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# Child Food Security in New Zealand

Using Growing Up in New Zealand to develop a  
child food security index

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NEW ZEALAND

**MEDICAL AND  
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## What is child food security?

It is a daily diet that is nutritionally balanced and sufficient to allow them to do well at school, engage in active play, and lead a culturally normal life.

When access to the right foods is not consistently achieved, the negative repercussions flow through to physical and mental health, wellbeing, and life-course outcomes.

An age-inappropriate diet is treated as a form of food insecurity.

# Currently, it is not measured in New Zealand

New Zealand has:

- a recognised child poverty problem
- a recognised childhood obesity problem
- a recognised child oral health problem
- many other diet-related child health problems

These can all be linked to food insecurity

But, there is no current measure of child food security in New Zealand.

# So we made one.

Using Growing Up in New Zealand, we give you  
the:

## **New Zealand Infant Food Security Index**

# Step 1

- Find all the measures in GUiNZ that can be used to describe food security.
- For this, we need (ideally) quantity, quality, and reliability.
- So, what's in the different surveys that we can use?

	DCW0		DCW1			DCW2			DCW5		Eight Years
Construct	Mother	Partner	Mother	Partner	Child	mother	Partner	child	mother	child	
Material hardship			X			X			X		
Money stress	X	X	X	X		X	X				
Diet Quality					X			X		X	
Breakfast										X	
Food insecurity											X

# Step 2

## Data: from ideal to available to useable

Ideal	Available	Useable	What
Quantity	Quantity	No	Maternal recall (no period defined) of portion sizes
	Frequency	Yes	Daily frequency of consumption.
Quality	Quality	Yes	Types of foods (fruit, vegetables, fizzy drinks) Breastfeeding duration
Reliability	Material hardship that may impact on availability and/or regularity food security	Yes	Use of coping methods including foodbank, foregoing fruit & vegetables, buying cheaper food, use of charity and food grants.

# Data at 9 months

**Diet Quality:** Which Foods has baby tried?

Good stuff: Sentinel Foods = 13 items (includes, for example, fruit, vegetables, bread, dairy)

Bad stuff: Energy Dense/Nutrient Poor Foods = 12 items (includes, for example, fizzy drinks, coffee, chocolate, added sugar, added salt)

Good stuff: breastfeeding (we used 3 months or more)

**Material Hardship:**

Mother's use of coping mechanisms (includes six questions on things like being forced to buy cheaper foods, foregoing fruit & veg, putting up with feeling cold)

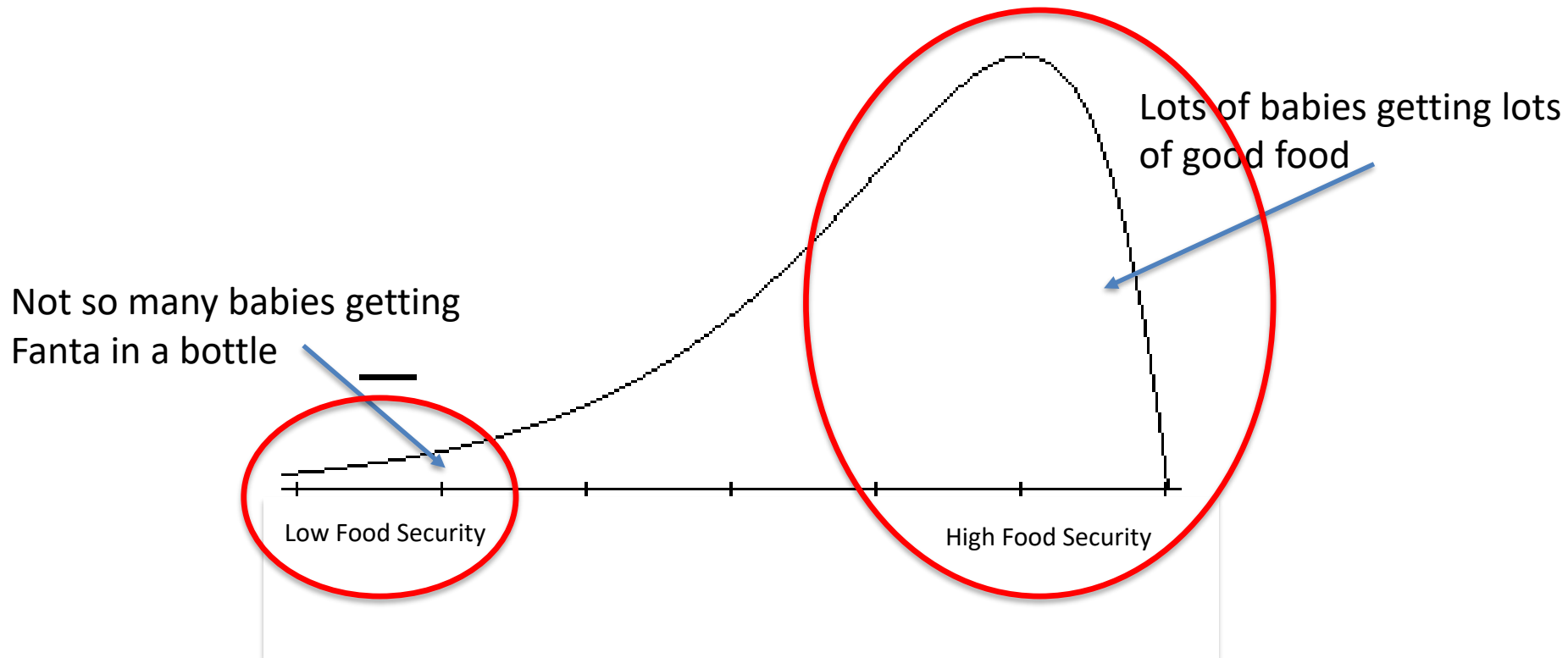
### Step 3: Index components, weights, scores, and ranges

Component		Weight	Minimum	Maximum
<b>Coping</b>	Being forced to buy cheaper food	Y = -1 N = 0	-1	0
	Going without fruit/vegetables	Y = -2 N = 0	-2	0
	Help from charity	Y = -2 N = 0	-2	0
	Use foodbank	Y = -2 N = 0	-2	0
<b>Breastfeeding</b>	Exclusive breastfeeding to 3 months	Y = 2 N = 0	0	2
<b>Sentinel foods</b>	Daily consumption of sentinel foods	Q * 2	0	27
<b>EDNP</b>	Daily consumption of EDNP foods	Q * -2	-13.29	0
			Min: -20.29	Max: 29
Add constant of 20.29			Min: 0	Max: 49.29



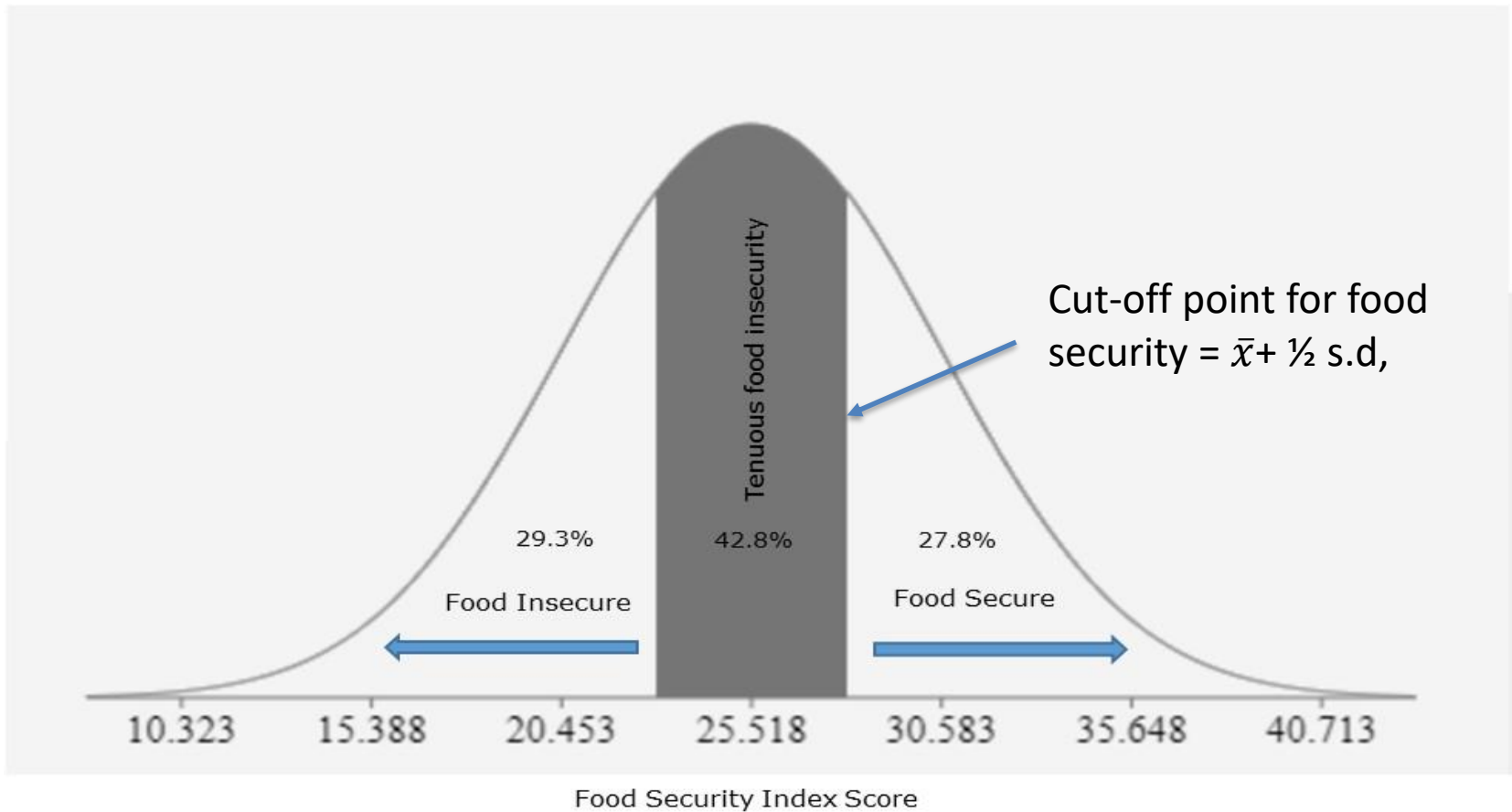
# In an ideal world...

The distribution of infant food security in New Zealand would look like this:



...but it doesn't.

**But it doesn't. It looks like this:**



## Step 4: Cut-points



Cut point (score)	Definition	Prevalence, n (%)
<-2 s.d. (15.39)	Extremely food insecure	162 (2.5%)
-2 s.d. ≤ · <-1 s.d. (20.45)	Highly food insecure	858 (13.3%)
-1 s.d ≤ · < -0.5 s.d. (23)	Moderately food insecure	876 (13.5%)
-0.5 s.d. ≤ · < +0.5 s.d. (28.03)	Tenuously food insecure	2,768 (42.8%)
+0.5 s.d. ≤ · < +1 s.d. (30.87)	Moderately food secure	817 (12.6%)
+1 s.d. ≤ · < +2 s.d. (35.65)	Highly food secure	876 (13.5%)
≥ +2 s.d.	Extremely food secure	110 (1.7%)

**If this index works, then it should predict something, like health**

<b>Health outcome</b>	<b>OR (95% C.I.)</b>
Ever being sick	1.26 (1.13-1.41)
Seeing GP for any sickness	1.14 (1.01-1.28)
<i>Experiencing chest infection, wheezing, bronchiolitis, bronchitis, asthma lasting more than one week</i>	1.38 (1.20-1.59)
<i>Seeing a doctor for chest infection lasting more than 1 week</i>	1.28 (1.13-1.44)
<i>Seeing a doctor for cough lasting more than one week</i>	1.27 (1.14-1.42)
<i>Seeing a doctor for gastroenteritis</i>	1.35 (1.16- 1.58)

## What predicts food insecurity?

Predictor	OR (95% C.I.)
Mother forced to put up with feeling cold	2.11 (1.81-2.49)
<i>Deprivation index (NZDep)</i>	
≤3: Low (ref)	1.00
4-7: Medium	1.37 (1.21-1.56)
8-10: High	3.05 (2.65-3.51)
Obtained prescription for baby but didn't collect one or more items from the chemist because you could not afford	2.76 (1.86-4.07)
<i>Baby's ethnicity Māori</i>	2.01 (1.75-2.29)
<i>Baby's ethnicity Pasifika</i>	2.98 (2.54-3.49)
<i>Mummy smokes</i>	4.09 (3.30-5.06)
Mother age group at pregnancy	
<20	4.81 (3.33-6.96)
20-29	2.13 (1.90-2.40)
>30 (ref)	1.00

## Policy implications?

- Eat more good stuff
  - Households in income quintile 1 (poorest) have an own-price elasticity of vegetables of -1.09
  - For this group, with this elasticity, GST at 15% leads to a 16.4% reduction in vegetable consumption.
  - Is GST on ALL foods a good idea?
- Eat less bad stuff
  - NZ cross-price elasticity between soft-drinks and fruit and vegetables is 0.2%
  - It's far from proportionate, BUT a sugar tax could still be considered as part of suite of measures to improve infant diets
- Let mothers breastfeed – parental leave rules are changing, slowly.

## What's next?

Currently under way:

- Does infant food security status predict health at 2y and 4y?
  - Yes, it seems so
- Does food insecurity in infancy predict obesity at 4Y
  - Yes, it seems so



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