

## Comparison of the effects of system and non-system remedies

### Introduction

1. This appendix provides a comparison of the effects of system and non-system remedies. We look at the effects of each type of remedy on different groups of customers. We assess how each type of remedy would affect their purchasing behaviour and also the effects on their welfare, in terms of the consumer surplus that each customer grouping enjoys.

### How are different groups of customers affected by system and non-system remedies?

2. We can compare system and non-system remedies by looking at how each remedy might affect different types of customer. The first step in this analysis is to identify the different groups of customers that might be affected by PPI remedies.

### *Customer categorization*

3. All remedies have, in theory, the following impact on prices:
  - (a) the price of the bundle will come down ( $P_B^0 > P_B^1$ ); and
  - (b) the price of a loan will go up ( $P_L^0 < P_L^1$ ).
4. If both types of remedy are equally effective, in that they deliver the same reduction in PPI profits, then the change in prices under a system and a non-system remedy will be the same.

### *Customer utility*

5. Customers derive a certain 'utility' or 'value' from their purchase of PPI and credit:

(a)  $U_B$  = the utility that a customer derives from buying the bundle of PPI and credit.

The customer is willing to pay up to this amount for the bundle. If the price is higher than this, then the customer will not buy the bundle.

(b)  $U_L$  = the utility that a customer derives from buying a loan. The customer is willing to pay up to this amount for a loan. If the price of a loan is higher than this, then the customer will not buy the loan:

- If the price of the bundle and the loan exceed the customer's utility for each of the above valuations, then the customer will buy nothing and receive a utility of zero.
- If the price of a loan is below the customer's utility from that loan, the customer buys the loan and receives  $U_L - P_L > 0$ .
- If the price of a bundle is less than the customer's valuation of the bundle, he/she will buy PPI and credit and the customer will receive utility of  $U_B - P_B > 0$ .

6. In any market there will be a range of customers, each with their own individual preferences and their own valuation of the products. This is what gives us a downward-sloping demand curve.

7. Our remedies will, in principle, change prices for PPI and credit, bringing down the price of the bundle, but raising the price of the loan. Customer valuations therefore fall into three categories for the bundle, and also for the loan. For the bundle of PPI and credit, customers can fall into one of the following three categories:

(a) customer valuation (utility) of the bundle is higher than the pre-intervention (high) price;

(b) customer valuation of the bundle is between the pre- and post-intervention price;  
or

(c) customer valuation of the bundle is below the post-intervention price (low) price.

8. For credit the reverse is true (because the price of credit will increase):
  - (a) customer valuation (utility) of the loan is lower than the pre-intervention (low) price;
  - (b) customer valuation of the loan is between the pre- and post-intervention price; or
  - (c) customer valuation of the loan is above the post-intervention (high) price.
  
9. This gives us nine categories of customer in total. The following tables show the effects of, first, a non-system and then a system remedy on these nine groups of customer.

## Customer categories

TABLE 1 Behaviour before and after a non-system remedy. No shopping around for PPI in factual. No shopping around for PPI in counterfactual. Customers first decide on loan then (and only then) consider PPI purchase.

		Customer valuation of the bundle ( $U_B$ )		
		$U_B > P_B^0$	$P_B^0 > U_B > P_B^1$	$P_B^1 > U_B$
Customer valuation of the loan ( $U_L$ )	$U_L > P_L^1$	<p>These customers always buy PPI, they value each component more than the highest price.</p> <p>There is a <b>gain in welfare</b> for these customers of <math>P_B^0 - P_B^1</math>, because they pay less for their bundle.</p>	<p>These customers previously bought a loan but not PPI</p> <p>Now they also buy PPI because <math>P_B^1</math> is lower than <math>P_B^0</math></p> <p>There is likely to be a <b>change in welfare</b> for of these customers of <math>(U_B - P_B^1) - (U_L - P_L^0) &gt; 0</math></p>	<p>These customers previously bought the loan only</p> <p>Even the reduced bundle price is too high to make them take out PPI. But they still take out the loan</p> <p>These <b>customers suffer a loss in welfare</b> because the price of the loan has increased (loss of <math>P_L^1 - P_L^0</math>).<sup>1</sup></p>
	$P_L^1 > U_L > P_L^0$	<p>Previously bought PPI and credit</p> <p>After price cap no longer buy loan or PPI, because the price of the loan has increased, and because they don't buy the loan they don't enter the PPI market or observe that they could get more welfare by taking out a bundle.</p> <p><b>Loss of welfare</b> for these customers of <math>U_B - P_B^0</math></p>	<p>These customers previously bought the loan only</p> <p>After price cap no longer buy loan or PPI, because the price of the loan has increased, and because they don't buy the loan they don't enter the PPI market or observe that they could get more welfare by taking out a bundle.</p> <p>These <b>customers suffer a loss of welfare</b> of <math>U_L - P_L^0</math></p>	<p>These customers previously bought the loan only</p> <p>After the price cap the loan becomes too expensive.</p> <p>These <b>customers suffer a loss of welfare</b> of <math>U_L - P_L^0</math></p>
	$P_L^0 > U_L$	<p>No change</p> <p>Did not buy loan even at <math>P_L^0</math></p>	<p>No change</p> <p>Did not buy loan even at <math>P_L^0</math></p>	<p>No change</p> <p>Did not buy loan even at <math>P_L^0</math></p>

<sup>1</sup>However, since these loans were previously sold below cost ( $P_L^0 < C_L$ ) there is an **increase in total consumer welfare**.

TABLE 2 Behaviour and welfare before and after a system remedy. No shopping around for PPI in factual. Customers shop for PPI in counterfactual. Customers decide on their best bundle and anticipate aftermarket prices.

		Customer valuation of the bundle ( $U_B$ )		
		$U_B > P_B^0$	$P_B^0 > U_B > P_B^1$	$P_B^1 > U_B$
Customer valuation of the loan ( $U_L$ )	$U_L > P_L^1$	<p>These customers always buy PPI, they value each component more than the highest price.</p> <p>There is a <b>gain in welfare</b> for these customers of <math>P_B^0 - P_B^1</math>, because they pay less for their bundle.</p>	<p>These customers previously bought a loan but not PPI</p> <p>Now they also buy PPI because <math>P_B^1</math> is lower than <math>P_B^0</math></p> <p>There is a <b>change in welfare</b> for these customers of <math>(U_B - P_B^1) - (U_L - P_L^0)</math></p>	<p>These customer previously bought the loan only</p> <p>Even the reduced bundle price is too low to make them take out PPI. But they still take out the loan</p> <p>These <b>customers suffer a loss in welfare</b> because the price of the loan has increased (loss of <math>P_L^1 - P_L^0</math>)</p>
	$P_L^1 > U_L > P_L^0$	<p>Previously bought PPI and credit</p> <p>After remedy they see that the price of a bundle has fallen and they still take out PPI and credit.</p> <p><b>Gain in welfare</b> for these customers of <math>P_B^0 - P_B^1</math>, because they pay less for their bundle</p>	<p>These customer previously bought the loan only</p> <p>After remedy they see that the price of a bundle has fallen and so take out PPI and credit.</p> <p>These customer a <b>change in welfare</b> of <math>(U_B - P_B^1) - (U_L - P_L^0)</math></p>	<p>These customer previously bought the loan only</p> <p>After the price cap the loan becomes too expensive.</p> <p>These <b>customers suffer a loss of welfare</b> of <math>U_L - P_L^0</math> because they can no longer afford the loan.</p>
	$P_L^0 > U_L$	<p>These customers previously bought neither PPI nor credit.</p> <p>Now they observe that the bundle price is lower than their valuation, so they take out PPI and credit.</p> <p>These customers <b>gain welfare</b> of <math>U_B - P_B^1</math></p>	<p>These customers previously bought neither PPI nor credit.</p> <p>Now they observe that the bundle price is lower than their valuation, so they take out PPI and credit.</p> <p>These customers <b>gain welfare</b> of <math>U_B - P_B^1</math></p>	<p>No change</p> <p>Did not buy loan even at <math>P_L^0</math></p> <p>Even the lower bundle price of <math>P_B^1</math> is too high, so they take out neither product in both cases.</p>

10. There are clear differences between Tables 1 and 2. Sales of credit after a system remedy will clearly be larger than after a non-system remedy. This is because, after a system remedy, the customers in the middle row of Table 2 (where  $P_L^1 > U_L > P_L^0$ ) can anticipate that PPI prices, and the price of a bundle of PPI and credit, have fallen. Under a non-system remedy (Table 1), these customers observe only that there has been an increase in the price of credit. This leads them, after a non-system remedy, to exit the market and no longer purchase loans (and consequently PPI).
11. Similarly, in consumer welfare terms, a system remedy (Table 2) is preferable to an equally effective non-system remedy (Table 1). This is because fewer customer

groups lose welfare, and more groups of customers gain. It is therefore much less likely that the net effect on all consumers of a system remedy will be negative.