



Cost Benefit Analysis of options to restructure the New Zealand grocery sector

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SENSE PARTNERS
DATA LOGIC ACTION



Key points

Purpose and context

In light of ongoing concerns about a lack of competition in the New Zealand grocery sector and its negative impacts on households, MBIE has asked Sense Partners to provide cost-benefit analysis (CBA) of options to restructure the current duopoly.

The options seek to improve competition and deliver long-term benefits to consumers in terms of price, range, service and quality, under a range of potential market structure scenarios.

However, restructuring will also generate additional costs as vertically integrated supply chains are forcibly separated, leading to decreased economies of scale, duplication of warehousing and logistics functions, and additional IT and head office costs.

We present quantified estimates of the costs and benefits of restructuring the New Zealand grocery sector for supermarkets, suppliers and households. We model these impacts over a 20-year period at the national and local levels.

Scenarios modelled

We were asked to analyse two policy options:

- **Policy option 1:** Separate Foodstuffs only into two national grocery chains.
- **Policy option 2:** Instruct Foodstuffs and Woolworths to each split into two broadly equal national chains.

We first estimate the impacts of the two policy options against a baseline in which there is no material change in the variety of store formats in the grocery sector out to 2045 – the grocery sector looks much as it does today. Population growth and income growth are incorporated into the baseline.

We also perform sensitivity analysis related to changes in assumptions around the **cost of goods sold** and **size of changes to fixed costs**, which are key drivers of the results. There is relatively limited empirical evidence on the scale of these cost increases. This is an important point of uncertainty.



Costs and benefits analysed

TABLE 1 TYPES OF COSTS AND BENEFITS CONSIDERED IN CBA

Quantified benefits	Why included?
Benefits to consumers from lower retail margins	More competition drives down retail margins, which – all other things equal – leads to lower retail prices for groceries.
Benefits to consumers from variety	A wider variety of products, stores or formats gives shoppers more choices. Loss of variety can be a cost though, if supermarkets choose to reduce the range of products they sell to contain costs.
Benefits to producers from greater competitive efficiency	Greater competition pushes supermarkets to innovate harder and improve productivity.
Quantified costs	Why included?
Supplier price increases	After restructuring, there may be more potential buyers, each with lower market shares and less bargaining power than before. This allows at least some suppliers to increase their prices.
Higher industry overheads	Restructuring will lead to a double-up in some group-level functions, such as headquarter costs, HR, marketing and advertising, IT systems.
Restructuring preparation one-off costs	Restructuring leads to costs related to preparing assets for sale, such as legal costs, changes to contracts, changes to IT systems, etc.
Vertical integration one-off costs	After a transition/preparation period of four years, we assume spin-off entities invest in their own ambient distribution centres (DCs) in Auckland, the Lower North Island and Christchurch, and outsource fresh and frozen DCs.
Store rebranding/fit-out one-off costs (WW only)	When WW is split, the new chain's stores will need to be rebranded, have their layouts changed, etc.
Brand-building	New supermarket brands and private label products will need to be established and marketed to consumers.

Analytical approach

We use a series of models and confidential data from information disclosure to model the effects of changes to market structure and evaluate effects on consumers. We also draw on insights and advice from consultants Coriolis, who assessed the commercial and economic feasibility of supermarket sector reform and scenarios for expansion of new store formats.

The three models we use are:

- (i) **Spatial competition model:** a model of consumer store choice given supermarket accessibility and characteristics, to capture variations in people's store preferences, by suburb, and estimate how likely people are to switch between different supermarket brands.
- (ii) **Demerger model:** this model analyses the effect of additional competition – at a relatively detailed local level – on supermarket chains' retail prices and producer and consumer surplus, after taking into account the potential costs of restructuring options (warehousing, IT costs, loss of economies of scale and scope, etc.) and changes in prices paid to suppliers.



- (iii) **Household welfare model:** this model estimates the change in consumer surplus associated with changes in supermarkets' prices and non-price offerings (i.e. from additional variety).

National-level results

Our main findings are:

- net benefits from restructuring Foodstuffs (+\$2.9 billion present value over 20 years, 8% discount rate)
- much smaller net benefits from restructuring Foodstuffs and Woolworths (+\$0.4 million), implying
- a net cost from adding Woolworths restructuring (-\$2.5 billion).

TABLE 2: SUMMARY OF CENTRAL COSTS AND BENEFITS OF RESTRUCTURING
2024 dollar millions, present value, discounted at 8% per year.

	Foodstuffs restructured	Foodstuffs & Woolworths restructured	Marginal effect of including Woolworths
Costs of restructuring	530	2,650	2,120
Change in industry overheads	110	1,390	1,280
Cost of duplication	300	1,840	1,540
Efficiency improvements	-190	-440	-260
Divestment preparation	140	290	140
Vertical integration, one-off costs	270	850	580
Store re-branding	0	90	90
Brand marketing, establishment	10	30	20
Change in producer operating profits	-9,660	-11,590	-1,930
Supermarkets	-10,580	-12,530	-1,950
Suppliers	920	940	30
Consumer welfare benefits	13,110	14,650	1,540
Benefits of lower prices	13,110	14,650	1,540
Benefits from increased variety	0	0	0
Net benefits, excluding change in profits	12,580	12,000	-580
Net benefits, including change in profits	2,920	410	-2,510
Net benefits % of supermarket sales (20 years)	1.1%	0.2%	-1.0%

Results are sensitive to cost assumptions, on which there is relatively limited evidence

Our Foodstuffs finding is sensitive to assumptions regarding changes to costs. The gains from restructuring shrink significantly, and could be negative, if restructuring leads to higher supply chain costs in the long run than we have assumed.



For example, if we assume a 2% increase in the cost of goods sold following Foodstuffs restructuring (1% in our central scenario) net benefits over 20 years shrink to \$920 million.

Our central assumption about cost changes is evidence-based. But cost outcomes cannot be known in advance of restructuring.

Restructuring Woolworths as well as Foodstuffs drops prices slightly more but adds a lot more costs

Adding Woolworths restructuring, on top of Foodstuffs, means prices are a bit lower but the effect is not twice the size of the price effects from a Foodstuffs-only restructure.

Woolworths prices will go down if/when Foodstuffs is restructured – they are not immune from the ensuing price war.

If Woolworths is then restructured as well, there isn't that much extra room for cutting prices. On top of that, restructuring Woolworths is likely to mean much higher costs of restructuring – because an entirely new operator and brands need to be established.

Distributional impacts

All regions and most households would benefit from lower prices if Foodstuffs was restructured.

Higher income households will benefit most in dollar terms (~\$1,000 per year) – because they spend more on groceries – but lower income households will benefit more as a percentage of income because they spend proportionately more of their income on food (~0.8% of income, \$500 per year).

Regionally, we expect firms to adopt lower prices across all stores. As a result, there are no regions we expect to have higher prices following restructuring.

That said, there is a risk we are wrong. It is possible that restructuring would prompt the supermarkets to shut stores in sparsely populated regions. Although, in our view that risk is with us regardless of restructuring.

There is also a risk of temporary price increases in places with limited store choice, if restructuring caused an increase in regional price variation.

Several caveats mean this analysis remains indicative rather than definitive

We have not had the time, resources or industry information available to us to dig into every possible restructuring consideration we would have liked to explore.

This has necessitated making several assumptions and analytical shortcuts. We are confident in our findings given the assumptions made and the data available. But we recommend further work be done on the practical feasibility and cost implications of restructuring options considering what would be a significant regulatory action with non-trivial legal, reputational and implementation risks.



We do not discount the probability that there might well be very high, or even insurmountable, legal and implementation hurdles to achieving the potential gains set out in our report. But they are outside scope for this piece of research and are left to policy-makers to assess.

In our core CBA scenarios, we have also not quantified important but hard to measure changes to industry innovation, new store formats and quality of service. These are important factors that could bring substantial costs or substantial benefits.

PROACTIVELY RELEASED



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1. Context and objectives of analysis

1.1. Context

New Zealand's grocery sector is dominated by three main players: Foodstuffs North Island (FSNI), Foodstuffs South Island (FSSI) and Woolworths New Zealand (WWNZ). These organisations account for around 82% of the \$27 billion grocery sector.¹

There are ongoing concerns around a lack of competition in the New Zealand grocery sector. The Ministry of Business, Innovation and Employment (MBIE) and the Commerce Commission (ComCom) are of the view that this lack of competition contributes to higher prices, less innovation and less choice for consumers.

In its latest Annual Grocery Report, ComCom (2025, p.3) notes "In 2024, we saw continued growth among other retailers, such as specialist and independent supermarkets, convenience chains, clearance stores, and online platforms—especially in Auckland. While this growth is promising, it has not yet reached a scale that significantly affects the overall market position of [regulated grocery retailers] RGRs" and that "significant barriers to entry and expansion in the retail grocery market exist" (p.9).

Ministers have directed officials to explore options to improve competition in the grocery sector quickly with lasting impact, with the ultimate aim of:

- having a third competitor in the market operating at a national scale; and
- maximising the likelihood of additional competitors entering and expanding in the market.

1.2. What we were asked to do

To inform its advice to Ministers on the first bullet point above, MBIE has asked Sense Partners to provide cost-benefit analysis (CBA) of options to restructure the New Zealand grocery sector.

The options seek to improve competition and deliver long-term benefits to consumers in terms of price, range, service and quality, under a range of potential market structure scenarios.

The two policy options for this CBA were developed by MBIE, with supporting research provided by Coriolis Research Limited (Coriolis):

- **Option 1:** Separate Foodstuffs only into two national grocery chains.

¹ Commerce Commission. 2025. '2024 Pūrongo ā-Tau mō te Kai: 2024 Annual Grocery Report'. 6 August 2025 https://comcom.govt.nz/_data/assets/pdf_file/0028/368047/Annual-Grocery-Report-2024-6-August-2025-.pdf



- **Option 2:** Instruct Foodstuffs and Woolworths to each split into two broadly equal national chains.

We compare the impacts of these options against a status quo scenario with no change in industry structure.

We have also analysed the effects of potential arrival or expansion of club store chains or hard discount chain stores. This analysis is presented in an appendix to this report.

We last examined the costs and benefits of divestment options in 2022, in partnership with Coriolis and Cognitus Economic Insight (Cognitus).² This research extends the 2022 CBA (see section 2.2.2 for an overview of the changes in data and methodology).

1.3. Welfare measures

Our analysis presents multiple measures of welfare change that, in sum, add to a measure of “Total welfare” change, comprising:

- consumer welfare gains (or losses) related to quality adjusted price changes
- changes in real resource costs (or benefits) from increased investment or costs of production
- changes in producers’ operating profits (so-called producer surplus) i.e. changes in supermarkets and their suppliers’ margins.

In the long run, consumer benefits are what matter. However, it is important to also examine costs to producers including reductions in profits because profits attract new investment and keep existing assets in useful operation. That is, all activities have an opportunity cost, and producers will devote their time to something else if they are not achieving some reasonable level of return – including a return on assets.

We have not considered costs of supply in sufficient detail to judge confidently whether existing levels of service would continue if margins were materially lower. In other words, we have no view on what an optimal level of margin is in this market, even in ballpark terms.

It thus makes sense to include changes in producer surplus in a CBA as a guard against unduly optimistic views on long run benefits to consumers.³

² See Sense Partners, Cognitus and Coriolis. 2022. ‘Indicative cost-benefit analysis of supermarket divestment options: CBA technical report’. Report to MBIE, October 2022.

³ A major problem with ignoring producer surpluses is that lack of knowledge drives people to focus on the thing they see (prices) and assume they know what will happen to the things they can't see (costs). In such a situation action taken to reduce prices can easily end up increasing costs and also prices (or reducing quality).



1.4. Scope and caveats

Our analysis is subject to several limitations.

This CBA was completed in a compressed timeframe. This limited the number of options and scenarios we could investigate, and the depth of analysis possible on each.

We do not analyse in any detail the costs and benefits of measures taken to 'fast-track' the entrance of new players. In our scenario analysis, we assume the fast-track legislation makes it easier for new entrants to participate at scale, and focus on the competitive impacts of new entrants on existing providers and consumers.

Similarly, we do not take into account any new actions that may be taken by the Grocery Commissioner under the Grocery Industry Competition Act 2023. Any such impacts are implicitly included in both the status quo and counterfactual options and scenarios.

We take the problem definition underpinning this area of policy development as given: that the current structure of the New Zealand grocery sector constrains competition and innovation, pushes up prices and limits choice and variety for consumers. It is outside scope to empirically test this hypothesis.

The two core policy options were provided to us by MBIE. We pass no judgement on the likelihood of them occurring nor the speed with which they might unfold. So, this analysis is not a forecast or projection of what *will* happen in the New Zealand grocery sector over the next 20 years. It aims to quantify, where possible, the costs and benefits of a range of potential future scenarios related to restructuring the sector.

Our assumptions on the potential costs of restructuring the grocery sector – such as additional investment in logistics and Distribution Centres (DCs), IT system costs, additional overheads etc – are subject to considerable uncertainty. These costs will be in part determined by the 'rules of the game' – the design of any regulations to implement separation of existing supply chains. At this stage, such design is unknowable.

In addition, it is challenging to anticipate with confidence the strategic choices each supermarket chain may take in response to changes in market structure. For example, might restructuring lead to significant changes in the range of products offered or completely different ways of doing business?

As in our 2022 report, we do not examine any legal or reputational matters related to restructuring the grocery sector, including international legal obligations to Australian-owned firms under New Zealand's trade agreements and property rights issues.

We assume post-restructuring entities and new entrants are commercially viable and remain sufficiently profitable to continue operating. International experience indicates this may be a strong assumption.

Our analysis is based on observed performance of firms in a highly concentrated market that is largely unique in the world. We must imagine – with the assistance of economic theory and



expert judgement and reasoning – how supermarket companies will respond to regulatory changes and changes to the competitive landscape.

We take account of – but cannot rely on – overseas analyses or insights, such as from merger retrospectives, to understand what may happen here after restructuring. We cannot rely on such analyses because they are so different in context (size of country, industry in question, structure, etc.) to what we are considering. There are, to our knowledge, no other markets that have had a similar structure and undergone regulatory-driven separation. And no regulator would approve a merger from, say 4 dominant chains to 3, or 3 dominant chains to 2 – as is the case in our North and South Islands.

1.5. Terminology

Unless otherwise stated, when we refer to “supermarkets” we mean the stores that Woolworths, Foodstuffs North Island, and Foodstuffs South Island have a commercial interest in or other stores that we explicitly include in our analysis/data, such as hypothetical new entrants and Costco. We don’t mean *all* supermarkets in New Zealand (e.g. specialty supermarkets), and we include some stores that are convenience stores but are owned by, or are franchisees of, the major supermarket chains.

1.6. Overview of options and scenarios modelled

Two restructuring policy options...

The two policy options for this CBA were developed by MBIE and the details of those options have been analysed by Coriolis Research Limited (Coriolis):

1. **Policy option 1:** Split Foodstuffs only by instructing separation into two national grocery chains – a New World Cooperative covering all New World and Four Square stores and a PAK’nSAVE Cooperative. This would create a three major player national market, in addition to any new alternative store models entering.
2. **Policy option 2:** Equal split of Foodstuffs and Woolworths by instructing Foodstuffs and Woolworths to each split into two broadly equal national chains, to be approved by Government. This would create a four major player market, in addition to any new alternative store models entering.

...relative to a central ‘do nothing’ baseline

We first estimate the impacts of the two policy options against a baseline in which there is no material change in the variety of store formats in the grocery sector out to 2045 – the grocery sector in 2045 looks much as it does today. Population growth and income growth are incorporated into the baseline.

We also perform sensitivity analysis related to changes in assumptions around the **cost of goods sold**, and **changes in fixed costs**, both of which are important drivers of the results.



2. Methodology and assumptions

2.1. Context

2.1.1. Our framework draws on merger analyses

Our framework relies on evidence and methods commonly used to assess the effects of mergers on consumer prices and firms' costs. The idea is that divestment can be viewed as simply the reverse of a merger – a demerger.

When competition regulators assess the merits of a merger they consider whether the benefits of approving the merger would outweigh the costs. A simplified⁴ example is:

- Benefits: through greater scale, mergers can mean more efficient supply chains. So, if nothing else changes, prices may fall or quality may improve.
- Costs: mergers reduce the number of firms competing in a market and potentially less intense competition. So, if nothing else changes, prices may rise or quality may decline.

In our case, we are flipping the logic and weighing the benefits of increased competition against the risk of increased costs.

2.1.2. Simulation models are a widely use part of merger analysis

Merger simulation models form a central part of our analysis. These sorts of models are widely used by competition regulators and researchers to try and judge whether a merger could lead to increases in prices that are not offset by changes in costs.

Merger simulation models combine assumptions about the strategic decisions of companies with data on local market conditions and competition to predict effects of changes in competition on prices. Details of the models are discussed below.

There is some evidence that suggests that simulation models capture reasonably well the broad magnitude of price changes that follow mergers (Weinberg and Hosken, 2013; Björnersted and Verboven, 2016). That said, there are no studies we are aware of that test the accuracy of such simulation models for predicting effects of supermarket mergers (or demergers).

Other research is critical of these models on the grounds that they generally do not account for coordination of pricing and production between firms when the number of large

⁴ The effects of a merger, in principle and in practice, will depend on the market context (e.g. barriers to entry and population characteristics), the firms, their products, their respective market shares and their distinctive capabilities. In some cases, even direction of effect cannot be assumed with great confidence, such as in the case of discerning the effects of increased buyer power on supplier innovation (Bonnet et al, 2025). In the case of supermarkets, there are also multiple dimensions – such as price, quality, range and service – across which consumer experiences may improve or worsen or following a merger. Merger screening is not a simple process.



competitors shrinks, so understate costs to consumers from reduced competition (Miller and Weinberg, 2017).

2.1.3. Links between increased firm concentration and higher prices

We have considered evidence from retrospective analyses of mergers and their effects; paying particular attention to the effects of supermarket chain mergers in markets that are highly concentrated (dominated by a few firms).

Overall, the evidence points to price increases of 5-8% when supermarkets merge in markets with similar numbers of competitors as we have in New Zealand (Hosken et al, 2018; Rickert et al, 2021).⁵ These observations provide a guide for the size of price effects one might reasonably expect from a demerger.

These effects can only ever be a guide of course, seeing as New Zealand is a somewhat unique market and retrospective merger analyses can only ever measure the effects of mergers that take place and they have to contend with, inter alia, fluctuations in demand and costs and prices that have nothing to do with mergers (Ashenfelter et al, 2009; Angrist and Pischke, 2010).

Few studies can differentiate between price changes and cost changes, due to a merger, so most studies only report net price changes that include cost changes plus changes in margins.

There does, however, seem to be a consistent finding for supermarkets and other sectors that net price increases are most likely to occur in markets with fewer firms pre-merger (Stohr, 2024). This suggests that a demerger in a highly concentrated market is likely to lead to a net reduction in prices, even after accounting for any reduction in efficiency of firms.

2.1.4. Links between increased firm concentration and lower costs

There is strong evidence from overseas of efficiency gains when supermarket chains merge or otherwise consolidate and capture efficiency gains from scale. There is evidence for cost reductions from increased purchasing power (downward pressure on supplier prices) and for technical efficiency gains e.g. from scale in supply chain operation (storage and logistics).

Diaz et al (2024) studied the consolidation of the supermarket industry in Chile over a 20 year period and found that supply chain efficiency gains – through use of centralised distribution centres – led to lower consumer prices and higher concentration as less efficient firms were crowded out.

Barros et al (2006) found that a merger of supermarkets in Portugal led to cost reductions of 3% to 5%, for a subset of products, due to increased bargaining power with a subset of suppliers. Supermarkets did not pass those cost changes on to consumers with prices increasing by 1.1% to 1.7%.

⁵ Hosken et al find price increases of between 5% and 8% in US markets with premerger HHI values over 3,500. Rickert et al find price increases of 7.6% in local markets with only 2 competitors.



Rickert et al (2021) studied a supermarket merger in Germany and found evidence of a 1% reduction in costs, nationwide, as a result of the merger. This study is the most precise estimate we have found of a change in costs due to a merger. That said, the study is not able to say whether the cost change came from increased buyer power or improved economies of scale or other technological factors.

More generally there are other examples of studies finding that supermarket mergers lead to lower prices (Stohr, 2024; Hosken et al, 2018)⁶ and this provides indicative evidence for efficiency gains from increased scale even if the size of such effects cannot be pinned down very accurately as they combine both changes in costs and changes in margins.

That being so, there is strong reason to hypothesise that a demerger would lead to increased costs, whether through less efficient operations or reduced purchasing power.

2.1.5. Ambiguous effects of firm concentration on variety and quality

Research shows that consumers get a lot of benefit from non-price attributes of products, especially variety.

For example, Hausman and Leonard (2002) find that the choice of a different variety of toilet paper is of equal worth to consumers as the savings they get from lower prices due to increased competition. And in broader supermarket research there is evidence that the right kinds of variety have a significant positive effect on consumer choice of store and a more important effect than price (Briesch et al, 2009).⁷

Variety is also an important dimension in supermarket competition, with product variety being a way to differentiate a store's brand in the market and increase market power.⁸

Unfortunately, there are comparatively few studies that rigorously assess the effects of mergers on supermarket variety and quality. The ones that do exist suggest effects are nuanced and depend on market context (Argentesi et al 2021). This makes it difficult to draw clear lessons for our study, other than the fact that variety effects can be important.

One study, by Allain et al (2017), reviewed the effects of a French supermarket merger where they found that product variety in stores (SKUs) reduced following a merger, due to rationalisation of one of the merging company's private label ranges.

⁶ Hosken et al (2018) found evidence that several US supermarket mergers resulted in reduced prices and, on its face, these reductions in prices are likely to be the result of efficiency gains. In two cases net price changes were -10% or more.

⁷ This study suggests more brands are better but more choices within a brand (e.g. size) is for most people not positive.

⁸ There is also research suggesting that demand for variety can act as a discipline on price setting (Thomassen et al, 2017).



Another study by Pires and Trindade (2018), of supermarket mergers in the United States found a 3% increase in products stocked.⁹ However the authors note that this sort of effect can only be determined empirically after the fact because effects are ambiguous, in principle.

This is echoed in work by Argentesi et al (2021) who found that product variety after a merger of Dutch supermarkets varied, depending on degree of competition in the market, how close stores from the merged chains were to each other, and whether holding a wide variety of products was a point of differentiation for the stores pre-merger. That said, their findings do suggest that convergence in product variety may result from demerger because the incentive to differentiate on variety, to avoid cannibalising group sales, is diminished.

In other work on quality of service, though not merger related, Matsa (2011) investigated the effect of increased competition on inventory management and found that when Walmart expanded it caused a one-third reduction in inventory shortfalls, indicating that competition drove supermarkets to improve the quality of their service to avoid losing customers.

On the whole, evidence of significant changes in variety or quality of service come from studies on the entry of new stores and new formats. Entry of new stores has been shown to be of value to consumers well in excess of effects on pricing and benefits from lower pricing, with one study of Walmart superstores in the US showing the value to consumers of the extra choice was five times larger than the benefits they received through lower prices (Hausman and Leibtag, 2007).

In this regard, the most we might expect from demerger is that there could be some gains from increased choice if a demerger resulted in a distinct new brand with a different format or offering.

2.1.6. Differences between our methods and merger analyses

Despite drawing on methods and insights from merger analyses and related research, our CBA is fundamentally different to most, if not all, merger analyses in three key ways:

- **Scale of change:** Few if any mergers would ever be considered for approval if they were to result in the degree of market concentration that exists in New Zealand's supermarket sector. Thus, the effects of divestment – of going from two to three main supermarket groups or from two to four main supermarket groups – don't have a direct analogue in the real world of merger analysis.
- **Emphasis on empirical estimates:** Our primary task is to quantify the scale of costs and benefits – to demonstrate, as best we can, whether and to what extent the benefits of divestment outweigh the costs of divestment. For competition regulators, the primary objective is to decide whether or not to approve a merger, on the balance of risks given both qualitative and quantitative information. Decisions do not need to be made on a purely quantitative basis. While we also discuss qualitative judgements

⁹ The study measured changes in brands of beverages sold and used this as an indicator of propensity to change range after a merger.



and concerns, our primary objective is putting a number on potential effects of divestment.

- **Information exchange and disclosure:** in merger approval processes, the burden of proof is on merging companies to explain how their merger will create benefits from reduced costs or improved quality. Regulators have the opportunity to test those claims and to seek further information, including detailed confidential information, in order to try and verify or refute those claims. Our CBA is based only on existing information, some of it detailed information disclosed to the Commerce Commission. We have not tested our estimates or assumptions with the industry nor have we been able to seek additional information that would help us to improve our estimates.

2.2. Modelling methods

Our analysis uses three models.

Spatial competition model: a model of consumer store choice given supermarket accessibility and characteristics, to capture variations in people's store preferences, by suburb, and estimate how likely people are to switch between different supermarket brands.

Demerger model: this model analyses the effect of changes in supermarket ownership on supermarket chains' retail prices and flow-on effects on producers' and consumers' surpluses, after taking into account the potential costs of restructuring options (warehousing, IT costs, loss of economies of scale and scope, etc.) and changes in prices paid to suppliers.

Household welfare model: this model estimates the distributional consequences of changes in supermarket chain's prices change in consumer surplus associated with changes in supermarkets' prices and non-price offerings (i.e. from additional variety). Again, this is completed at the local level, and for 45 representative households, varying by size, composition and income level.

A non-technical summary is presented in the sections below. More technical detail on these models is provided in Appendix B.

The models are used to simulate supermarket spending and prices every 2 years for 20 years between 2025 and 2045.

2.2.1. Spatial competition model

This model is a New Zealand version of the model of spatial retail competition proposed by Ellickson et al (2020) and applied to supermarket retailing in the US.

The model examines revenue of the major supermarket chains' stores, and estimates the extent to which revenue is determined by:

- stores' characteristics
 - brand attributes (including persistent price differences)



- store attributes such as range (number of SKUs) and format (convenience stores, small supermarkets and regular supermarkets)
- distances between stores and customers (measured by uncongested drive time)
- consumers' attributes, on average, by suburb
 - average incomes
 - vehicle ownership
- local availability of other outlets that are substitutes for spending at the major supermarket chains' stores, including specialty supermarkets and cafés.¹⁰

We estimate these effects separately for the North and South Islands.

This model plays two main roles in our analysis:

- estimates of the rates of substitution between brands when prices or other attributes change
- effects of entry of new stores or changes in store brands, in terms of consumer spending and store choice and changes in pricing (margins).

Table 3 provides an example of estimated rates of substitution between brands. These are one of the main outputs of the model. The data represent the share of a brand's revenue that goes to another brand when the brand closes or its quality deteriorates, or its prices go up. For example, a \$100 reduction in sales at New World is shown to increase sales at PAKn'SAVE by \$45.

TABLE 3: NORTH ISLAND INTER-BRAND DIVERSION RATIOS
Four square (4S), Costco (CB), Fresh Choice (FC), New World (NW),
PAKn'SAVE (PS), SuperValue (SV) and Woolworths (WW).

Departing:	Going to:						
	4S	FC	NW	PS	SV	WW	CC
4S	-1.00	0.03	0.27	0.36	0.01	0.32	0.00
FC	0.05	-1.00	0.21	0.37	0.00	0.37	0.01
NW	0.05	0.02	-1.00	0.45	0.00	0.46	0.01
PS	0.05	0.03	0.32	-1.00	0.00	0.58	0.02
SV	0.14	0.02	0.23	0.33	-1.00	0.27	0.01
WW	0.04	0.03	0.33	0.58	0.00	-1.00	0.02
CC	0.01	0.02	0.17	0.44	0.00	0.35	-1.00

¹⁰ Note, spending at these stores is not modelled explicitly. We do not have the data. Rather, as discussed in Appendix B, we measure the availability of such stores using data on counts of other supermarket and specialty stores per square kilometre within 10 minutes' drive time of a suburb. See Appendix B for further details.



These diversion ratios are built up from estimated store-level elasticities for all 492 stores/store locations in the model, aggregated based on revenue shares. As such, they capture a range of factors including:

- store locations and local area competition i.e. lower revenue elasticities in areas with fewer competitors
- variations in offerings within brands i.e. within brands, there is variation in both product range (SKUs) and store sizes and formats e.g. in the case of Four Square stores there are convenience stores and also small supermarkets.

When we model future store competition and sales, we hold store locations and offerings constant, except where we are adding new entrants or analysing effects of product range on store choice and consumer welfare.

The model allows for analysis of the effects of changes in product variety e.g. simulating reductions in range by brand and estimating changes in consumer surplus.¹¹ This analysis is not fully integrated into our assessment of changes in prices/margins but is considered separately to reduce complexity of calculations and to avoid double counting of costs and benefits.

Changes in range or other attributes will of course affect store revenues, market shares and margins. For example, when we simulate a 1% reduction in PAKn'SAVE's range in the North Island we find that PAKn'SAVE's revenues fall 0.9% while Woolworths' and New World's revenues increase 0.9% and 0.7% respectively. Overall, consumer spending goes up as shoppers switch, at the margin, to higher priced stores.

In the final analysis our estimates of effects of changes in variety are not used in the CBA. This is because of high degrees of uncertainty about the direction of effect and the fact that the estimated sizes of effect are large.

Our model suggests that the welfare cost of a 10% reduction in range is between 1.0 and 2.0 times the cost of an increase in price depending on where a person lives and the store that is reducing the available number of SKUs. We find that a reduction in range at PAKn'SAVE is worse for consumers, on average, than a reduction in range at Woolworths, for example.

The model has other useful properties e.g.:

- strength of local competition can be measured from a consumer perspective (i.e. availability of supermarket options) without predefining geographic market areas¹²
- it takes account of the fact that people have differing preferences for particular store types and attributes e.g. some people like low prices and others like wide variety of products, so

¹¹ For further details see Appendix B.

¹² We do have to include some geographic boundaries, but these are set at 40 minutes' drive time so that these arbitrary boundaries have limited effect on the analysis.



- consumers' propensities to substitute between different store types vary spatially.

Key assumptions of the model and the way we use it are:

- supermarket brands have prices that are set centrally for the North Island and for the South Island
- supermarket groups set prices by weighing the effects of price changes on the overall profitability of the group.

The first assumption means we assume that differences in brands' price levels, between areas, are due to persistent factors affecting cost to serve such as freight costs, customer density, labour market characteristics or local availability of products.

Local and international analyses of supermarket pricing lend support to the assumption that prices are somewhat uniform within brands (Allain et al, 2017; DellaVigna and Gentzkow, 2019; Ellickson et al 2020; Argentesi et al 2021; Frontier Economics, 2021)^{13,14}; in other words, the most important variations in prices occur between brands rather than within brands.¹⁵

Studies consistently show that retailers (Adams and Williams, 2019), including supermarket chains (Handbury, 2021), don't exploit local market power as much as they could by opportunistically varying prices on store-by-store basis to maximise short-run profits.

Furthermore, there is evidence to suggest that prices are not the dominant factor in supermarket competition and that competition on quality and range is just as important (Ellickson, 2013) and location or convenience is a major driver of consumer store choice (Commerce Commission, 2022).

The second assumption is a judgement on the mechanics of price competition. It is necessary for judging how changes in store ownership or control convert into price changes. It is an assumption that best suits an analysis of persistent or structural changes to competition, as opposed to short run variations.

2.2.2. De-merger model

This model predicts changes in average prices in the North and South Island as a consequence of changes in supermarket groups' control of supermarket brands and changes in costs of goods sold.

¹³ Consumer NZ has also observed that prices in smaller towns are not very different from prices in urban centres <https://www.consumer.org.nz/articles/are-groceries-more-expensive-in-the-regions>.

¹⁴ Our analysis of prices generally agrees with these observations, or at least we do not have evidence to refute these observations. However, we note that there are exceptions that could be explored further with Foodstuffs North Island having a much higher degree of variation in prices between stores as compared to Foodstuffs South Island and Woolworths NZ.

¹⁵ There would be a lot of value in further research that explored in more depth the degree of variation in pricing within brands and the reasons for it. It is quite possible that demergers could cause a change in brands' pricing strategies. An example of this is discussed in Appendix C.



The model also produces measures of changes in consumer welfare (compensating variation) and producer surplus (operating profits).

The model uses the estimates of store choice sensitivity (diversion ratios) from the spatial competition model to predict how supermarket groups' gross profits change if prices change.

The model solves for gross profit margins that maximise each group's gross profits, given expected responses of other groups.

Restructuring of brand ownership leads to lower margins because companies' profits become more sensitive to changes in price.

When companies own multiple brands, they can profitably raise prices because although this may cause people to shop elsewhere some of those people will switch to another store they own.

Owner, in this context, means the person that controls mark-ups/prices given constant brand-specific marginal costs.

The model's measure of changes in aggregate consumer welfare is the estimated amount of money consumers would need to be paid in lieu of the predicted price changes so that they are equally well off as if prices had changed.

Our household welfare model also estimates welfare effects. The reason we include two measures of welfare in our analysis is that the de-merger model's version is fully consistent with the modelled price changes and store revenues being analysed – thus it is the direct counterpart to our estimated impact on producer surplus. That being so, it is the measure of welfare we use to measure allocative efficiency in our calculation of policy-related cost and benefits.

The household welfare model, described below, extrapolates from the demerger model's price changes and infers effects on household spending. Household spending differs from spending at supermarkets – for a variety of reasons including that businesses shop at supermarkets.

The two measures are complementary and similar sized but measure different things so are not the same.

2.2.3. Household welfare model

The purpose of this model is to translate changes in prices, from changes in market concentration, into market-specific changes in household welfare accounting for differences in household composition and income.

We apply the predicted changes in prices by brand from the de-merger model to store spending by suburb in our retail competition model, to get (probability of store choice) weighted average price changes by suburb. Thus, we capture differences in benefits from lower prices depending on whether people live near and shop at stores that we expect to reduce prices.



We then calculate effects on households by assuming that all households in a suburb face the same average price change and measuring changes in expenditure by household taking account of variations in households' incomes and spending on food.

To model expenditure by household type and income we calibrate a household-specific model based on a linear expenditure system.

Estimating demand systems is generally data intensive but when the intention is to analyse differences in expenditure and welfare across different types of households it is possible to construct sensible demand systems from simple budget shares (Creedy, 1998).

The model is essentially a model of food spending, so it does not align perfectly with the scope of the other models which are restricted to measuring effects of prices on spending at the main supermarket chains.¹⁶

Given this, the results should be interpreted as an indicator of relative effect sizes.

The data we have is also based on averages in spending on food by household type and broad income groups (decile) across the country and applying those observations at a local level using local variations in household incomes, by household type, using census data. All this means that we overlook a lot of the variation in circumstances (e.g. incomes) and spending patterns that exists between different household types.

Nonetheless, the analysis provides a useful bridge from high-level market wide price changes and variations in effects on the ground i.e. indicators of distributional impacts.

2.2.4. What's different from our 2022 analysis?

Due to data and time constraints, our 2022 competition model did not explicitly capture:

- consumer demand and store choice
- non-price competition (e.g. product range)
- market definition
- centralised (uniform) pricing by chains.

With better data availability and a little more time, we were able to address many of these limitations and better capture some of the nuances of grocery sector competition. The key differences are captured in the table below.

¹⁶ We do apply an adjustment to the model's total amount of food spending, when calculating welfare effects, so that the total dollars of spending being considered is approximately the same as the amount of spending at supermarkets in the other models.



TABLE 4 OVERVIEW OF MODELLING CHANGES

	2022 model	2025 model	Why this matters
Local market definition	Predefined assumptions with broad geographic boundaries (e.g. "South Auckland").	Continuous definitions of markets from a consumer perspective. No single definition.	More realistic. Avoids inevitably arbitrary boundaries.
Store location	Counts of stores by local market areas. No further detail.	Precise geo-location of all stores.	Better measures of local competition help to capture overlaps of customer catchments for/between all stores.
Store characteristics	Not analysed.	Includes store-specific format and range indicators.	Better captures variations in store quality, especially rurally
Consumer demand	Variations in demand fully captured in variations in brand market shares.	Consumers demand a function of income, store and brand characteristics, distance to stores.	Better captures competition by accounting for variation in preferences
Non-price competition	Not analysed in any detail.	Embedded in model of consumer demand.	Inter-store and inter-brand competition reflects impacts of competition on basis of e.g. store accessibility and quality/range
Centralised pricing	Assumed uniform pricing within local market areas.	Assume island-wide uniform pricing policies. Regional variations considered in sensitivity testing.	Better aligns with data and avoids risk of overstating negative impacts on areas with few stores
Data	Brand level revenue data, assumed chain level margins, and counts of stores.	Store level revenue and range data. Some store level average product price data. Brand level data on costs of goods sold. Chain level information on supply chain costs.	Much improved basis for observing profitability, nationally and spatially. Ability to test assumptions regarding price variation.

2.3. Key assumptions

2.3.1. Restructuring effects on store ownership

Table 5 and Table 6 provide summaries of our assumptions about changes to store ownership/control under policy options 1 and 2.



TABLE 5 NEW GROUPS: FOODSTUFFS RESTRUCTURING

Four square (4S), Costco (CB), Fresh Choice (FC), New World (NW), On-the-spot (OS), PAKn'SAVE (PS), Raeward Fresh (RF), SuperValue (SV) and Woolworths (WW). FS = Foodstuffs.

Island	Current Group	New Group	Brand	Stores	Revenue (2024, \$m)
NI	FS	NW	4S	162	Commercial Information
NI	FS	NW	NW	105	
NI	FS	PS	PS	46	
SI	FS	NW	4S	57	
SI	FS	NW	NW	43	
SI	FS	NW	OS	62	
SI	FS	NW	RF	5	
SI	FS	PS	PS	12	

TABLE 6: NEW GROUPS: FOODSTUFFS AND WOOLWORTHS RESTRUCTURING

Four square (4S), Costco (CB), Fresh Choice (FC), New World (NW), On-the-spot (OS), PAKn'SAVE (PS), Raeward Fresh (RF), SuperValue (SV) and Woolworths (WW). NC = Newco. FS = Foodstuffs.

Island	Current Group	New Group	Current Banner	New Banner	Stores	Revenue (2024, \$m)
NI	FS	NW	4S	4S	162	Commercial Information
	FS	NW	NW	NW	105	
	FS	PS	PS	PS	46	
	WW	WW	FC	FC	31	
	WW	WW	SV	SV	12	
	WW	WW	WW	WW	74	
	WW	NC	WW	NC	73	
SI	FS	NW	4S	4S	57	
	FS	NW	NW	NW	43	
	FS	NW	OS	OS	62	
	FS	NW	RF	RF	5	
	FS	PS	PS	PS	12	
	WW	WW	FC	FC	24	
	WW	WW	SV	SV	7	
	WW	WW	WW	WW	21	
	WW	NC	WW	NC	21	

2.3.2. High-level estimates of new capital costs from restructuring

Following restructuring, additional DCs will need to be used/built across the country. We assume these cost \$100m each in capital expenditure (based on recent media reporting on new DCs), with all land leased. Chains may also choose to outsource some logistics function to avoid the upfront capital costs.



Our assumptions are captured in Table 7.¹⁷

TABLE 7 WAREHOUSING ARRANGEMENTS POST-RESTRUCTURING

	Auckland	Lower North Island	Christchurch	Capex costs, \$m
NW	Retains existing FSNI Ambient, Fresh and Frozen/Chilled DCs	Builds new Ambient DC; outsources Fresh and Frozen/Chilled	Retains existing FSSI Ambient and Frozen/Chilled DCs; outsources Fresh	\$100m
PS	Builds new Ambient DC; outsources Fresh and Frozen/Chilled	Retains existing FSNI Ambient and Frozen/Chilled DCs; outsources Fresh	Builds new Ambient DC; outsources Fresh and Frozen/Chilled	\$200m
WW	Retains existing WWNZ Ambient and Chilled DCs; outsources Frozen	Builds new Ambient and Chilled DCs; outsources Frozen	Retains existing WWNZ Ambient and Chilled DCs; outsources Frozen	\$200m
WW NewCo	Builds new Ambient and Chilled DCs; outsources Frozen	Retains existing WWNZ Ambient and Chilled DCs; outsources Frozen	Builds new Ambient and Chilled DCs; outsources Frozen	\$400m
WW NewCo	Builds new seafood and meat processing plants in each Island			\$50m

2.3.3. Assumption: demergers cause a 1% increase in costs of goods sold

We assume that any demerger increases costs of goods sold by 1% due to reduced efficiency of supply chains and reduced buyer power. This assumption is applied, in our central case, to all demerged entities – whether Foodstuffs or Woolworths.

The inclusion of this assumption is justified based on the evidence presented earlier that studies on supermarket mergers, from overseas, consistently show that mergers resulted in efficiency gains. So, demerger is expected to have some negative effects on firms' operational supply-chain efficiency and thus on costs of goods sold (COGS).

We choose a 1% increase based on the best estimate available of efficiency gains from a merger, from retrospective analyses of merger effects, by Rickert et al (2018).

¹⁷ The geographical splits assumed are based on Option 2 on pp.127-128 of Coriolis. 2025. 'Situation assessment: Assisting MBIE in providing advice on the potential restructuring of the New Zealand grocery sector to improve competition' Interim report, June 2025.



This effect size is uncertain and New Zealand's supermarket sector is rather unique, in its current form and concentration. There are reasons to believe it could be larger, including the low population density of New Zealand making supply chain costs harder, in principle, to manage. There are also in-principle reasons to expect it could be lower such as increased competition-induced incentives to manage supply chain costs.

We have examined New Zealand data on existing supply chain costs and examples of efficiency gains from scale in supermarket supply chains. This analysis, in Appendix D, points to efficiency losses of around 0.3–0.7% of the cost of goods due to demerger, complementing the overseas example and supporting our 1% central assumption as reasonable and arguably conservative.

Our sensitivity analyses test the extent to which our central results are influenced by this assumption, varying cost changes by $\pm 3\%$.¹⁸

For illustrative purposes, we assume that, in our central case, half the increase in COGS (i.e. +0.5% increase in COGS) comes from higher prices for suppliers. This assumption is more presentational than anything else in the sense that we don't account for any further potentially positive effects on consumers, such as increased innovation from suppliers, so the increase in supplier prices is simply a transfer between producers that also leads to higher costs for consumers.¹⁹

In our tables of results we present a high cost scenario in which COGS increase by 2%, comprising a 0.5% increase due to reduced buyer power and a 1.5% increase due to reduced supply chain efficiency.

This high cost scenario focusses on increases in costs due to reduced efficiency because this is a key risk. It is possible that supermarkets' buying power could fall by more than we have assumed in our central scenario. However, a change in buying power leads to transfers, between supermarkets and their suppliers, and the effect on welfare is broadly neutral. So, we have not included larger reductions in buyer power in our high cost scenario.

We also include a low cost scenario in which there is no change in COGS – no efficiency loss and no change in buyer power.

2.3.4. No reductions in range, which would add costs to consumers

Our central scenario has an assumption of no change in product range by any demerging supermarkets.

Coriolis advises that it is possible that a PS cooperative could use range reduction as a cost management strategy, after demerger. However, as we cannot be certain this would happen

¹⁸ In this sensitivity analysis we focus on changes in costs, regardless of where they come from – whether reduced buyer power or reduced supply chain efficiency.

¹⁹ It would also be reasonable to assume no change in buying power under option 1, seeing as the resulting entities would retain similar if not the same corporate scale they have now.



and we expect that this would create substantial costs for consumers, we exclude this effect from our analysis.

We considered adding a sensitivity analysis based on the effects of a 10% reduction in range – the size of the reduction in range that Australian supermarket chain Coles announced in 2025, as a cost cutting measure.²⁰

Our assessment is that such a reduction in range would create significant costs for consumers, if it is a change that is caused by divestment and because of increased operating costs caused by divestment. This is because, at least in the short term, consumers have limited choice so some consumers would face a cost.

As discussed in our methodology section our estimated size of the cost of a range reduction is between 1 and 2 times the cost of a price increase of the same size in percentage terms.

To be clear, a reduction in range can have offsetting benefits, like lower prices, so it does not need to imply a net cost, at least not for all consumers. Some shoppers prefer lower prices rather than breadth of range (Handbury, 2021). Regardless, **a reduction in range induced by regulation does imply a cost and our claim is that this could be very large even if hard to predict or measure accurately.**

By contrast, if a discount store entered the New Zealand market it would increase shopping options available to New Zealand consumers. People who prefer low price low range shopping options could avail themselves of that choice. People who prefer a wide range but higher prices could continue shopping at their preferred store. Thus, entry of a retailer with a different store format and pricing strategy is a different matter to changes in range prompted by regulatory intervention.²¹

2.3.5. No net change in store choice or format

We assume no net change in local store choice due to demergers. That is, we ignore the effects on local markets and store choice from either:

- New World opening stores near PAKn'SAVEs, or vice versa
- a Newco provided new and different shopping options.

This is a strong assumption. It means that our quantitative analysis does not capture the additional benefits that some consumers may get from increased variety of stores to choose from locally.²²

²⁰ <https://www.afr.com/companies/retail/coles-calls-in-bain-as-it-slashes-the-number-of-products-on-shelves-20250131-p5l8l8>

²¹ Though, to be clear, entry of a discount store could create costs for variety-loving shoppers, if it led to reduced range at their favourite store. There is an inherent tradeoff between benefit from variety and costs of supplying it.

²² See section 5.2 for further discussion about unquantified benefits.



In the case of Foodstuffs brands opening new stores, we justify our assumption on the grounds of:

- avoiding double counting of benefits from increased competition
- limitations on the time available to undertake analysis of the profitability of expanding competition in local markets
- an expectation that our results would be quite sensitive to assumptions about local market establishment.

Our concern about double counting benefits arises from the fact that when we model the effects of demerger on prices, we assume that centralised price setting, in each island, means that, in the long run, people living near a PAKn'SAVE benefit from increased competition from New World even if there are no New Worlds nearby. Thus, there is an extent to which our modelling is already accounting for lower prices due to competition between PAKn'SAVE and New World. We need to be cautious about adding additional effects.

In the case of a Newco, we take the view that there are likely to be offsetting costs and benefits.

In terms of benefits, we expect it is likely that Newco stores would be materially different from existing Woolworths, not least because there would be a small but not trivial degree of overlap between the Newco and Woolworths stores. Our hypothetical split of Woolworths stores shows around 10% of the population lives in areas where the probability of shopping at Woolworths or the Newco are both greater than 10%. Thus, some consumers would genuinely have increased choice. That would be a benefit worth counting.

However, we also think it is likely that, on the balance of probabilities, a Newco would differentiate itself by reducing range, because that would assist with managing costs as well as be a source of brand differentiation that limits competition with other formats (Cleeren, 2010). If that happened, a substantial proportion of customers currently served by Woolworths stores would be worse off because of the reduction in range.

Thus, without the benefit of enough time to examine this effect in more detail, we assume no net benefit from the rebranding of the Newco.

2.3.6. Restructuring will cause an increase in overheads

We considered two scenarios for change in overheads of demerging supermarkets. On the one hand, demerger will lead to duplication of overheads. On the other hand, one imagines that head office costs would likely come under review when restructuring reduces group revenue and exposes firms to increased competition.

The increase in overheads would be most pronounced in the case of a Newco where HR and buying functions would need to be replicated from scratch. However, it will also apply to Foodstuffs where, for example, the new entities would no longer be able to share costs in joint ventures like Foodstuffs Ownbrand (procurement) and Foodstuffs NZ (brand management).



For the Newco, we assume overheads will be 75% of Woolworths current level. We select a number lower than Woolworths current numbers based on indications that Woolworths believes it can save around 16% of existing overheads with a planned back office restructuring.²³ We also make an arbitrary additional allowance for savings related to scale.

For Foodstuffs we assume that the loss of joint venture shared costs leads to an increase in overheads of 10%. We estimate that Foodstuffs currently has lower overheads than Woolworths Commercial Information. A 10% increase implies a convergence, with the increased overheads being halfway between their current level and Woolworths' current level.

Separately from those increases, we make allowance for across-the-board efficiency gains of 5% for all groups regardless of policy change. This reflects what we think is a reasonable expectation of increased scrutiny of costs given predictions of reduced margins. The magnitude of such a change is uncertain but within the bounds of what we observe in Woolworths' recent announcements of expected cost savings.²⁴ We have allowed for variations in these costs in our sensitivity analysis, with savings of -1% in the high cost case and -10% in the low cost case.

2.3.7. Costs of brand establishment and marketing

We assume that rebranding and fit-out costs for a new chain (Newco), spun-out of Woolworths, costs Commercial info per store. On top of that, marketing for brand establishment adds one-off costs of \$30 million. This is an additional one-year's spending if we assume supermarkets' advertising spend is in proportion to sales (\$194 million of advertising in 2024²⁵ multiplied by an expectation of Newco having 16% market share).

The Foodstuffs split is also assumed to result in a one-off increase in marketing related to establishing a new private label range. We assume the cost of this would be \$8 million over two years based on a pro rata of supermarket advertising spend to the expected share of sales that would likely be private label products based on existing shares.²⁶

²³ <https://www.afr.com/companies/retail/woolworths-first-half-profit-crunched-by-strike-20250221-p5le48>

²⁴ Note we have not included Woolworths' announcement in our baseline.

²⁵ <https://www.nielsen.com/news-center/2025/nielsen-ad-intel-2024-advertising-spend-report-reveals-new-zealands-top-advertisers-leading-industries-and-market-shifts/>

²⁶ See p367 of Commerce Commission Market study available at [Market study into the grocery sector | Commerce Commission](#).



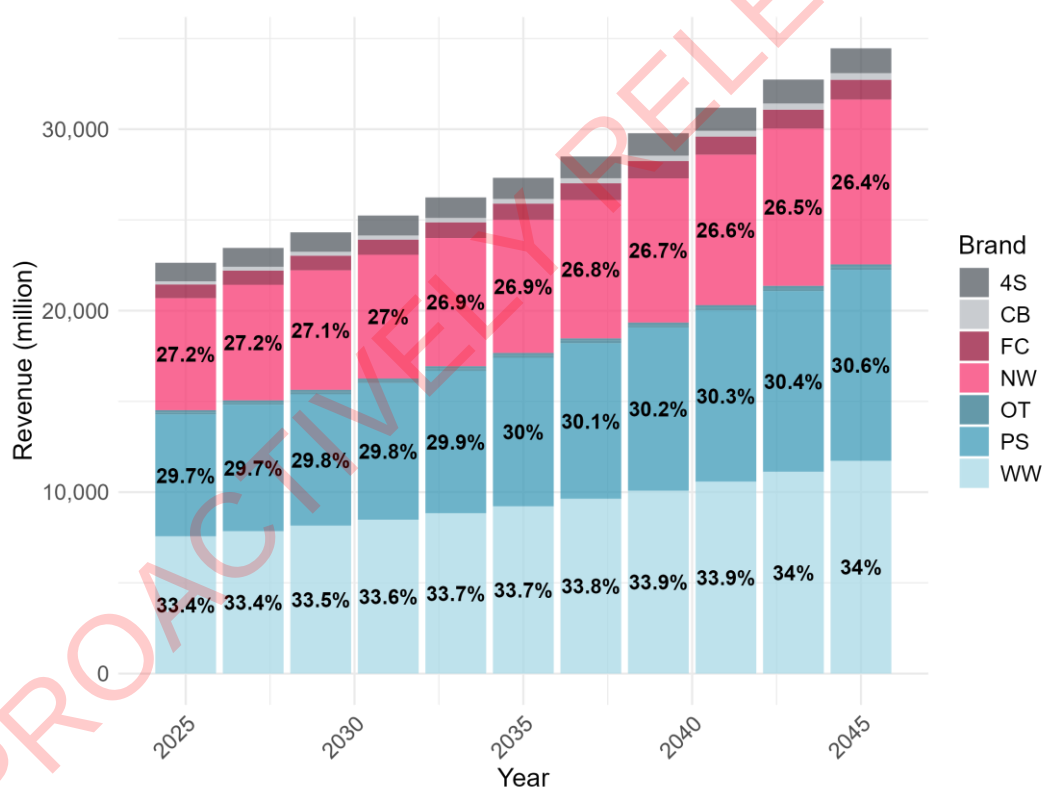
3. Baseline

Our baseline for assessing policy changes sees consistent growth in supermarket spending, based on projections of population and income growth and a continuation of current market structure and profitability (see Figure 1).

Small changes in market shares are projected, largely due to the extent to which each brand has stores in areas demonstrating the fastest population growth and income growth.

FIGURE 1: BASELINE REVENUE AND MARKET SHARES

2024 dollars. Brands are Four square (4S), Costco (CB), Fresh Choice (FC), New World (NW), On-the-spot (OS), PAK'nSAVE (PS), Woolworths (WW) and other minor Foodstuffs and Woolworths brands (OT).



The sales of the companies in our analysis are expected to grow by 50% over the next 20 years, from around \$23 billion per year to around \$34 billion.

Over that time, Foodstuffs North Island is expected to lose some of its North Island market share to Woolworths and Costco. Again, this partly reflects assumptions about where income and population growth will be strongest and the fact that this tends to favour Woolworths' store coverage, with comparatively low current market share for New World in Auckland.

However, Foodstuffs North Island is expected to increase its share of the national market because spending in the North Island is expected to outpace spending in the South Island. Its PAK'nSAVE stores are also increasing market share (see Figure 1).



In the South Island the split of market shares between Foodstuffs South Island and Woolworths is projected to remain largely unchanged. However, Foodstuffs South Island shrinks as a share of the national market because of projected lower rates of population and income growth relative to the North Island – on the whole and in the aggregate.

TABLE 8: MARKET SHARES OF MAJOR GROUPS

Major chains' sales as a share of total sales in our model's baseline

Area	Group	2025	2045
North Island	FSNI	60.8%	60.1%
	WW	38.2%	38.5%
South Island	FSSI	65.4%	65.5%
	WW	34.6%	34.5%
National	FSNI	44.6%	46.3%
	FSSI	17.4%	15.0%
	WW	37.2%	37.7%

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4. Analysis of policy changes

4.1. National-level results

In this section we discuss high-level results of our CBA. Our main findings are:

- net benefits from restructuring Foodstuffs
- net costs from also restructuring Woolworths.

4.1.1. Foodstuffs restructure estimated to be net beneficial

We estimate that option 1, restructuring of Foodstuffs cooperatives into two national chains, would be net beneficial, with benefits outweighing costs by 1.3 to 1.

Our central estimate is a net benefit of \$2.9 billion (see Table 10), present value²⁷ sum over 20 years. For context, this is 1.1% of industry revenue over the next 20 years.²⁸ This net benefit measure includes reductions in profits as a cost.

The net benefits excluding changes in profits are four times larger: \$12.6 billion present value and nearly 5% of industry revenue over 20 years.²⁹

This result is dominated by the benefit to consumers from lower prices because of stronger competition between all three major supermarket groups.

4.1.2. Results are sensitive to assumptions about changes in costs

Our results are sensitive to small percentage changes in assumptions about changes in costs of goods sold and to assumptions.

To illustrate the sensitivity of results to costs Table 9 includes a high cost and a low cost scenario.

The sensitivities focus on assumptions about how firms manage costs and the extent to which they rise or fall as a result of the demerger. These are the main points of uncertainty both qualitatively and quantitatively.

Note that the results shown in Table 9 include a placeholder for benefits or costs related to changes in variety of store formats or product ranges. This is also highly uncertain and our

²⁷ We use a discount rate of 8%. This is the value recommended by the Treasury for cost benefit analyses of commercial projects and is appropriate given that decision to intervene amounts to a judgement that commercial operations would be more efficient than if left to existing commercial incentives and regulatory constraints. On the whole, our analysis is not heavily influenced by choice of discount rate. Other assumptions on the effects of operating costs and costs of variety are much more influential.

²⁸ In this reporting, when we refer to industry revenue we mean the revenue of major supermarket chains. We do not mean the wider supermarket and grocery retailing industry.

²⁹ This is the sum of costs of restructuring (real resource costs) plus consumer welfare benefits, but excluding changes in operating profits of producers and by connection excludes changes in wages to staff and profits to shareholders.



estimates of these effects could swing results into large positive or large negative. So, we have elected to exclude any estimates of these effects so as not to unduly affect the results. But as these effects are potentially important, we have kept this row as a reminder that such effects are important but are missing from the final analysis.

In the high cost scenario, net benefits fall from \$2.9 billion to \$0.9 billion (present value) due to:

- higher costs of goods (+2%)³⁰ which means smaller price reductions and a \$1.6 billion reduction in consumer welfare gains compared to the central scenario (-12.5%)
- a \$150 million increase in costs of restructuring, with expected efficiency gains shrinking from 5% to 1%.³¹

TABLE 9: SUMMARY OF CENTRAL COSTS AND BENEFITS OF OPTION 1
2024 dollar millions, present value, discounted at 8% per year. Values rounded to nearest 10 million, so may not sum to totals.

	Central	High cost	Low cost
Costs of restructuring	530	680	250
Change in industry overheads	110	260	-70
Cost of duplication	300	300	300
Efficiency improvements	-190	-40	-370
Divestment preparation	140	140	140
Vertical integration, one-off costs	270	270	180
Store re-branding	0	0	0
Brand marketing, establishment	10	10	10
Change in producer operating profits	-9,660	-9,890	-10,340
Supermarkets	-10,580	-10,800	-10,340
Suppliers	920	920	0
Consumer welfare benefits	13,110	11,480	14,770
Benefits of lower prices	13,110	11,480	14,770
Benefits from increased variety	0	0	0
Net benefits, excluding change in profits	12,580	10,800	14,520
Net benefits, including change in profits	2,920	920	4,180

³⁰ This value is a doubling of the central assumption of a 1% change. We selected this value as a sensitivity rather than a prediction. It is within the range of the effect sizes examined in Appendix D, albeit that changes of this magnitude arise only under extreme assumptions. Wide variation in price and cost changes as a result of mergers (discussed in the Methodology section) plus the general importance of economies of scale to supermarket retailing, all point to changes of an additional 1% being plausible and arguably conservative.

³¹ Our high cost scenario still includes a modest efficiency gain, offsetting some of the increase in industry overheads because incentives to reduce costs will continue to be strong, regardless of other changes.



In the low cost scenario net benefits increase to \$4.2 billion (a \$1.2 billion or 43% increase) due to:

- an assumption of no change in costs of goods sold. This scenario captures the full competition related change in prices without offsetting effects of changes in costs, so deeper cuts in prices and a \$1.6 billion (+13%) increase in related consumer welfare gains compared to the central scenario
- a step change reduction in corporate overheads of 10%, a doubling of the 5% efficiency gains in our central scenario³², leading to an overall reduction in industry overheads of \$70 million present value over 20 years
- \$100 million lower capital investment costs in distribution centres with an assumption that the new PAKn'SAVE group can function effectively with one fewer new facilities, increasing its reliance on direct to store and third party services.

The most important of our assumptions on changes in costs is the assumption of increased supply chain costs and an increase in costs of goods sold.

We have tested a wide range of assumptions and find that cost increases above 2% will cause negative net benefits from a Foodstuffs restructuring.³³

Figure 2 presents the results of our tests. The figure shows net benefits with changes in costs ranging between -1% and +3%.³⁴ The results include variations in changes of costs between the new PAKn'SAVE group and the New World group (these results are in the red histogram labelled 'Total Welfare').

The first observation of negative net benefits occurs when PAKn'SAVE costs increase by 1.5% and New World costs increase by 2.5%.

If we exclude changes in profits from the net benefit calculation, net benefits are positive for any of the range of cost changes we have tested (these results are in the blue histogram labelled 'Consumer Welfare').

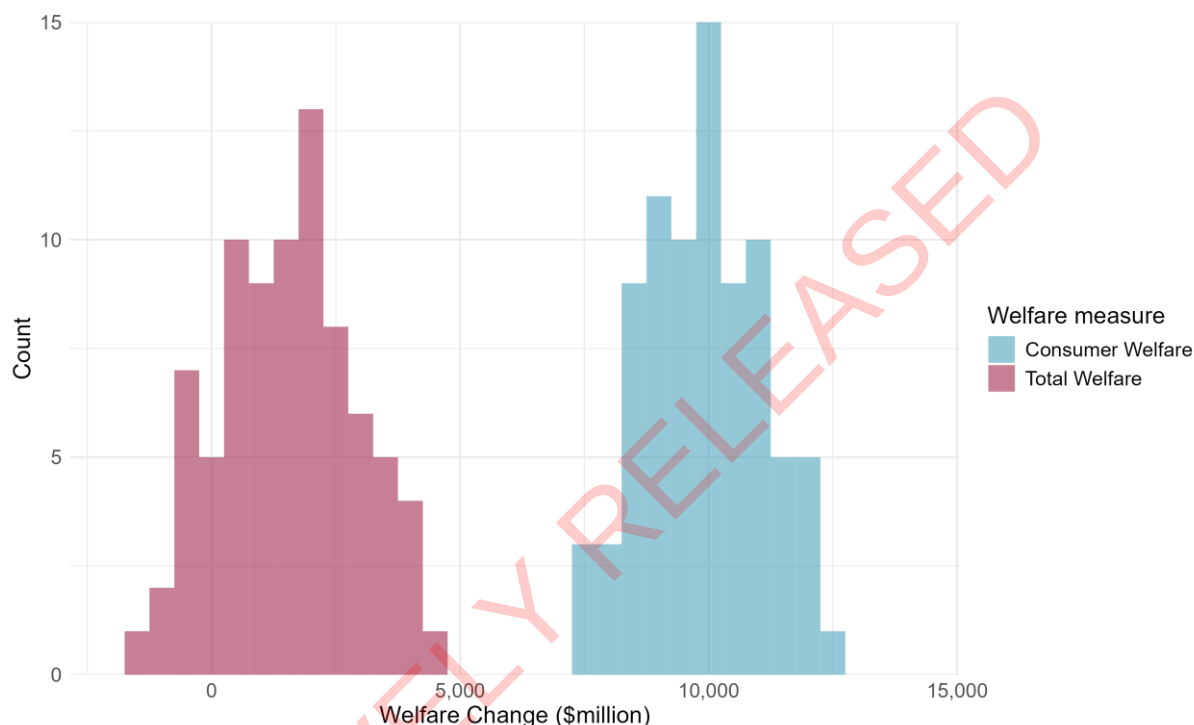
³² This doubling is only a sensitivity but the size of change is plausible in so far as it is, by our estimation, smaller than what Woolworths expects to achieve from its current restructuring (as discussed in our assumptions section).

³³ The tests are conducted by re-simulating price changes in the demerger models of price setting in each island while varying assumptions about changes in marginal costs.

³⁴ The full range of sensitivities tested were +/-3% in 0.5% increments for each new supermarket group with equal probability applied to any combination of cost changes and no correlation between groups cost changes. In the Figure we limit the numbers shown to the ones we think most relevant because we don't think that -3% is as likely as 3%.



FIGURE 2 SENSITIVITY OF NET BENEFITS OF OPTION 1 TO COSTS OF GOODS SOLD
Model results varying cost changes between -1% and +3%. Count is count of simulations (total 169). Simulation results grouped in bins/bands of \$500 million)



4.1.3. The addition of Woolworths in option 2 reduces net benefits

We estimate that option 2, which adds restructuring of Woolworths to the Foodstuffs restructuring of option 1, would be net beneficial in and of itself in our central scenario, but the benefits would be much lower than option 1.

Our central estimate is a net benefit of \$0.4 billion (see Table 10), present value sum over 20 years. For context, this is 0.2% of industry revenue over the next 20 years.³⁵ This measure of net benefits includes changes in profits.

If we exclude changes in profits, net benefits are thirty times larger: \$12.0 billion present value and 4% of industry revenue over 20 years.

Option 2 produces substantial additional costs of restructuring compared with option 1. The key drivers are

- \$1.4 billion of costs from increased industry overheads, an increase of \$1.2 billion compared to option 1

³⁵ In this reporting, when we refer to industry revenue we mean the revenue of major supermarket chains. We do not mean the wider supermarket and grocery retailing industry.



- \$0.85 billion of investment in vertically integrated supply chain assets, an increase of \$0.6 billion compared to option 1.

The addition of the Woolworths restructuring does cause further price reductions by further increasing competition between chains. Consumer benefits from lower prices are \$14.7 billion over 20 years (present value sum). This is a \$1.5 billion increase (+12%) on the \$13.1 billion of consumer welfare benefits in option 1 (after rounding).

The addition of another competitor does not yield a proportionate further increase in competitive pressure and lower prices. This is to be expected:

- there are diminishing returns to adding a new competitor especially when the competitor is inheriting an established set of stores and locations – i.e. there is little or less scope for innovation
- our modelling suggests Woolworths would undertake nontrivial reductions in prices when Foodstuffs is restructured – in response to stronger price-based competition – and there is only so much more room for prices to fall after that, while still being able to maintain assets and pay staff.

4.1.4. Finding that option 2 reduces net benefits is not sensitive to assumptions about costs

On the whole our numbers suggest that restructuring Woolworths on top of Foodstuffs would make New Zealanders worse off, relative to restructuring Foodstuffs only. This result is not sensitive to assumptions about costs.

The issue is that on any reasonable assumption the rate of increase in costs is larger than the rate of increase in benefits. This can be seen in the high and low cost scenarios in Table 10 where the low cost scenario, which we consider optimistic, delivers similar sized net benefits to the central scenario for option 1.

Our high and low cost scenarios for option 2 combine the same assumptions as used for high and low cost scenarios for option 1 but with the addition of an assumption in the low cost scenario where the Newco taking over 50% of Woolworths stores cuts back on investment in independent supply chain assets (vertical integration costs) such that its operation looks more like PAKn'SAVE than Woolworths. That reduces costs of restructuring by \$0.23 billion relative to the central scenario.



TABLE 10: SUMMARY OF CENTRAL COSTS AND BENEFITS OF OPTION 2
2024 dollar millions, present value, discounted at 8% per year. Values rounded to nearest 10 million, so may not sum to totals.

	Central	High cost	Low cost
Costs of restructuring	2,650	3,000	1,980
Change in industry overheads	1,390	1,750	950
Cost of duplication	1,840	1,840	1,840
Efficiency improvements	-440	-90	-880
Divestment preparation	290	290	290
Vertical integration, one-off costs	850	850	620
Store re-branding	90	90	90
Brand marketing, establishment	30	30	30
Change in producer operating profits	-11,590	-11,770	-12,360
Supermarkets	-12,530	-12,710	-12,360
Suppliers	940	940	0
Consumer welfare benefits	14,650	12,290	17,030
Benefits of lower prices	14,650	12,290	17,030
Benefits from increased variety	0	0	0
Net benefits, excluding change in profits	12,000	9,290	15,050
Net benefits, including change in profits	410	-2,480	2,690

The only situation where option 2 shows an increase in net benefits relative to option 1 is if

- costs of goods sold of all firms decline and
- we exclude changes in profits from the calculation of net benefits.

This result can be seen by the wider range of net benefit results for option 2 in our sensitivity tests of the effect on net benefits of varying costs of goods sold (see Figure 3). Here the additional benefits come from additional price reductions due to additional reductions in costs.

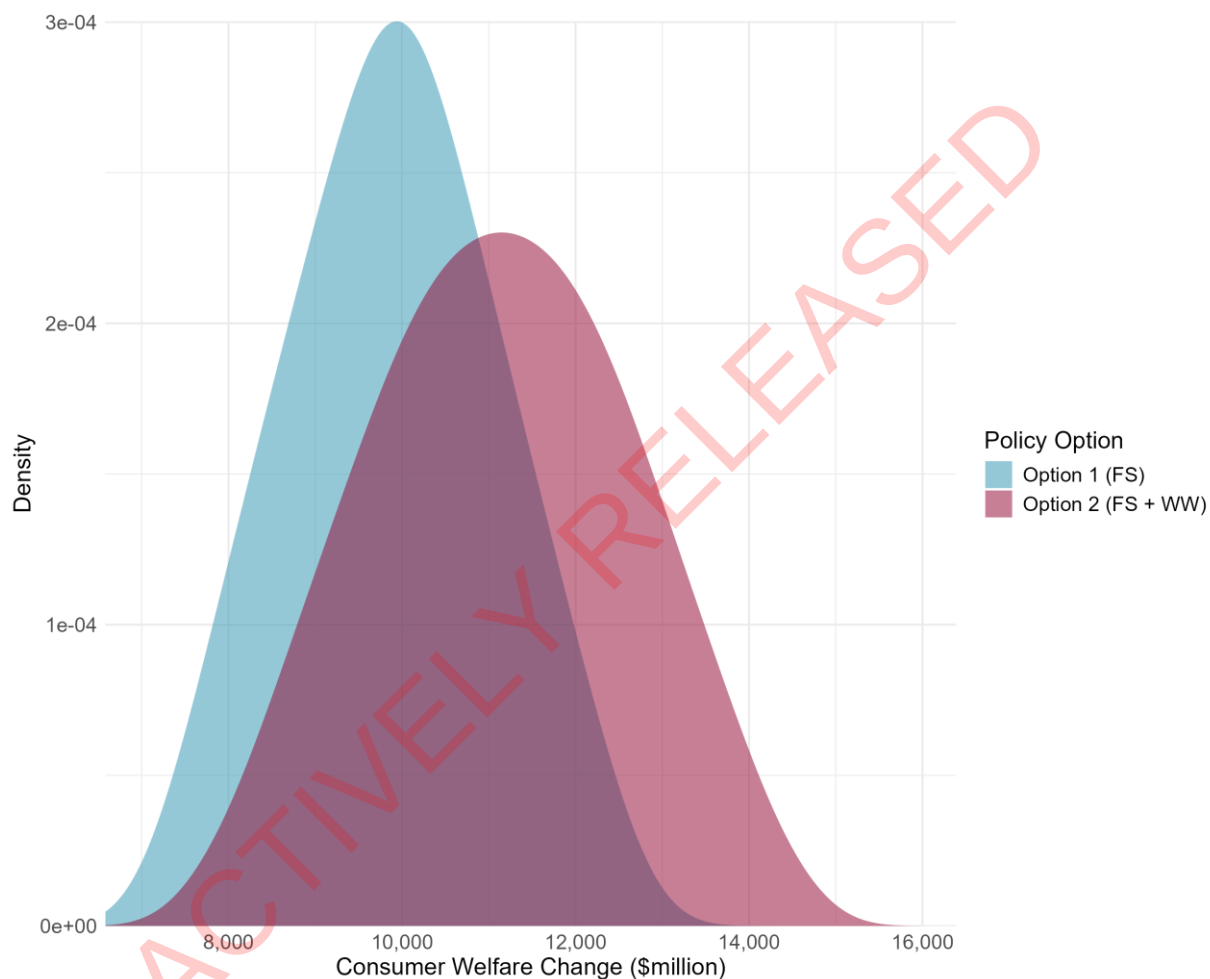
Our view is that this result is not plausible – seeing as all major chains are losing scale in their operations.

That said, it does, qualitatively, suggest that extending the restructuring to include Woolworths does open up a wider set of opportunities for innovation and cost reduction.



FIGURE 3 SENSITIVITY OF OPTION 1 AND 2 TO CHANGES IN COSTS OF GOODS SOLD, EXCLUDING CHANGES IN PROFITS

Model results varying cost changes between -1% and +3%.

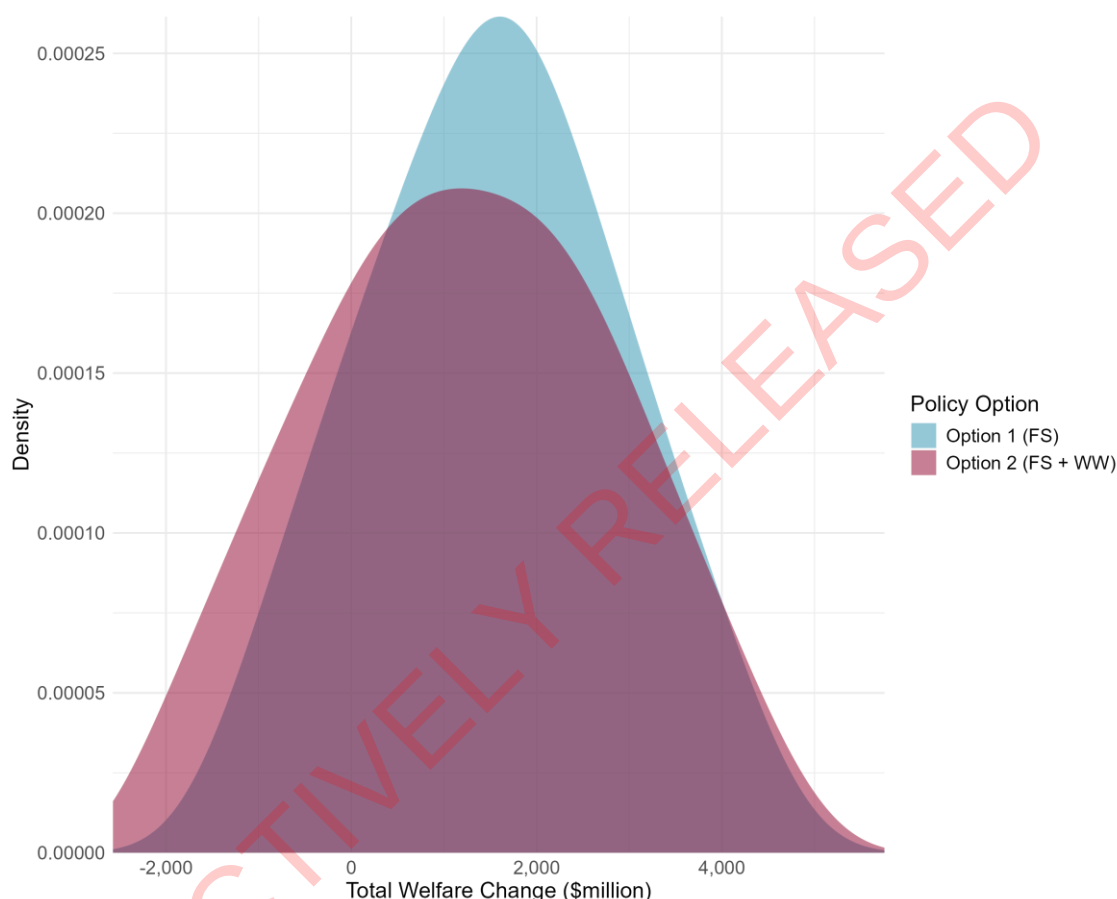


The results shown in Figure 3 do not apply to net benefits that include changes in profits. The offsetting reductions in producer profit eliminate any apparent increase in net benefits from option 2 over option 1 (see Figure 4).



FIGURE 4 SENSITIVITY OF OPTION 1 AND 2 TO CHANGES IN COSTS OF GOODS SOLD, INCLUDING CHANGES IN PROFITS

Model results varying cost changes between -1% and +3%.



4.1.5. Foodstuffs' commercial successes drive estimated benefits

The relative strength of the competitive positions of Foodstuffs, North and South Island, drives our estimated benefits of the restructuring of the two groups, via effects on prices not just of Foodstuffs but of Woolworths and of other supermarkets.

Foodstuffs' high market shares and comparatively low-cost operations mean it performs better in a price war than its competitors.

Thus, in our assessment of the Foodstuffs restructuring we find that, although the largest price decreases are in the New World and PAKn'SAVE groups, Woolworths is most heavily impacted in terms of loss of market share.

Woolworths' existing market shares, costs and offerings suggest that it does not have nearly as much headroom to compete as do the restructured Foodstuffs entities.

This is the key reason why the addition of Woolworths to the list of restructured chains has such a muted impact on prices. In addition, the Newco spun out from Woolworths is expected



to have costs that are higher again, because of limited scale and buyer power compared to other supermarket groups.

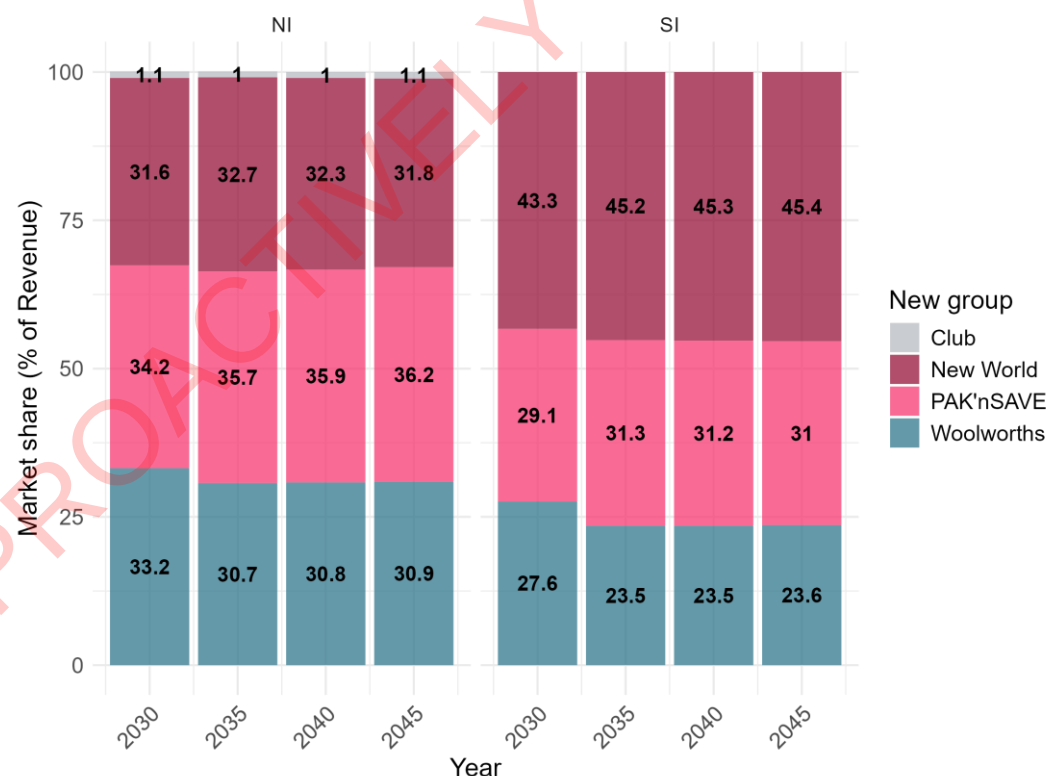
Note, our analysis and observations here about the relative successes of Foodstuffs, compared to Woolworths, are built solely on what we observe in the data now. Woolworths could make significant structural changes to its business – changing its store formats or costs or locations – and those changes could win them market share and make them more profitable. We have not modelled such changes.

4.1.6. Increased competition negatively impacts Woolworths

The restructuring of Foodstuffs is expected to make for more fierce competition and a loss of market share for Woolworths.

Our projected changes in market shares are shown in Figure 5, broken down by North Island and South Island. This shows Woolworths' market share shrinking to around 30% of the North Island market and one quarter of the South Island market. This compares to current market shares of 36% in the North Island and 27% in the South Island.

FIGURE 5: GROUP MARKET SHARES WITH A FOODSTUFFS RESTRUCTURING



It also reverses the growth in market share in our baseline. This reflects that, on the whole, Woolworths' store locations, which appear commercially favourable given current market structure and competition, is undermined in the event of a Foodstuffs restructuring and the increased competition that comes with it.



The change in Woolworths' market share is relatively rapid. It remains to be seen if such a change would occur as rapidly as this. However, our understanding is that supermarkets can be quick to change prices but that changes to costs, where needed to maintain competitive position, are slower to come by. That being so, it is plausible that a restructuring of Foodstuffs could lead to a relatively abrupt change in market shares of incumbents.

4.1.7. A split of Woolworths would increase its stores market share

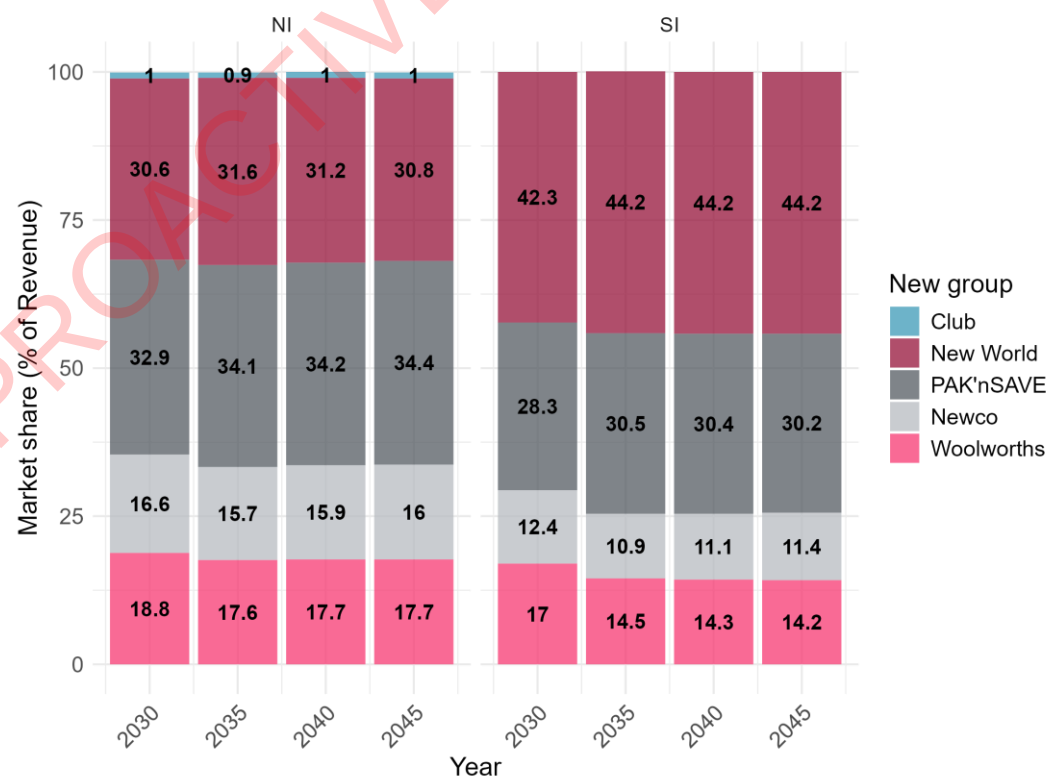
Our modelling suggests that a split of Woolworths would increase the demerged stores' market shares in terms of sales. This is because price response, to protect margins, is stronger and sales increase accordingly. Profits reduce compared to option 1 but sales increase (see Figure 6).

This result hinges, however, on an assumption that all firms in the central scenario have an increase in costs of goods sold of 1%.

An alternative, and not implausible assumption would be that the Newco might have higher costs, at least initially. If that happened the Newco would struggle to maintain market share and profitability.

This underscores that it is not solely the number of competitors that matters for competition and prices but the cost structure of those competitors and their fitness to compete.

FIGURE 6: GROUP MARKET SHARES WITH WOOLWORTHS AND FOODSTUFFS RESTRUCTURED





4.2. Distributional impacts across household types

All household types and income levels benefit from lower supermarket prices. In dollar terms those who spend more at the supermarket will benefit more.

The benefits of lower prices from a Foodstuffs restructuring are expected to accrue quickly and grow over time as restructuring reaches full effect.

In the first year of retail separation (2029), with prices reduced by 3.5% on average, we expect gains to households ranging from \$110 a year per household for sole occupant households in the second quintile of income through to \$730 per year for couples with three or more children in the highest quintile of incomes (see Table 11).

TABLE 11: ANNUAL VALUE TO HOUSEHOLDS OF FOODSTUFFS RESTRUCTURING
Equivalent lump sum 2024 dollar value of the price change

Household	Year	Income quintile, lowest to highest				
		Q1	Q2	Q3	Q4	Q5
Couple with no children	2029	320	320	390	430	550
	2035	570	580	700	770	990
Couple with one child	2029	330	330	320	340	440
	2035	590	590	560	600	800
Couple with two children	2029	370	330	330	370	520
	2035	670	600	580	670	940
Couple with three or more children	2029	430	300	390	390	730
	2035	780	530	690	700	1,320
Single with no children	2029	110	110	120	--	--
	2035	200	200	210	--	--
Single with one child	2029	190	240	280	--	--
	2035	350	430	500	--	--
Single with two children	2029	250	220	360	370	360
	2035	440	390	640	680	660
Single with three or more children	2029	160	240	430	--	--
	2035	290	430	770	--	--
Other	2029	300	260	290	380	430
	2035	540	460	520	680	780

By 2035, with full separation complete and with income growth (spending increases in the baseline) per household benefits rise to between \$200 and \$1,320 per year.



Larger and higher income households generally benefit most in dollar terms, although not in all cases.³⁶ As a percentage of income lower income households benefit most – because the shares of their incomes spent on groceries are larger (see Table 12).

TABLE 12: VALUE OF FOODSTUFFS RESTRUCTURING AS A PERCENTAGE OF INCOME
Equivalent lump sum 2024 dollar value of the price change as a percentage of income

Household	Income quintile, lowest to highest				
	Q1	Q2	Q3	Q4	Q5
Couple with no children	0.9	0.9	0.8	0.8	0.7
Couple with one child	0.7	0.6	0.6	0.6	0.5
Couple with two children	0.8	0.7	0.7	0.6	0.5
Couple with three or more children	0.8	0.8	0.7	0.7	0.6
Single with no children	0.6	0.4	0.3	--	--
Single with one child	0.8	0.8	0.7	--	--
Single with two children	0.8	0.7	0.7	0.6	0.5
Single with three or more children	0.8	0.8	0.8	--	--
Other	0.8	0.8	0.7	0.6	0.5

The impacts of restructuring with Woolworths included are qualitatively the same, distributionally, as for the Foodstuffs restructuring, however household welfare effects from price reductions increase by 10-15% in absolute terms.³⁷

4.3. Regional impacts

People in most parts of the country are expected to benefit from lower prices. Our estimates of price changes by local area (SA2) indicate that all areas of the country – whether rural or urban – will benefit on average (see Table 13).

This is in part a function of the assumptions we have made about the main effects of supermarket restructuring – that the main effect will be to discipline centralised decision making rather than local store-by-store decision making.

There is a concern that greater competition in more densely populated parts of the country could reduce the quality of services in rural areas as cross-subsidies are unwound, or chains take advantage of market power in isolated areas to raise prices.

³⁶ In the lower half of the income distribution, there is a small shift of expenditure out of supermarket groceries and into eating out as incomes rise. At the high end of the income distribution this also occurs but the effect is imperceptible in income quintiles because the highest quintile contains vastly different incomes. In addition, the groupings we use here are very coarse and within the categories we show there is large variation in circumstances (unmeasured wealth or income sources) and lifestyles. As a result, the data is invariably noisy. This is especially so in the lower quintiles (1 and 2) where incomes are clustered due to minimum wage effects and government benefit eligibility.

³⁷ One needs to be cautious in interpreting this as a win because it overlooks the lower net benefits to society under option 2 such that there would be offsetting costs in terms of e.g. a smaller economy, a reduction in services of other kinds (e.g. public services).



TABLE 13: VALUE TO URBAN AND RURAL CONSUMERS OF PRICE CHANGES

Equivalent lump sum 2024 dollar value of the price change in 2035 as a percentage of average food expenditure and as a percentage of income. By restructuring option.

Area type	Percent of food spending		Percent of income	
	Foodstuffs	Foodstuffs & Woolworths	Foodstuffs	Foodstuffs & Woolworths
Major urban	4.48	5.33	0.65	0.76
Large urban	4.60	5.34	0.66	0.76
Medium urban	4.97	5.35	0.83	0.88
Small urban	5.48	5.85	0.73	0.78
Rural settlement	5.18	5.73	0.76	0.84
Rural other	4.92	5.57	0.70	0.79

On balance, we think such concerns are overstated. In our view, if there are commercial gains from reducing cross-subsidies or exploiting market power then they are broadly unchanged by restructuring supermarket groups.

If price-setting is mainly a local concern and there are sparsely populated areas with few or one supermarket option, no amount of restructuring will change that.

The good news is this also means we should expect no change in prices, unless costs rise. And, we expect in the case of a Foodstuffs restructuring, that competitive pressure could lead to a reduction in margins and costs so that prices will fall and fall everywhere.³⁸

That said, despite our assumption that the key change from restructuring, in terms of prices, will be changes in centrally-set prices that all will benefit from, we do find quite a range of pricing impacts. This is due to variations in price changes by brand and variation in access to different types of stores.

Indeed, one result of restructuring is that there will likely be greater variation in prices across brands and thus across the country as some areas simply cannot sustain multiple supermarkets.

Some of the variation in brands' prices, under restructuring, is captured in Table 14 which shows ranges of estimated welfare effects by region measured in terms of equivalent percentage changes in food expenditure. These should be thought of as the welfare equivalent of food price changes.

³⁸ One can imagine exceptions to this, as there are there are always exceptions to general rules. For example, part of cost cutting might include paying closer attention to unprofitable parts of the distribution network. Some areas may simply be too costly to serve. Pricing strategies could also change, with increased regional price variation. Appendix C shows how regional pricing strategies open opportunities for firms to raise prices in areas with less competition. Though it also shows that benefits from restructuring may increase if there is increased regional price variation.



TABLE 14: RANGE OF PRICE CHANGE EFFECTS BY REGION

Foodstuffs restructuring, equivalent lump sum 2024 dollar value of the price change in 2035 as a percentage of average food expenditure. Summary statistics over local areas (SA2s) in each region.

Region	Mean	Median	Min	Max
Auckland	4.6	4.1	0.5	13.0
Bay of Plenty	4.9	4.4	0.5	14.1
Canterbury	7.5	6.8	0.9	18.9
Gisborne	5.3	4.6	0.8	14.1
Hawke's Bay	5.5	4.9	0.8	13.6
Manawatu-Wanganui	5.2	4.6	0.7	13.8
Marlborough	7.5	6.8	1.0	17.8
Nelson	7.2	6.5	1.0	17.5
Northland	5.2	4.7	0.5	14.1
Otago	7.5	6.7	1.0	19.2
Southland	7.6	6.9	0.9	18.9
Taranaki	5.0	4.5	0.7	13.8
Tasman	7.7	6.9	0.8	18.4
Waikato	4.8	4.3	0.6	13.9
Wellington	5.1	4.6	0.5	13.6
West Coast	7.3	6.6	1.0	17.7

We have examined the effects of relaxing our central assumption of island-wide pricing (see Appendix C). We find that overall benefits of restructuring would increase if there were separate prices for regions within islands. This is because regional pricing increases opportunities to raise prices and there is thus greater scope for benefits from restructuring (i.e. larger benefits because the implicit counterfactual is worse).

We also examined what might happen if restructuring prompted supermarkets to change to regional pricing. We find that there would be a much wider distribution of impacts - with bigger benefits for some and risks of net costs in a small but material number of other places (see e.g. Table 24 in Appendix C).

Places in the upper North Island³⁹ that have limited store choice could face higher average prices for several years following restructuring. See Appendix C for further details of this sensitivity test.

³⁹ Defined as north of Taumaranui in our modelling.



5. Unquantified costs, risks and benefits

5.1. Unquantified costs⁴⁰

In addition to unquantified or uncertain sector-specific costs discussed above, there are wider macroeconomic and institutional costs and risks that have not been factored into our CBA.

These include:

- potential negative impacts on foreign investment or borrowing costs (risk premia), if regulatory intervention was perceived as expropriation
- impacts on employment opportunities or wages of supermarket employees
- practical difficulties implementing the policies, which could delay benefits of interventions and increase costs e.g.
 - foodstuffs stores are all owner-operated as part of a cooperative, rather than being owned and controlled by a central entity. Coordinating amongst hundreds of different owners who may not see its merits may prove to be challenging
 - compliance with international agreements: in Woolworths case care will need to be taken to avoid breaching our international legal obligations to Australia under our free trade agreements (FTAs), including CER, CPTPP and AANZFTA

5.2. Unquantified benefits

A change in the structure of the supermarket industry could, in principle, lay the platform for long run productivity gains and innovation – so-called dynamic efficiency gains.

We have not quantified these potential benefits because they are very hard to predict, very easy to assume and any assumptions will come to dominate the cost-benefit calculus.

Significant repositioning of brands

In our CBA, we do not explore the possibility of significant changes in retail offerings by the restructured Foodstuffs and Woolworths entities, beyond modelled price changes and minor adjustments in the variety of products sold. That is, the relative attractiveness of the brands remains largely unchanged following restructuring.

It is possible that in the face of a more competitive environment, existing chains may take more drastic strategic actions to differentiate themselves and make themselves more attractive to consumers. For example, PAK'nSAVE could – hypothetically at least – decide to

⁴⁰ This section summarises the arguments in our 2022 report, as they remain relevant here.



increase its range of SKUs to better compete with New World and Woolworths on non-price attributes. Doing so could lead to greater consumer benefits than our analysis suggests.

Technological change could reduce producer costs and increase margins

Our CBA assumes existing production cost vectors do not change significantly following restructuring, aside from the assumed loss of efficiencies from lower economies of scale. That is, we do not consider a world where restructuring rapidly increases the incentives to investigate and adopt technological developments – for example related to AI.

Should rapid and material productivity improvements occur due to restructuring, we might expect producers' costs to fall, leading to a higher margins and/or lower retail prices than seen in our modelling.

Faster growth of new store formats

We have had to make a range of assumptions regarding the timing and geographical spread of club-style hypermarkets or hard discounters in our scenario analysis (see Appendix A).

It is possible, given current and potential future efforts to fast-track new entrants, that we have been overly conservative in these assumptions.

The net effect of more new entrants' stores, more widely spread across New Zealand, is hard to quantify. Overseas experience suggests that benefits can be large. Furthermore, this accords with what we see in our analysis of variety benefits in the spatial competition analysis/model.

However, unlike overseas studies we have no useful observations with which to estimate the benefits of such changes. And, seeing as the impacts would likely be large, our assumptions about the desirability of these stores would end up swamping the effect sizes in the CBA.

Increase in local shopping options

Similarly, increased local store choice could have a significant effect on benefits of restructuring. But those effects will be heavily influenced by assumptions about where new stores locate and how many open. That in turn demands serious in-depth analysis of the financial sustainability of such stores – noting that as it is we have assumed that firms' profits will be squeezed through restructuring.

So, the gains are potentially significant, but they should not be assumed to occur as a matter of course, alongside a reduction in industry prices.



Appendix A: Expansion of alternative formats

Scope of analysis

We examined effects of the potential arrival and expansion of alternative store models:

- i. **Growth of a Club-store** – assumes the entrance or expansion of a large-scale retailer, such as Costco, operating five additional hypermarkets in the largest population centres, lifting its grocery market share to 3.8% by 2045.

Such stores would be ‘destination shops’ for consumers prepared to travel further than their existing local supermarket to do large, less frequent shopping trips. Access to the stores will likely be based on annual membership subscriptions.
- ii. **Growth of a hard discounter** – assumes the entrance of a retailer such as Aldi or Lidl offering a hard discount business model with a price-focused offering on a relatively narrow range of products.

Summary of effects

Club-store and hard discount store entry widen consumer choices and result in lower prices, with present valued consumer benefits of \$0.5 billion for Club-store entry and \$2.6 billion for Discount chain entry.

With increased competition, the benefits of restructuring shrink. The net benefit of restructuring Foodstuffs falls from \$2.9 billion to \$2.0 billion if there is a new entrant hard discounter. The growth of Club-stores has a relatively marginal effect – the benefits from restructuring Foodstuffs would be around \$380 million lower.

Club-store expansion

Our scenario for Club-store expansion is modelled using Coriolis’ assessment of the feasible number (5), location and timing of potential new Costco stores. In principle, they needn’t be Costco’s, but Costco is a useful reference point.

The projected market share of 5 new Club-stores is expected to rise from close to 0.8% today (with one Costco) to 3.8% by 2045.

The stores are assumed to be established in 2028 in South Auckland, 2032 in Christchurch, 2034 in Wellington, 2036 in East Auckland, and 2040 in Hamilton.

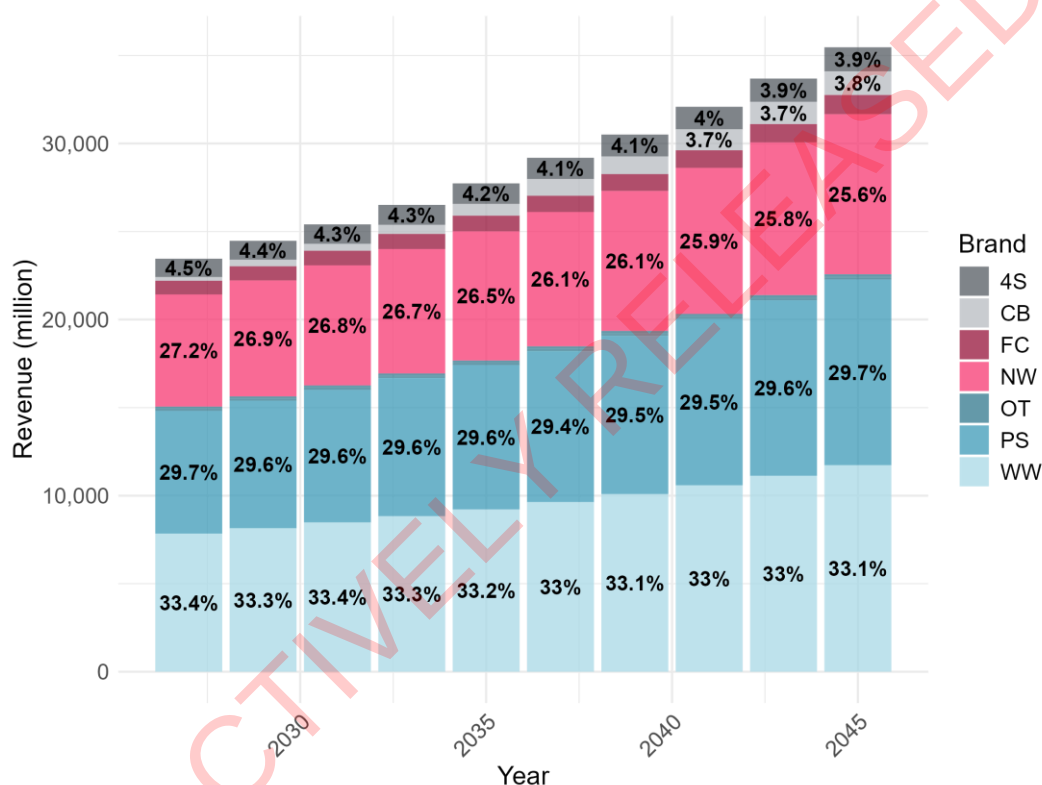
Coriolis advise that Club-stores take time to ramp up to full penetration, so many of these new stores will be at early stages of growth during the 20 year timeframe for our CBA.

The projected revenue of these stores only includes the component of their sales that are comparable to or compete with supermarkets.



We assume that the Club-stores' gross margins are 10%. However, in our modelling these margins grow to 11% over time as the stores capture sufficient market share in the North Island that they can profitably raise prices.⁴¹

FIGURE 7: BRAND MARKET SHARES UNDER A CLUB-STORE (CB) SCENARIO
2024 dollars. Brands are Four square (4S), Costco (CB), Fresh Choice (FC), New World (NW), PAKnSAVE (PS), Woolworths (WW) and other minor Foodstuffs and Woolworths brands (OT).



Hard discount chain entry and expansion

Our scenario with the entry of a new hard discount chain assumes comparatively rapid store establishment that roughly aligns with the rate of new Aldi stores opening per year (per capita) in Australia.⁴²

The stores are assumed to be equivalent size to some of the small supermarkets already in the New Zealand market.

To determine store location we review projected revenue growth of small supermarkets in the baseline and assume that the hard discount chain will target the highest growth markets first.

⁴¹ This is not a direct assumption, but rather a result of our modelling where we assume chains will raise prices if demand conditions allow – trading off lost sales volumes against higher unit margins.

⁴² <https://www.macrobusiness.com.au/2021/03/the-rise-and-rise-of-aldi/>

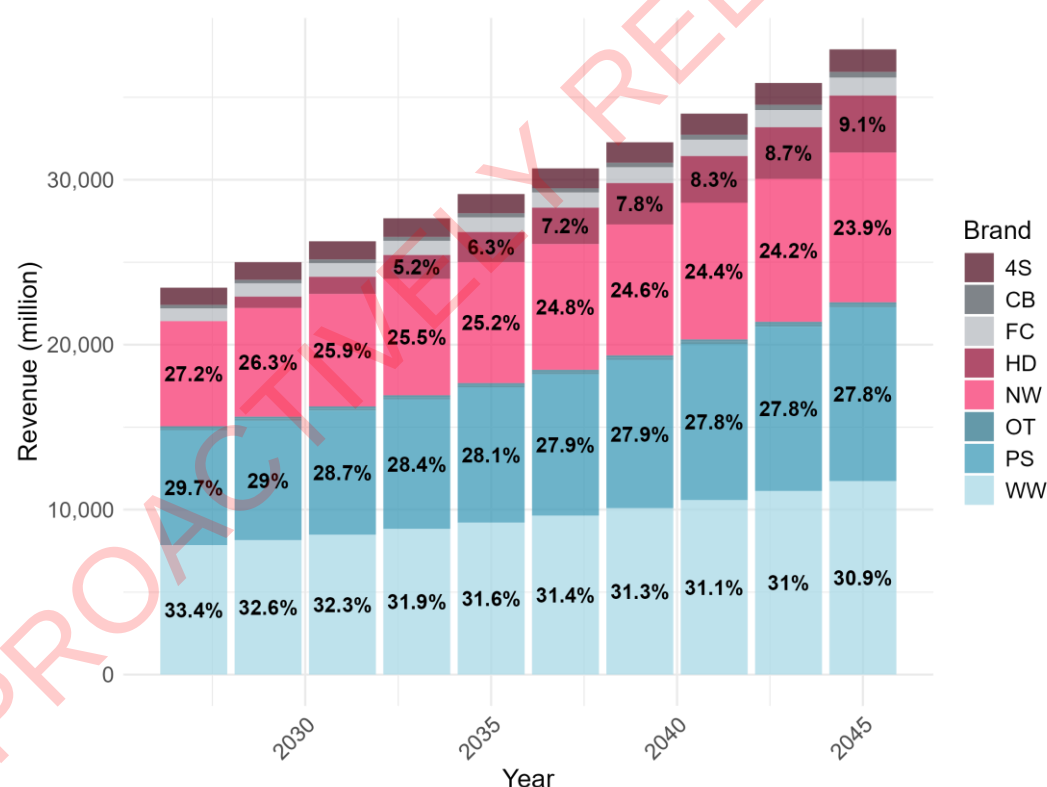


We assume, as a starting point, that store revenue per square metre, is the same as existing small supermarkets but that costs and range are substantially smaller, with gross margins of 7% approximating that of discount chains in Australia.⁴³

We assume that the chain opens its first stores in 2029 and opens 4 stores per year in the North Island and 3 stores every two years in the South Island.

The chain grows to 99 stores over 16 years and captures 9.1% of the market. The addition of this new store type also has a significant effect on total industry sales volumes, increased by ~5%, by reducing market prices and capturing non-supermarket demand.

FIGURE 8: BRAND MARKET SHARES UNDER A HARD DISCOUNTER (HD) ENTRY SCENARIO
2024 dollars. Brands are Four square (4S), Costco (CB), Fresh Choice (FC), Discount chain (HD), New World (NW), PAKn'SAVE (PS), Woolworths (WW) and other minor Foodstuffs and Woolworths brands (OT).



Effects of new entry on consumers

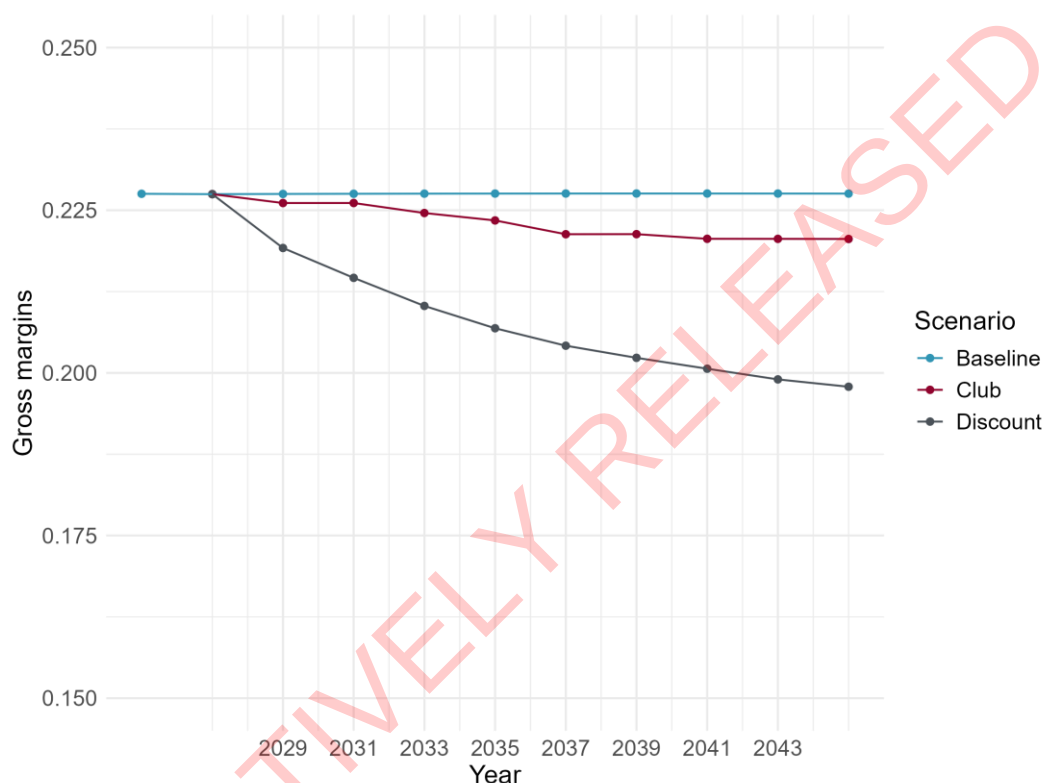
The baselines with Club-store and hard discount chain entry have different baseline prices, given the change in market structure leading to reduced margins for incumbent supermarkets

⁴³ See Figure 1.3 p. 5 of the ACCC final supermarkets inquiry report (2025) available at <https://www.accc.gov.au/inquiries-and-consultations/supermarkets-inquiry-2024-25/final-report>.



(see Figure 9). Changes in margins flow through directly into lower prices, assuming no change in costs.

FIGURE 9: IMPACT OF CLUB-STORE AND HARD DISCOUNTER ENTRY ON MARGINS
Gross margin measured as gross profit as a percentage of sales.



Our scenarios assume that competitive responses by incumbents are limited to price adjustment. It is of course possible that they may respond with changes to store formats and ranges e.g. by having small format hard discount stores. If that happened, it would drive deeper market-wide price changes, but it could also inhibit the growth of the discount chain – so the net effect is somewhat ambiguous.

Regardless, the effects of entry of these stores would be positive for consumers. First, those who want to pay lower prices can and second incumbent supermarkets reduce their prices to mitigate losses to market share.

Indirect effects, of downward pressure on incumbent supermarkets' prices, will affect consumers even in areas where the new stores have not set up.

Our projected baselines for Club-store and hard discount store entry include consumer benefits from lower prices averaging \$90 million and \$400 million per year, respectively, although they rise to much higher values in the long term. This can be seen in Figure 10.

The present valued sum of those benefits is \$500 million for Club-store entry and \$2.5 billion for Discount chain entry. That is equivalent to 0.4% and 2% of the present valued revenue of incumbent supermarkets in our baseline without new chain entry.

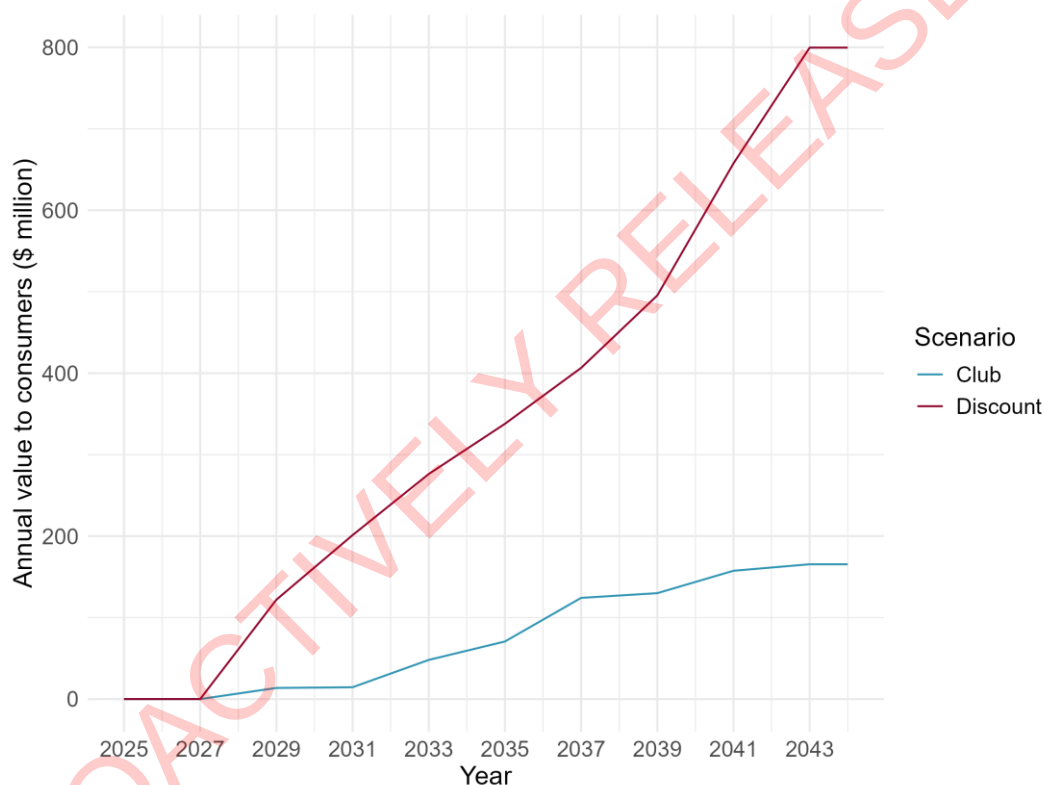


These benefits are likely understated as we focus solely on price effects and we ignore club store offerings beyond groceries.

Overseas studies on the benefits of firm entry show gains from increased store choice being larger than price effects (Hausman and Leibtag, 2007).

However, we are conscious that we don't have good data on how such firms will work out in New Zealand, so we refrain from estimating the size of those benefits.

FIGURE 10: CONSUMER BENEFITS OF NEW CHAINS DUE TO LOWER PRICES



Smaller benefits of restructuring with new entrants

The benefits of restructuring shrink if there are more large companies operating in the New Zealand grocery market. The sharper their prices and the more market share they gain, the lower the overall benefits from restructuring.

This can be seen in Table 15 where the net benefit of restructuring Foodstuffs falls from \$2.9 billion to \$2 billion – a 30% reduction – if there is a new entrant discounter.

The costs of restructuring are assumed to be unchanged, regardless of the entry of new chains. Thus, the reduction comes entirely from the fact that competition is already stronger and prices are already lower than in baseline – so there are fewer benefits from increased competition due to restructuring. More of the potential consumer benefits are baked into the baseline here.



TABLE 15: COMPARISON OF COSTS AND BENEFITS WITH NEW ENTRANTS
2024 dollar millions, present value, discounted at 8% per year.

	<u>Central</u>		<u>Club-store</u>		<u>Discount</u>	
	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2
Costs of restructuring	530	2,650	530	2,650	530	2,650
Change in industry overheads	110	1,390	110	1,390	110	1,390
Cost of duplication	300	1,840	300	1,840	300	1,840
Efficiency improvements	-190	-440	-190	-440	-190	-440
Divestment preparation	140	290	140	290	140	290
Vertical integration, one-off costs	270	850	270	850	270	850
Store re-branding	0	90	0	90	0	90
Brand marketing, establishment	10	30	10	30	10	30
Change in producer operating profits	-9,660	-11,590	-9,200	-11,590	-8,060	-10,180
Supermarkets	-10,580	-12,530	-10,030	-12,440	-8,900	-11,050
Suppliers	920	940	830	860	840	870
Consumer welfare benefits	13,110	14,650	12,260	14,350	10,650	12,460
Benefits of lower prices	13,110	14,650	12,260	14,350	10,650	12,460
Benefits from increased variety	0	0	0	0	0	0
Net benefits, excluding change in profits	12,580	12,000	11,730	11,700	10,120	9,810
Net benefits, including change in profits	2,920	410	2,540	110	2,060	-370



Appendix B: Technical detail on methodology

Spatial competition model

This model is a New Zealand version of the model of spatial retail competition proposed by Ellickson et al (2020)⁴⁴ and applied to supermarket retailing in the US.

Interested readers should consult that document for more details of the method. Commentary here is limited to NZ-specific modelling choices made and a summary of key model results.

Summary

The model examines revenue of the major supermarket chains' stores, and estimates the extent to which revenue is determined by:

- stores' characteristics
 - brand attributes (including persistent price differences)
 - store attributes such as range (number of SKUs) and format (convenience stores, small supermarkets and regular supermarkets)
- distances between stores and customers (measured by uncongested drive time)
- consumers' attributes, on average, by suburb
 - average incomes
 - vehicle ownership
- local availability of other outlets that are substitutes for spending at the major supermarket chains' stores, including specialty supermarkets and cafés.

We estimate these effects separately for the North and South Islands.

This model plays three main roles in our analysis:

- estimates of the rates of substitution between brands' when prices or other attributes change
- effects of entry of new stores, in terms of consumer spending and store choice and changes in pricing (margins)

⁴⁴ Ellickson, P.B., Grieco, P.L.E., Khvastunov, O., 2020. Measuring competition in spatial retail. The RAND Journal of Economics 51, 189–232.



- a basis for estimating effects of changes to variety such as increased or decreased product ranges in stores.

Welfare and competition effect measures

The model is used directly to estimate the following effects of direct relevance to costs and benefits⁴⁵:

- changes in margins, directly used to estimate price changes from the entry of new stores
- changes in consumers surplus from a change in SKUs/product variety.

Changes in margins are calculated using standard first order conditions for differentiated Nash-Bertrand pricing – direct analogues of the demerger model. This includes when we add new stores, where we update the models year by year accounting for changes in consumer utility and choice probabilities.

The spatial demand model does not include prices – because we do not have sufficiently accurate measures of store-specific pricing.⁴⁶ That being so, margins are based on brand-specific margins estimated from the profit and loss accounts of the supermarkets.⁴⁷

As discussed in Ellickson et al (2020), the model can only (with assumptions) estimate price elasticities up to a scalar. However, they show that the model's elasticities produce diversion ratios that are "identical to the standard diversion ratio if consumers have homogeneous, quasilinear utility for price". Essentially this means the model's diversion ratios are highly useful for modelling firm behaviour and changes in mark-ups/margins (which typically don't directly account for variations in income elasticities) but not so useful for analysing distributional effects – which requires some consideration of variable marginal utilities of income.

We calibrate our model of mark-ups using observed mark-ups at brand level and aggregate (chain-level) own-quality and cross-quality elasticities. This allows us to estimate changes in mark-ups that are consistent with observed mark-ups.

⁴⁵ These effects are not part of the main results presented in the body of this report. However, they are documented here for completeness and as a record of analysis undertaken.

⁴⁶ The main problem is a matter of time. We have price data by SKU but not sufficient time to make reliable comparisons of prices between the major supermarket groups. Thus, this could be reviewed in further work. Although we note that this is a challenging aspect of analysis and simplified methods suffer from serious identification problems particularly if stores engage in localised promotions and if there is a high degree of variation in preferences and/or incomes geographically.

⁴⁷ These measures are the most reliable ones that we have available, but they are imperfect with different companies using different definitions of, for example, costs of goods sold. Furthermore, we have limited visibility on the profitability of brands that are franchise operations because we only observe group/franchisee level financial statements. Commercial Information

Given time for further, more detailed analysis, we would scrutinise store and brand margins more closely and also test the sensitivity of our results to variations in gross margins.



For changes in consumers surplus from changes in SKUs we simulate a fixed percentage change in SKUs and calculate the change in the inclusive value (maximum utility) values for consumer choice by SA2.

To value the changes – which are in changes in utility – we multiple the changes by supermarket spending. This is a first order estimate and likely low. We consider the impact of using estimates of marginal utility of income and find dollar values for changes in consumers surplus that are approximately twice the size. We do not use those estimates because they are hugely sensitive to assumptions e.g. about income levels and expenditure shares.

General approach and objectives with model fitting

The data used and scope of the model balances two objectives. One is the desire to fit robust and economically models (suggesting the exclusion of very sparsely populated areas and very small stores) and the other is the desire for the model, for policy purposes, to reflect as wide a range of circumstances as possible including substantially all commercial interests of the supermarkets.

As we do not have the luxury of time, the model estimation and variable selection processes were deliberately parsimonious and rested heavily on aligning with the choices in Ellickson et al (2020), with few exceptions.

This meant that the model is fitted using demographic data by SA2 and few demographic variables. Further research would benefit from investigating alternative variables.

Necessary adjustments to fit NZ conditions

Our implementation includes three supermarket nests: convenience stores, small supermarkets, and supermarkets.

In an ideal world we would have included more, such as a Discount nest or a Club store nest. However, the absence of variation in brands within these categories in New Zealand meant it was not empirically feasible.

We also found that the South Island model was more challenging to fit than the North Island model. We speculated that this may be due to tourist related spending and the model did fit much better with a proxy for tourists in the outside good component of the model (as mentioned below).

Supermarkets data

Data on store revenue, SKUs, and store retail areas is collated from information disclosures.



Missing data for some smaller convenient stores (Four Square, On the Spot) are imputed using floor area data as an explanatory variable⁴⁸ and regression models to predict missing values.⁴⁹

The model excludes any stores trading for less than 6 months prior to June 2024.

The data includes assumed revenue of Costco in Westgate (based on public reports). However, Costco is added to the model after estimation, because there is only one store so there is no way to estimate its brand-specific attributes/effects.

In both the North Island and South Island versions of the models Woolworths was used as the reference brand for estimating brand fixed effects.

Demand and distance data

Demographic data, used to capture demand characteristics, were mean disposable personal income by SA2 (estimated with StatsNZ Census 2023 data) and share of households that have access to a motor vehicle. Though note that for idiosyncratic reasons the variable was labelled NoVeh in the modelling itself, so is labelled as such in the model estimation reports below. The variable itself was constructed from 1 minus the share of households without access to a vehicle.

Distance data – between SA2s and stores – was provided by Bidwell Analytics and represented drive times at 10am on a Wednesday between SA2s and stores with the centroid of the SA2 being address weighted centroids.

Distance data was included for up to 40 minute drive times i.e. stores were considered available to be chosen if within that scope.

Proxies for spending on outside goods differed as between the North Island and South Island model. For the North Island we used:

- population density
- density of other grocery stores (count per km²) within 10 minutes' drive time of an SA2 (constructed using business demography data and deducting counts of supermarkets in our main store data)
- share of population born overseas.

For the South Island, we used the population and other store density variables but also added a proxy for tourism. We found the model tended to produce unreasonably high measures of food/supermarket spending as a share of household expenditure (model parameter alpha). We surmised this may be due to areas in the South Island having very high tourist (domestic or overseas) spending that meant the demographic data did a poor job of explaining variation in

⁴⁸ Some of these retail area values are estimated using google maps.

⁴⁹ This of course biases the model's estimates, but this is of little consequence given the small amount of revenue of these stores.



store revenue. So, we included a variable for share of dwellings that were vacant on census night and this improved matters a great deal.

We tested the use of residents per household as was used in Ellickson et al and found it to be a problematic variable – and unsurprisingly so as it correlates closely with other variables.

Model fit

The models provided a reasonably good fit to actual store revenue (the figures below show proportional differences between fitted and actual store revenues), although they tended to overpredict PAKn'SAVE revenue. This is almost certainly partly a result of not being able to include a nest specific to PAKn'SAVE or stores formats like it.

FIGURE 11: NORTH ISLAND MODEL: PREDICTED REVENUE (LOG₁₀ SCALE)

Observed vs Predicted Store Revenues

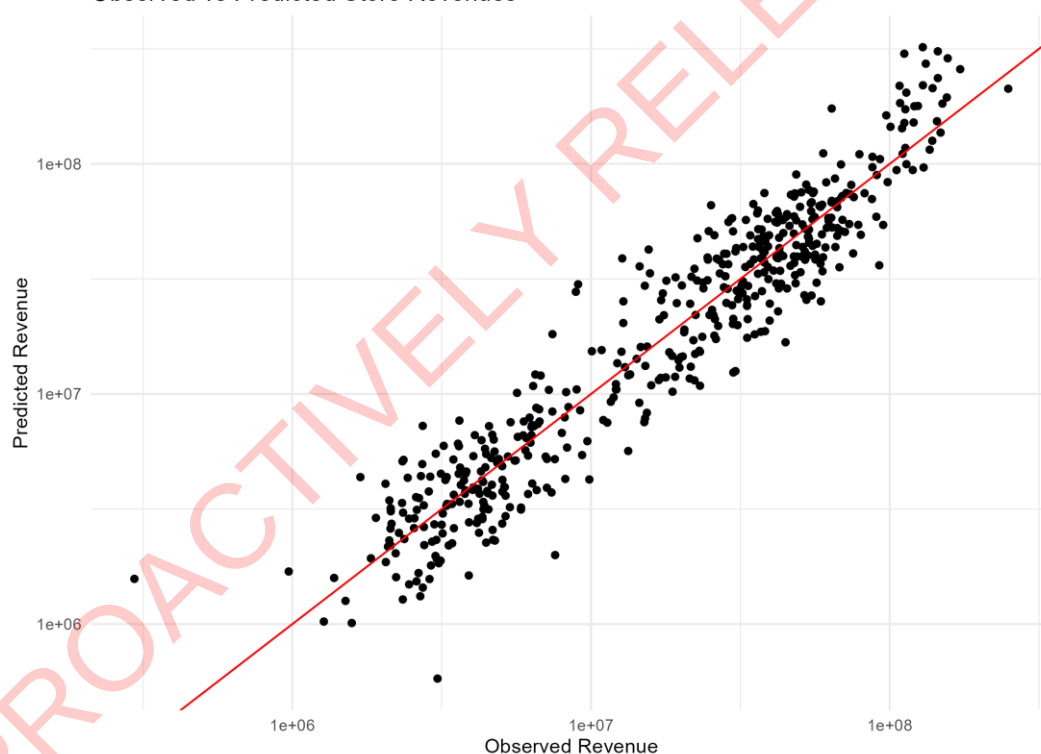
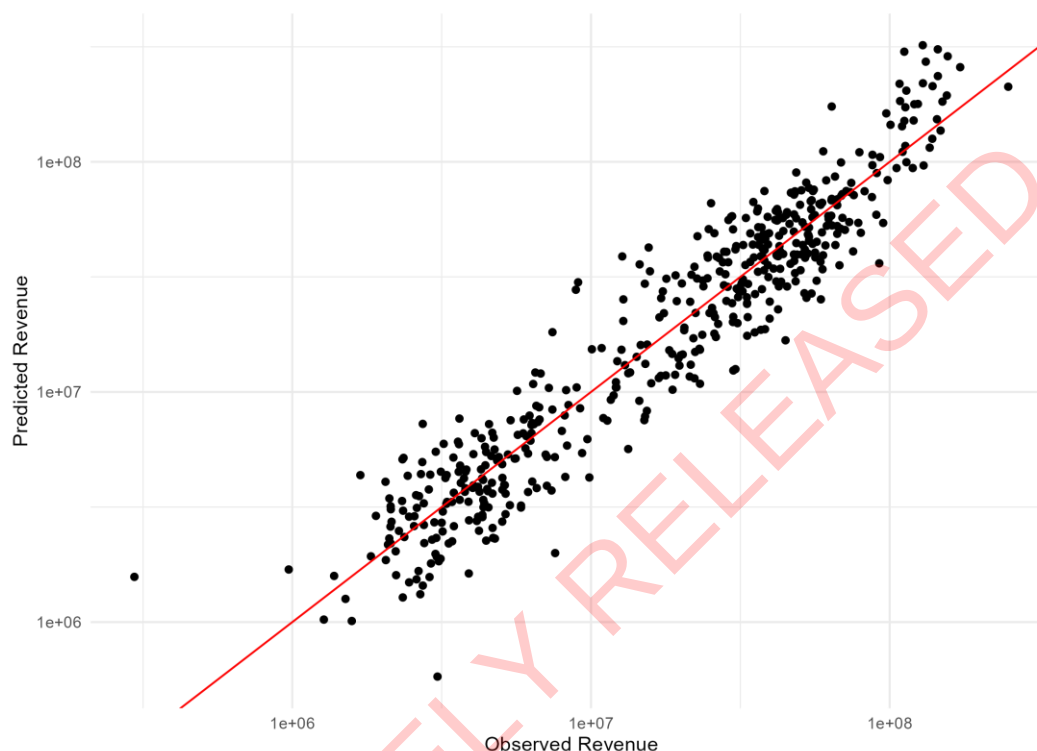


FIGURE 12: SOUTH ISLAND MODEL: PREDICTED REVENUE (LOG₁₀ SCALE)
Observed vs Predicted Store Revenues

North Island model: specification and estimated parameters

TABLE 16: NORTH ISLAND MODEL SPECIFICATION

North Island - SPECIFICATION SUMMARY	
Category	Variables
Store Variables	RetailArea, SKUs
Tract Variables	Mean_disposable_income, NoVeh
Outside W Variables	OtherStores, Pop_density, OS
Outside Z Variables	Mean_disposable_income
Exclude Convenience Stores	FALSE
Exclude CC Brand	TRUE
North Island - DATA SUMMARY	
Metric	Value
Number of Stores	503
Number of Tracts	1652
Brand Levels	WW, 4S, FC, NW, PS, SV
Reference Brand	WW
North Island - FIT AND OPTIMIZATION	
Metric	Value
R-squared (log revenues)	0.892
Convergence Status	0



COST BENEFIT ANALYSIS OF OPTIONS TO RESTRUCTURE THE NEW ZEALAND GROCERY SECTOR

Final Objective Value	87.40648
Number of Iterations	269
Function Evaluations	305

North Island - BRAND FIXED EFFECTS

Brand	Parameter Value
4S	1.0599307
FC	0.1236052
NW	0.7265147
PS	2.1529379
SV	0.2718692

North Island - BRAND-INCOME INTERACTIONS

Brand	Parameter Value
4S	-5.5465486
FC	-4.8493162
NW	-1.6539696
PS	0.8739834
SV	-6.0000000

North Island - KEY PARAMETERS

Parameter	Value
Alpha (spending share)	0.1357767
Tau0 (distance)	-0.1781786

North Island - DISTANCE-DEMOGRAPHIC INTERACTIONS

Tract Variable	Parameter Value
Mean_disposable_income	-0.3382443
NoVeh	1.0000000

North Island - STORE CHARACTERISTICS

Parameter	Value
gamma0_1	0.02222793
gamma0_2	1.98387

North Island - NESTING PARAMETERS

Nest	Parameter Value
Supermarket	0.9900000
Convenience	0.8470283
Small Supermarket	0.9695826

North Island - DIRECT OUTSIDE GOOD EFFECTS

Outside Variable	Parameter Value
OtherStores	-0.005917793
Pop_density	0.010000000
OS	0.010000000

North Island - STORE-DEMOGRAPHIC INTERACTIONS

Store Variable, Tract Variable	Parameter Value
RetailArea, Mean_disposable_income	0.1768269
SKUs, Mean_disposable_income	-2.6952914
RetailArea, NoVeh	-3.1552121



SKUs, NoVeh	-0.1510783
North Island - OUTSIDE GOOD-DEMOGRAPHIC INTERACTIONS	
Outside Variable, Tract Variable	Parameter Value
OtherStores,	
Mean_disposable_income	-0.02429984
Pop_density,	
Mean_disposable_income	-0.29134324
OS, Mean_disposable_income	-1.09320916

South Island model: estimated parameters

TABLE 17: SOUTH ISLAND MODEL SPECIFICATION

South Island - SPECIFICATION SUMMARY	
Category	Variables
Store Variables	RetailArea, SKUs
Tract Variables	Mean_disposable_income,
	NoVeh
Outside W Variables	OtherStores, Pop_density,
Outside Z Variables	Vacant
Exclude Convenience Stores	Mean_disposable_income
Exclude CC Brand	FALSE
	TRUE
South Island - DATA SUMMARY	
Metric	Value
Number of Stores	252
Number of Tracts	592
Brand Levels	WW, 4S, FC, NW, OS, PS, RF, SV
Reference Brand	WW
South Island - FIT AND OPTIMISATION	
Metric	Value
R-squared (log revenues)	0.786
Convergence Status	0
Final Objective Value	128.1215
Number of Iterations	61
Function Evaluations	93
South Island - BRAND FIXED EFFECTS	
Brand	Parameter Value
4S	1.1977387
FC	0.5746299
NW	0.8666462
OS	0.3517891
PS	2.4617592
RF	1.3842847
SV	0.2346387
South Island - BRAND-INCOME INTERACTIONS	
Brand	Parameter Value



COST BENEFIT ANALYSIS OF OPTIONS TO RESTRUCTURE THE NEW ZEALAND GROCERY SECTOR

4S	-6.0000000
FC	-6.0000000
NW	-2.5166653
OS	-3.1075225
PS	-2.9184253
RF	0.5460309
SV	-6.0000000

South Island - KEY PARAMETERS

Parameter	Value
Alpha (spending share)	0.181378
Tau0 (distance)	-0.1

South Island - DISTANCE-DEMOGRAPHIC INTERACTIONS

Tract Variable	Parameter Value
Mean_disposable_income	-0.38812891
NoVeh	1.00000000

South Island - STORE CHARACTERISTICS

Parameter	Value
gamma0_1	0.2699807
gamma0_2	1.431975

South Island - NESTING PARAMETERS

Nest	Parameter Value
Supermarket	0.9900000
Convenience	0.9900000
Small Supermarket	0.9900000

South Island - DIRECT OUTSIDE GOOD EFFECTS

Outside Variable	Parameter Value
OtherStores	0.01055676
Pop_density	0.00814991
Vacant	0.03343074

South Island - STORE-DEMOGRAPHIC INTERACTIONS

Store Variable, Tract Variable	Parameter Value
RetailArea, Mean_disposable_income	-4.036918
SKUs, Mean_disposable_income	8.534648
RetailArea, NoVeh	-6.571174
SKUs, NoVeh	-2.957662

South Island - OUTSIDE GOOD-DEMOGRAPHIC INTERACTIONS

Outside Variable, Tract Variable	Parameter Value
OtherStores,	
Mean_disposable_income	0.01022401
Pop_density,	
Mean_disposable_income	2.14181686
Vacant, Mean_disposable_income	2.86023280



Demerger model

The demerger model is used to estimate changes in average prices, by brand, when there is a change in the ownership of brands i.e. companies lose some of the competitive advantages they have from owning multiple stores in the same market.

We have implemented the model using an R package called antitrust.⁵⁰ Here we explain how the model works and its relationship to the other models we have used. Those interested in greater detail are encouraged to consult the antitrust documentation and functions.

Key relationship being modelled

The key relationship being modelled in the demerger model is optimal mark-ups over costs (m in vector form) given demand elasticities (E^*), market shares (s) and ownership weighted market shares (s^*):

$$m = (E^{*-1} \cdot s^*) \cdot \frac{1}{s}$$

A change in ownership shares changes the structure of the price sensitivities and thus changes optimal mark-ups.

Each owner's mark-up/pricing decisions affects the others and those decisions in turn affect market shares, so the model must be solved with numerical methods (non-linear optimisation).

The mark-up expression above provides the set of first-order conditions that need to be solved (set to 0), alongside calculation of the endogenous market shares and elasticities.

If a change in ownership changes incremental operating costs (c_i), these can be applied directly to the definition of price (p_i) mark-ups used in solving the model i.e.

$$m_i = \frac{p_i - c_i}{p_i}$$

Absent an explicit change to a brand's costs they will be assumed to remain constant pre- and post-change in ownership. Outside of the model we consider how divestment affects supplier costs and efficiency gains, as these will affect variable costs as well as fixed costs.

This model is a multi-product or multi-brand version of conventional models of optimal (profit maximising) pricing where the size of mark-ups is inversely proportional to price elasticities of demand.

Ownership interests are represented by a matrix of ownership shares (Ω), with the rows denoting owner (o) and the columns denoting brand (i) and the matrix having the same dimensions as the elasticity matrix. With k owners and n brands:

⁵⁰ Taragin C, Sandfort M (2022). antitrust: Tools for Antitrust Practitioners_. R package version 0.99.26, <https://CRAN.R-project.org/package=antitrust>.



$$\Omega = \begin{pmatrix} \omega_{11} & \cdots & \omega_{1n} \\ \vdots & \ddots & \vdots \\ \omega_{k1} & \cdots & \omega_{kn} \end{pmatrix}$$

Given a matrix of Interbrand elasticities (E) we then have

- E^* an elasticity matrix of brand elasticities weighted by ownership shares i.e. $E^* = E \cdot \Omega$
- s^* a vector of ownership weighted market shares i.e. $s \cdot \text{diag}(\Omega)$

The shares and ownership structure come straight from the data. Changes in margins follow from the theory. The key judgements being made are in the assumptions we use to motivate using the model and the estimation of demand or brand elasticities.

Key assumptions

The model we use is based on the following high-level assumptions:

- firms treat aggregate market demand for spending by brand as if it follows an approximation to a linear almost ideal demand system (LA-AIDS)
- the price elasticity of demand for outside goods i.e. spending money on anything other than the supermarkets in our model is -0.95⁵¹
- firms set average prices on an island-wide basis, taking account of the revenue-weighted average rate of diversion of sales between brands
- constant average aggregate brand-specific marginal costs (by default, can be changed).

Linear almost ideal demand (LA-AIDS)

The LA-AIDS demand model is a convenient and widely used approximation to more theoretically rigorous and non-linear demand systems.⁵²

The model relates brands' (b) revenue shares (s_b) to an average revenue share (α_i), independent of prices, plus a share determined by relative prices for all brands (p_j) weighted by brand-specific sensitivity of demand to changes in price (β_{ij}):

⁵¹ This elasticity is the rate at which spending is diverted from our modelled supermarkets to other spending. This is subtly different from a standard market demand elasticity. However, as it is unobserved we proxy for it using an estimate from Stephenson (2021) table 4.4 p.51 for the mean elasticity of demand for spending on groceries from a Quadratic Almost Ideal Demand system of household expenditure. As far as we are aware there is only one other study for New Zealand that is roughly comparable in terms of using a model that can account for non-linear effects of income on household spending and that study (Thomas, 2022) estimates a (uncompensated) price elasticity of demand for spending on food of -0.566. However, that study uses highly aggregated expenditure groupings and the food elasticity that is estimated is for spending on all food including takeaways and eating out while Stephenson (2021) uses more detailed expenditure categories and estimates separate elasticities for grocery-type spending (-0.95) and eating out (-0.58).

⁵² E.g. the Almost Ideal Demand System (Deaton and Muellbauer, 1980), Quadratic Almost Ideal Demand System (Banks et al, 1997), or variations on discrete choice models (Berry et al, 1995).



$$s_i = \alpha_i + \sum_j \beta_{ij} \ln p_j$$

This simple function form⁵³ has the practical advantage of being simpler to use than alternatives. The specification of fixed average shares also has a certain realism, given that some locations have limited choice.

For our purposes, of modelling quite substantial market changes, the model also helps avoid implausible predictions that arise with non-linear models, especially discrete choice models⁵⁴ when making predictions in the context of changes that are outside the scope of existing data/experience.

We use the diversion ratios from our spatial competition model

We incorporate into the model the results from our non-linear estimation of store choice, in the spatial competition model, by using the aggregate diversion ratios from the model. These ratios account for both spatial substitution opportunities or lack thereof, because not all brands are within reach of all consumers, as well as preferences for formats and ranges.

The diversion ratios vary over time as demand changes over time (as discussed in our discussion above of the spatial competition model).

Examples of the diversion ratios we use are shown in Table 18 and Table 19.⁵⁵ The data represent the share of a brand's revenue that goes to another brand when the brand closes or its quality deteriorates, or its prices go up. For example, Table 18 shows a \$100 reduction in sales at New World would lead to an increase in sales at PAKn'SAVE of \$45.

TABLE 18: NORTH ISLAND INTER-BRAND DIVERSION RATIOS

Four Square (4S), Costco (CC), Fresh Choice (FC), New World (NW), PAKn'SAVE (PS), SuperValue (SV) and Woolworths (WW).

Departing:	Going to:						
	4S	FC	NW	PS	SV	WW	CC
4S	-1.00	0.03	0.27	0.36	0.01	0.32	0.00
FC	0.05	-1.00	0.21	0.37	0.00	0.37	0.01
NW	0.05	0.02	-1.00	0.45	0.00	0.46	0.01
PS	0.05	0.03	0.32	-1.00	0.00	0.58	0.02
SV	0.14	0.02	0.23	0.33	-1.00	0.27	0.01
WW	0.04	0.03	0.33	0.58	0.00	-1.00	0.02
CC	0.01	0.02	0.17	0.44	0.00	0.35	-1.00

⁵³ Note the equation shown here omits income effects which do not vary in this use of the model.

⁵⁴ Conlon, C., Gortmaker, J., 2020. Best practices for differentiated products demand estimation with PyBLP. The RAND Journal of Economics 51, 1108–1161. <https://doi.org/10.1111/1756-2171.12352>

⁵⁵ The diversion ratios shown in the tables in this report are from the first year of the model baseline. They change over time as incomes and populations change but the variations are trivial.



TABLE 19: SOUTH ISLAND INTER-BRAND DIVERSION RATIOS

Four square (4S), Fresh Choice (FC), New World (NW), PAKn'SAVE (PS), SuperValue (SV), Raeward Fresh (RF), On the spot (OS) and Woolworths (WW).

Departing:	Going to:							
	4S	FC	NW	OS	PS	RF	SV	WW
4S	-1.00	0.08	0.35	0.04	0.30	0.01	0.02	0.21
FC	0.04	-1.00	0.30	0.02	0.41	0.01	0.00	0.22
NW	0.05	0.09	-1.00	0.02	0.47	0.01	0.01	0.36
OS	0.09	0.07	0.33	-1.00	0.29	0.01	0.01	0.20
PS	0.04	0.11	0.45	0.02	-1.00	0.01	0.01	0.36
RF	0.04	0.07	0.22	0.02	0.43	-1.00	0.00	0.21
SV	0.15	0.04	0.30	0.03	0.23	0.00	-1.00	0.25
WW	0.04	0.07	0.42	0.01	0.44	0.01	0.01	-1.00

We are not aware of comparable publicly available estimates for diversion ratios for New Zealand supermarkets. Commercial Information

Commercial Information

Commercial Information

Our estimates of local revenue sources are similar in the case of Woolworths but noticeably smaller for New World. It is unclear what drives this result, especially as the aggregate diversion ratios shown Table 18 broadly agree⁵⁷ with the size of diversions Commercial Information

Our estimates should not be expected to be the same as Commercial Information. Our model parameters are quite general, being applied consistently across all stores for all brands across the whole North Island and are estimated using a snapshot of sales for a given year. That means they inevitably contain errors.

On the whole we think this, somewhat random, comparison provides some comfort that our model performs as expected and is broadly similar to industry estimates. Though we do think that the model would need to be improved (with additional data) if it was to be used to examine specific stores in any detail as opposed to an island-wide 'market'.

⁵⁶ Commercial Information

⁵⁷ This comparison is imperfect but interesting even if incidental. It could be a coincidence.



TABLE 20: MODEL DIVERSIONS COMPARED TO Commercial Information

Table content is redacted.

The store-level diversion ratios that we estimate provide the basis for estimating diversion ratios after demerger of Woolworths, into Woolworths plus a Newco. We do not make any further adjustments to the underlying store diversions. Below are the North Island and South Island diversion ratios that include the Newco.

TABLE 21: NORTH ISLAND INTER-BRAND DIVERSION RATIOS WITH NEWCO
Four square (4S), Costco (CC), Fresh Choice (FC), New World (NW), PAKn'SAVE (PS), SuperValue (SV), Woolworths (WW) and Newco (NC).

Going to:								
Departing:	4S	FC	NW	PS	SV	NC	WW	CC
4S	-1.00	0.03	0.27	0.36	0.01	0.16	0.17	0.00
FC	0.05	-1.00	0.21	0.37	0.00	0.17	0.20	0.01
NW	0.05	0.02	-1.00	0.45	0.00	0.23	0.23	0.01
PS	0.05	0.03	0.32	-1.00	0.00	0.29	0.29	0.02
SV	0.14	0.02	0.23	0.33	-1.00	0.14	0.13	0.01
NC	0.03	0.02	0.27	0.46	0.00	-1.00	0.20	0.01
WW	0.04	0.02	0.26	0.47	0.00	0.20	-1.00	0.01
CC	0.01	0.02	0.17	0.44	0.00	0.16	0.19	-1.00



TABLE 22: SOUTH ISLAND INTER-BRAND DIVERSION RATIOS WITH NEWCO
Four square (4S), Fresh Choice (FC), New World (NW), PAKn'SAVE (PS), SuperValue (SV),
Raeward Fresh (RF), On the spot (OS), Woolworths (WW) and Newco (NC).

Departing:	Going to:								
	4S	FC	NW	OS	PS	RF	SV	WW	NC
4S	-1.00	0.08	0.35	0.04	0.30	0.01	0.02	0.10	0.11
FC	0.04	-1.00	0.30	0.02	0.41	0.01	0.00	0.10	0.12
NW	0.05	0.09	-1.00	0.02	0.47	0.01	0.01	0.16	0.19
OS	0.09	0.07	0.33	-1.00	0.29	0.01	0.01	0.11	0.09
PS	0.04	0.11	0.45	0.02	-1.00	0.01	0.01	0.17	0.19
RF	0.04	0.07	0.22	0.02	0.43	-1.00	0.00	0.11	0.10
SV	0.15	0.04	0.30	0.03	0.23	0.00	-1.00	0.12	0.13
WW	0.03	0.06	0.35	0.01	0.38	0.01	0.01	-1.00	0.15
NC	0.03	0.06	0.37	0.01	0.38	0.01	0.01	0.14	-1.00

Diversion ratios are used to calibrate demand elasticities

The demand model's α_i and β_{ij} terms are calibrated (reverse engineered) using our diversion ratios, observed market shares, assumptions about profit maximisation (i.e. the elasticities have to be consistent with our first order conditions), the LA-AIDS model definition of diversion ratios e.g. $d_{ij} = -\beta_{ji}/\beta_{ii}$, and an assumed value for price elasticity of demand for spending on something other than the supermarkets in our model, also referred to as the market elasticity in the antitrust implementation of the model or as the elasticity of demand for the 'outside good'.

Our default market elasticity value is set to -0.95. The true value of this parameter is unobserved. Though our spatial competition model includes estimates of demand for an outside good, the definition of the outside good here goes beyond that of our choice model. So, we have proxied for this elasticity using an estimate for the mean elasticity of demand for spending on groceries from a Quadratic Almost Ideal Demand system of household expenditure (Stephenson, 2021, table 4.4 p.51).

Using the outside good elasticity to control model solutions

We use the elasticity of demand for the outside good, or market elasticity, as a control variable and we increase the value of the elasticity, as needed, for two purposes:

- to mimic gradual adjustment in prices and prevent rapid conversion to equilibrium prices which
 - is assumed to be the case in standard one-shot models of unilateral pricing effects, like the one we are using here
 - but will not happen overnight as they involve slow moving factors like changes in locations of stores
- as a tool to help the model find a solution



- the model solution must be found using numerical search methods and these do not always converge on a plausible solution
- alternative strategies to help find a solution were not a feasible strategy in the time available.

Using the market elasticity to help the model to find a solution directly affects our estimates of benefits from price reductions. Qualitatively, it reduces the size of price reductions due to changes in ownership and, conditional on our other model assumptions, reduces estimated benefits to consumers from demergers. This is because higher market demand elasticities reduce firms' market power and thus reduce the benefits of increased competition from changes in ownership.

Quantitatively, the size of the effect is not large from a policy perspective or in terms of the underlying uncertainty of effect sizes in this analysis. An increase in the elasticity from -0.95 to -1.1 reduces the average market price effect of demerger by 0.2%.

Measures of welfare changes

The parameters of the demand system and modelled changes in prices (margins) as a result of demerger, are used to estimate consumer welfare changes based on the amount of money a person would need to be given to make them indifferent between that payment and the price changes, known as compensating variation.

The formula for calculating this value, as a proportion of expenditure, is

$$cv = \sum_i \alpha_i (\ln p_i^1 - \ln p_i^0) + \frac{1}{2} \sum_i \sum_j \beta_{ij} \ln p_i^1 \ln p_j^1 - \frac{1}{2} \sum_i \sum_j \beta_{ij} \ln p_i^0 \ln p_j^0$$

This follows from the definition of the compensating variation, as expenditure at new prices (p^1) and utility prior to the price change less expenditure prior to the price change, and the expenditure function for an almost ideal demand system i.e.

$$\ln e(p, u) = \alpha_0 + \sum_i \alpha_i \ln p_i + \frac{1}{2} \sum_i \sum_j \gamma_{ij} \ln p_i \ln p_j + M_i$$

Where M_i is the non-linear term (see Deaton and Muellbauer, 1980) that captures marginal utility of income given an aggregate price index and which falls out of the expenditure calculation in our calculation of aggregate expenditure changes holding overall income constant. We use a separate model of household expenditure and welfare (see next section) to assess variations in welfare effects by household type and income.

Total compensating variation is equal to the cv multiplied by total modelled sales/expenditure after the price change.

Producer's loss of surplus is also calculated, for measuring changes in total welfare (consumer welfare changes plus producer welfare changes), by calculating the sum of margins times sales volumes pre price change less the sum of margins times sales volumes post price change. In this aggregate model of supermarket spending we use the definition of gross margins ($m =$



$(p - c)/p$) to construct aggregate price indices ($P = \frac{1}{1-m}$) and calculate aggregate volumes as sales deflated by the aggregate price indices.

Model of household expenditure and welfare

The purpose of this model is to translate changes in prices, from changes in market concentration and supplier prices, into market-specific changes in household welfare accounting for differences in household composition and income.

Linear expenditure system

To model expenditure by household type and income we calibrate a household-specific model based on a linear expenditure system.

Estimating demand systems is generally data intensive but when the intention is to analyse differences in expenditure and welfare across different types of households it is possible to construct sensible demand systems from simple budget shares (Creedy, 1998).

The main reason to use a model to estimate changes in household welfare is that it can examine distributional effects i.e. impacts by household type and income.

More common and simpler measures of market-level consumer surplus changes (half the change in price multiplied by change in quantity) do not reveal distributional effects.⁵⁸ They also have the downside of measuring welfare changes inclusive of income effects and being inconsistent with standard economic frameworks for measuring consumer demand and welfare effects.

This model also has the advantage of being the model most used in applied academic and government research into the effects of price changes on household welfare. This means we can refer to those findings and context and as a sense check.

Ball et al. (2016) used this model to evaluate the effects of zero GST on food. Creedy (2004) used the model to analyse the effects of fuel excise duty on households. Creedy and Sleeman (2005) used the model to analyse the effects of excise taxes on households. Creedy and Sleeman (2006) used the model to analyse the effects of carbon taxation on households.⁵⁹

Linear expenditure systems are based on a consumer utility function:

$$U = \sum_{i=1}^N \beta_i \cdot \log(x_i - \gamma_i)$$

⁵⁸ It also has the downside of being a conceptually incorrect and inaccurate measure of welfare changes because it includes income effects. Often the change in consumer surplus is a reasonable approximation to theoretically consistent measures of welfare change, but the reasonableness of the approximation diminishes when the spending of interest makes up a large share of household spending.

⁵⁹ Ball et al (2016); Creedy and Sleeman (2005); Creedy and Sleeman (2006); Creedy (2004).



Where x_i is the consumption of good i and γ_i is the amount of consumption of good i which is 'committed' – a minimum budget share.

Specifying a specific form of utility function is restrictive, because it preordains relationships between income and expenditure and welfare, but it has the benefit of being tractable and producing internally consistent welfare measures.⁶⁰

Derivation of welfare results can be produced using budget shares and finding values for each household type and income group that characterise expenditure elasticities and own-price elasticities. Creedy (1998 and 2004) outlines the procedures used to estimate these parameters and to evaluate welfare effects.

Empirical methods

The parameters of the model can be estimated using only expenditure shares (w_{ih} , by product group i and household type h) and total expenditure (y_h):

$$w_{ih} = \delta_{h1} + \delta_{h2} \ln(y_h) + \frac{\delta_{h3}}{y_h} + \epsilon_h$$

The estimates of the δ_{hi} parameters are combined with measures of household incomes to calculate expenditure elasticities (e_i^h), own-price elasticities (e_{ii}^h) and cross-price elasticities (e_{ij}^h):

$$e_i^h = 1 + \frac{\left(\frac{y_h}{\delta_{h3}}\right) \delta_{h2} - 1}{\left(\frac{y_h}{\delta_{h3}}\right) (\delta_{h1} + \delta_{h2} \ln y_h) + 1}$$

$$e_{ij}^h = -e_i^h w_{ih} \left(1 + \frac{e_j^h}{\xi}\right)$$

$$e_{ii}^h = e_i^h \left(\frac{1}{\xi} - w_{ih} \left(1 + \frac{e_i^h}{\xi}\right)\right)$$

The term ξ is the assumed marginal utility of total expenditure (by way of example, in New Zealand this parameter, also known as the Frisch parameter, has been assumed to be equal to -1.9).

We have estimates of the δ_{hi} parameters from prior research using household expenditure data over the period 2006 to 2016. Those initial estimates can be used to calibrate the expenditure system using updated aggregate data on expenditure on food (as a proxy for supermarket spending) for the most recent 2019 year. In addition, model parameters can be inferred using changes in expenditure shares given changes in incomes (Creedy, 1998).

The model parameters also require calibration to estimate and constrain model parameters for household types that are infrequently observed in expenditure survey data.

⁶⁰ Other, more flexible, methods have been very rarely used in New Zealand because of much higher data demands and the need for unit record survey data and more difficult computational methods. See e.g. Thomas (2022).



The model is calibrated at the national level, because sub-national expenditure data is not very detailed and is of low quality.

However, sub-national (market-specific) welfare estimates can be inferred using estimates of the share of households in each market that fall within a particular household type and income band.

That is, with estimates of market specific price changes we can calculate welfare changes for each household type as if each household faces the same price change. We then calculate the market-specific aggregate welfare change using the sum over household welfare changes weighted by share of household shares in that market.

Welfare measures

The welfare measure we use is the ‘money metric’ utility measure used in Creedy (2004) to analyse the impacts of a change in petrol excise tax. This is the change in total expenditure required to achieve the same level of utility after a change in prices where required expenditure (y_e) is calculated as:⁶¹

$$y_e = \sum_i^N \gamma_i \cdot p_{ri} + \left\{ \prod_{i=1}^N \left(\frac{p_{ri}}{p_i} \right)^{\beta_i} \right\} \left\{ y - \sum_i^N \gamma_i \cdot p_i \right\}$$

The first set of terms ($\sum_i^N \gamma_i \cdot p_{ri}$) is the sum of committed expenditure on each (i) category of expenditure at reference prices (p_{ri}) which we define here as status quo prices.

The second set of terms, $\left\{ \prod_{i=1}^N \left(\frac{p_{ri}}{p_i} \right)^{\beta_i} \right\}$, describes a geometric average of changes in relative prices across all expenditures.

In the status quo the prevailing price (p_i) is the same as the reference price so this expression is equal to 1. If prices increase, the term is greater than 1 and if prices fall then this value is less than 1. This reflects the fact that with incomes and expenditure fixed, higher prices reduce consumption and hence welfare – albeit by less than the amount of the price increase due to substitution effects (See Hausman and Leibtag, 2007).

The final set of terms is the sum of all expenditures (y) less current committed expenditure. If policy changes cause prices to increase (decrease), then committed expenditure at these higher prices increases shrinks (reduces).

To evaluate welfare changes we evaluate the difference between y_e with status quo prices and y_e with counterfactual prices.

⁶¹ Creedy (2004) equation 12.



Appendix C: Sensitivity test of increased regional price variation

This scenario examines, as a sensitivity test, the effects of restructuring if changes in costs caused supermarket chains to adopt pricing that is more highly differentiated across regions.

We explore the effects of two potential pricing changes:

- **pricing by zones** within islands instead of island-wide pricing
- **store-specific price premiums**, based on store-specific freight costs.

The focus is on the effects of these pricing changes on our assessment of the effects of restructuring Foodstuffs (option 1 in the CBA).⁶²

Pricing by zone

Restructuring could cause changes in costs that are uneven across regions, by changing how supply chain costs are able to be shared based on store location. This could cause supermarket chains to increase the degree of differentiation in their prices regionally to remain competitive amidst increased competition while also making sure that prices cover any cost increases.

A higher degree of price differentiation would change the effect of restructuring on competition and pricing post-restructuring. This is because store choice is uneven across the country.

We examine the effects of restructuring if prices are set separately for the upper and lower parts of the North and South Islands i.e. four regional pricing zones⁶³ instead of two island zones:

- upper North Island (UNI), north of Taumaranui (roughly Taupo north)
- lower North Island (LNI), south of and including Taumaranui
- upper South Island (USI), north of and including Timaru
- lower South Island (LSI), south of Timaru.

⁶² We focus on option 1 to keep things simple – because a banner split is much simpler to analyse from a spatial perspective. It is also the option where spatial variations in pricing are likely to be more pronounced because Foodstuffs has more remote stores than Woolworths.

⁶³ These areas have been chosen using a combination of clustering of stores based on distance to major distribution centres and depots and information about wholesale service areas. These lead to a natural split in the North Island between stores south and north of Taumaranui, with stores to the south clustered with the Palmerston North distribution centres and stores to the north clustered with the Auckland distribution centres. In the South Island there is a natural break in southern reaches of South Canterbury although the split with respect to distribution centres is not so clean because South Island distribution is dominated by Christchurch.



The main result of this change is that restructuring has a bigger effect on prices in the LNI than the UNI or the South Island. Foodstuffs dominates the LNI i.e. there is currently less competition in the LNI, from a market concentration perspective, so a Foodstuffs split has a bigger effect in the LNI. This can be seen in Figure 13, where there is a much larger change in the LNI maximum market share by supermarket group, from Foodstuffs' Commercial information market share before a restructure to the new New World group having a Commercial information market share.

Competition in the UNI is also stronger than in the LNI due to higher market shares of other supermarket or supermarket-like stores including Costco.⁶⁴

FIGURE 13: MARKET SHARES IN THE UPPER AND LOWER NORTH ISLANDS.



Given a shift to zone-pricing, restructuring is more beneficial, overall, as shown by the results in Table 23.

A key part of this is that, under zone pricing, there are increased opportunities to raise prices without fear of loss of market share. Zonal pricing reveals that some zones are more concentrated, or more competitively constrained, than island-wide average suggests.

Zonal pricing does not create concentration. But it changes the geographic level at which concentration and substitution are measured.

⁶⁴ The Commerce Commission's 2025 Annual Grocery Report (p.20, released in 2026) shows that the major supermarket groups' collective market share in Auckland was 71% compared to a range of 84% to 92% across other regions.



In simple terms, one can imagine two towns: one with two supermarkets that are part of the same group with no risk of losing customers when prices are increased and another with two supermarkets from two different groups with a material risk of a supermarket losing customers if it independently puts prices up.

When one set of prices are used for both towns, they will be set based on the average risk of losing customers across both towns. If two sets of prices are used, the prices in the town without competitors will rise and the prices in the town with competitors will fall. How much these prices rise and fall depends on the relative size of the two towns and how much competition there is in each town.

In our assessment, zone pricing, without restructuring, is associated with higher prices and higher profits, relative to island-wide pricing. In particular, average prices in the LNI rise, because of lower competition and pricing no longer being disciplined by the risk of losing customers in Auckland.

Foodstuffs prices in the UNI fall, with zone pricing and absent restructuring, but Woolworths raises its prices because it is no longer constrained by its comparatively weak position in the LNI.⁶⁵

The net effect on prices for consumers in the UNI depends on how much store choice they have and, on the whole, consumers in the UNI benefit from lower Foodstuffs prices but households in the UNI living mainly near Woolworths stores are made worse off by zone pricing.

Zone pricing, without restructuring, is associated with a \$680 million cost to consumers (present value). 70% of that effect is from higher prices in the LNI, where competition is weakest.

Restructuring then has a more substantial effect on prices and increases consumer welfare benefits. Our estimate is that consumer welfare gains from restructuring (option 1) are approximately 13% higher under zone pricing.

TABLE 23: WELFARE EFFECTS OF RESTRUCTURING WITH ZONE PRICING
Net present value over 25 years, \$ millions

	Consumer welfare	Producer profit	Net effect
Central estimate, option 1	13,110	-10,580	2,530
With zone pricing, option 1	15,540	-11,940	3,600
With zone pricing, no restructuring	-680	670	-10
Change in effect from shift to zone pricing	1,750	-690	1,060
Change compared to central estimate	13%	7%	42%

⁶⁵ We assume both Foodstuffs and Woolworths shift to zone pricing. To assume only one adopted a zone pricing strategy would complicate the analysis and distract from the core objective of sensitivity testing our results.



Our analysis of the effects of option 1 with zone pricing (the second row in Table 23), shows a 19% increase in consumer welfare compared to our central estimate. This result assumes that zone pricing is also in place in the baseline, without restructuring.

We use our estimate of the impact of a shift to zone pricing without restructuring (the third row in Table 23) to estimate the effect of moving from island pricing without restructuring to zone pricing with restructuring (the fourth row in Table 23). This is not clean comparison of a baseline with island pricing and a switch to zone pricing at the same time as restructuring. So, the results in Table 23, should be treated as a partial assessment of the effect of restructuring causing zonal pricing.

The results do show that the underlying analysis is sensitive to assumptions about how prices are formed. They indicate that restructuring is more beneficial with zone pricing because it stimulates increased competition in areas where it is presently comparatively limited (the lower North Island).

Store-specific price premiums

There is substantial variation in store-specific freight costs. As shown in Figure 14, we estimate that freight costs cluster around \$20 to \$30 per tonne but can be over \$100 per tonne for remote stores.⁶⁶

We understand that these costs are pooled so that store-specific prices do not fully reflect freight costs:

FSNI (and FSSI) operate a cross-subsidisation policy through each Co-operative irrespective of the different costs to transport goods to the store. This ensures that FSNI retail stores pay the same price for groceries⁶⁷

This means a disproportionate amount of freight costs are recovered from sales in densely populated areas in and around distribution centres.

⁶⁶ Our model for freight cost modelling is described in a subsection at the end of this appendix.

⁶⁷ Foodstuffs North Island September 2021 [submission](#) on the Commerce Commission's Market study into the retail grocery sector draft report, p.99.



FIGURE 14: VARIATIONS IN FOODSTUFFS FREIGHT COSTS, BY STORE⁶⁸



Foodstuffs North Island has said that “it may not be possible for FSNI to maintain this cross-subsidisation under any wholesale access model, but that would be particularly the case under operational or structural separation.”⁶⁹

We examine the effects of freight costs being charged to stores directly and recovered from customers in a store-specific average mark-up on costs of goods sold.

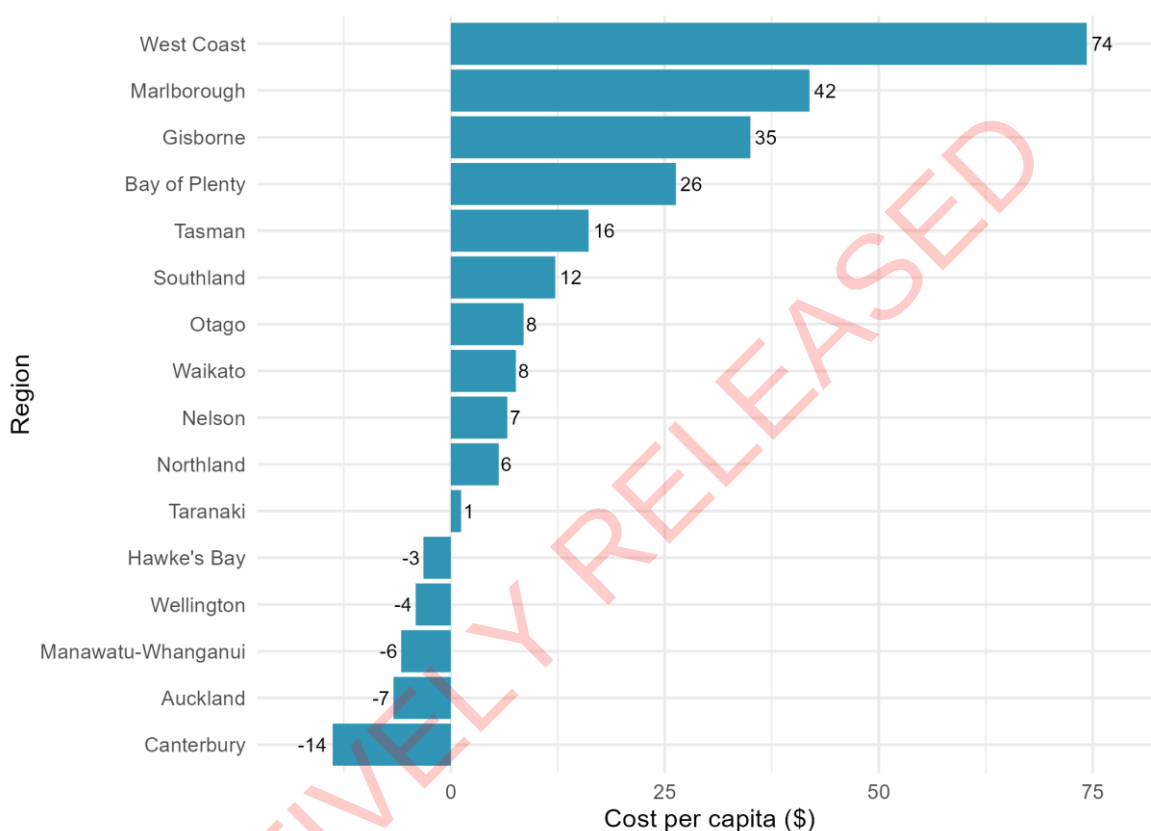
We examine the distributional effects of restructuring, on the assumption that it could cause cross-subsidies to be removed. A first order estimate of the effects of subsidy removal, in terms of change in annual costs per capita at a regional level is shown in Figure 15.

⁶⁸ Group freight costs are freight costs associated with Foodstuffs distribution centres, so exclude the freight cost incurred by for direct to store freight.

⁶⁹ Foodstuffs North Island September 2021 [submission](#) on the Commerce Commission’s Market study into the retail grocery sector draft report, p.100.



FIGURE 15: COSTS TO BE RECOVERED AFTER REMOVAL OF CROSS-SUBSIDIES
Annual change in freight costs divided by 2025 resident population



Overall effects of regional pricing variations

The combined effect of zone pricing and store-specific pricing sees a change in the distribution of benefits from restructuring.

Most notably, some parts of the UNI no longer benefit from restructuring (see Table 24). This is solely in places where people have limited choice but to shop at Woolworths.

Prices at Woolworths are higher in the UNI as a result of zone pricing and the Foodstuffs restructuring causes them to reduce but they are still higher than baseline.

Our analysis suggests around 7% of the population of the UNI would face price increases that they cannot avoid (161,000 people given 2025 estimates of the resident population). These higher prices are temporary, though they do last for several years after restructuring (5-6 years).

All areas benefit from lower prices after 5-6 years. However, there are around 22,000 households (approximately 50,000 people) that are worse off in present value terms i.e. the cost of high prices in the first 5-6 years offset the benefits of lower prices later on, once we give higher weight to earlier effects. Although the net cost to these households is very small at an average of 0.04% food spending over 30 years.



Changes in store-specific costs – because of ending cross-subsidisation - are not large enough to offset benefits of lower prices at Foodstuffs stores as a result of restructuring.

Overall, the effects of price increases in some areas are more than offset by larger price reductions affecting much larger numbers of households elsewhere in the country.

TABLE 24: POPULATION BY PRICE CHANGE

Estimates for year 1 post-restructuring, with regional pricing variations

Price changes	UNI	LNI	USI	LSI
0% to 1%	161,000	0	0	0
-1% to 0%	50,000	0	0	0
-2% to -1%	404,000	10,000	1,000	0
-3% to -2%	1,310,000	23,000	9,000	4,000
-4% to -3%	210,000	104,000	99,000	64,000
-5% to -4%	29,000	593,000	300,000	131,000
-6% to -5%	0	1,027,000	387,000	99,000
-7% to -6%	0	0	55,000	38,000
-8% to -7%	0	0	0	3,000

Modelling freight costs

To estimate costs of freight by store we constructed a bottom-up cost model. It begins with store-level information on location, sales quantities, supply chain type, distribution node and distance to store. It then converts product quantities into estimated pallet volumes, assigns delivery frequencies, groups store delivery events into plausible truck routes and calculates freight costs.

The model uses a routing approximation. Stores are grouped into routes using an algorithm where: stores are ordered by bearing and distance from the relevant distribution node, then added to a route until a constraint is reached. The constraints include truck pallet capacity, maximum number of drops and maximum route duration.

Network structure

Nodes include distribution centres, cross-docks and other transport depots where shipments may be split or combined for delivery to stores.

Road distances between nodes and stores are calculated using openrouteservice.org and drive times are calculated.

The model defines two separate supply chains for ambient goods and fresh and chilled products.

Inferring product volumes

Our data includes sales by store by product and sales by counts of items sold, but limited data on freight volumes (whether tonnes, cartons or pallets).



We use the data we do have on aggregate freight volumes to convert revenue and units sold to approximate freight volumes by store and network.

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These assumptions convert product quantities into annual pallets, weekly pallets, daily pallets and pallets per delivery event. They are central to the model because truck numbers and load factors depend on estimated pallet volumes. They are, of course, high level approximations.

Route classification

We classify stores into groups of similar routing characteristics, based on store size and distance from a node (DC, cross-dock or depot).

Route type	Definition in model
Small urban multi-drop delivery	Travel time under 40 minutes and store type is Convenience
Urban or near-urban store delivery	Travel time under 40 minutes
Regional delivery from a node	Travel time from 40 to under 90 minutes
Smaller remote store delivery	Travel time 90 minutes or more and store type is Convenience
Larger remote store delivery	All other stores with travel time 90 minutes or more

Each route has associated operating parameters for trucks, within which route sharing possibilities and truck utilization are calculated.

The maximum pallet constraint determines when a new route is required. Route formation is primarily constrained by maximum pallets, maximum drops and maximum route time.

These numbers were anchored by data on minimum wholesale order volumes expected truck sizes and the pallets they can handle.

We also make broad assumptions about driver and delivery times:

- maximum route duration of 480 minutes
- a fixed time per stop of 15 minutes.



Route type	Maximum pallets	Target pallets	Maximum drops	Average speed
Metro	26	20	4	40 km/h
Regional	32	26	4	60 km/h
Remote small	20	16	4	75 km/h
Remote large	32	26	4	75 km/h
Metro multi-drop	12	8	4	30 km/h
Linehaul	44	36	1	75 km/h

Capital and operating cost assumptions

Our estimates of freight costs include operating costs (fuel, repair and maintenance, RUC) and driver time and annualised capital costs of trucks – used to estimate the cost of underutilised vehicles and to add an implied capital rental rate to freight costs. Our estimates, summarised in the table below, are based on data and methods used in Paling (2023) updated for more recent data on RUC and fuel prices and wages and truck prices.

Route type	Cost per km	Cost per minute	Truck price
Metro	\$1.82	\$0.58	\$330,000
Regional	\$2.06	\$0.58	\$790,000
Remote small	\$1.82	\$0.58	\$330,000
Remote large	\$2.06	\$0.58	\$790,000
Metro multi-drop	\$1.07	\$0.50	\$190,000
Linehaul	\$2.34	\$0.58	\$830,000

We apply capital rental rates to freight costs using estimates of vehicle purchase prices and assumptions of a 15 year asset life, 8% discount rate, 10% salvage value and operational availability of 6 days a week for 48 weeks per year.

Our cost data is constructed to align with prices in June year 2023.



Appendix D: Supply chain costs and scale efficiencies

We examined data on supply chain costs in New Zealand, as context for our assumptions about changes in costs due to restructuring.

Two key pieces of information we considered were:

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We also estimated the size of potential changes to freight costs, using the freight model described in Appendix C.

Key findings in relation to the effect of restructuring

We find that efficiency losses are likely to sit within a range of 0.3% and 0.6% of the value of Foodstuffs costs of goods sold (see Table 25). Those effects are a little higher (0.3% to 0.7%) if considering Woolworths supply chain costs, where a smaller share of product is delivered direct to store.

If we make additional extreme assumptions about duplicate overheads being passed on to consumers, then we reach an upper limit for changes in costs that affect consumer prices of between 1.9% and 2.5%.

These estimates assume away any scope for efficiency gains from restructuring.

TABLE 25: POTENTIAL CHANGES IN COSTS

	Estimate	Upper limit
Efficiency losses	0.3%	0.6%
Pass-through of duplicate overheads	1.6%	1.9%
High end of range	1.9%	2.5%

These estimates, based on data we've observed, are a complement to, rather than a substitute for, the effect size we borrowed from overseas evidence.

⁷⁰ Commercial information



They strongly suggest that our 1% assumption was reasonable and the range we used in our sensitivity analysis covers a reasonable span of effect sizes.

Efficiencies

Commercial Information

The Commercial Information offers valuable information about the sources and size of efficiencies that supermarket chains can achieve through consolidation and scale of supply chains.

This evidence is relevant for our CBA because it speaks to the efficiencies that could be lost as a result of restructuring.

Based on the material below, efficiencies of between 0.3% and 0.9% of costs of goods sold, could be lost through restructuring.⁷¹

Expansion of the

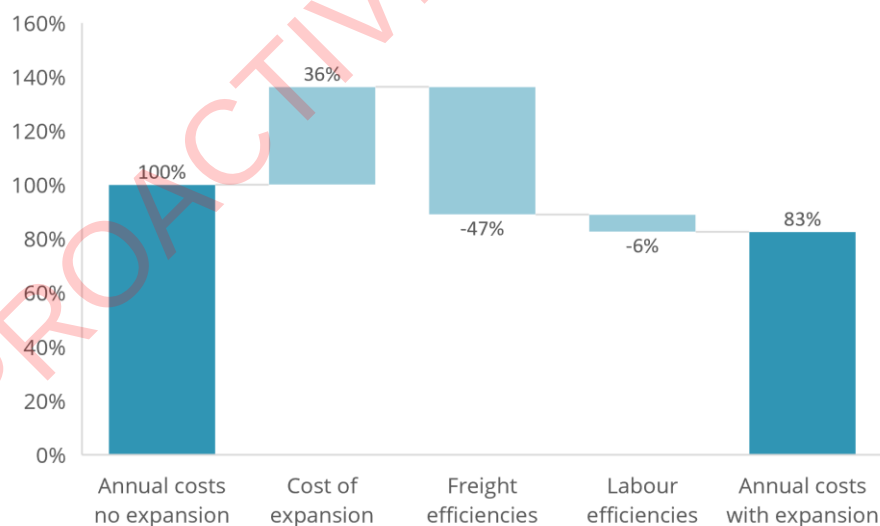
Commercial Information

DC

Commercial information expanding Commercial information DC to relieve capacity constraints. The expansion was expected to reduce Commercial information supply chain costs by 17%, Commercial information (see Figure 16 for a high-level break-down of costs and efficiency gains).⁷²

FIGURE 16: IMPACT ON COSTS OF EXPANDING Commercial information DC

Commercial information



⁷¹ Commercial Information

⁷²



The hypothetical analogy of this for restructuring, which would reduce the scale of DC operations, is that reduced scale could cause a new standalone chain to serve a substantial amount of lower North Island demand out of Auckland. The impact of this would be a:

- 21% increase in lower North Island supply chain costs
- a 6% increase in North Island costs.⁷³
- a 0.3% increase in costs of goods delivered to stores.⁷⁴

This is not a prediction of what would happen. It is an illustration of the size of a potential effect on costs.

Consolidation of Commercial Information supply chain

Commercial Information

Commercial Information The strategy was expected to reduce supply chain costs Commercial Information

comprising:

- a Commercial Information reduction from reduced stock loss, freight costs and store labour from consolidated deliveries⁷⁵
- a Commercial Information reduction in overheads Commercial Information
Commercial Information net of consolidation costs.⁷⁶

Figure 17 shows the relative size of these changes (note axis truncated to show smaller effects, compared to Figure 16).

⁷³ Commercial Information

⁷⁴

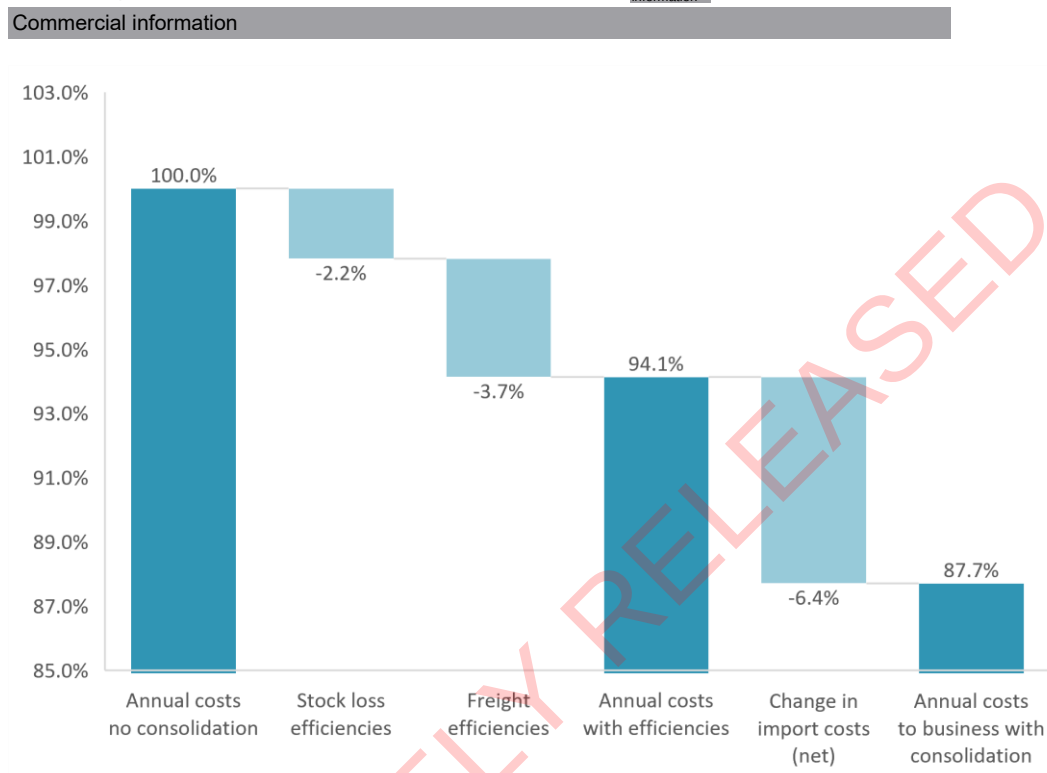
⁷⁵

⁷⁶ We group costs of consolidation with savings related to imports (indent) to isolate, for presentational purposes, those effects that are clear efficiency effects of consolidation. Commercial Information

Commercial Information The change in import costs comprise a reduction in provider costs and avoided margins on import handling fees.



FIGURE 17: IMPACT ON COSTS OF CONSOLIDATING SUPPLY CHAIN



For restructuring, this implies that costs would potentially rise if restructuring increased reliance on 3PL providers. The scale of the effect is not entirely clear because expected changes in costs span both variable costs and overheads:

- at the low end, if these efficiencies were lost, one would expect costs to rise by 6% due to increased stock loss and freight costs
- at the high end, costs could rise by 14%⁷⁷, if the reduction in import costs, from consolidation, was a bona fide reduction in variable cost as opposed to a reduction in overheads or an internalisation (a transfer) of margins from 3PL providers.

Thus, a range for assessing the implications of restructuring for the size of changes in costs: +6% to +14%.

Given the size of supply chain costs and costs of goods sold, this implies a change in the cost of goods delivered to stores ranging from 0.3% to 0.7% nationally.

Foodstuffs cost-to-serve

We used cost-to-serve data from Foodstuffs to test the size of very large increases in costs of goods delivered to stores, based on assumptions that:

⁷⁷ Commercial Information



- distribution-related overheads, those that do not automatically scale with throughput, double and those costs are passed on to consumers
- cost components that do scale with throughput (mainly labour and handling and freight costs), will rise due to lost efficiencies as measured by our analysis of Commercial Information.

This hypothetical calculation results in an increase in costs of goods delivered to stores of between 1.8% and 1.9% in the North Island and between 2.3% and 2.5% in the South Island, depending on whether we adopt high or low estimates for the size of lost supply chain efficiencies.

These numbers help to contextualise effect sizes. They indicate that our assumption about a potential 1% cost increase, because of restructuring, is not likely to be too low, when it is around 50% of the size of effects that are at the upper limit of plausible effect sizes.

Modelled changes in freight costs

Using the model described in Appendix C we estimated the impact of restructuring on freight costs as a consequence of reduced network density.

We focus on the effect on Foodstuffs freight costs because the impact of restructuring is simplest to analyse, with restructuring by banner.

Our analysis suggests that freight costs could increase by 0.5% in North Island and 0.7% in the South Island, mainly as a result of more trucks being required and reduced utilisation rates of trucks.

Given the size of freight costs in overall distribution costs (around a third) and the share of goods not delivered direct to store, the effect on costs of goods delivered to stores is less than 0.1%.

Our interpretation of this result is that, for the most part, there is not a great deal of network efficiency lost because, outside of dense urban areas, stores are not placed near each other to limit cannibalisation.

Commercial Information



Appendix E: References

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