WHAT DO WE KNOW ABOUT DRIP PRICING? LESSONS FROM THE AFTERMARKETS LITERATURE

By

Michael Waldman
Johnson Graduate School of Management
Cornell University

INTRODUCTION

- Recent attention has been paid to drip pricing which is the practice of revealing mandatory or optional pricing charges after the consumer has purchased or indicated a desire to purchase the product.

- There is little formal theory on the topic which makes drip pricing hard to evaluate, but there are related practices – in particular, aftermarket pricing/aftermarket monopolization – where related theoretical issues have been analyzed extensively.

- In this presentation I will review the literature on aftermarket pricing/aftermarket monopolization and then use this to help evaluate drip pricing.

- In what sense is drip pricing related to aftermarket pricing/aftermarket monopolization? In drip pricing consumers face additional charges after committing to purchase or showing intent to purchase, where sometimes these charges are for additional goods or services.
  - In the case where additional goods or services are provided (and to some extent even when this is not the case), this is like aftermarket monopolization since in each case a good or service is provided at an additional charge after the decision to purchase at some initial price is made.
  - Further, there are various analyses of aftermarket pricing that line up nicely with various possibilities concerning drip pricing such as mandatory charges versus optional charges.

- But the links are not exact because of the issue of transparency. In the typical aftermarket model firms do not try to hide that there may be charges for the aftermarket products, but this is an important feature of drip pricing.
  - However, there are aftermarket analyses in which consumers are not forward looking and these analyses are similar to assuming that prices are not transparent.

- So what do we learn from the aftermarkets literature?
  - Whether consumers are hurt and whether there is an inefficiency and the severity of the inefficiency can vary significantly with the nature of the setting.
  - For example, whether the situation is repeated, whether the market is competitive, and whether consumers are sophisticated (which is probably related to whether the situation is repeated) are all important.
  - So it does not seem like a single policy for all drip pricing markets is optimal, but then the issue arises concerning the extent to which fine tuning is feasible.

- But there are also important perspectives from thinking about the transparency issue.
  - Most importantly, a possibility arises with drip pricing which is not typically an issue in aftermarket pricing which is to regulate transparency.
  - In contrast to some of the problems with intervention concerning aftermarket behavior which frequently mean regulating actual prices, it is unclear whether there are significant costs in many cases of requiring increased transparency.

PLAN OF PRESENTATION

- Theories of Aftermarket Pricing and Aftermarket Monopolization
  - Lock-in arguments
  - Market power
  - Efficiency theories
  - Reputation/Repeated interaction

- Drip Pricing Scenarios
  - Mandatory versus optional prices
  - Is an additional good or service provided?
  - Is the payment received by the seller?

- Some Thoughts on Regulation

- Conclusion

THEORIES OF AFTERMARKET PRICING/AFTERMARKET MONOPOLIZATION

- Three related theories rely on consumer lock-in.
  - Surprise theory, costly information theory, lack of commitment theory (Borenstein, Mackie-Mason and Netz(1995,2000).
  - In each case consumers are locked-in to purchasing the aftermarket product (such as maintenance) and the firm exploits the lock-in by raising the aftermarket price. The result can be a shift of rents from consumers to the firm and possible inefficiencies in consumption.

- In each case if there is competition for the initial product then the initial price falls to account for the subsequent high aftermarket price.
  - This eliminates any rent shifting.
  - But inefficiencies may not be reduced to zero since, in the surprise and costly information theories, “too many” consumers purchase the primary good because they anticipate a lower aggregate price than they actually pay. Also, high aftermarket prices can result in inefficient aftermarket consumption.
  - But the inefficiency concerning consumption of the primary good may be small because these are consumers whose willingness to pay is “close” to the actual aggregate price.

- Two theories rely on producer market power.
  - Aftermarket monopolization is used as a price discrimination device, i.e., a high aftermarket price is used to increase the overall price paid by the high valuation consumers (Klein (1993) and Chen and Ross (1993)).
  - This has an ambiguous effect on social welfare.
  - Aftermarket monopolization allows the firm to control the speed of quality deterioration which can be profitable in a durable goods monopoly setting (Hendel and Lizzeri (1999)).

- A number of theories provide efficiency arguments.
  - Oligopoly and fixed costs enhance efficiency in Ramsey pricing type settings (Elzinga and Mills (2001)).
  - Market power and/or switching costs in the primary good can result in efficient aftermarket monopolization if consumers choose between replacement and the aftermarket product (Carlton and Waldman (2010)).

- Reputation/Repeated interaction can be important.
  - In a repeated interaction setting reputational concerns can stop firms from charging high aftermarket prices (Shapiro (1995)).

DRIP PRICING SCENARIOS

- Scenario 1: The drip price is a mandatory charge for an additional good or service under the control of the seller and received by the seller (and there is an upper bound on the size of the drip price). This is similar to the lock-in argument.
  - If the market for the initial good is competitive, then rent shifting will be minor and inefficiencies will be small.
  - If there is market power but the setting is repeated, then again rent shifting will be small and inefficiencies due to drip pricing will be small.
  - If there is market power and consumers are sophisticated (maybe because of repeated interaction) so they correctly anticipate the subsequent drip price, then again rent shifting will be small and inefficiencies due to drip pricing will be small.
  - But if none of these conditions are satisfied and the drip price is large, then drip pricing can significantly shift rents from the consumers to the firm and possibly cause significant inefficiencies in consumption.

- Scenario 2: The drip price is a mandatory charge under the control of the seller and received by the seller but there is no additional good or service provided.
  - There is nothing about the analysis of Scenario 1 that relied on the amount of utility consumers derived from the additional good or service (it could have been zero), so the argument should work the same when no good or service is involved.

- Scenario 3: The drip price is a mandatory charge not under the control of the seller and not received by the seller, e.g., a tax.
  - If the setting is repeated or consumers are sophisticated, then the drip price will have little effect.
  - Under competition the price charged by the seller will not adjust because the seller does not receive the drip price revenue, but there will be no rent shifting since competitive firms earn zero profits.
  - So if the setting is not repeated and consumers are not sophisticated, then willingness to pay will be too high which should cause a rent shift from consumers to the firm if the seller has market power (the effect on efficiency is ambiguous).
  - Also, given competition “too many” consumers will purchase because their perceived total payment is below the actual amount payed.

- Scenario 4: The drip price is an optional charge under the control of the seller and paid to the seller for a good or service where consumers expected the good or service to be provided at no extra charge.
  - This is like having an extra charge with no additional good or service. So if the market for the initial good is competitive, then loss of consumer surplus will be small and inefficiencies will be small.
  - Also, under repeated interaction this case should rarely arise.
  - But if there is no competition and consumers are fooled, then drip pricing can significantly shift rents from the consumers to the firm and possibly cause inefficiencies in consumption.

- Scenario 5: The drip price is an optional charge not under the control of the seller and not received by the seller, e.g., a tax, for a good or service where consumers expected no charge.
  - This is still like having an extra charge with no good or service provided.
  - Thus, if consumers are fooled, too many consumers will purchase under competition while under market power there will be a rent shift from consumers to the firm (while the effect on efficiency is ambiguous).

- Scenario 6: The drip price is an optional price under the control of the seller and paid to the seller where consumers had expected the good or service to be provided at an extra cost.
  - In this case the pricing is likely used for price discrimination.
  - There can still be a rent shift and possibly inefficient consumption of the primary good if the seller has the ability to raise the optional price above some normal/expected level.
  - It is also likely that the drip pricing strategy will increase inefficiencies due to price discrimination because the optional price will be higher than if the price had been announced initially and there was an effect on willingness to pay for the primary good.
  - So as earlier, competition, repetition, and sophisticated consumers all reduce rent shifting, where the latter two factors should also eliminate inefficiencies in consumption of the primary good. But of these factors only repetition may reduce inefficiencies in price discrimination (but the movie theater case suggests repetition is not very effective at this).
  - Also, if none of these factors are present and the firm has the ability to significantly raise the drip price above the normal/expected level, then drip pricing can also result in large rent shifts and possibly cause inefficiencies in the consumption of the primary and aftermarket goods.

Summary

- Lock-in, tying, and reputation theories of aftermarket pricing seem most relevant. Typical drip pricing settings do not match settings in which aftermarket pricing is used for efficiency.
  - For example, it is hard to think of settings where consumers choose between replacement and a drip price which is one important case where efficient aftermarket monopolization can arise.

- Based on these lock-in, tying, and reputation theories, drip pricing can result in rent shifting and possibly consumption inefficiencies but these are reduced with competition, repetition, and sophistication.
  - When an extra good or service is provided there can also be inefficiencies concerning consumption levels of this extra good or service and these are not reduced by competition or sophistication.

SOME THOUGHTS ON REGULATION

- Drip pricing can arise because the seller is trying to improve lock-in and/or tying profits. It can also arise because too much price information is undesirable on the part of consumers but, even when this is the case, the firm has an incentive to use drip pricing to improve lock-in and/or tying profits.

- So when should transparency be required/not required.
  - If the practice arises because too much price information is undesirable, there is less reason to require transparency. But if regulators cannot tell whether this is the case, the seller will always claim that it is.
  - If there is competition, repetition, or sophisticated consumers, then less need to require transparency.

- But then the question arises as to whether this type of fine tuning of drip pricing policy is feasible for the regulators.

CONCLUSION

- Drip pricing has many similarities with aftermarket pricing/aftermarket monopolization, so it is possible to use the extensive aftermarkets literature to gain insights concerning drip pricing.

- Such an analysis suggests that drip pricing is typically used to increase profits by exploiting either lock-in or tying and that competition, repetition, and consumer sophistication all serve to reduce problems associated with drip pricing.

- It may be desirable for the regulatory authorities to require transparency, especially when the root cause of the practice is increased profits rather than consumer preferences. And also when competition, repetition, and consumer sophistication are all lacking. But the feasibility of fine tuning is an issue.