New Zealand Productivity Commission

Consultation on the Terms of Reference:

'A fair chance for all' inquiry

27 September 2021

1 Summary

The Government has asked the New Zealand Productivity Commission (NZPC) to prepare the Terms of Reference for a new inquiry into the drivers of persistent disadvantage within people's lifetimes and across generations.

During July and August 2021, NZPC sought feedback from across Aotearoa to help shape the Terms of Reference. Over 1,000 responses were received from people who completed an online form, made a submission, or met or talked with NZPC staff.

The online form included four open-ended questions seeking to elicit free text responses. NZPC sought assistance from Text Ferret Ltd to extract actionable information from these free text responses. Text Ferret Ltd received a dataset containing responses from 875 individuals.

Text Ferret is an Artificial Intelligence Text Mining product that operates on unstructured data, providing a breakdown of the themes / topics discussed and determining emotional sentiment and intensity.

We found that the ten most common themes raised, in descending order, were:

- Housing and homelessness
- Education, learning
- Mental health, trauma, addictions
- Poverty, inadequate incomes
- Early years, child poverty
- Intergenerational problems, cycles of disadvantage
- Employment, workplace issues
- Family relationships
- Physical and general health
- Disability and neurodiversity.

Younger respondents (aged up to 35) were more likely than older respondents to submit on:

- Racism / colonisation
- Inequality
- Welfare system / UBI
- Societal attitudes
- Disability / neurodiversity.

Māori respondents were more likely than NZ European respondents to submit on:

- Māori involvement
- Racism / colonisation
- Family relationships
- Justice and corrections systems.

A breakdown by region, and an analysis of emotional sentiment and intensity, have also been provided.

2 Background and data provision

The Government has asked NZPC to prepare the Terms of Reference for a new inquiry into the drivers of persistent disadvantage within people's lifetimes and across generations.

The Terms of Reference will be presented to Cabinet in November 2021. Subject to Cabinet approval, the Commission will then have 12 months to conduct the inquiry and present its findings and recommendations to Government.

During July and August 2021, NZPC sought feedback from across Aotearoa to help shape the Terms of Reference. Over 1,000 responses were received from people who completed an online form, made a submission, or met or talked with NZPC staff.

The online form included four open-ended questions seeking to elicit free text responses. NZPC sought assistance from Text Ferret Ltd to extract actionable information from these free text responses.

NZPC provided us with a dataset containing 875 responses, each with up to four freetext fields, answering the following questions:

- What are the main aspects of disadvantage that should be investigated in this inquiry?
- Where should the Commission focus its research effort?
- Where should government focus its effort on finding solutions?
- Is there anything else that you would like to see covered in this inquiry?

The dataset provided also included age, ethnicity, region and date fields.

NZPC asked us to:

- carry out theming and sentiment analysis on the freetext data provided
- identify the most frequent themes, for each question and across the four questions combined
- crosstabulate the theming results against age, ethnicity and region,
- provide a written report, including commentary on the results, and
- return the raw data to NZPC, annotated with Text Ferret results.

3 Introduction to Text Ferret

Text Ferret is an Artificial Intelligence Text Mining product that identifies three valuable pieces of insights from unstructured data:

- An accurate breakdown of the topics / themes of conversation
- The sentiment of these topics / themes
- The emotional intensity of these topics / themes

In everything we do at Text Ferret, we focus on genuine, immediate, human centric outcomes that drive measurable value.

Our AI engine has been trained since 2014, across thousands of data sets and a number of sector verticals. We have many customers who drive value from our product which underpins the deployment of interventions that make a difference to peoples' lives. This reinforces the ability for organisations to become truly customer centric – in fact, Forbes recently announced that customer centric organisations generate 5.7 times more engagement than those that lack an authentic customer centric strategy.

Text Ferret works on any unstructured data source. Our capability to augment data sources to get very rich customer or consumer insight is incredibly strong. We do this without subjectivity or bias. The result is tangible insight generated directly from the voice of your customer.

4 Text Ferret methodology

We prepared the dataset for analysis by:

- categorising the demographic fields
- cleaning and pooling the four freetext fields
- removing some duplicate or near-duplicate responses, which seem to have occurred as a result of the web form being submitted multiple times in rapid succession
- removing very short, non-informative responses, such as 'no' or 'see above'
- splitting some freetext fields into up to three 'chunks' at natural breaks.

The purpose of the chunking process was to capture multiple themes within a single response. For instance, a response such as "*Housing. Education. Benefits*" could be split into three themes.

Two alternatives to chunking were considered:

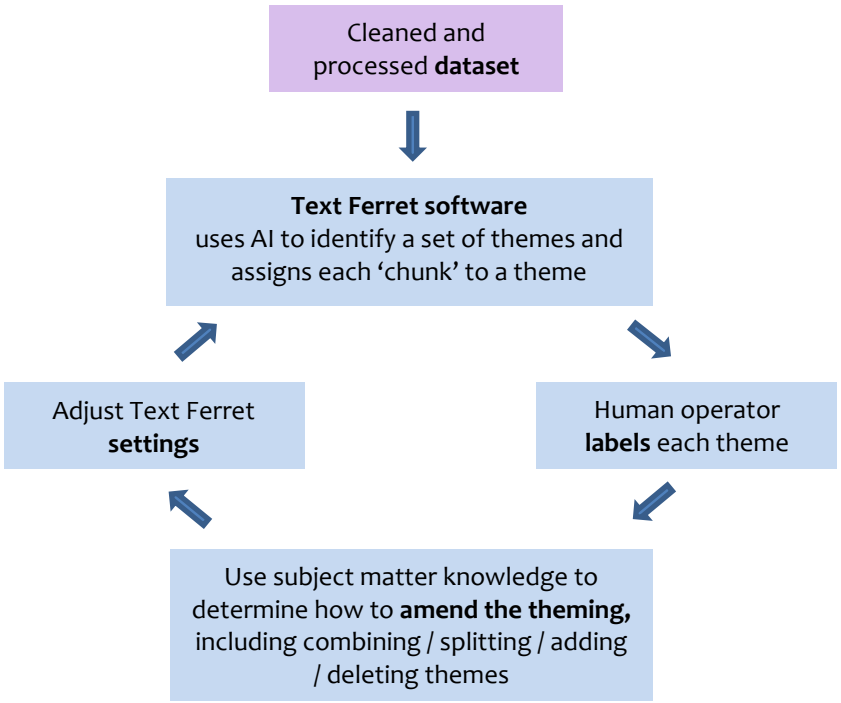
A. Splitting each freetext field into individual sentences, or
B. No splitting of each freetext fields.

Option A was rejected on the basis that it would:

- give undue weight to responses that included many sentences, and
- in some cases, cause a proliferation of short freetext fragments that might be difficult for a human reader to parse.

Option B was rejected on the basis that it would fail to capture multiple themes within a single response. Under Option B, the above example response "*Housing. Education. Benefits*" would be assigned by Text Ferret to a single theme only (probably 'Housing') – ignoring the additional information it contained about other themes.

We then submitted the resulting 5,255 freetext 'chunks' to the Text Ferret engine, beginning the following iterative process:



At the end of the process, each 'chunk' was assigned to at most one theme. Chunks not assigned to any theme were categorised as 'miscellaneous'.

The Text Ferret software was also used to carry out emotional content analysis, yielding sentiment and intensity measures.

The results are shown in the following section.

5 Text Ferret results

5.1 Demographics

The median age of respondents was approx. 54 years, with:

- 12% being aged under 35
- 39% aged 35-54
- 49% aged 55 or over.

The majority of respondents (71%) identified as NZ European, with an additional:

- 10% identifying as Māori
- 3% identifying as Asian
- 2% identifying as Pasifika
- 14% identifying as Middle Eastern/Latin American/African or Other/unknown.

The breakdown of regions was:

- 22% from Auckland
- 25% from Wellington
- 25% from the rest of the North Island combined
- 11% from Canterbury
- 13% from the rest of the South Island combined
- 4% from elsewhere, or region not specified.

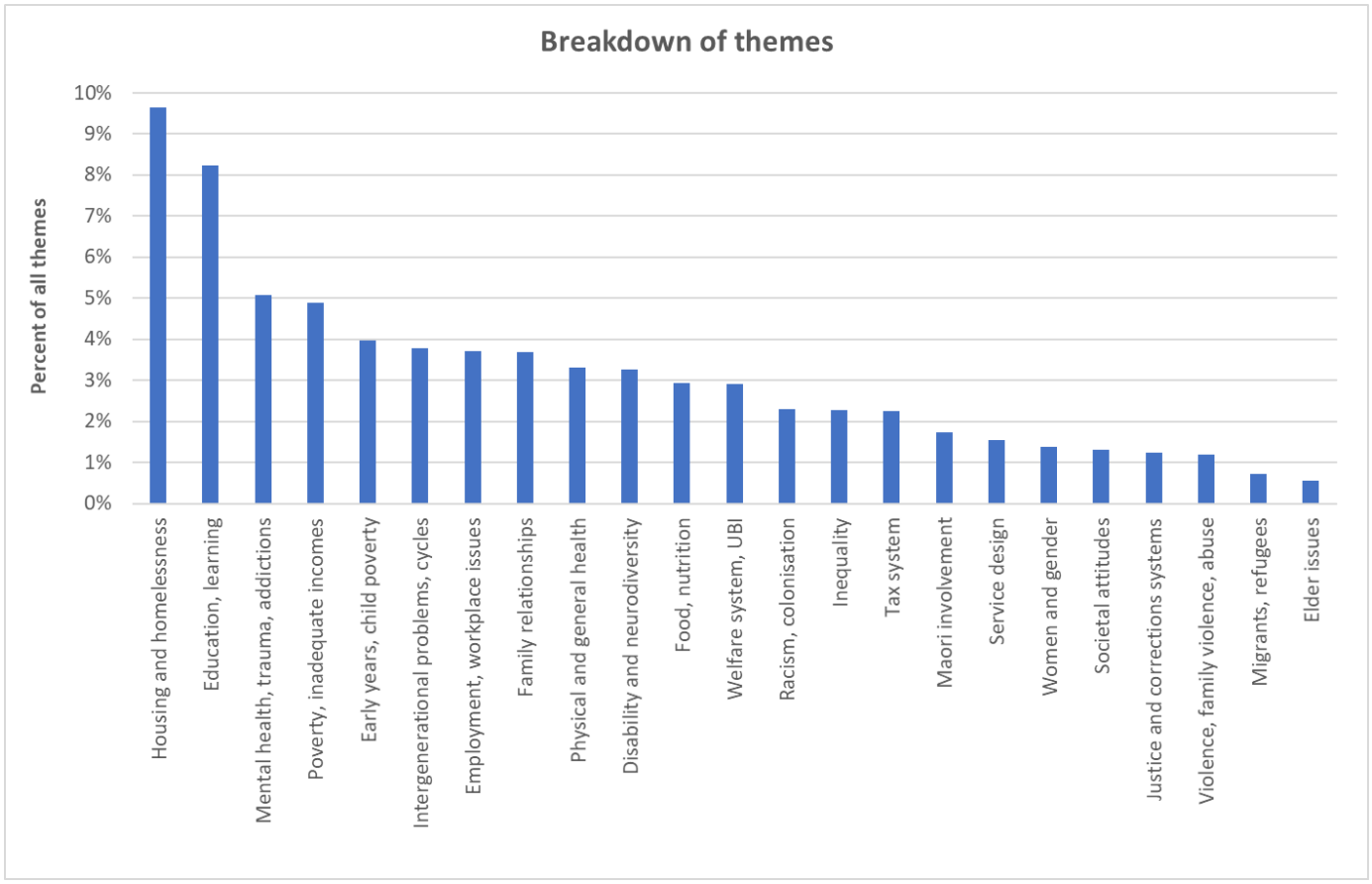
5.2 Theming

The ten most common themes, in descending order, were:

- Housing and homelessness
- Education, learning
- Mental health, trauma, addictions
- Poverty, inadequate incomes
- Early years, child poverty
- Intergenerational problems, cycles of disadvantage
- Employment, workplace issues
- Family relationships
- Physical and general health
- Disability and neurodiversity.

The full list of themes (excluding 'Other') is shown in the plot overleaf.

The full set of responses under each theme has been provided to NZPC with this report.


Breakdown of themes
Percent of all themes
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
Housing and homelessness
Education, learning
Mental health, trauma, addictions
Poverty, inadequate incomes
Early years, child poverty
Intergenerational problems, cycles
Employment, workplace issues
Family relationships
Physical and general health
Disability and neurodiversity
Food, nutrition
Welfare system, UBI
Racism, colonisation
Inequality
Tax system
Maori involvement
Service design
Women and gender
Societal attitudes
Justice and corrections systems
Violence, family violence, abuse
Migrants, refugees
Elder issues

5.3 Differences between questions

Four freetext questions were asked. The breakdown of themes varies between questions, as shown in the following table.

Question	Themes that appear commonly in responses (relative to other questions)
Main aspects to investigate	Violence / family violence / abuse Racism / colonisation Mental health / trauma / addictions Food / nutrition Physical and general health Poverty / inadequate incomes Intergenerational problems / cycles
Focus of research effort	Elder issues Employment / workplace issues Intergenerational problems / cycles Family relationships Inequality
Government focus	The tax system Service design Māori involvement
Other things to cover	Societal attitudes Migrants / refugees Welfare system / universal basic income

5.4 Demographic comparisons

The breakdown of themes varied between **age groups**:

Age group	Themes that appear commonly in responses (relative to other age groups)
Under 35	Racism / colonisation Inequality Welfare system / UBI Societal attitudes Disability / neurodiversity
35 – 54	Disability / neurodiversity Migrants / refugees Women and gender Justice / corrections systems
55 and over	Poverty / inadequate incomes

The breakdown of themes also varied between **ethnicities.** The only two ethnicities for which we had a substantial number of responses were Māori and NZ European (other ethnicities were represented but with much smaller numbers of responses).

Māori respondents were more likely than NZ European respondents to submit on:

- Māori involvement
- Racism / colonisation
- Family relationships
- Justice and corrections systems.

The breakdown of themes also varied between **regions**. We have pooled regions into larger areas in order to establish a substantial sample in each area, and for ease of reading.

Region	Themes that appear commonly in responses (relative to other regions)
Auckland	Disability / neurodiversity Intergenerational / cyclic problems
Wellington	Racism / colonisation
Elsewhere in the North Island	Early years / child poverty Family relationships
Canterbury	Mental health / trauma / addictions
Elsewhere in the South Island	Housing / homelessness

5.5 Emotional content analysis

Sentiment analysis distinguishes responses that are positive in tone from those that are negative.

There is a substantial range of sentiment within each theme, but the gap between themes is relatively narrow. That is, no theme is much more positive or negative (on average) than any other.

The most positive themes in the dataset were:

- Service design
- Societal attitudes
- Education / learning
- Employment / workplace issues.

The least positive themes in the dataset were:

- Disability / neurodiversity
- Racism / colonisation
- Mental health / trauma / addictions
- Welfare system / UBI.

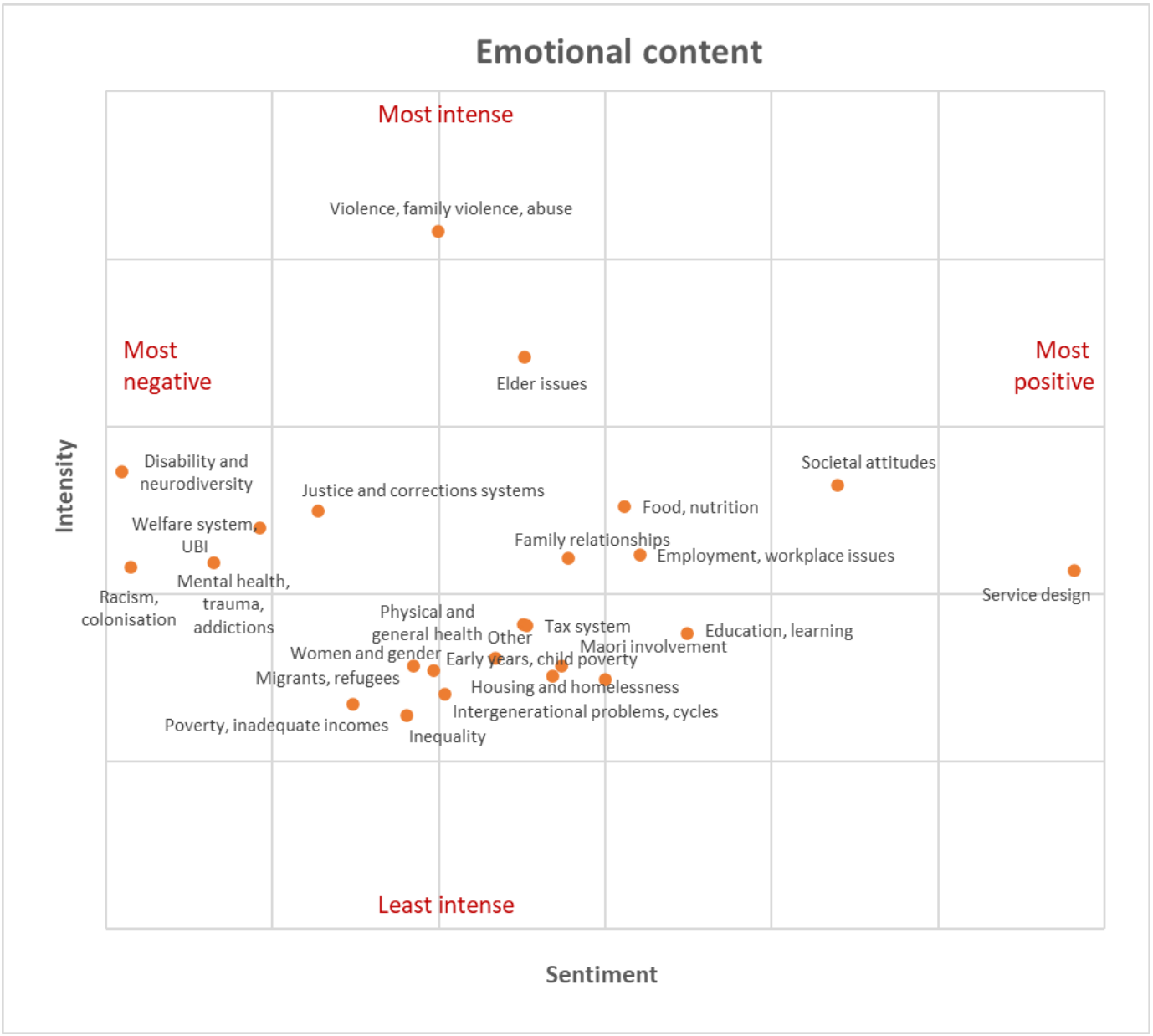
Intensity analysis distinguishes responses that have strong emotional content from those that have mild emotional content.

Again, there is a substantial range of intensity within each theme, but the gap between themes is relatively narrow. That is, no theme is much more or less intense (on average) than any other.

The most intense themes in the dataset were:

- Violence / family violence / abuse
- Elder issues.

The plot on the following page summarises the emotional content analysis.


Emotional content
Most intense
Violence, family violence, abuse
Most negative
Elder issues
Most positive
Intensity
Disability and neurodiversity
Justice and corrections systems
Societal attitudes
Food, nutrition
Welfare system, UBI
Family relationships
Employment, workplace issues
Mental health, trauma, addictions
Racism, colonisation
Service design
Physical and general health
Other
Tax system
Education, learning
Maori involvement
Women and gender
Early years, child poverty
Migrants, refugees
Housing and homelessness
Intergenerational problems, cycles
Poverty, inadequate incomes
Inequality
Least intense
Sentiment