

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of )  
 )  
Verizon Wireless Petition for Permanent )  
Forbearance from CMRS Number ) WT Docket No. 01-184  
Portability )

**DECLARATION OF PETER CRAMTON**

I, Peter Cramton, hereby declare as follows:

**QUALIFICATIONS**

1. I am Professor of Economics at the University of Maryland and President of Market Design Inc. I am expert on auctions, bargaining, and market exchange. I previously was an Associate Professor at Yale University and a National Fellow at the Hoover Institution at Stanford University. I earned my B.S. in Engineering from Cornell University, and my Ph.D. in Business from Stanford University. I have published and consulted extensively on issues of telecommunications competition and policy, and have testified on these issues before Congress, courts, and various administrative agencies including the FCC.

2. I have been asked by Leap Wireless International, Inc. (“Leap”) to consider the need for wireless Local Number Portability, and in particular to address a short *ex parte* letter recently submitted to the FCC by Professor Hal R. Varian.<sup>1</sup> I submit this declaration in my capacity as President of Market Design, Inc. and not on behalf of the University of Maryland.

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<sup>1</sup> See Letter from Hal R. Varian to Magalie Roman Salas, Jan. 25, 2002 (Dkt 01-814).

## INTRODUCTION

3. I read with interest the *ex parte* letter submitted by professor Hal R. Varian in this proceeding, in which he stated that he could not support a conclusion “that lock-in effects in a competitive market represent a market failure that should necessarily be cured by government regulation.”<sup>2</sup> I agree with Professor Varian that lock-in effects in a competitive market do not necessarily require government regulation. However, as I demonstrate in this declaration, number immobility does.

4. Varian predicts that lock-in effects can be “managed” by consumers prior to being locked in, as they predict and extract up-front payments (or “sweeteners”) equal to the switching costs they will endure down the line. This is a classic “bargain then rip-off” cycle, and often a consumer can obtain enough of an upfront bargain to compensate for the later rip-off. While this theory proves true in many circumstances, it does not work in mobile telephony. Mobile telephony consumers cannot predict accurately what their switching costs will be – and therefore what “sweeteners” they need to receive. And even if consumers were perfectly able to predict their switching costs, the forbearance requested by Verizon would upset that expectation. Finally, it turns out that the “bargain then rip-off” cycle produces social waste under these circumstances, as carriers spend money on subscriber acquisition in ways that produce relatively little benefit to consumers.

### **I. CONSUMERS ARE UNABLE TO MANAGE THE LOCK-IN PRODUCED BY NUMBER IMMOBILITY BECAUSE THEY LACK THE NECESSARY INFORMATION**

5. If mobile telephony consumers could accurately predict their switching costs, they should be able to extract those costs in the form of an up-front payment from the carrier. However,

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<sup>2</sup> *Id.* at 2. Specifically, Varian states that the book he co-authored with Carl Shapiro, *Information Rules*, does not necessarily support this conclusion. See generally Carl Shapiro and Hal R. Varian, *Information Rules: A Strategic Guide to the Network Economy* (1999).

because mobile telephony is an experience good, consumers have no way of knowing *ex ante* what their switching costs will be. They thus lack the necessary information to negotiate an optimal up-front payment.

6. First, the cost of switching depends in large part on the consumer's calling patterns. To name a few factors, the switching cost will be greater if the consumer uses his phone a lot, if he leaves his handset on and receives incoming calls, and if he publishes his number on business cards or the like. Yet someone new to cellular will have little idea how many minutes he will use, whether he will receive incoming calls and how much he will give out his phone number. Thus, for example, many consumers upgrade their plans within a couple of months, because they find that they are using their cellular phone more than they expected. Because consumers are relatively unable to predict their future calling patterns – and therefore switching costs – they are relatively unable to “manage” those costs.

7. But even if a customer could predict his calling patterns (and thus the quantum of switching costs), he will have a hard time predicting whether he will even want to switch. According to data gathered by Leap, a customer's decision to switch providers is driven mostly by service quality. Yet service quality information is not available to consumers before they subscribe. While carriers publish vague coverage maps, it is almost impossible to determine the quality of coverage a provider has in a particular spot that is important to the consumer (for example, around the customer's office and home) before the customer actually subscribes. Even if a customer knew what the coverage was like in a particular spot, he could not foresee his future mobile telephony needs – he could not foresee what particular spots might become important to him in the future. For example, a customer might find Sprint's service adequate around his home and office in College Park, but then find the need to change providers when he

suddenly finds himself spending a lot of time in and around the FCC, where Verizon's coverage is vastly superior to Sprint's.

8. Moreover, mobile telephony is a dynamic industry, so that any assessment based on current information will inevitably prove flawed over time. Verizon has superior coverage at the Portals today, but Sprint might locate a base station there tomorrow. Or a carrier might roll out some new service, like text messaging or Leap's "Slice" service, that a customer could not have known would be offered, or that he would want. In this way – because they are unpredictable *ex ante* – lock-in prevents consumers from benefiting from dynamic improvements in the industry.

9. Consumers cannot know *ex ante* what costs they will incur *ex post*. This prevents them from managing their switching costs.

**II. EVEN IF CONSUMERS WERE OMNISCIENT, AND PERFECTLY ABLE TO NEGOTIATE AROUND THE LOCK IN EFFECT, VERIZON IS REALLY ASKING TO RENEGOTIATE – BY REGULATORY FIAT**

10. Of course, it may be that a perfectly informed consumer (if one existed) could bargain in advance for upfront sweeteners to offset his future switching costs. But if true, this line of reasoning works *against* forbearing from local number portability. Varian's market-based solutions to switching costs require a buyer and seller to negotiate in advance a deal that compensates the buyer for the costs he incurs over the period he is locked in. But the parties will negotiate based upon their settled expectation of what that period will be: Verizon would expect a consumer signing up for service on November 24, 2001 to be locked in by his number for exactly one year – until the expected implementation of LNP on November 24, 2002. And it would theoretically provide to that customer upfront "sweeteners" sufficient to offset that one year of lock-in.

11. Now, Verizon has asked the FCC to upset that deal, and to extend the lock-in period that both Verizon and the rational consumer believed would only last one year. To allow Verizon to

delay local number portability is akin to unilaterally extending the term of its service contracts. It would set aside the expectations of the parties, and effectively revise the contracts that Professor Varian theorizes would be struck by market forces. And it would produce a windfall gain for Verizon at the expense of consumers. If local number portability is delayed, then even the perfectly informed rational consumer would face higher switching costs than he was able to foresee, and than he could have been compensated for.

### III. LOCK-IN REDUCES COMPETITION AND RESULTS IN INEFFICIENCIES

12. Varian's general analysis is correct – in a market like mobile telephony where a buyer is expected to become locked in, sellers will pay more to attract that buyer, on the expectation that they will recoup that upfront cost in the form of rents extracted over the lock-in period. Thus, we see inordinately high subscriber acquisition costs among wireless carriers, whose customers are generally locked in by telephone numbers, durable equipment purchases, and contracts. Note that as one would predict, Leap, whose customers are not locked in by contracts, pays substantially less in subscriber acquisition costs than do most carriers

**TABLE 1: COST PER GROSS ADDITION (CPGA), 3<sup>RD</sup> QUARTER 2001**

	<b>CPGA (\$)</b>
<b>Leap Wireless</b>	<b>243</b>
<b>Sprint PCS</b>	<b>320</b>
<b>AT&amp;T Wireless</b>	<b>333</b>
<b>VoiceStream</b>	<b>366</b>
<b>Cingular Wireless</b>	<b>375*</b>
<b>Verizon Wireless</b>	<b>375*</b>
<b>Nextel</b>	<b>445</b>

Source: Legg Mason Wood Walker, Inc., 3Q 2001 Wireless Industry Scorecard, p. 56 (2001).

Note: CPGA includes all sales and marketing expenses and any handset subsidies.

\* Carrier data not provided. Legg Mason estimate.

13. While these carriers plainly pay large sums of money to acquire customers, it is incorrect to assume that those payments inure to the benefit of consumers. In fact, most subscriber acquisition costs, such as advertising expenses and sales commissions, provide no benefit to consumers. In their chapter forthcoming in the *Handbook of Industrial Organization*, Farrell and Klemperer note:

The ex post rents may be less than fully competed away, or they may be dissipated in unproductive activities such as excessive marketing or advertising in which case consumers are harmed by switching costs, even though firms may be no better off.<sup>3</sup>

In other words, even if the consumer's entire switching cost is paid out by the carrier in order to acquire that consumer, much of that expenditure will be on activities from which the consumer derives no benefit. If mobile telephony providers do not spend all of the rents that they extract from locked in customers on items that are of benefit to consumers, such as free handsets or free months of service, then customers cannot extract the full amount of their switching cost from providers before they sign up for a plan. And in fact, those expenditures form a dead weight cost to society.

14. The overall detriment to society is compounded by the inefficiencies inherent in the "bargain then rip-off" cycle: during the "rip-off" phase, carriers succumb to the perennial inefficiencies that attend monopolists. After customers are locked in, the resulting equilibrium resembles a monopoly. As Klemperer puts it:

First, switching costs make each individual firm's demand more inelastic and so reduce rivalry. Switching costs segment the market into submarkets. Each

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3. Joseph Farrell & Paul Klemperer, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, forthcoming in the HANDBOOK OF INDUSTRIAL ORGANIZATION (M. Armstrong & R. H. Porter eds., Elsevier Science 2002).

submarket contains consumers who have previously bought from a particular firm and may in effect be monopolized by that firm.<sup>4</sup>

In the extreme case of lock in, after the customer is locked in to a service, the mobile telephony provider will act like a monopolist, charging higher prices and providing low-quality service. In addition, because the provider will be the sole provider of the particular type of mobile telephony that the customer is locked into, the provider will have little incentive to innovate. Thus, although a well-informed customer could theoretically bargain to receive an upfront “sweetener” equal to the going-forward rents extracted during the lock-in period, that upfront payment cannot reduce the inefficiency created by reduced competition after the lock-in.

15. Another blow to competition in the mobile telephony in the presence of switching costs is reduced entry. Switching costs prevent customers who already subscribe to a plan from subscribing to the entrant’s plan. Farrell and Klemperer argue that in markets characterized by incumbents with a large locked-in customer base, entry might become impossible as the number of locked-in customers prevent a new entrant from gathering enough subscribers to achieve minimum efficient scale. But this is bad: Entry is essential to the competitive process. Because of large fixed costs associated with providing mobile telephony service, the market for mobile telephony can support a limited number of firms. However, if entry is likely, then the incumbent firms are kept on their toes, because at any moment a new firm with a better product or better service can enter and win their customers. Entry, or the threat of successful entry, thus leads to innovation, better service, and low prices, to preempt potential entrants. The presence of switching costs which block entry will lead to a sub-optimal outcome.

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4. Paul Klemperer, *Markets with Consumer Switching Costs*, 102 Q.J. ECON 375 No. 2, at 377 (May, 1987).

**IV. NOTHING IN THE NATURE OF THE WIRELESS SERVICE OR MARKETPLACE (AS OPPOSED TO WIRELINE) MAKES NUMBER PORTABILITY UNIMPORTANT FOR WIRELESS**

16. I note that Professor Varian is unequivocal in his support for wireline number portability.<sup>5</sup> But I see little relevant difference between wireless and wireline service, and none that could justify support for LNP in one but not the other. Both markets have incumbent firms with a large customer base. And customers in both markets have high costs of switching their phone numbers. Indeed, the arguments are stronger for wireless, because the cost of switching wireless phone numbers is higher: Presently, there is no directory assistance for wireless phones, so that the only way to learn someone's phone number is through the owner of that number. And to the extent that obtaining a new number can lead to unwanted calls from callers trying to reach the number's previous holder, the cost of such calls is greater in wireless, where most consumers pay per-minute rates.

**CONCLUSION**

17. Under some circumstances, buyers can manage switching costs by negotiating for upfront "sweeteners" to offset the rents that they will pay going forward. In such circumstances, government regulation would be unnecessary, provided the market was competitive. But this is not such a circumstance. Consumers cannot extract their switching costs from carriers before they sign up for a plan because (1) they are prevented from obtaining the information necessary to predict (and demand accurate compensation for) their switching costs, and (2) much of that cost is lost in inefficiencies, and unavailable either to consumer or carrier. This then, is a circumstance where market forces fail to achieve the optimal result. Consumers – and market forces – lack the ability to "manage" number-related lock-in, and government regulation in this

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<sup>5</sup> *Information Rules* at 108-109 ("number portability is critical if local telephone competition is to become a reality").

case is therefore necessary. Number immobility is an entry barrier that benefits incumbent operators at the expense of new entrants, a competitive wireless market, and most importantly, consumers. The FCC should continue its support of local number portability for wireless telephony.

I certify that the forgoing is true and correct, to the best of my knowledge, information, and belief.

Executed at College Park, Maryland on February 12, 2002.

A handwritten signature in cursive script that reads "Peter Cramton". The signature is written in black ink and is positioned above a solid horizontal line.

Peter Cramton