

TESCO - CC

Response to RBB Economics

1. OVERVIEW

1.1 The CC has received *Geographic market definition in grocery retail*, a paper by Sainsbury's adviser RBB Economics ("RBB") discussing Tesco's approach to geographic market definition. RBB agrees with Tesco that (i) the SSNIP test is the appropriate way to carry out market definition; and (ii) that a direct quantitative assessment, correctly applied, is the best approach to this test.

1.2 However, it has raised some points about Tesco's SSNIP model. This is because it believes that the assumptions made in the quantitative modelling lead to bias in the results. We disagree with this conclusion, for a number of reasons.

- (a) Even if its criticisms were valid the main findings of the SSNIP approach are unchanged. Markets are wider than the CC has previously found, and often much wider. The RBB paper does not present any evidence to quantify the actual or even likely effects of their criticisms on the results of the SSNIP test. Although we do not agree with these criticisms, we have adjusted our model to deal with each of the points made. The results of these sensitivity analyses show that *the main findings of the model would be unchanged*.
- (b) It has offered theories which claim that Tesco's model may lead to biased results, but does not provide any evidence to show that its criticisms are factually relevant. This should be contrasted with Tesco's public submissions, which describe *the detailed empirical evidence supporting each relevant assumption* made in the SSNIP model.
- (c) Its arguments conflict with Sainsbury's actual policies. It argues that a "hypothetical monopolist" of an area would price discriminate between different stores. Sainsbury's own stores in the Brixton area provide a real world test, yet Sainsbury has a national pricing policy and *does not price discriminate* in this area – even though RBB's argument suggests that they should do so.
- (d) Its arguments are internally inconsistent. To support its argument that Tesco has chosen a cost of travel which is too low, RBB argues that customers with *large* baskets have higher costs of travel. To support its argument that secondary shoppers are less likely to switch, it argues that customers with *small* baskets have higher costs of travel. These two positions are mutually inconsistent.
- (e) The critique is selective. It does not acknowledge that there are conservative assumptions in Tesco's model, such as the fact that customers outside the hypothesised local market are removed entirely from the analysis, as are customers within the hypothesised local market that are closest to a store outside the market. These customers are likely to be the most marginal

customers but the model does not take their switching levels into account. This would widen the market.

2. SUMMARY

2.1 RBB criticises Tesco's approach to geographic market definition on two grounds. First, it argues that some of the assumptions in Tesco's SSNIP test model lead to bias in the results. Second, it disagrees with Tesco's view that markets are national.

RBB's criticisms of Tesco's SSNIP test model

2.2 It recognises that any economic model necessarily involves some simplifying assumptions about customers' and retailers' behaviour. However, it claims that some of the simplifying assumptions in Tesco's SSNIP test model tend to bias the results to a finding of wider markets. It speculates that using different assumptions might lead the model to produce very different results.

2.3 It does not present empirical evidence to support the theoretical arguments upon which it bases its conclusions. Nor does it consider the implications of its criticisms for the overall results of the model.

2.4 In fact, as described in greater detail in **Annex A**, RBB's theoretical points are largely at odds with empirical reality. Moreover, even if its arguments are accepted at face value, the necessary parameter changes make little difference to the results of the model. A substantial majority of markets are still wider than the CC's previous approach has suggested, and many are significantly wider (at least 30 minutes wide¹).

2.5 Moreover, the critique strikes us as somewhat selective. In particular, it does not comment on any of the assumptions of the model that lead the results to be conservative. For instance:

- (a) Customers outside the hypothesised local market are removed entirely from the analysis – whereas in fact these are likely to be the most marginal customers. The CC's own data shows that around 30% of customers come from more than 10 minutes away.²
- (b) Customers within the hypothesised local market that are closest to a store outside the market are removed from the analysis – but again these customers are likely to be highly marginal customers.

¹ Please note that this is not the same as saying that all customers will drive 30 minutes to a grocery retailer. In order to defeat a price increase by the hypothetical monopolist, it is not necessary for customers at the centre of the isochrone to travel 30 minutes to reach an alternative store – the price increase is defeated predominantly by the switching of customers who live close to the edge of the 30 minute market.

² See *CC Market Definition Working Paper* (May 2007), Table 6.

Travel costs too low

2.6 RBB argues that using a uniform travel cost tends to lead to bias in the model towards markets that are too wide. This is because it speculates that customers with larger baskets have higher than average travel costs.

2.7 We have been able to demonstrate that this unevidenced assertion is factually incorrect. We have analysed this issue using TNS data on actual customer behaviour. This is the most robust dataset on customer shopping patterns that is available. The TNS data shows that employing a uniform cost of travel is a conservative assumption (see paragraph 7 of **Annex A**). Customers with larger baskets actually have lower costs of travel.

2.8 Moreover, even if its criticisms were correct, sensitivity tests of the model's results at higher travel costs show that the key findings are unchanged. In fact, we consider a much more conservative scenario – we apply to *all* customers the highest of a range of cost of travel estimates put to us by the CC for different types of customer (see paragraph 8 of **Annex A**).

Secondary shoppers not included

2.9 RBB observes that “secondary shoppers”, who carry out top-up and convenience shopping trips, have not been explicitly taken account of in the model. RBB argues that secondary shoppers will switch less than one-stop shop (OSS) customers as they have smaller baskets and higher travel costs, and so the results are biased towards wider markets. We note that, to support its argument that Tesco has chosen a cost of travel which is too low, it argues that customers with *large* baskets have higher costs of travel. To support its argument here that secondary shoppers are less likely to switch, RBB argues that customers with *small* baskets have higher costs of travel. These two positions are inconsistent.

2.10 RBB also recognises that there is an effect that acts in the opposite direction. Secondary shoppers could switch to smaller stores within the isochrone, as these are not owned by the hypothetical monopolist. This will lead to secondary shoppers having more switching options than one-stop shoppers and so could lead to greater levels of switching. This would lead to our model's results being conservative.

2.11 It is not clear from theory which effect is more important. RBB believes that the net result of these two effects is likely to be that the first effect is more important – and so the model's results are biased towards wider markets – but does not provide any empirical evidence to support this assertion.

2.12 We think that, if anything, it is likely that the effect of having more switching options is more likely to outweigh the effect of smaller baskets and higher travel costs. This is because the number of alternative switching options for secondary shoppers is extremely large. On average, there is one alternative secondary shopping store for each 500 households throughout the UK. In the isochrone for Brixton, for example, which contains over 100,000 households, there are likely to be around 200 alternative secondary shopping options. Only around [] of secondary shopper revenue is needed to switch to make a price increase to these shoppers unprofitable

for the hypothetical monopolist. It seems reasonable that a price increase to secondary shoppers would lead to levels of switching away substantially in excess of [] and so if anything our assumption is conservative.

2.13 Indeed, we have tested this assumption for the isochrone around the Tesco Brixton store, by allowing customers to switch to mid-range stores within and outside the isochrone. This is a conservative assumption because we ignore all the convenience stores. Even under this assumption, we find that a SSNIP to secondary shoppers alone would be *unprofitable* (see paragraphs 18 to 23 of **Annex A**). As we anticipated, our approach of ignoring secondary shoppers is conservative.

2.14 Notwithstanding this finding, we have tested the implication for the model's conclusions of assuming that secondary shoppers are entirely captive and never switch. Even under this extreme version of RBB's hypothesis, our model's main findings continue to hold (see paragraph 24 of **Annex A**).

No account taken of the possibility of price discrimination

2.15 RBB argues that by ignoring the possibility that the hypothetical monopolist might price discriminate, the SSNIP model is biased in favour of wider markets. It presents a theory of price discrimination whereby a store at the centre of an isochrone would be able profitably to raise prices as long as the isochrone was large enough to include a surrounding "ring" of stores. It gives an example of how this strategy would work in practice in an isochrone centred around Tesco's Brixton store.

2.16 RBB itself argues that "[a]ssessing the relevance of a theory to the actual operation of a market is critical".³ But its proposed *hypothetical* strategy is inconsistent with the *actual* behaviour of its client. Its proposed strategy should apply equally to situations of "actual monopoly" (on the CC's definition) as well as "hypothetical monopoly". There are many situations throughout the country where, if RBB was correct, one would expect that Sainsbury would be engaging in price discrimination since it has an "actual monopoly" position. (One example would be the eight Sainsbury stores in a ring – with no competing stores in between – just south of Brixton.) But Sainsbury has national pricing. No such price discrimination is taking place.

2.17 We set out below some of the other problem areas with the paper.

- (a) RBB's proposed strategy is theoretically incorrect in that it assumes a 5% increase at the centre store only. This is insufficient for a 5% SSNIP. The correct approach is to employ a weighted average 5% price increase across all stores in the isochrone. Since the Brixton example involves 7 stores, the price increase that RBB has hypothesised is in fact only 0.7% (assuming all stores have equal volumes, i.e. 5%/7). To achieve a 5% SSNIP, the centre store would have to raise price by an extremely large amount (35% assuming all stores have equal volumes).

³ RBB Brief 09, 2003, "*Fine in Theory*".

- (b) RBB has not taken account of “within market switching” on the achieved price increase. The price disparity between the central stores will lead to customers switching from the central store to lower priced stores within the market. The average achieved price increase will fall below 5%. The centre store would have to raise prices further to compensate. But then the achieved price may fall even further.
- (c) The paper has not considered what would happen if the store in the middle of the isochrone raised prices by so much as to choke off virtually all demand. With large price increases at a single store within a market, the level of switching away is likely to be so large that this store will no longer be covering its fixed costs. In this case, it would be better off shutting down entirely, undermining the entire purpose of the strategy for increasing prices at that store. Moreover, shutting down the store would incur further costs such as staff redundancy costs, losses on fixtures and fittings, and general closure and sale costs, further reducing profitability.
- (d) RBB has not provided any evidence on the effect of the proposed strategy on the findings of the model. We have explored what the effect would be on the isochrone centred around Tesco’s Brixton store. We find that, even taking RBB’s strategy at face value, the main findings of the model are unchanged (see paragraph 55 of **Annex A**).
 - (i) The CC’s previous isochrone of 10 minutes contained four stores from two fascia (Sainsbury and Tesco).
 - (ii) To cover all the stores that RBB requires for its price discrimination hypothesis to work, the isochrone size is substantially larger. In particular, the furthest away store is Sainsbury’s Upper Norwood store, which is 17 minutes away. In a 17-minute isochrone around Tesco Brixton, there are 14 OSS stores from five fascia (Sainsbury, Tesco, Asda, Morrison, Somerfield).

Not only does the proposal require a market which is substantially wider than the CC’s previous findings, but our application of the SSNIP test to its proposed hypothetical market demonstrates that, even under its proposed price discrimination strategy, the SSNIP test still fails – widening markets even further (see paragraphs 32 to 42 of **Annex A**).

- (e) RBB’s conclusion is at also odds with its own published position on how economic models should be assessed. RBB argues in its 2003 paper “*Fine in Theory*” that robust economic models should have the following characteristics.
 - (i) Models should show internal consistency in their assumptions.
 - (ii) The results of the model should be robust to minor variations in parameters.
 - (iii) The predictions of the model should reflect market realities.

RBB does not disagree that our model is internally consistent (point (i)), or that its predictions are consistent with common sense and stylised facts about the industry (point (iii)). RBB's criticisms relate solely to chosen parameter values (point (ii)). We have shown that in all cases the main finding of the model – that markets are wider than the CC's previous findings – is robust to changes in the parameters reflecting the criticisms RBB has set out. The model passes all three of RBB's tests and should not be discarded.

RBB's arguments against a national market

2.18 RBB also argues that, despite accepting that prices are national and that there are important national aspects to competition, markets are local. Its main argument is that these national aspects are a choice of retailers and could change in the future.

2.19 There are good reasons why we price nationally – such as that customers prefer it and would resent price flexing, there are advantages to national branding and advertising, and it would be technically complex and costly to charge differential prices. Sainsbury's has made similar arguments when it has previously stated its position: *“Adjusting pricing store by store in response to competitors’ price movements would undermine customers’ perception of the branding proposition...”*⁴

2.20 RBB provides no assessment of why all major retailers currently set national prices and sets out no reason why the factors resulting in national pricing might be expected to become less important in the future.

⁴ Safeway, paragraph 7.246-7.247.

ANNEX A

RBB's Interpretation of the SSNIP test

1. RBB agrees that *“the SSNIP test is the universally accepted standard for market definition and that it is the correct conceptual approach to defining markets in the present inquiry”*.⁵ It also states that *“[t]he approach taken in Tesco’s quantitative model is consistent with the theoretical basis of the standard SSNIP test for market definition”*.⁶

2. The results of Tesco’s SSNIP test approach should be accepted by the CC. This is because, in its view, there are problems with some of the assumptions used in the model. In particular, RBB considers that there are three areas where the assumptions underlying Tesco’s SSNIP test approach are likely to lead to wider markets than is in fact the case.

- (a) RBB speculates that a customer’s cost of travel may increase with their basket size, since larger baskets will tend to reflect higher incomes, leading the model to overstate the number and value of customers who switch in response to a price increase.
- (b) RBB claims that by considering only the hypothetical monopolist for ‘one-stop-shopping’ – and thereby excluding the market for secondary or ‘top-up’ shopping – the results of the SSNIP test are biased towards wider markets.
- (c) Finally, RBB argues that it is appropriate to consider price discrimination in an application of the SSNIP test, and claims to describe a strategy for price discrimination which would confine markets to (relatively) narrow geographic areas.

3. We have considered each of RBB’s criticisms from a theoretical and empirical basis. We have also explored the implications of their criticisms for the results of the model. We do not agree with the views expressed by RBB. But even taking their criticisms at face value, the issues raised are not sufficient to undermine the key findings of our SSNIP test approach – namely that:

- (a) local conditions are crucial to understanding the behaviour of marginal customers in each local area;
- (b) geographic markets are considerably wider than the CC has previously found; and
- (c) that many markets are at least 30 minutes in size.

4. Indeed, from this perspective, we think that RBB’s criticisms reinforce the validity of our modelling approach. Even when taking RBB’s observations into

⁵ Page 1.

⁶ Page 6.

account, the main findings of the model are unchanged. This proves the robustness of the model.

5. We consider RBB's treatment of each of the three assumptions in detail below. We then consider whether its conclusion – that the findings of the model should be discarded – is consistent with its publicly stated views as to how models should be assessed. We find that RBB's conclusion does not match its published views.

RBB's argument that higher baskets have a higher cost of travel time is speculative

6. RBB has claimed that "*there is a strong a priori expectation that consumers' cost of travel (particular their opportunity cost of time) will increase with income, and that grocery expenditure will also rise with income*".⁷ However, we have not seen any evidence to suggest that its claim holds true in practice or that the empirical evidence presented to the contrary is incorrect.

7. On the contrary, the evidence that we have submitted to the CC is that, using actual TNS data on customer shopping patterns, the implied cost of travel time appears to be, if anything, slightly decreasing with the size of customers basket.⁸ This introduces a *conservative* bias into the results when applying a uniform, rather than basket-size specific, cost of travel. We have submitted this data to the CC for verification.

8. However, even if one were to consider higher travel times, the results of our SSNIP test model are robust to RBB's criticism. We have considered sensitivity tests which consider the impact of a higher cost of travel. The CC's empirical analysis has suggested a range of cost of travel, according household size and social grade, between £6.10 and £10.76.⁹ We have carried out a SSNIP test which assumes a cost of travel of £10.76, the largest cost of travel considered by the CC to apply to any type of customer. This will significantly overstate travel costs for the vast majority of customers.¹⁰

9. Even on this extreme sensitivity we find that:

⁷ Page 17.

⁸ See our response to CC *Market Definition Working Paper* (23 January 2007), Annex A, paragraph 38.

⁹ See CC *Working Paper on Market Definition* (May 2007), Table 7.

¹⁰ The largest cost of travel, £10.76, applies only to one person households of Social Class A/B. This will be a very small proportion of total households. Only 29% of households are one-person households (Source: <http://www.statistics.gov.uk/statbase/ssdataset.asp?vlnk=7253&More=Y>, UK Census data for 2001, Social Trends 34) of which over half (15% or 29%) are pensioners and so unlikely to be A/B households. Across the population as a whole, 33% of people of working age are in professional or managerial households (data for 2003, Regional Trends 38, <http://www.statistics.gov.uk/StatBase/ssdataset.asp?vlnk=7665&Pos=5&ColRank=2&Rank=272>) broadly equivalent to socio-demographic classes A and B. This suggests that the CC's highest travel cost figure applies to only around 10% of the population (at most).

- (i) over 90 percent of markets for stores in urban areas are wider than 10 minutes;
- (ii) over 70 percent of markets for stores in rural areas are wider than 15 minutes; and
- (iii) over 40 percent of markets for stores in all areas are at least 30 minutes wide.

10. Finally, even if higher income customers were to find travel more costly, there are a number of reasons which could explain why, overall, larger baskets tend to be related to lower travel costs. For example, larger households may have a lower cost of travel and yet tend to purchase larger baskets; alternatively, because larger shops take longer, customers may choose to carry out larger shops when time is more freely available (and therefore less costly), implying a lower cost of travel time.

11. Ultimately, the direction of any overall relationship between basket size and cost of travel is an empirical question, which RBB's theoretical speculation cannot resolve. As shown above, we have resolved this question empirically and the assumption in the model is *conservative*.

The omission of secondary shoppers from the analysis is, if anything, a conservative approach, and we have seen no evidence that it would lead to bias towards markets being too wide

12. Tesco's SSNIP approach considers the hypothetical monopolist of a OSS product market (as previously found by the CC in *Supermarkets*). The SSNIP test approach does not explicitly model the response of 'secondary' shopping trips to a 5% price increase. RBB's view is that because the hypothetical monopolist cannot price discriminate between primary and secondary shoppers, it will also raise its prices to secondary shoppers. If these shoppers were unlikely to switch, this would lead to greater profits for the hypothetical monopolist in the event of a SSNIP and so to the model overestimating the size of markets.

13. RBB argues that secondary shoppers are less likely to switch because:

- (a) they have smaller basket sizes, and therefore are affected less in monetary terms by a 5% price increase compared to their cost of travel; and
- (b) they are likely to have higher travel costs (although this is inconsistent with RBB's claim set out above that larger basket sizes are likely to have higher travel costs).

14. If this was the only effect, ignoring secondary shoppers would tend to make the model predict that markets are wider than they in fact are. However, RBB also recognises that, although the model excludes secondary shoppers, it also excludes smaller stores which provide viable alternatives for these smaller baskets – mid-range and convenience stores. These stores are not owned by the hypothetical monopolist of one-stop shopping, so secondary shopping customers could switch to such stores within the market. These will be, on average, much closer to customers than will

stores outside the market, so this effect would tend to make the model predict that markets are narrower than they in fact are.

15. As a result of these two offsetting effects, there is no theoretical basis to conclude that the results of the model are biased in any particular direction, and nor does RBB's paper provide any basis for concluding one way or the other.

16. Our approach seemed to us to be a reasonable simplification of the model given that it is not possible from theory to identify which way the effect would go. However, there are good reasons, we believe, to think that this assumption is in fact *conservative*. The number of alternative shops that customers have to choose from for secondary shopping trips is huge. On the CC's own data, there are around 2,000 mid-range stores (approximately the same number as there are one-stop shops)¹¹. IGD data shows that there are over 53,000 convenience stores in the UK.¹² As a simple approximation, given that there are around 24.5 million households in the UK¹³, on average there is one convenience or mid-range store for every 500 households (approximately).¹⁴

17. We have previously submitted data to the CC on the number of households in 10/15 minute isochrones stores in a sample of urban and rural areas.¹⁵ In Brixton, for example, there are 103,938 households within a 10 minute isochrone of the Tesco Brixton store. If the density of convenience and mid-range stores in Brixton reflected the national average pattern, this would mean that there are over 200 convenience and mid-range stores in the 10 minute isochrone.¹⁶ In other words, in the 10 minute isochrone around the Brixton stores, secondary shoppers are likely to have over 200 alternative switching options to carry out their secondary shopping. Even looking at mid-range stores alone, there are 4 stores within the 10 minute isochrone (and a further 7 mid-range stores in a 15-minute isochrone which are also possible options for customers).

18. Looking just at the secondary shoppers, the proportion of secondary shopper revenue that is necessary to switch in order for a 5% increase in price to those customers to be unprofitable is just under [].¹⁷ And since, even within the secondary shopper group, it will be the customers with largest baskets that will switch, an even smaller proportion of customers are needed to switch. It seems likely, therefore, that

¹¹ Table 3 of the CC's Store Level Demand Estimation paper shows that there are 1,886 stores between 280sq.m and 1,290sq. m, and 1,909 stores above 1,290 sq. m.

¹² IGD, Convenience Retail Market Overview Free Factsheet, <http://www.igd.com/CIR.asp?menuid=51&cirid=109>, data from 16 May 2007.

¹³ Source: UK Census 2001, <http://www.statistics.gov.uk/census2001/profiles/uk.asp>.

¹⁴ $24.5\text{m households} / (53,000\text{ convenience stores} + 2,000\text{ mid-range stores}) = 445\text{ households per store}$.

¹⁵ See our paper *There is a National Geographic Market* (11 December 2006).

¹⁶ $103,938\text{ households} / 445\text{ households per store} = 233\text{ stores}$.

¹⁷ At a margin of [], a price increase would be unprofitable if around [] of customer revenues switched away.

the addition of these options provides sufficient alternatives to make a SSNIP test unprofitable.

19. This assessment is purely intuitive at present. To confirm our intuition, we have adjusted our model to investigate the impact of RBB’s assumption on the profitability of a SSNIP test. We first make two simplifying and conservative assumptions:

- (a) only mid-range stores are included – we rule out from consideration that customers can switch to any convenience store (even though there are likely to be around 200 of these stores in the Brixton isochrone); and
- (b) we assume that customers closest to a secondary shopping option already shop at that option and are not currently customers of the hypothetical monopolist.

20. We need to understand the distribution of secondary shopping basket sizes. We have used the TNS data to look at all shopping trips that are not one-stop shopping trips (on the 60% criterion) and so by definition are secondary shopping.¹⁸ The distribution of these shopping trips by spend is set out in Table 1 below.

Basket size	% of baskets	% of revenues
£0-£5	27.9%	5.9%
£5-£10	27.3%	17.5%
£10-£15	17.4%	18.6%
£15-£20	10.7%	16.0%
£20-£25	6.5%	12.5%
£25-£30	4.1%	9.5%
£30-£35	2.5%	7.0%
£35-£40	1.4%	4.6%
£40+	2.0%	8.4%

Table 1: Distribution of secondary shopping baskets and revenues by basket size
Source: Tesco analysis of TNS data

21. If we just consider the mid-range stores in the Brixton area, customers would only have to travel a short extra distance to switch to those stores. 33% of customers in Brixton are closest to a secondary shopping store and as set out above we discard these (conservatively) from the analysis. The switching options for the remaining customers are shown in Table 2 and Table 3 for the CC's lowest travel cost option (£6.10) and the CC’s highest travel cost option (£10.76)

¹⁸ We note that RBB criticises the 60% criterion as being arbitrary and suggest that lower (equally arbitrary) thresholds could be appropriate. We note that RBB has not presented any evidence that this is the case and consider that it makes sense for a “one-stop shop” to account for more than half a customer’s average weekly spend. It seems counterintuitive that a customer could carry out two “weekly one-stop shops” in an average week.

Number of extra minutes (up to...) to nearest mid-range store	% of customers with this extra distance	Extra travel cost	Minimum basket size for switching	% of revenues that switch
1	[]	£0.20	£4.07	[]
2	[]	£0.41	£8.13	[]
3	[]	£0.61	£12.20	[]
4	[]	£0.81	£16.27	[]
5	[]	£1.02	£20.33	[]
6	[]	£1.22	£24.40	[]
7	[]	£1.42	£28.47	[]
8	[]	£1.63	£32.53	[]
9	[]	£1.83	£36.60	[]
10	[]	£2.03	£40.67	[]
Total switching				[]

Table 2: Analysis of secondary shoppers, Brixton, travel cost £6.10
Source: Tesco

Number of extra minutes (up to...) to nearest mid-range store	% of customers with this extra distance	Extra travel cost	Minimum basket size for switching	% of revenues that switch
1	[]	£0.36	£7.17	[]
2	[]	£0.72	£14.35	[]
3	[]	£1.08	£21.52	[]
4	[]	£1.43	£28.69	[]
5	[]	£1.79	£35.87	[]
6	[]	£2.15	£43.04	[]
7	[]	£2.51	£50.21	[]
8	[]	£2.87	£57.39	[]
9	[]	£3.23	£64.56	[]
10	[]	£3.59	£71.73	[]
Total switching				[]

Table 3: Analysis of secondary shoppers, Brixton, travel cost £10.76
Source: Tesco

22. It can be seen that 60% of secondary shoppers are within 3 extra minutes of their nearest alternative. This is because there are so many secondary shopping alternatives within and outside the isochrone. As a result, the SSNIP test to secondary shoppers alone fails on even on the CC's highest travel cost assumption – the total proportion of revenues switching is well above the [] critical loss.

23. RBB's argument actually makes the hypothetical monopolist even less likely to be able profitably to impose a SSNIP and so would lead to even wider markets. This assumption in fact leads to an even wider market in the Brixton area. We have shown that RBB's assertion is wrong.

24. Nonetheless, we have also considered what would happen to the results of the SSNIP model if all of the secondary shoppers stayed with the hypothetical monopolist. RBB has reported that 26% of revenue derives from secondary baskets. We have presented sensitivity tests to the CC which, when ruling out 30% of all

switching, show that 79% of all markets are still at least 30 minutes wide.¹⁹ This means that even if secondary shoppers were to be explicitly modelled and were assumed to be 100% captive – no secondary shoppers switched in response to a price increase – the main findings of our model would be virtually unaffected.

RBB’s approach to price discrimination is at odds with actual firm behaviour, suffers from theoretical flaws, and in any event does not change the main findings of the model

25. RBB has proposed a price discrimination strategy which it claims would enable the price discriminating hypothetical monopolist (*PDHM*) of a relatively narrow geographic market profitably to impose a SSNIP.

26. RBB first considers a hypothetical monopolist who operates both a central store and all the closest stores in any direction. In their simple example of five stores in a line, labelled A to E, the hypothetical monopolist owns the three middle stores B, C and D. RBB proposes that a hypothetical monopolist of those three stores can profitably impose a SSNIP by raising prices only at the central store C, and not at the peripheral stores B and D. The paper goes on to apply describe how this idea might operate in the local market for Brixton.

27. We can test the validity of RBB’s price discrimination assumption by looking at actual behaviour in the grocery sector. As shown in Figure 1 below, the Sainsbury stores to the south of Brixton form a real world example where there is a set of stores analogous to stores A to E in RBB’s stylised example. Within the dotted line, Sainsbury has eight one-stop shop stores, while there is no other one-stop shop store in the dotted line.

¹⁹ See Annex A to our letter of 5th April.

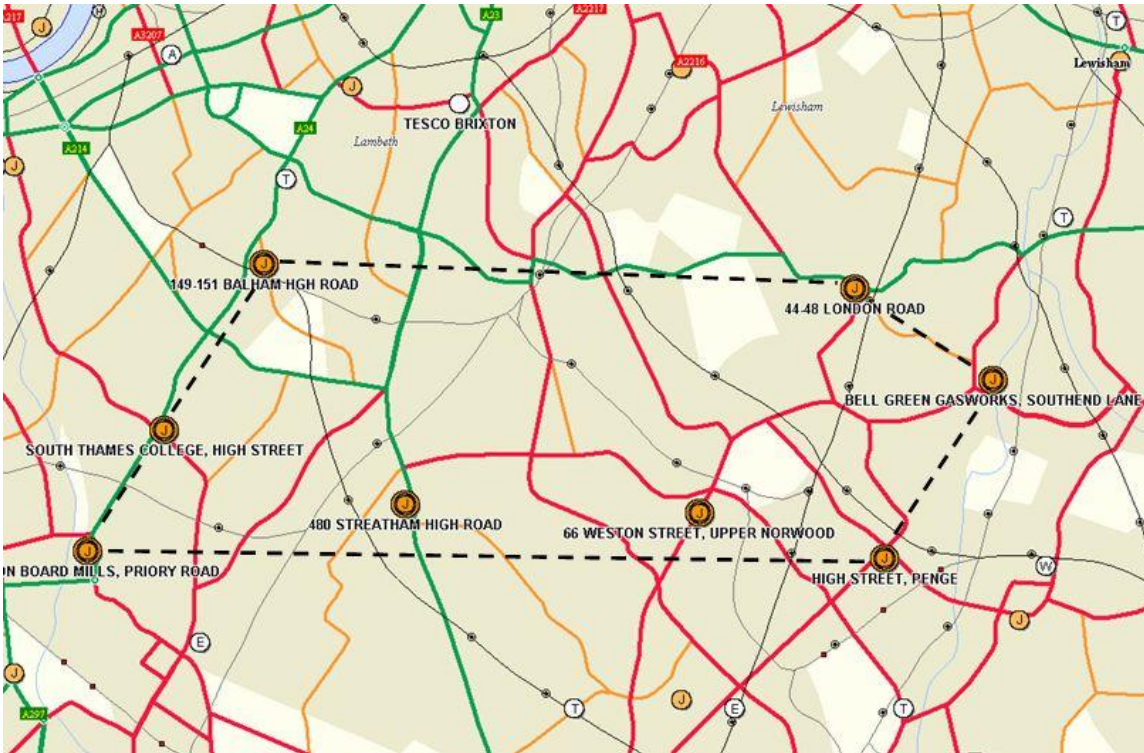


Figure 1: Sainsbury’s stores south of Brixton – an “actual monopolist” which does not price discriminate

28. If RBB’s approach were correct, one would expect Sainsbury to be price discriminating across these stores – since some (Streatham High Road and Upper Norwood) are closer to the centre of the area, while others are on the edge. But as Sainsbury’s submissions to the CC show – and as RBB itself confirms – Sainsbury operates a national price policy.²⁰ In other words, RBB’s theoretical price discrimination approach is not consistent with its own client’s actual behaviour²¹.

29. This is critical. RBB has previously stated – and we agree – that “[a]ssessing the relevance of a theory to the actual operation of a market is critical because with the right assumptions it is possible to build a theoretical model to support almost any view of the world.”²² RBB has not tested the relevance of its theory to the actual operation of the market. Had it done so, it would have found that the theory was not relevant.

30. However, even taking RBB’s proposal at face value, it contains numerous theoretical, empirical and practical flaws. Moreover, the one example of its proposed strategy that RBB presents shows that a much wider market is required than the CC’s

²⁰ Sainsbury Response to Emerging Thinking, 2 April 2007, paragraph 8.

²¹ Alternatively, as we suggested in our initial response to CC Market Definition Working Paper (May 2007), Sainsbury owns the only three stores in a 10 minute isochrone around Eltham. If RBB’s hypothesis were correct, one would expect Sainsbury to price discriminate across these stores. It does not.

²² RBB, *Fine in Theory*, Brief 09, June 2003.

previous findings. As a result, the RBB proposal actually confirms the main findings of our model.

31. Detailed comments are given below. We illustrate our views using our SSNIP model to investigate RBB's stylised example in Brixton.

RBB does not impose a SSNIP because it only applies the price increase to one store – a weighted average price increase of 5% is required across all stores in the market

32. RBB's proposed price strategy does not in fact impose a SSNIP. In its stylised one-dimensional example of stores in a line, RBB argues that a PDHM owing three stores could raise the price in the middle store by 5% and leave the other stores' price unchanged (this diagram looks very similar to the arrangement of Sainsbury stores south of Brixton). This is insufficient to reach the price increase required for the SSNIP test. To achieve an average price increase of 5%, a PDHM who leaves prices unchanged in two out of three stores will, other things being equal, have to increase prices 15% in the centre store. A 5% price increase applied in one store out of three amounts to an average price increase of only 1.67%.

33. This problem becomes worse when a two-dimensional view is taken. In RBB's proposed hypothetical market of seven stores around Brixton, our model initially assigns 21% of customers to the central store in the isochrone. Based on this allocation of customers, the central store needs to increase prices by 24% to achieve an average upfront price increase of 5%. Again, a 5% price increase at the central store alone is insufficient for a SSNIP.

34. This is not a problem with our approach. We apply a 5% price increase to all stores within the market.

Within-market switching will reduce the achieved price increase

35. By definition, customers will switch readily between stores which are within the same economic market. This is recognised as a part of RBB's theory – rather than switch outside the market, customers divert to other cheaper stores within the market. Whilst this 'intra-market' switching reduces the number of customers who are entirely lost to the PDHM, it also will dramatically reduce the number of customers on which the PDHM earns the higher price and so reduce the achieved price increase.

36. In the extreme case, a PDHM who increases prices sufficiently to drive all customers away to the cheaper stores will achieve an overall price increase of 0%. Such a strategy would, at best, make no positive difference to the PDHM's profits.

37. When applying the 24% price increase to RBB's hypothetical market in Brixton, we found that this was sufficient to choke off virtually all demand for one-stop shopping at that store. This is unsurprising given that such a price increase would

make the Brixton store about 10% more expensive than a convenience store chain such as Spar or Costcutter.²³

38. Since such a large proportion of customers switch to the other six stores owned by the hypothetical monopolist, the achieved price increase is extremely small. With only a very small proportion of customers continuing to shop in the now vastly higher priced store, the average price increase achieved by the PDHM in Brixton is less than 0.1% overall across all customers. Again, this is substantially below the 5% required by the SSNIP test.

39. This problem does not occur with our SSNIP model. Since all stores owned by the hypothetical monopolist raise prices by 5%, the achieved price increase in our model across all customers remaining at the hypothetical monopolist's stores is 5%.

These effects are self-reinforcing

40. Because the extent of intra-market switching in response to a price increase will likely be large, prices at the central store would need to be even larger to generate an achieved 5% price increase overall. Suppose that a PDHM (as in RBB's example) owned 3 stores and raised prices by 5% at the initial store. Suppose (purely for illustration) also that this led to 25% of customers switching away to its other stores. This would result in an achieved price increase of only 3.75% (25%*5%).

41. The PDHM would therefore need to increase prices even higher in order to achieve a 5% price increase. But this would then provoke more customers to switch to its other stores – at least partly offsetting the effect on achieved prices.

42. It is possible that there is no price increase by the central store alone that could achieve a 5% price increase for customers across all stores owned by the PDHM. This is clearly shown by the example of Brixton. As a result, RBB's proposed price discrimination strategy may never be able to achieve the required price increase.

If a store lost the vast majority of its trade, this would lead to extra shut-down costs

43. In many circumstances, the price increase at the central store will have to be extremely large to result in a 5% SSNIP. This will lead to similarly large reductions in the sales at the central store at any reasonable elasticity estimate. RBB has failed to explain what would happen if the store in the middle of the isochrone raised prices by so much as to choke off virtually all demand at that store. It does not seem reasonable that an increase in list prices at the central store is enough for a SSNIP if almost no customers then pay those higher prices.

44. Moreover, if the store were no longer covering its variable costs, it would be more profitable for the hypothetical monopolist to shut down the store. But this would impose further costs on the centre store, such as staff redundancy costs, losses on fixtures and fittings, and general closure and sale costs. These are highly likely to

²³ It also only requires that store-level elasticity is just above 4, which is below *firm*-level elasticity estimates reported by the CC in the 2000 Inquiry (Supermarkets, Table 15, Appendix 7.8).

make a SSNIP even more unprofitable – given that the store will no longer be able to sell any goods at inflated prices to its existing customers.

45. We have not included this effect in our model, which is another reason why the results of our model are *conservative*.

We have explored an alternative price discrimination strategy using the case of Slough and found that it is not profitable

46. RBB’s price discrimination strategy is not likely to be the most profitable one. A more profitable strategy would typically be to keep prices at the different stores similar, and thereby limit the extent of intra-market substitution, at the expense of some substitution to stores outside the market.

47. We explore this case in our submission to CC on Slough. There are 3 stores within the 10-minute isochrone of the Slough store. Using a price discrimination strategy of raising prices in inverse proportion to the distance the store is from the edge of the isochrone, subject only to an *initial* average price increase of 5% (and so *conservatively* ignoring the fact that the achieved price increase will be lower than this), we find that a SSNIP is still not profitable for the hypothetical monopolist. The main finding of our model – that the CC’s previous market definition approach is incorrect – is therefore robust to this criticism.

RBB confirms our view that there is no previous CC precedent for this approach

48. We believe that the CC explored the possibility of a price discriminating hypothetical monopolist in its *Archant/INM* decision and discarded this view because there was no evidence of actual price discrimination.²⁴ The CC has disagreed with our view but given no reason for this disagreement.²⁵

49. RBB appears to agree with our interpretation of the CC’s findings in *Archant/INM*. However, they disagree with its relevance, suggesting “[t]he *Archant/INM* precedent is thus irrelevant to grocery retailers’ ability to price flex”.²⁶

50. This confirms our view that there is no previous precedent for the CC taking into account the possibility that the hypothetical monopolist might price discriminate. RBB’s statement that price discrimination is an “*essential element of the SSNIP test approach*” is therefore at odds with previous CC practice.²⁷

RBB’s strategy is relevant to the competitive assessment, not to market definition

51. RBB appears to believe that as long as the hypothetical monopolist can raise prices to a sub-group of customers, this is sufficient to define a market. This is

²⁴ See our response to CC *Market Definition Working Paper* (23 January 2007), and our initial response to CC *Market Definition Working Paper* (May 2007).

²⁵ See CC *Market Definition Working Paper* (May 2007), footnote 14.

²⁶ Page 11.

²⁷ Page 12.

incorrect and would lead to highly narrow markets in many differentiated products industries.

52. For instance, it might be the case that in the new car sector there is a spectrum of offers from low price/low specification cars to high price/high specification cars. RBB's approach would suggest that every group of three adjacent cars on this spectrum forms a separate market – since the “central” car could raise prices with all customers switching to adjacent cars. This is at odds with the CC's conclusion in New Cars that all new cars are in a single market.

53. In RBB's example, the hypothetical monopolist can raise prices only to 21% of customers at most – even before taking account of within-market switching. The actual number of customers facing this price increase would be much smaller, as described above.

54. RBB's approach may be appropriate when considering the competitive effects, say, of a merger within a well-defined market. It is not the appropriate approach when seeking to define the market in the first place.

RBB's proposed price discrimination strategy does not overturn the main findings of the model

55. RBB has not provided any evidence to explore the effect of their proposed price discrimination strategy on the overall findings of the model. It only provides one illustrative example of how its strategy might work in Brixton. Even on its own basis, this one example shows that the CC's previous market definition was wrong.

- (a) The CC's previous isochrone of 10 minutes contained 4 stores from 2 fascia (Sainsbury and Tesco).²⁸
- (b) The isochrone size required under the RBB hypothesis is substantially larger than for the CC's previous findings, at around 17 minutes (to Sainsbury's Upper Norwood store). In this isochrone, there are 14 stores from 5 fascia (Sainsbury, Tesco, Asda, Morrison, and Somerfield).

56. RBB's own example shows that the CC's previous market definition was incorrect. We therefore consider that the RBB paper is supportive of the main finding of the model.

RBB's conclusions contradict its publicly stated views

57. We find RBB's conclusion that “*Tesco has abstracted so far from reality and been required to make so many unsubstantiated assumptions regarding consumer behaviour that its findings cannot be taken as a reliable indicator of the actual consequences of a hypothetical monopoly raising prices*” to be unfounded when

²⁸ For some reason, RBB have ignored the Tesco store in Clapham, which is within the 10 minute isochrone of Tesco Brixton.

assessed against its own three criteria for a successful and reliable model.²⁹ We agree that these criteria are sensible criteria for assessing the validity of a model.

58. RBB's first criteria is as follows.

“First, one can test the internal logic of the model itself. In other words, one can test whether, even on its own terms, the predictions of the model flow logically from its assumptions. Of course, testing the internal logic of the model says nothing about its practical relevance; it merely ensures that there are no mistakes in the algebra and that its conclusions truly flow from its assumptions. Most models are internally consistent.”

59. RBB appears to accept the internal consistency of Tesco's approach, since it agrees that “[t]he approach taken in Tesco's quantitative model is consistent with the theoretical basis of the standard SSNIP test for market definition”.³⁰

60. RBB's second criteria is as follows.

“Secondly, the assumptions of the model must be tested. Usually one would wish to test the sensitivity of the model's results to small changes in its underlying assumptions and, particularly if the results are sensitive to the precise nature of those assumptions, whether they accurately reflect the reality of the market. Clearly, a model whose results change dramatically if small adjustments are made to its underlying assumptions cannot be relied upon as heavily as a model whose results are robust to minor variations in its assumptions.”

61. We have presented sensitivity tests of our SSNIP test results to the CC and reported them in our public version of the SSNIP test paper. These demonstrate that our results do not change dramatically in response not only to ‘minor variations’ in the assumptions, but also to substantial changes in these parameters.

62. We have also set out above the results of further sensitivities designed specifically to deal with RBB's criticisms. In each case, the main finding of the SSNIP test model – that the CC's previous market definition is incorrect – continues to hold.

63. RBB's third criterion is as follows.

“Thirdly, the results of the model should be tested against observable market realities. In many cases the central prediction of the model may not be directly testable. For example, if a model predicts that excessive profits will arise as a result of certain industry practices it is unlikely to be possible directly to test whether profits are indeed excessive. However, in addition to its central predictions, a model is likely also to generate a series of ancillary predictions. These may not be important conclusions in their own right, but testing whether

²⁹ RBB, *Fine in Theory*, Brief 09, June 2003. See www.rbbecon.com/publications/downloads/rbb_brief09.pdf

³⁰ Page 6.

the ancillary predictions of a theoretical model accord with reality can provide an important check on whether the model is accurately describing what is actually taking place in the market.”

64. Although by its nature, the “actual consequences” of a hypothetical price increase are impossible to observe, there are a number of the model’s features which accord with observable market realities and common sense. Often these are because the model has been constructed to take key market facts into account in its development. For example:

- (a) the model (by construction) predicts that customers shop locally and switch to other local operators when prices rise at one store – this is consistent with the CC’s view that customers shop locally;
- (b) the model (by construction) predicts that customers switch in relation to price – this is consistent with the findings of IGD³¹ and Tesco’s own internal data that customers think price is extremely important in store choice;
- (c) the model predicts that the market size is potentially different in every local area – which must be true where the switching options for customers differ across areas;
- (d) the model predicts that there is more switching from marginal customers at the edge of the isochrone than from customers at the centre of the isochrone – which corresponds with common sense and the view that customers shop locally;
- (e) the model finds that there are indeed some markets (<5%) that are the size that the CC previously found – these are typically in rural areas where there are no stores outside the isochrone for some distance away.

65. We note that RBB’s proposed price discrimination strategy fails this third test. RBB’s strategy predicts that where a firm has a local monopoly position and two or more stores in that isochrone, one would expect it to engage in price discrimination. But since all the major firms have national pricing, this strategy clearly fails the test – it does not reflect observed market realities.

66. We also note that RBB has failed to apply these criteria to the CC’s own approach. Rather, it unquestioningly endorses the CC’s position across all its analysis without applying any of these tests.

67. Overall, therefore, RBB’s conclusion about the validity of the SSNIP test model does not seem to us to meet its own published statements about how such models should be viewed.

³¹ IGD, Shoppportunities, 2005, p18.

ANNEX B

RBB's arguments for local rather than national markets are unconvincing

1. The RBB paper has also provided a number of reasons why, despite accepting that there are “*important national aspects to competition*” and that retailers compete through nationally set PQRS, markets might nonetheless be considered to be local.
2. RBB makes four arguments why this is so but we do not find any of them convincing.
 - (a) **National PQRS strategies might change.** RBB suggests it may be relevant to consider local markets if there is a realistic prospect that retailers will deviate from their national competitive strategies and begin to compete on the basis of local competitor presence. However, the paper does not provide any evidence to suggest that a move to locally set PQRS is likely to occur in the future, merely arguing that “*the current absence of widespread price flexing... [is] not a necessary and permanent facet of the industry*”.

RBB accepts that there is currently national competition through nationally set PQRS amongst the major retailers including its client, Sainsbury. It carries out no analysis why national pricing is taking place, despite Sainsbury's existing views that “*Adjusting pricing store by store in response to competitors' price movements would undermine customers' perception of the branding proposition...*”.³² RBB carries out no analysis to support a view the importance of customers' perception of the branding proposition will diminish in future.

Moreover, the claim that an increase in the number of stores with “*positions of local market power*” will increase the probability of a move to local PQRS is unsupported. Further, it is at odds with the trend, both in the past and in the foreseeable future, of increasing entry in the UK grocery market. The CC's own analysis suggests that around 70% of new floor-space opened in ‘concentrated’ local areas is not operated by the incumbent.³³

- (b) **The CC's margin concentration relationship shows local competition.** RBB further believes it may be relevant to consider local markets if it is shown that stores incur higher costs as a result of expending greater “*competitive effort*” in response to local competitor presence. RBB cites the margin-concentration relationship described by CC as evidence that retailers do vary their ‘competitive effort’ according to local conditions.

However, for Tesco there is no such variation in competitive effort and no link between any dimension of our PQRS offer and local concentration. RBB does not advance any direct evidence of such a relationship for any retailer, simply endorsing the CC's findings. If RBB is claiming that Sainsbury deteriorates its

³² Safeway, paragraph 7.246-7.247.

³³ Working Paper on Barriers to Entry, Table 5.

service standards in areas where it has high concentration – such as Upper Norwood or Streatham High Road – then no doubt this is a matter that the CC will wish to confirm with Sainsbury.

Moreover, the margin-concentration relationship described by the CC is the result of a simple ‘volume effect’, which is equally consistent with national markets as shown by the CC’s findings in SME Banking. Also, whilst RBB considers the margin-concentration analysis to be part of an alternative form of a SSNIP test analysis, it fails to recognise that the magnitude of the relationship described by the CC is insufficient to pass the SSNIP test.

- (c) **Internet shopping.** RBB suggests that limited usage of internet shopping is not a sufficient constraint to result in a national geographic market. Firstly, internet shopping is one of several important national constraints on firm’s behaviour – including branding, media and advertising, and online price comparisons, although RBB does not consider these – all of which extend to the majority of grocery customers. Secondly, whilst internet shopping may be limited to 3% of overall grocery sales, this is not insignificant when considering the impact on marginal customers of a 5% price increase. In the context of higher prices in a local area, it will be the coverage of internet shopping in that area, rather than the number of existing users, which will determine the extent of switching. The impact of internet shopping on the hypothetical monopolist could therefore be much more pronounced.
 - (d) **Local overlaps matter.** RBB suggests that it may be relevant to consider local markets since, if two retailers do not overlap locally, they will not have the incentive to compete nationally. RBB does not explain what factors lead to firms competing nationally rather than on a local basis. But since these missing factors – such as national branding and advertising, customer resentment, and cost and complexity – lead prices to be national rather than local, they must be more important in firms price setting decisions than the nature of local overlaps. As a result, this argument effectively accepts that competition takes place nationally (while choice is local) and therefore supports the view that the market is national.
3. We believe that none of these reasons are sufficient to overturn RBB’s own conclusion that there are “*important national aspects to competition*”, and therefore the implication that the relevant geographic market is national.
4. We note also that RBB’s views conflict not just with the views of Tesco, but also with the views of Morrison as submitted to the CC in its response to Emerging Thinking.