. The issue of determination of revenue streams subject to sharing when there are multiple revenue streams as a result of a joint business operation has not received considerable attention. However, as exemplified by the case of the mobile Internet market, the issue of the determination of revenue streams subject to sharing arises prior to the issue of the determination of the optimal sharing rule and, in many instances, a general consensus regarding this issue based on a reasonable guideline has not been obtained. In this paper, an approach to this issue is proposed based on a relatively simple application of the dummy player axiom on real-world data from the Korean mobile Internet market.

In the mobile Internet market, aside from optional service subscription fees, revenue is typically generated from two sources: data traffic and content sales. In this context, the issue of the identification of a revenue stream subject to sharing is critical to the profitability of a content provider in the following sense: First, as most Korean mobile content providers claim, by not considering for sharing a large proportion of total additional revenue for wireless operators that content providers help generate, mobile content providers' profitability is likely to suffer. Second, wireless operators, with their market power and billing infrastructure, have incentives to shift revenues to data traffic from content sales, thereby taking a higher portion of the total revenue generated jointly. The determination of the revenue streams to be subject to sharing is, therefore, an important part of optimally compensating the contributions of all participants of the joint business.

In this paper, the possibility is shown that many content providers in the mobile Internet market may be subject to a sharing rule that can potentially distort the pricing structure, investment incentives and relative profitability of market players. As content providers recognize this potential, they may have less incentive to invest in the quality of their content and services. Furthermore, with the prospect of low profitability, the mobile content market will not lure new players. The net effect may be to discourage investment in content provision.

At this point, most wireless operators' rationale for not sharing data traffic revenue is based on cost-recovery argument: due to large investment cost on mobile network infrastructure, all traffic revenue should be captured by wireless operators. However, similar cost-recovery arguments could equally be applied to content providers. On the other hand, there might be practical reasons that inhibit wireless operators from sharing their data traffic revenue with content providers such as implementation difficulties in terms of billing infrastructure. If so, these need to be investigated in future research.

A natural extension of the analysis and findings of this paper is to address the issue of determining the "fair" sharing proportion for each revenue stream. Adoption and application of normative solution concepts such as the Shapley value and its variants may serve this purpose. The current paper's analysis should be helpful in implementing any such solution. On the other hand, such normative solution concepts from cooperative game literature frequently raise implementation issues in which a system that guarantees that industry players abide by the proposed sharing practice must be present.

Another future research area is to explore the possibility of applying the proposed approach to similar contexts across many industries and countries. First, an investigation of revenue sharing practices in other countries' mobile Internet markets may reveal the necessity of a correction in the sharing practice in respective markets and may also have a variety of comparative implications. Second, revenue and/or cost sharing issues arise in many industries, including most telecommunications, media, and recent digital convergence service market contexts. This paper's approach can provide an insight into the "adequacy" of revenue and/or cost sharing practices of such markets.

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7 Appendix: Regression results

Dependent Variable: SUB
Method: Least Squares
Date: 07/20/06 Time: 08:03
Sample: 2001:01 2003:10
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3126.964	722.7578	-4.326434	0.0002
CI	112.4162	5.346848	21.02475	0.0000
PCI	26.78233	5.208788	5.141758	0.0000
CPU	-0.039789	0.006515	-6.107092	0.0000

R-squared	0.944655	Mean dependent var	9899.544
Adjusted R-squared	0.939121	S.D. dependent var	601.9816
S.E. of regression	148.5311	Akaike info criterion	12.94960
Sum squared resid	661844.4	Schwarz criterion	13.12917
Log likelihood	-216.1431	F-statistic	170.6860
Durbin-Watson stat	1.321210	Prob(F-statistic)	0.000000

Regression of subscribers on time, CI, PCI, CPU, BAI and dummy variables

Dependent Variable: A_VOICE
Method: Least Squares
Date: 07/20/06 Time: 08:27
Sample: 2001:01 2003:10
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	138.9997	1.279465	108.6389	0.0000
TIME	0.300105	0.063774	4.705745	0.0000

R-squared	0.408984	Mean dependent var	144.2515
Adjusted R-squared	0.390515	S.D. dependent var	4.673085
S.E. of regression	3.648256	Akaike info criterion	5.483398
Sum squared resid	425.9127	Schwarz criterion	5.573184
Log likelihood	-91.21777	F-statistic	22.14404
Durbin-Watson stat	1.860404	Prob(F-statistic)	0.000047

Regression of adjusted voice MOU on time, CI, PCI, CPU, BAI and dummy variables

Dependent Variable: DATA_MOU
Method: Least Squares
Date: 07/20/06 Time: 09:31
Sample: 2001:01 2003:10
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.123155	0.532775	0.231157	0.8188
D1	4.125683	0.652514	6.322752	0.0000
D2	3.646025	0.439925	8.287839	0.0000
D3	1.985355	0.291553	6.809588	0.0000

R-squared	0.933893	Mean dependent var	8.001437
Adjusted R-squared	0.927282	S.D. dependent var	2.794071
S.E. of regression	0.753458	Akaike info criterion	2.381844
Sum squared resid	17.03097	Schwarz criterion	2.561416
Log likelihood	-36.49135	F-statistic	141.2688
Durbin-Watson stat	1.288129	Prob(F-statistic)	0.000000

Regression of data MOU on time, CI, PCI, CPU, BAI and dummy variables

Dependent Variable: DATA_SALES2
Method: Least Squares
Date: 07/20/06 Time: 08:41
Sample: 2001:01 2003:10
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.176227	0.600314	13.61991	0.0000
TIME	0.684477	0.053069	12.89777	0.0000
D5	6.879772	1.089486	6.314695	0.0000

R-squared	0.972231	Mean dependent var	24.60619
Adjusted R-squared	0.970440	S.D. dependent var	9.899024
S.E. of regression	1.701949	Akaike info criterion	3.985522
Sum squared resid	89.79550	Schwarz criterion	4.120201
Log likelihood	-64.75387	F-statistic	542.6820
Durbin-Watson stat	0.920308	Prob(F-statistic)	0.000000

Regression of data sales on time, CI, PCI, CPU, BAI and dummy variables