

# The Mackenzie Study

July 2021 Progress Report

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# Introduction

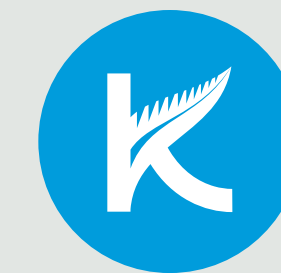
The overarching goal of **The Mackenzie Study** is to build a rigorous evidence base documenting within-person gains in entrepreneurial skills (using before-after surveys for individual cohort members) attributable to participation in the Kellogg or Nuffield programmes.

This report builds on the initial progress report dated February 2021. It summarises the key findings of the Nuffield Survey in June.

Further analysis is on-going and an in-depth progress report will be provided in the coming weeks.



**NUFFIELD**  
NEW ZEALAND  
FARMING SCHOLARSHIPS



**KELLOGG**  
RURAL LEADERSHIP  
PROGRAMME

# Overview of work completed

March - June 2021

At present, the highlighted surveys below have been completed. The preliminary findings in this report are largely consistent with those in the previous progress report.

## Mackenzie Study Surveys (highlighted surveys already complete)

		Kellogg 43		Kellogg 44		Kellogg 45		Nuffield 2020		Nuffield 2021	
	IS#	Baseline	Iterative	Baseline	Iterative	Baseline	Iterative	Baseline	Iterative	Baseline	Iterative
Phase 1	1	28-Jan	27-Jan	5-May	3-May	24-Jun	21-Jun			28-Jan	28-Jan
	2		4-Feb		13-May		1-Jul				11-Mar
	3										
Phase 2	4		11-Apr		1-Aug		5-Sep				
	5		17-Apr		7-Aug		11-Sep				
	6										
Phase 3	7		10-Jul		23-Oct		27-Nov	3-Nov	3-Nov	3-Nov	3-Nov
Six months review	8		10-Jan-22					1-May-22	1-May-22	1-May-22	1-May-22

# Statistical software

Substantial effort in the previous months has gone into coding the statistical software to automate the analysis of each additional round of survey data. This work on automation is ongoing.

The goal is to stand up a largely automated system that will enable the Rural Leaders evidence base to continue accumulating into the future with before-after surveys, after the currently contracted study is complete.

The automation work will enable more statistical precision (which increases as a function of sample size) as future cohorts' baseline and exit surveys are added.



# Kellogg

We now have data from three Kellogg cohorts (Kellogg 43, Kellogg 44 and Kellogg 45), which provides a minimal viable evidence base.

There is a widely used rule of thumb in statistics that the minimum sample size should be 30, which we have now exceeded. The ‘strength of evidence’ in the evidence base we are building is quantified using the technical concept of ‘statistical power’.

As sample size increases in the future the evidence base we are building will give increasingly precise results with increasing statistical power’ to detect real gains in entrepreneurial-leadership skills.

To achieve statistical precision demonstrating that the gains in entrepreneurial skills that we have documented are genuine (and not random sampling error), we would ideally like to have several hundred Kellogg-cohort alumni.

With the current sample size now exceeding 30 individuals (who have completed responses across multiple points in time tracking how their entrepreneurial behaviour is changing), we can be increasingly confident that the results reported in the previous progress report showing significant gains in entrepreneurial-leadership capability are real and well distinguished from sampling error.

Thus, the strength of evidence we now have is already sufficiently powerful to be credible by the standards of international statistical science in identifying those aspects of entrepreneurial-leadership behaviour that have shifted the most as a result of the Kellogg programme.

The advantage of continuing to collect before-after surveys into the future is greater precision and, with that, the ability of the measurement instruments we are using to detect finer gradations of change, making it more likely that we find additional gains.

# Nuffield

A comprehensive survey of the Nuffield Scholarship Alumni Network was conducted in June 2021, recording the professional accomplishments of Nuffield alums, the number of senior leadership roles across different sectors of society they have served in, and alums' views on how they benefited from participating in the programme.



# Nuffield Alumni Survey

Invitations to 128 valid email addresses for alumni were sent in June 2021 and just over half responded. This achieved an unusually high participation rate despite the floods in the Canterbury region, which unfortunately coincided with the timing of email survey invites.

A more detailed report comparing alumni and current cohorts will be forthcoming in the months ahead.

# Initial Nuffield Survey Results

85% of alumni have started one or more businesses.

Nearly all alumni have created significant numbers of jobs and served in a large number of leadership roles.

The mean Nuffield alumnus has:

- started 3.3 businesses
- created 48.7 FTE jobs
- served in 14.0 senior leadership roles, which includes:
  - 2.5 NZ corporate boards or for-profit industry groups
  - 1.6 international boards or industry groups, and
  - 5.1 social/community/environmental organisations.

40.6% have served in government in an appointed or elected leadership role.

In the current alumni network with approximately 135 members, the number of leadership roles is approximately 2,000, which includes:

- 336 board roles in industry-specific or publicly-listed NZ enterprises (e.g. Fonterra, Zespri, NZ Merino, Synlait, CRT, Farmlands, etc.)
- 211 international firms or industry groups
- 302 other national firms/organisations, including industry good groups
- 346 regional/local firms/organisations
- 377 social/community organisations/initiatives, and
- 315 environmental organisations/initiatives.



# Further details

**Figure 1** shows the alumni network's wide age range ('year-of-entry' cohorts in five-year bands from 1965 to present).

**Table 1** shows qualitatively the multiple ways in which alumni say they benefited from the programme: "As a result of being a Nuffield Scholar, I was better able to..."

**Table 2** shows quantitatively the estimated counts of the numbers of different kinds of senior leadership roles (as bulleted above).

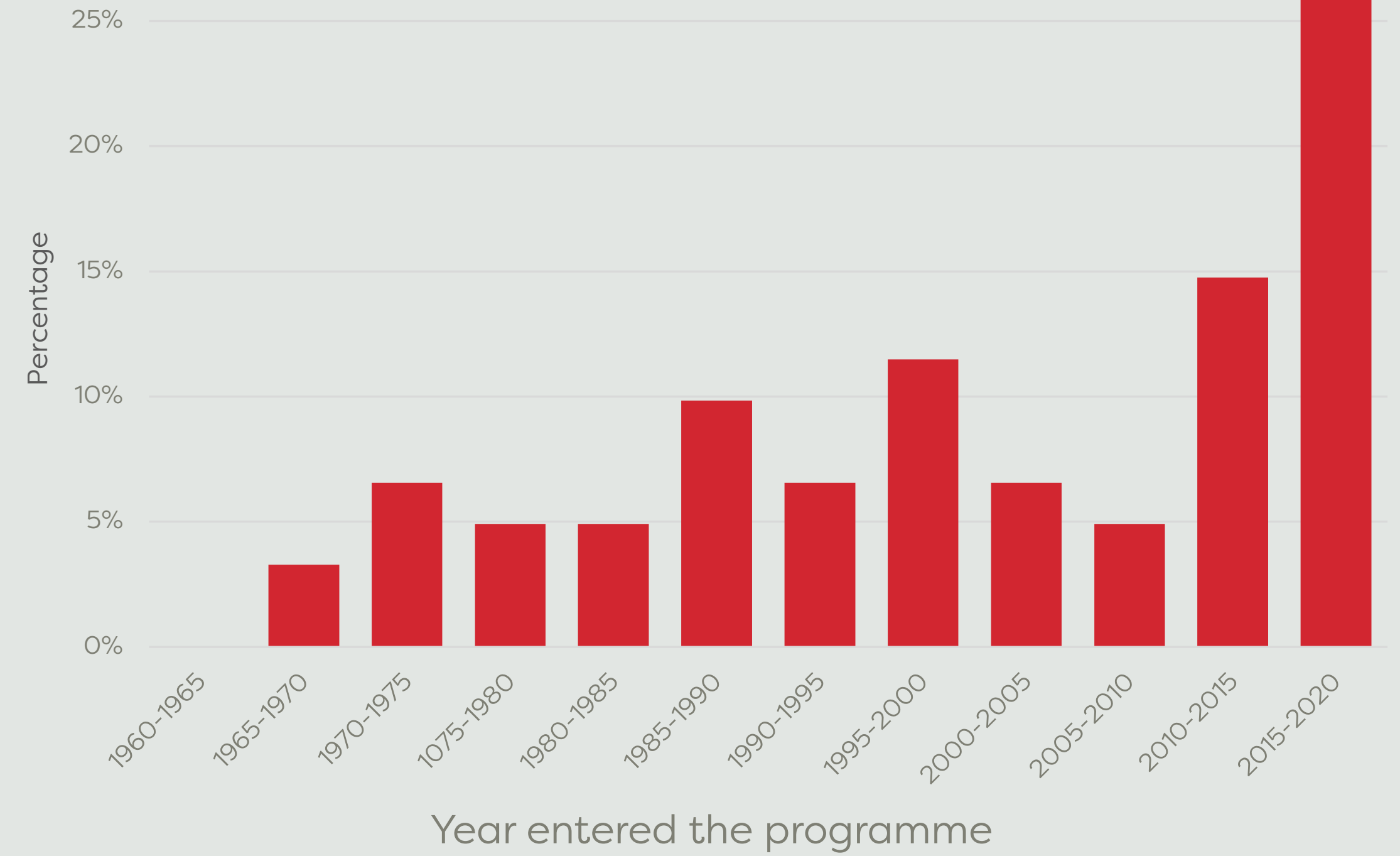
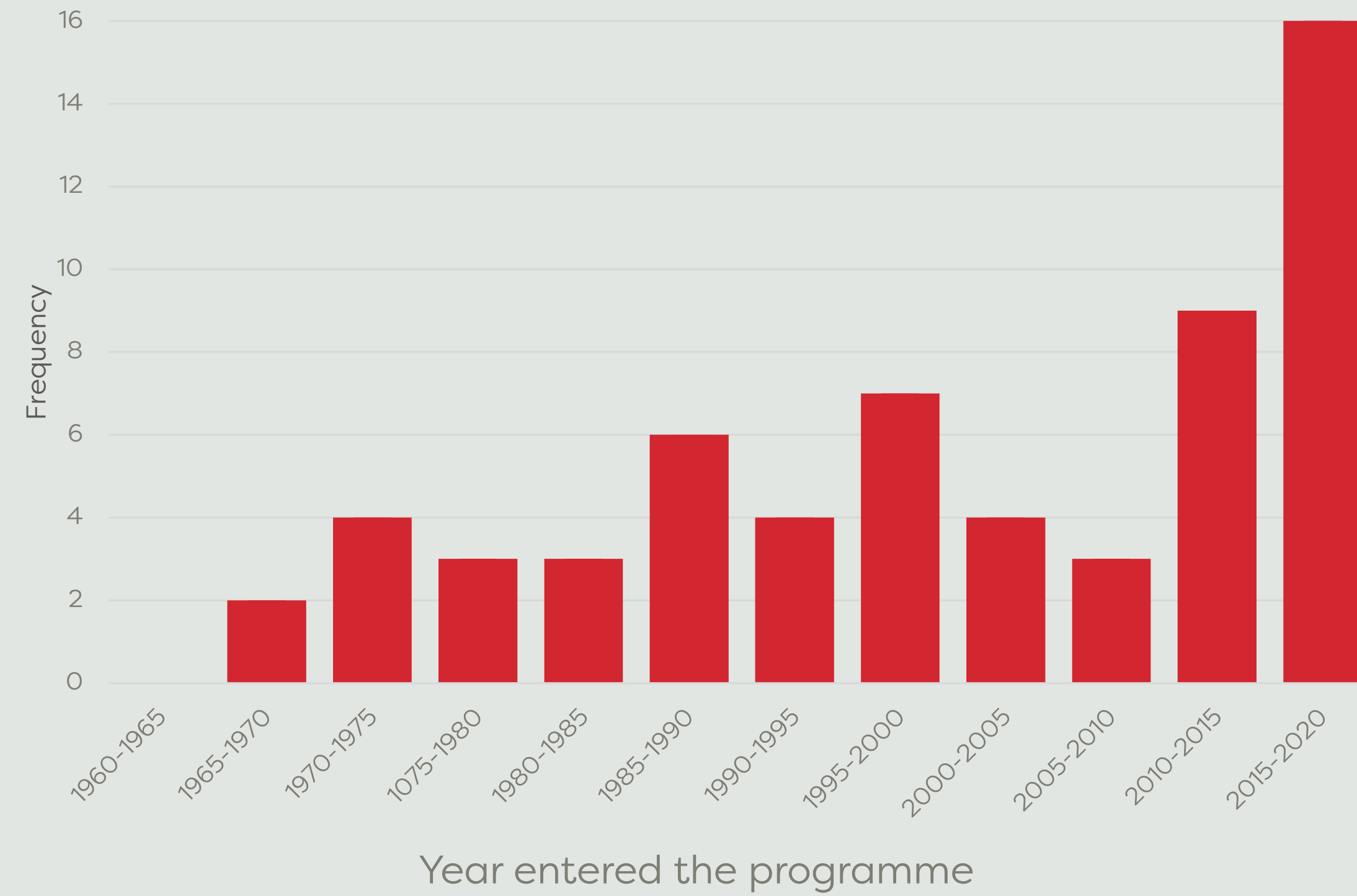
**Figure 2** shows the alums' remarkable entrepreneurial achievements in creating new businesses.

**Figure 3** shows the raw data on counts of the six types of leadership roles summarised in Table 2.

**Figure 4** shows the job creation count data.



**Figure 1:** Year Entered Programme in five-year bands starting in 1965. Frequencies (left) and percentages (right), N = 61



**Table 1:** As a result of being a Nuffield Scholar, I was better able to... (N = 59 respondents)

Variable description	Frequency	Percent
Improve my own farming systems and production	49	83.1
Create a new brand or product	17	28.8
Start a business	15	25.4
Start another type of organisation	18	30.5
Create jobs	22	37.3
Export to overseas markets	16	27.1
"Improve productivity in an organisation that I worked for (e.g. improve yields, product quality, revenue per full time worker, reduce waste, etc.)"	32	54.2
Expand my social network of people with high-quality information/expertise	55	93.2
Earn more money than I would have otherwise	22	37.3
Achieve greater overall wellbeing than I would have otherwise	39	66.1
<b>Total number ways they benefited cited</b>	<b>285</b>	
<b>Serve in a governance or leadership role...</b>		
on a corporate board or for-profit industry group	37	62.7
in an industry-good organisation	42	71.2
in a not-for-profit or charity organisation	35	59.3
in an education/training organisation	15	25.4
in another type of organisation	4	6.8
<b>Serve in government...</b>		
in an appointed or invited role	26	44.1
in an elected role	13	22
<b>Serve in leadership roles in local community organisations...</b>		
as a volunteer	35	59.3
as a paid consultant or employee	9	15.3
"Another thing I was better able to do as a result of being a Nuffield Scholar (e.g. Maori investment trusts)"	2	3.4
<b>Total number leadership roles of note</b>	<b>218</b>	

The mean number of ways in which Nuffield Scholarship alumni were able to do better than they would have otherwise (i.e. boxes selected in the table above) was 8.5 per alumni (503 among 59 respondents), which includes 3.7 different types of leadership roles per alumnus (218 leadership role types among 59 respondents). Note that this table does not count the number of leadership roles (shown on a later table), because many alumni serve in multiple leadership roles in a single category.

**Table 2:** Estimated counts of senior leadership roles of note in different sectors of society

Type of leadership role	Number of respondents	Total number of senior leadership roles served in sample	Number roles per alumnus/alumna	Projected total (sampled + unsampled) among current alumni network
Industry-specific or publicly-listed NZ enterprises (e.g. Fonterra, Zespri, NZ Merino, Synlait, CRT, Farmlands, etc.)	51	127	2.5	443.3
International firms or industry-specific organisations	39	61	1.6	278.4
Other national firms/organisations	38	85	2.2	398.2
Other regional/local firms/organisations	39	100	2.6	456.4
Social/community organisations/initiatives	48	134	2.8	496.9
Environmental organisations/initiatives	33	77	2.3	415.3
<b>Total leadership roles (excluding Government)</b>		<b>584</b>	<b>14</b>	<b>2488.5</b>

**Figure 2:** “How many businesses have you created?” Frequencies (left) and percentages (right), N=46

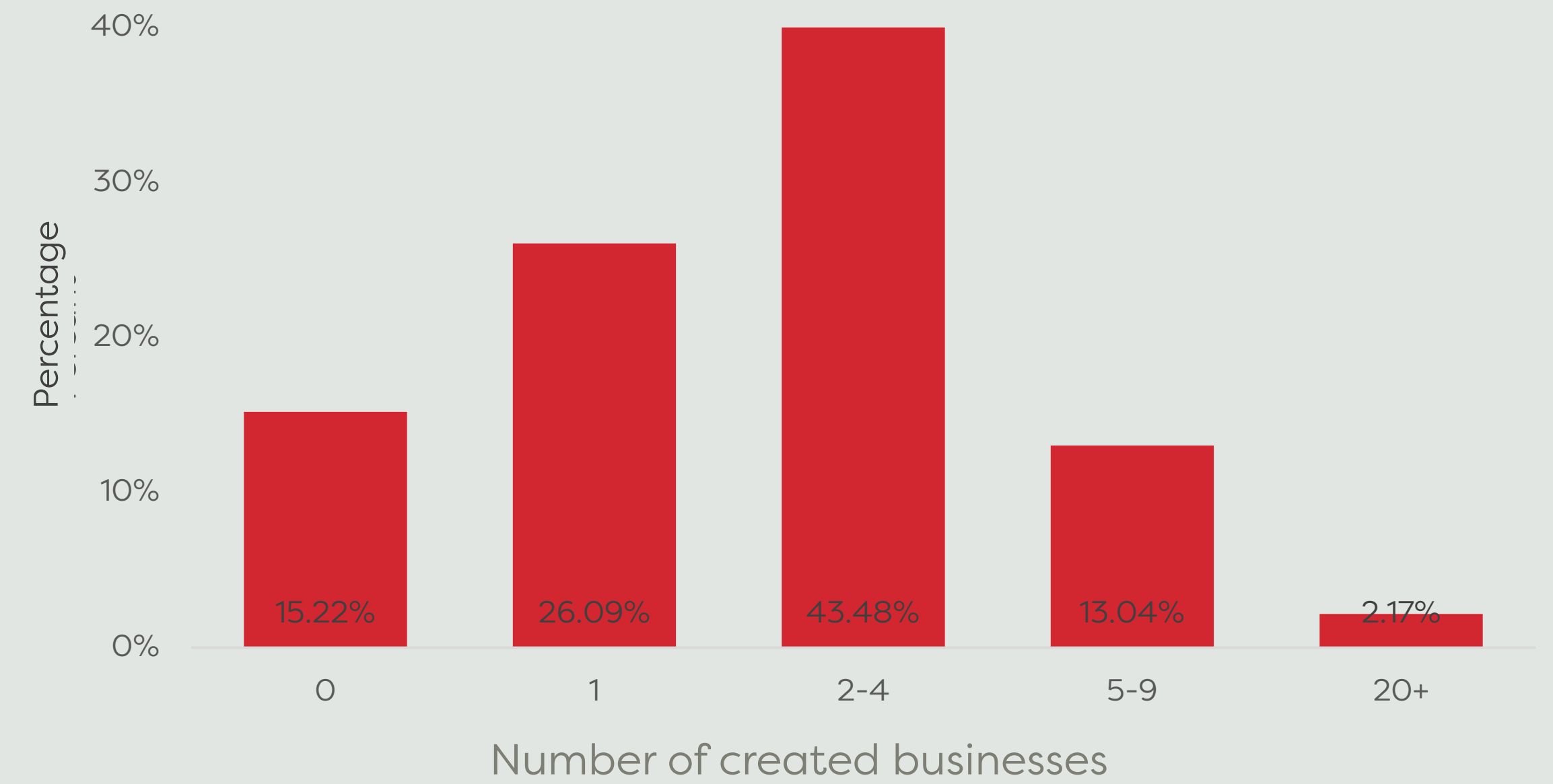
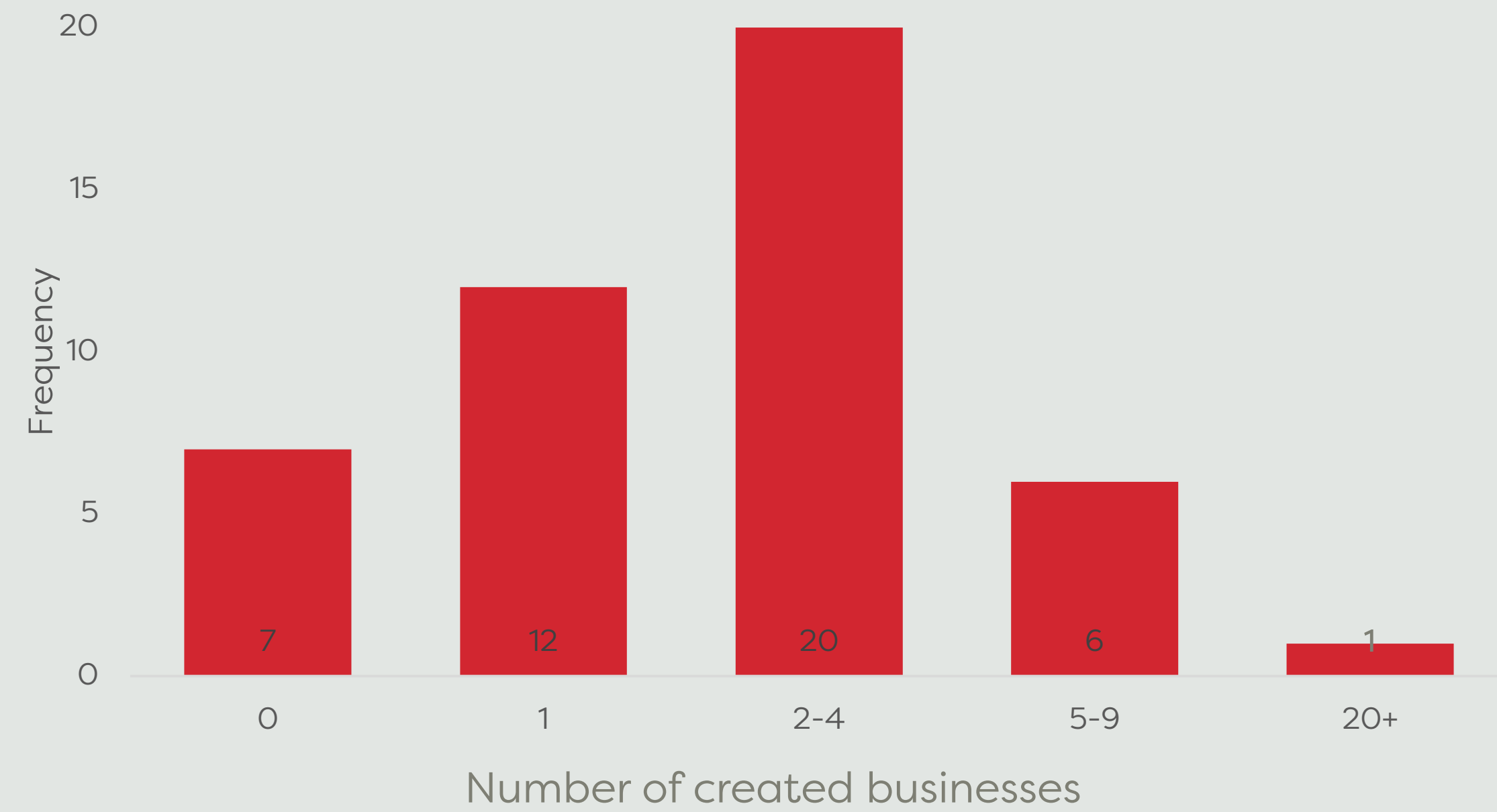
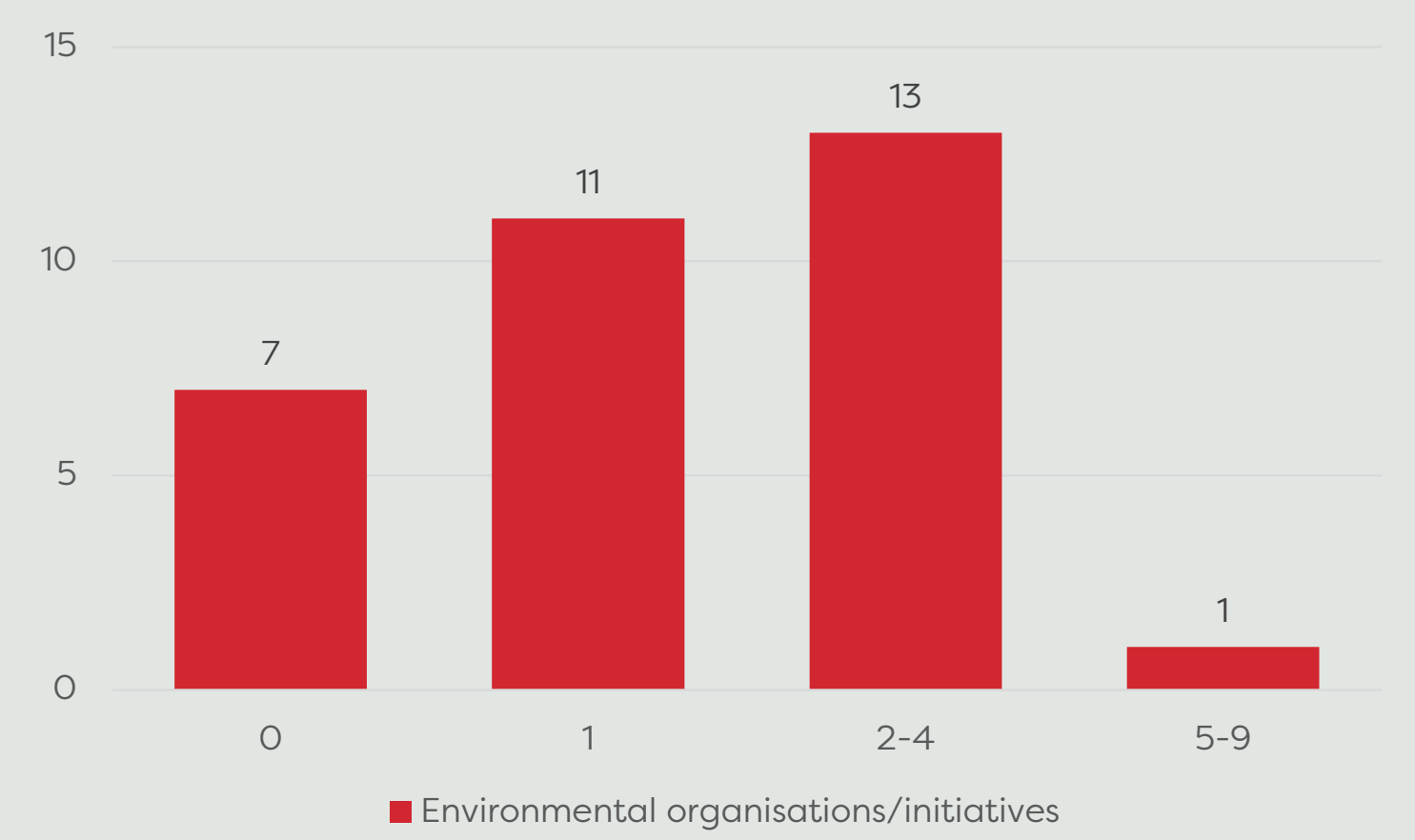
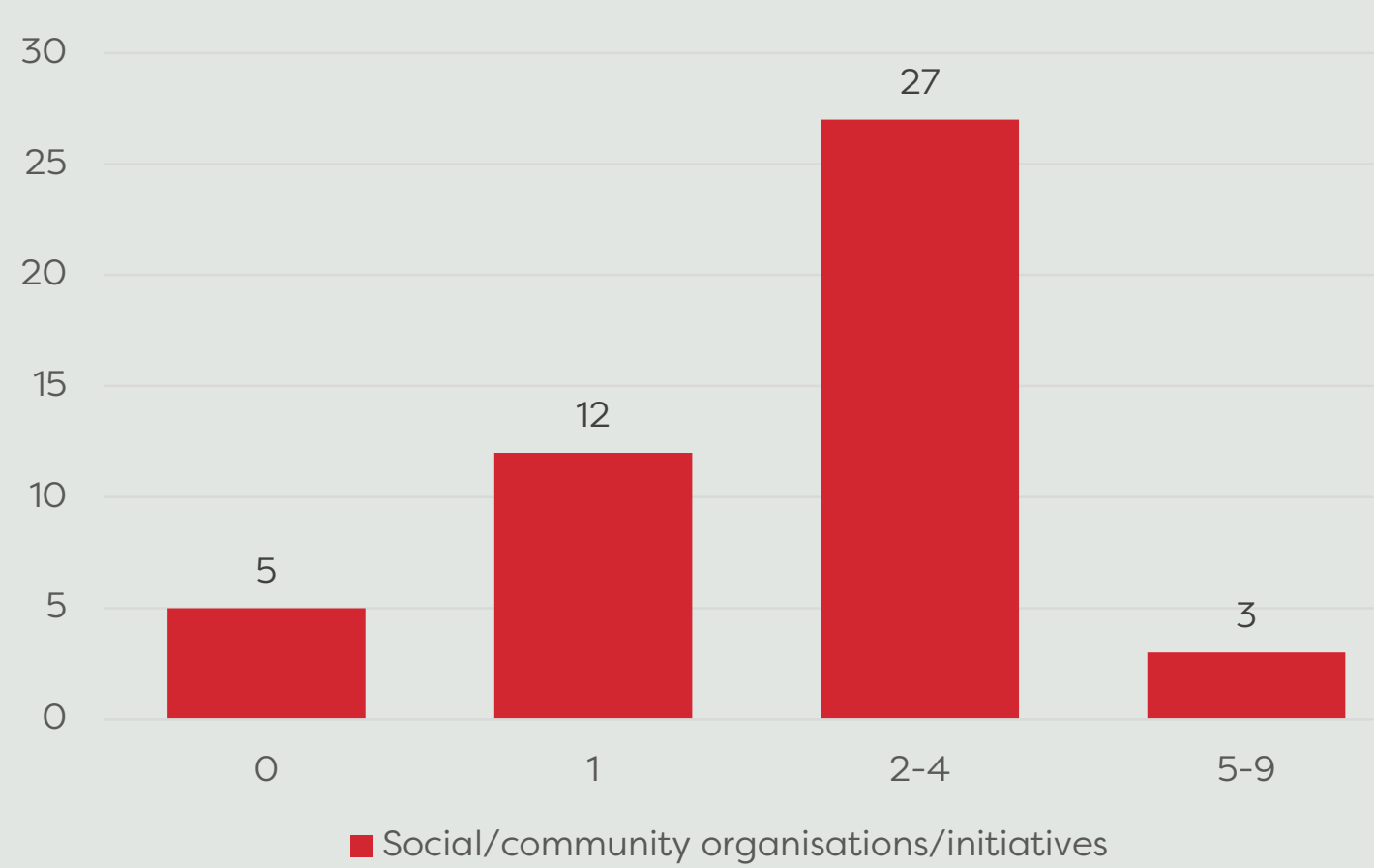
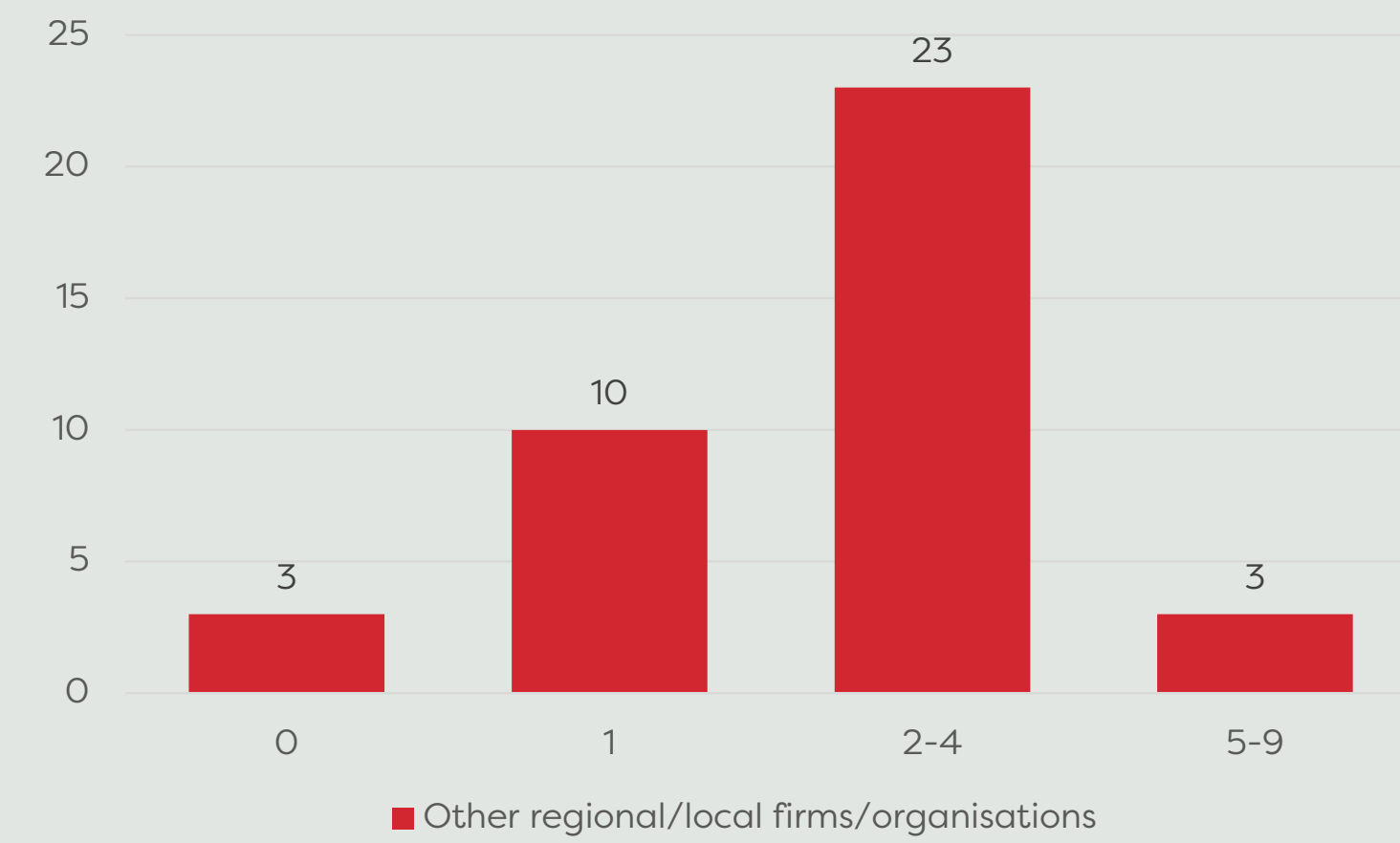
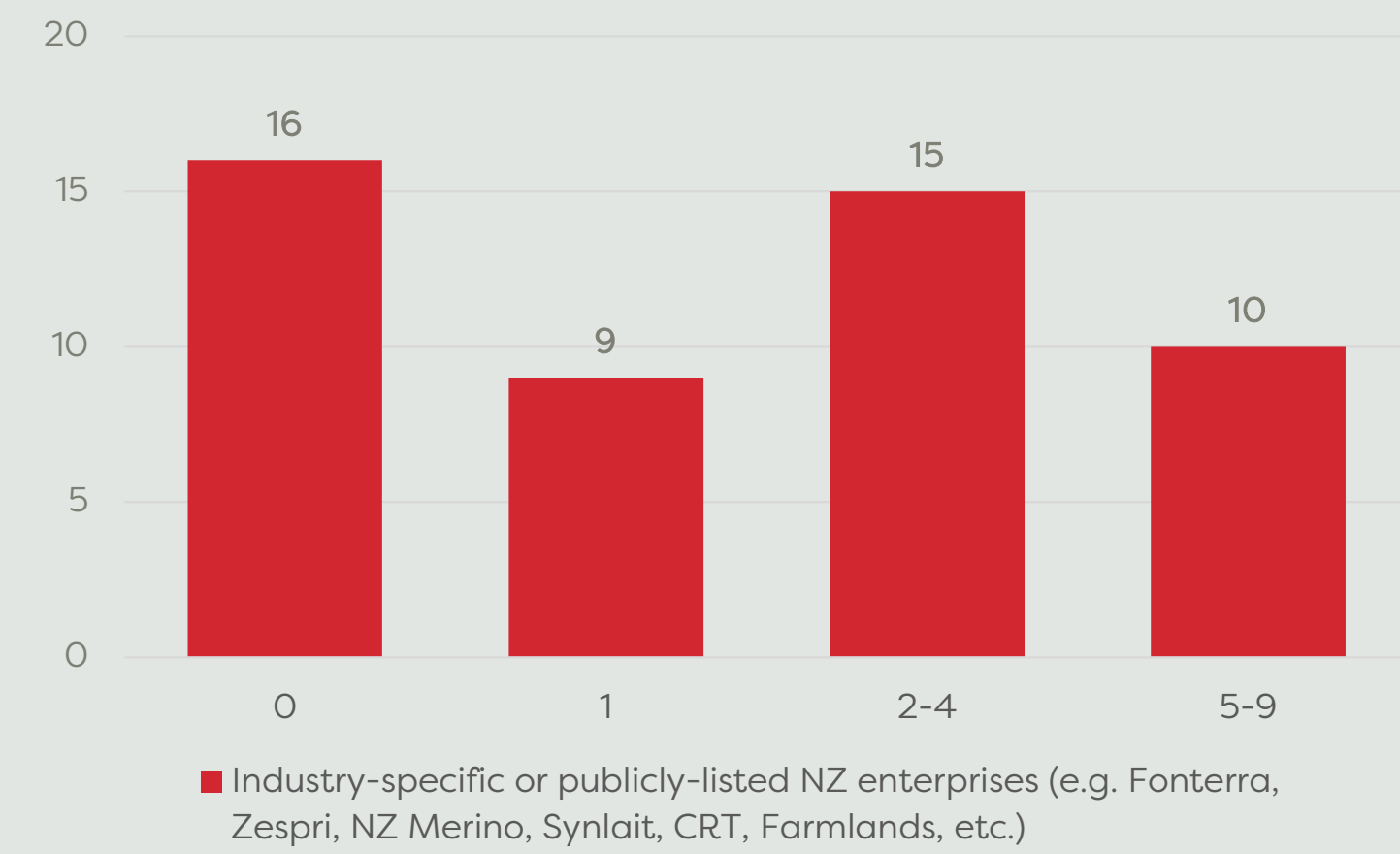


Figure 3: “How many governance and/or senior leadership roles have you had in....?”



# The results at a glance

## Alumni in business.

Each Nuffield Scholar creates an average of

**3.3** businesses.

## Alumni in governance.

During their career each Nuffield Scholar, on average, holds over

**4** board positions.

## Alumni serve NZ.

Of all Nuffield Scholars, over

**40%** have served in government leadership roles.

## Alumni create jobs.

Over their career each Nuffield Scholar creates an average of

**48** FTE jobs.

## Alumni lead.

Over their career each Nuffield Scholar serves in an average of

**14** senior leadership roles.

## Leading community.

Nuffield Scholars have served in

**692** community, social and environmental leadership roles.

# Summary

We are well on the way to building a world-class evidence base documenting the entrepreneurial capability building that takes place during the Kellogg and Nuffield leadership development programmes.

I believe this is a first-of-its-kind longitudinal study designed to rigorously compare each participant at multiple time points and thereby document within-person gains. In addition, statistical software is being developed so that the evidence base of before-after comparisons can be efficiently carried out and continued in future years.

Aspirationally, this will give New Zealand's Food and Fibre sector a world-leading insight into the art and science of building entrepreneurial capability.

During this reporting period we conducted our first alumni survey with the NZ Nuffield Alumni (128 invites). We have learned several ways to refine the survey and are currently working on clarifying the wording on several items before running a similar survey with Kellogg Alumni (over 900 members).

The results from the NZ Nuffield Alumni are remarkable. The average Nuffield alum has started 3.3 businesses, created 48.7 FTE jobs, and served in 14.0 senior leadership roles. Over 40% of Nuffield alum have served on government appointed or elected leadership roles. Since the inception of Nuffield New Zealand, 178 Nuffield alumni have served in an estimated 2,488 leadership roles (other than government roles).

This is an impressive contribution. We look forward to investigating similar kinds of economic, social, and environmental contributions by Kellogg alumni later this year.