

# Correspondence between Math and Math Literacy Scores

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20 February 2020

Resep Conference on Education Research

# Context and motivation for research



There is a serious shortage of skilled labour in South Africa.

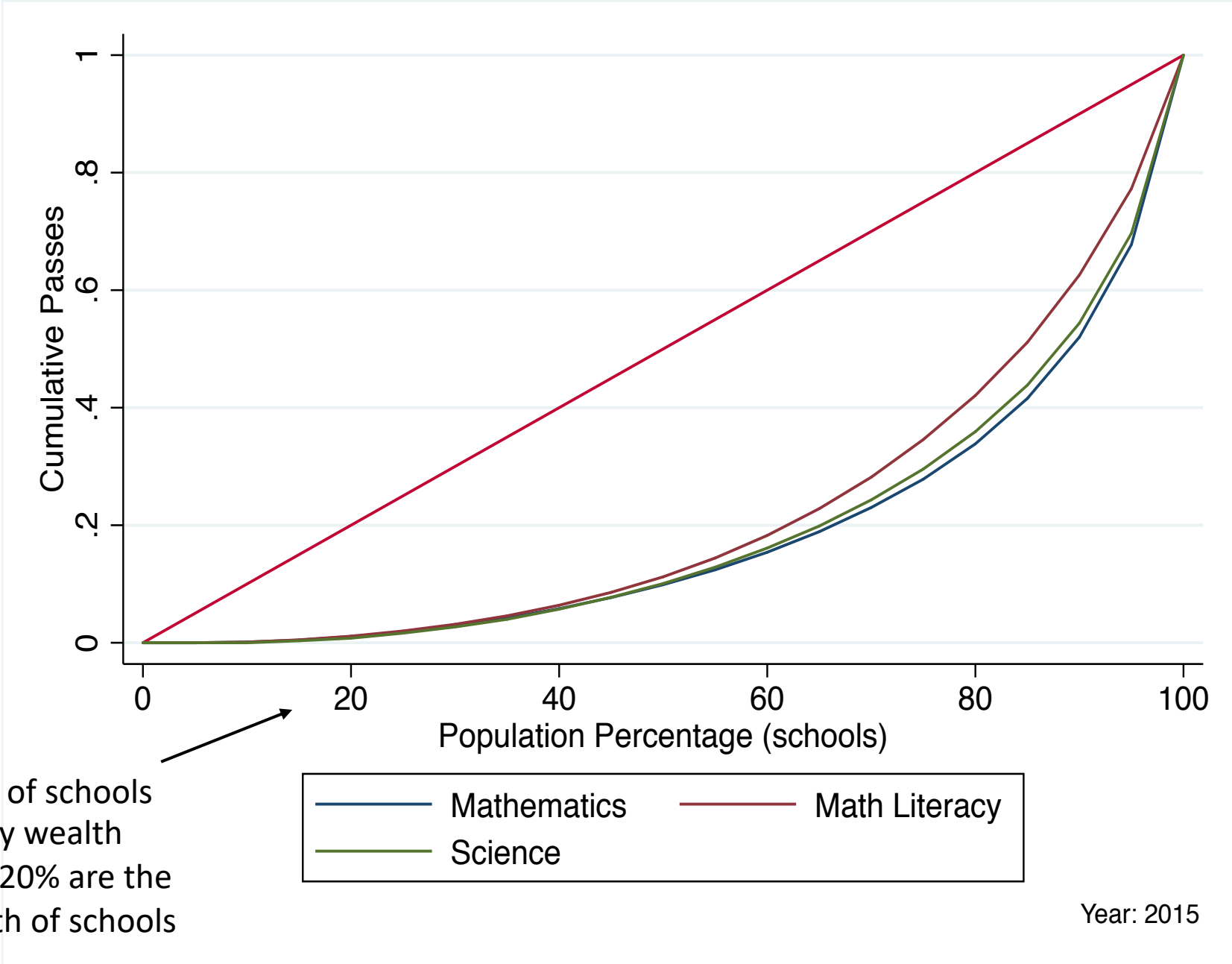


Inequality in educational outcomes

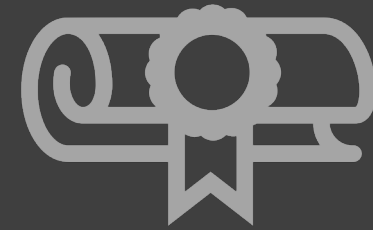


Specifically, inequality in math and math literacy outcomes

# Inequality in Math and Science Results



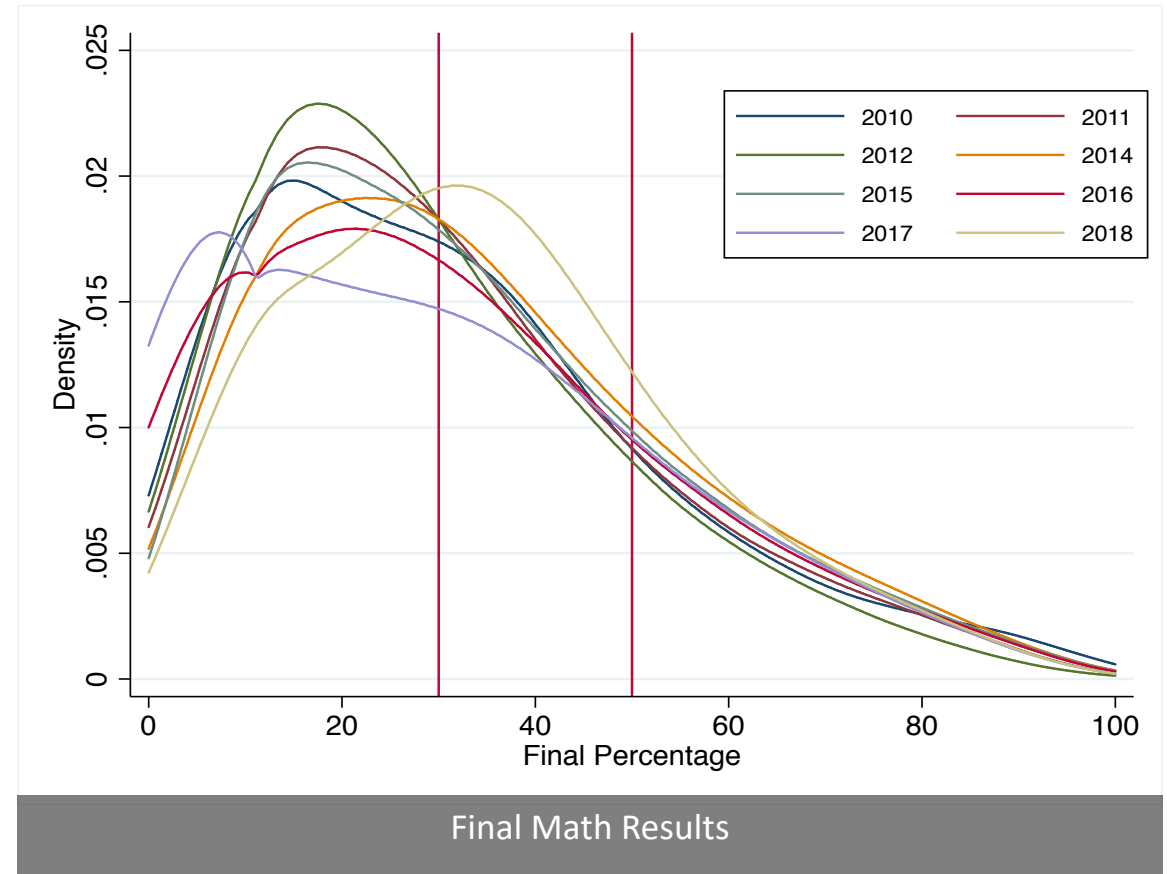
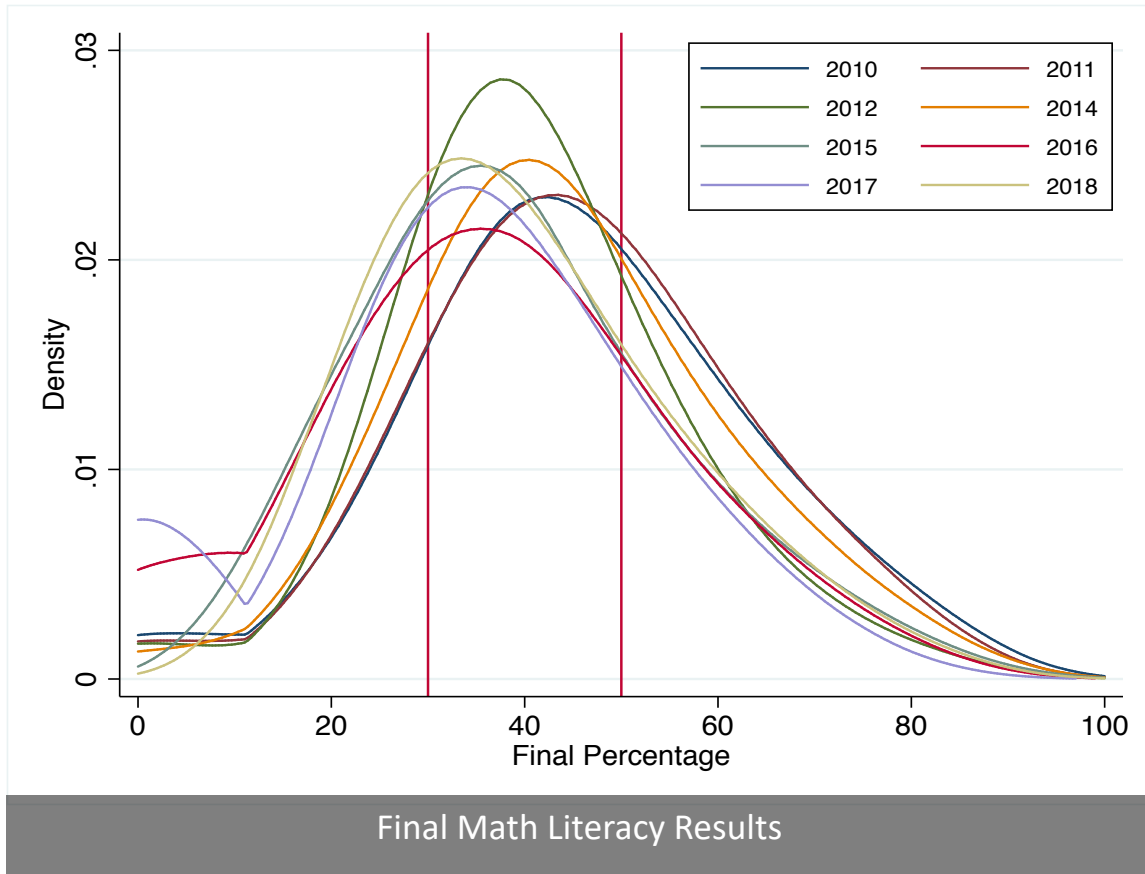
# Research Questions



What is the correspondence  
between Math and Math  
Literacy scores?

How many more potential math  
passes would there have been?

# Distribution of Math Results



	2018	2015	2010
<b>MATHEMATICS</b>			
<b>Total Math Pass (30%)</b>	170 359	127 812	128 138
<b>Pass rate</b>	63%	49%	47%
<b>Total Math Passes (50%)</b>	87 290	56 991	50 582
<b>Pass rate</b>	32%	22%	18%
<b>MATH LITERACY</b>			
<b>Total passes (30%)</b>	257 787	273 761	242 283
<b>Pass rate</b>	75%	71%	83%
<b>Total passes (50%)</b>	123 038	102 069	114 025
<b>Pass rate</b>	35%	26%	39%

The Current State of Math Results

# How do we Improve Math Results?



Improve resources, teaching methods and other inputs



Improve the matching of students to subjects for which they have a higher aptitude

# Data



MATRIC RESULTS FOR ALL  
STUDENTS WHO WROTE  
MATRIC IN 2010 – 2018,  
EXCEPT FOR 2013



THE RESULTS FOR  
EACH SUBJECT AND  
STUDENT



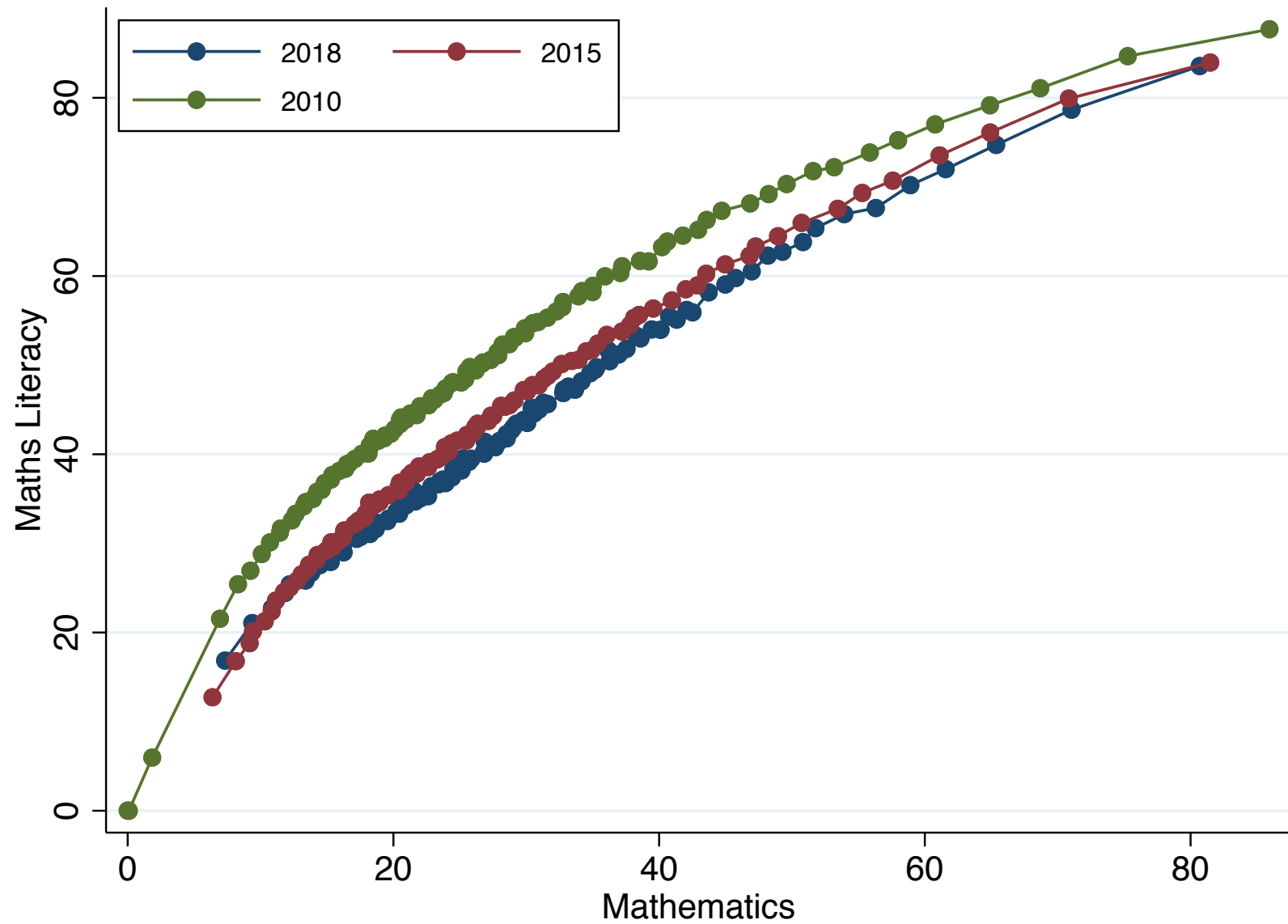
CONSTRUCTION OF  
CORRESPONDENCE  
SCORES AND CURVES



# Correspondence Scores

Math 2008	Math literacy 2008	Math 2010	Math Literacy 2010	Math 2015	Math Literacy 2015	Math 2018	Math Literacy 2018
13	30	13	35	13	27	13	26
19	40	19	42	19	35	19	32
26	50	26	49	26	42	26	40
30	54	30	54	30	47	30	44
36	60	36	60	36	53	36	50
40	64	40	63	40	56	40	54
47	70	47	68	47	63	47	61
50	72	50	70	51	66	51	64
54	75	53	72	55	69	54	67
60	78	61	77	58	71	59	70
62	80	65	79	61	74	62	72
66	82	69	81	65	76	65	75
70	84	75	85	71	80	71	79
80	86	86	88	81	84	81	84

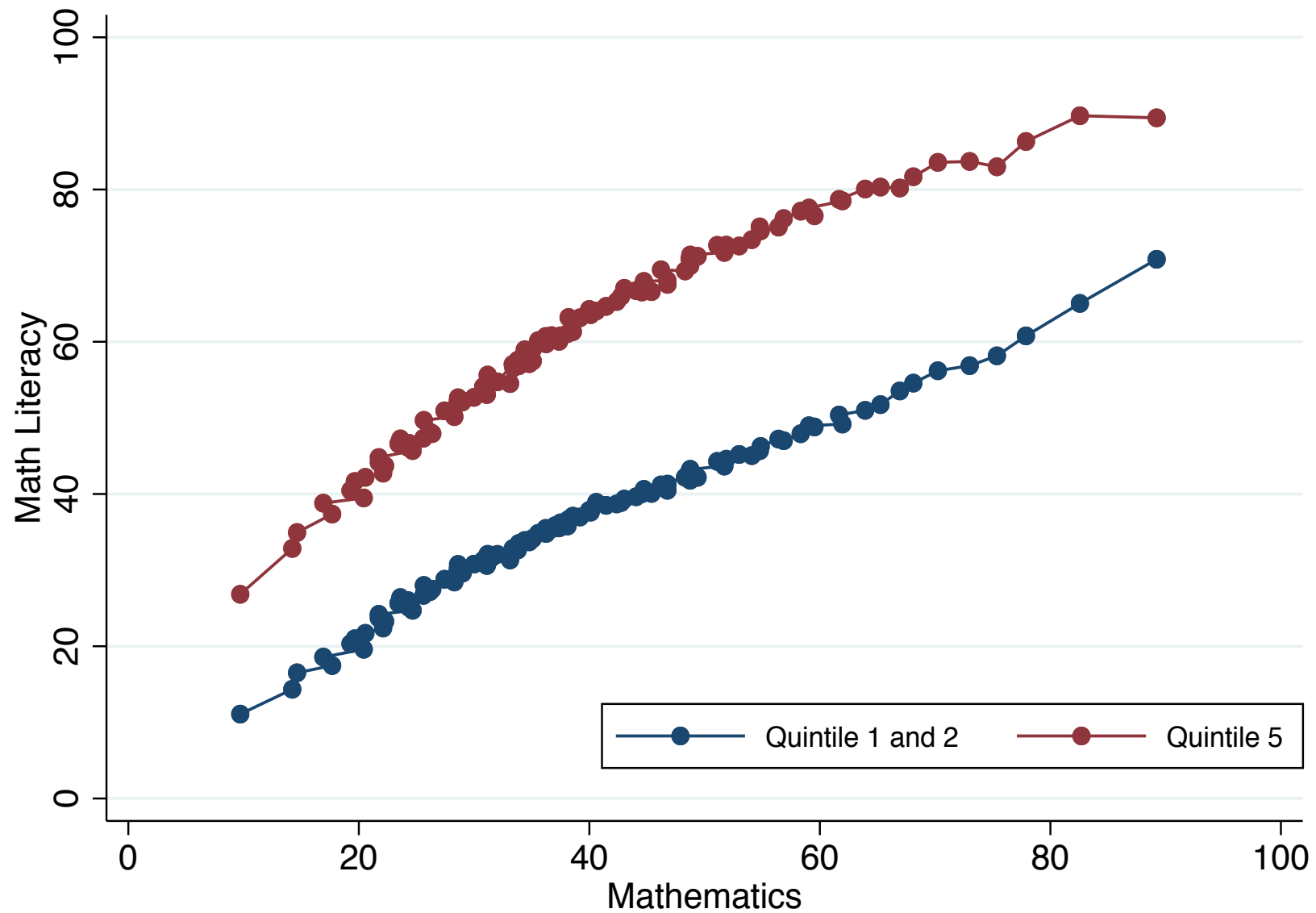
# Correspondence Curves



	2018	2015	2010
<b>PROJECTIONS</b>			
Extra Math Passes (30-50)	86 930	84 764	66 860
Proportion extra	32%	33%	24%
Extra math passes above 50	74 917	36 085	24 089
Proportion extra	27%	14%	9%
Would have passed math lit	54 243	69 950	98 254
Proportion extra	15%	18%	34%
Total students	624 734	639 481	561 904

## Estimation of Potential Passes

# Correspondence Curves



Year: 2015

# Discussion

- Raise Matric pass rates, with no additional cost
- Greater number of students who have passed mathematics
- But, students must still be able to choose for themselves

