

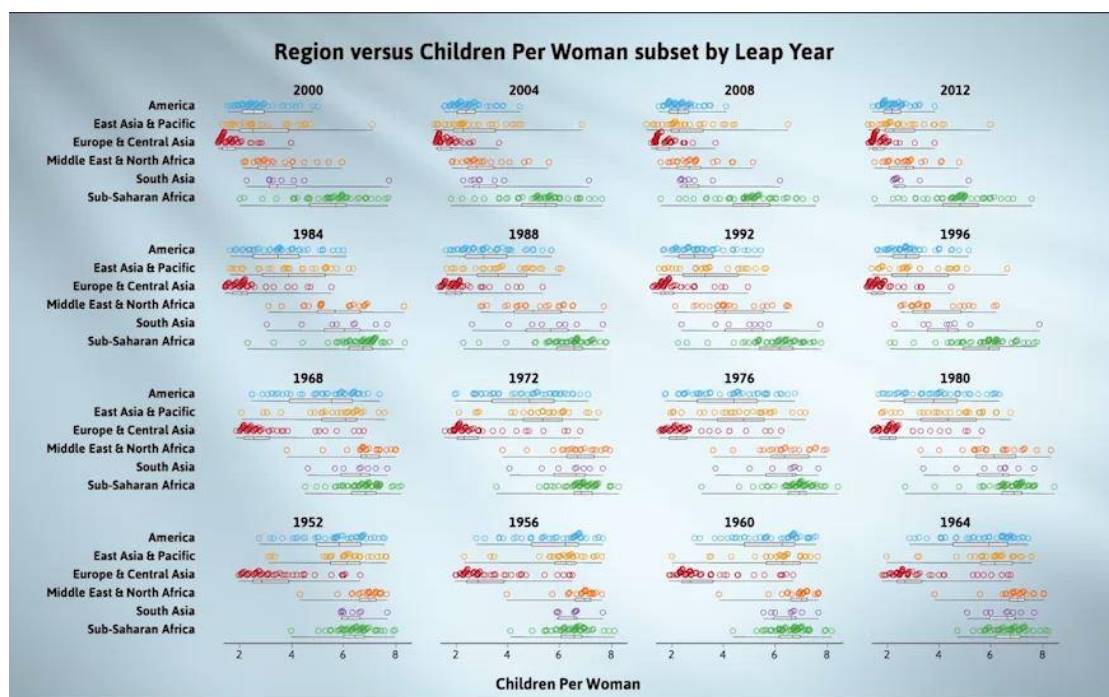
DATA TO INSIGHT: AN INTRODUCTION TO DATA ANALYSIS

THE UNIVERSITY OF AUCKLAND

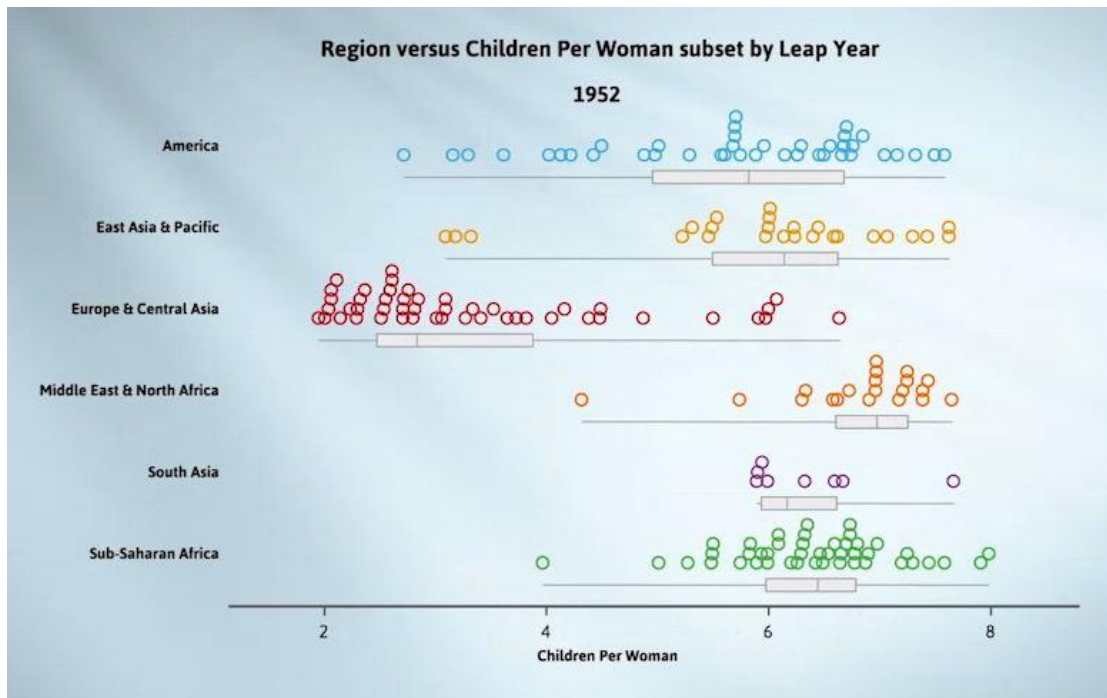
WEEK 2

2.14 TIME TRAVEL

Hi again. In the last video, we looked at regional differences in fertility in the most recent year that we have data for, 2012. But the most interesting story with this data comes from watching how Children Per Woman changes over time. Here we have separate graphs for every four years from 1952 to 2012.



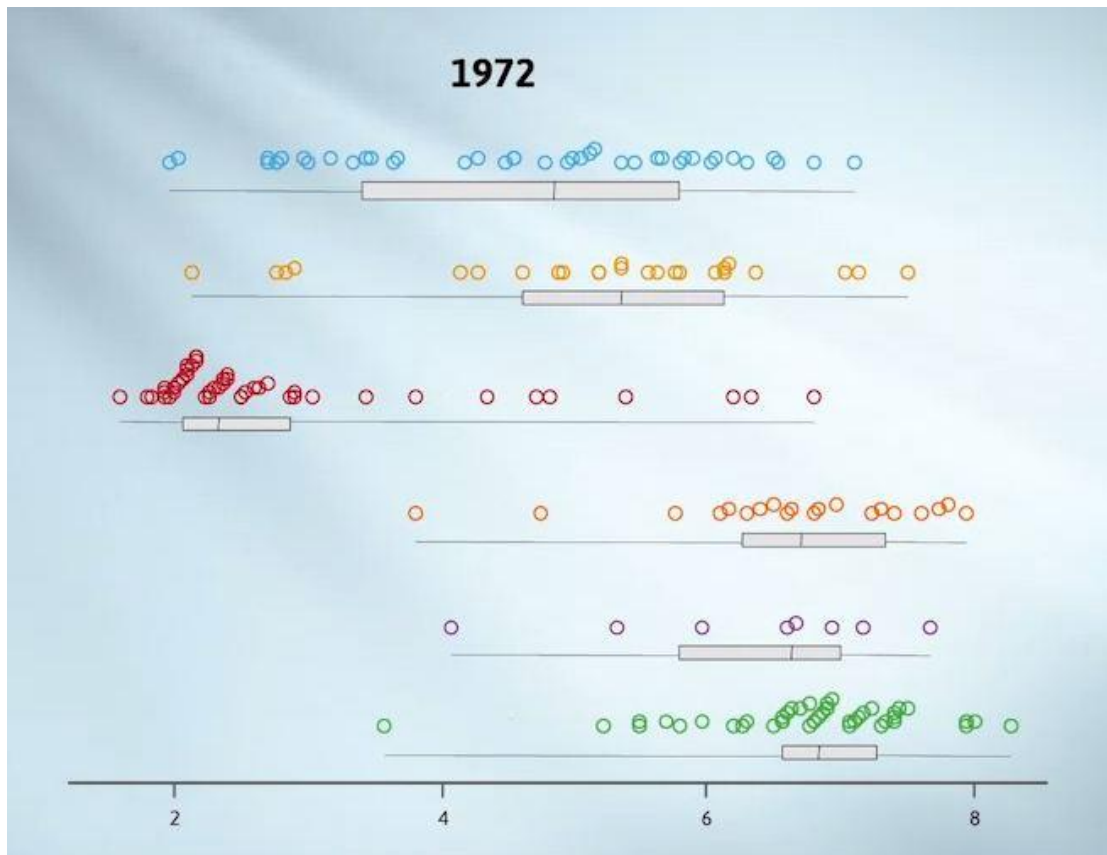
It's a little complicated to read all at once. We'll step through these graphs one at a time.



The earliest year we have in this data set is 1952. Back then, all regions except Europe and Central Asia were centred at above six children per woman with Europe and Central Asia centred down at just under three.

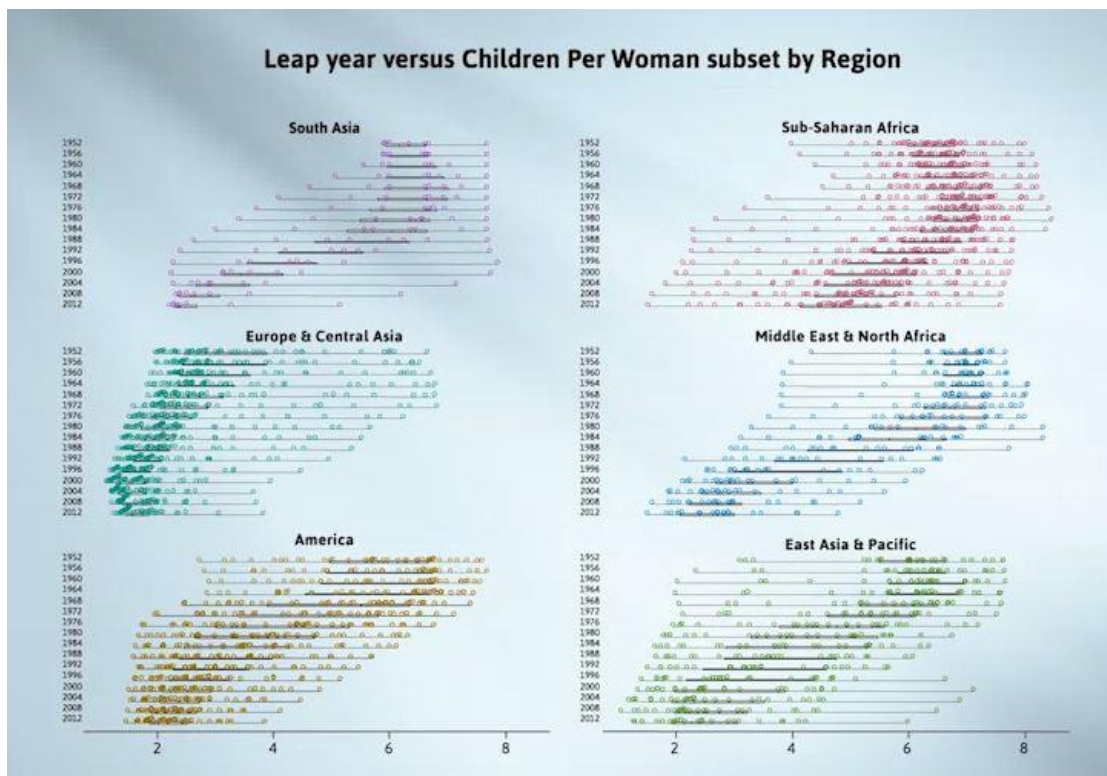
Now we'll watch the world change over time. Did you notice how everything gradually shifts to the left toward smaller fertility rates? By 2012, every region except Sub-Saharan Africa is centred well below three. Remember we started at over six. And even Sub-Saharan Africa has come down quite a bit.

Let's play it again.



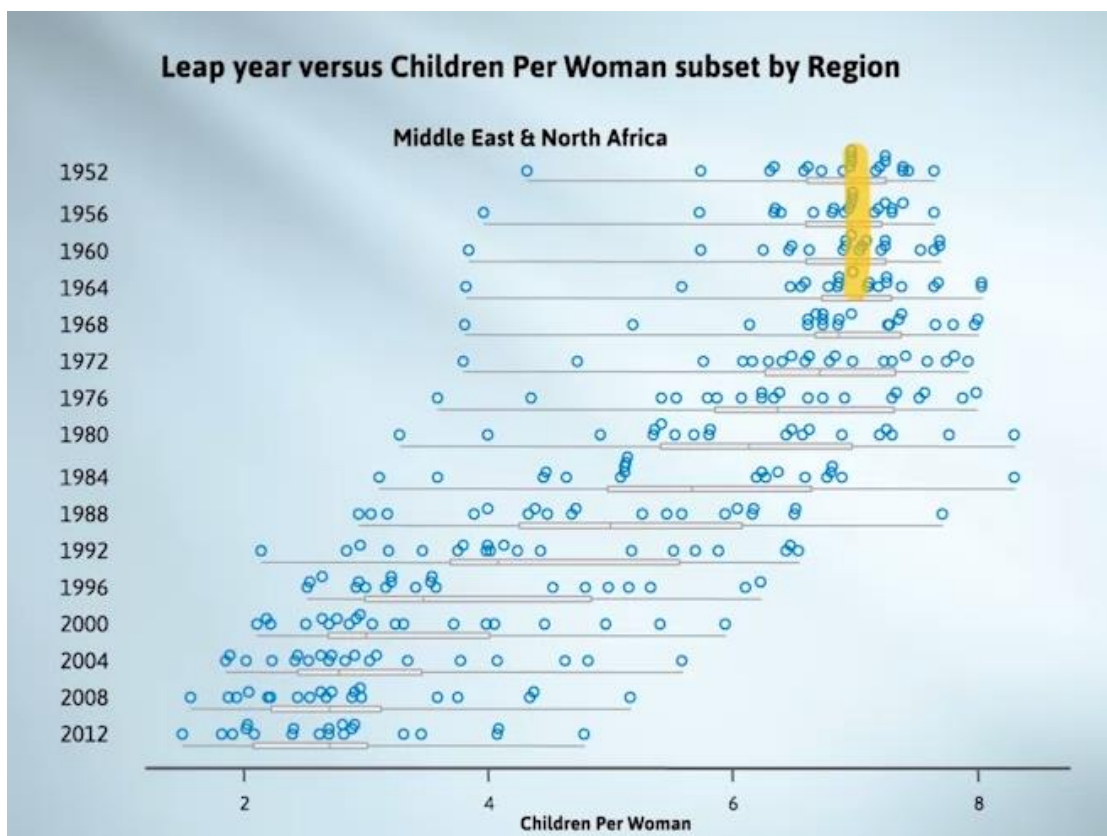
If I try really hard, I can see this shift to the left over time in the full set of plots, but it's really hard work, whereas the dynamic changes I get from viewing them serially make it pop into my attention.

When did all these changes in Children per Woman happen? Well, we can tell quite a bit if we reverse the roles of region and time.



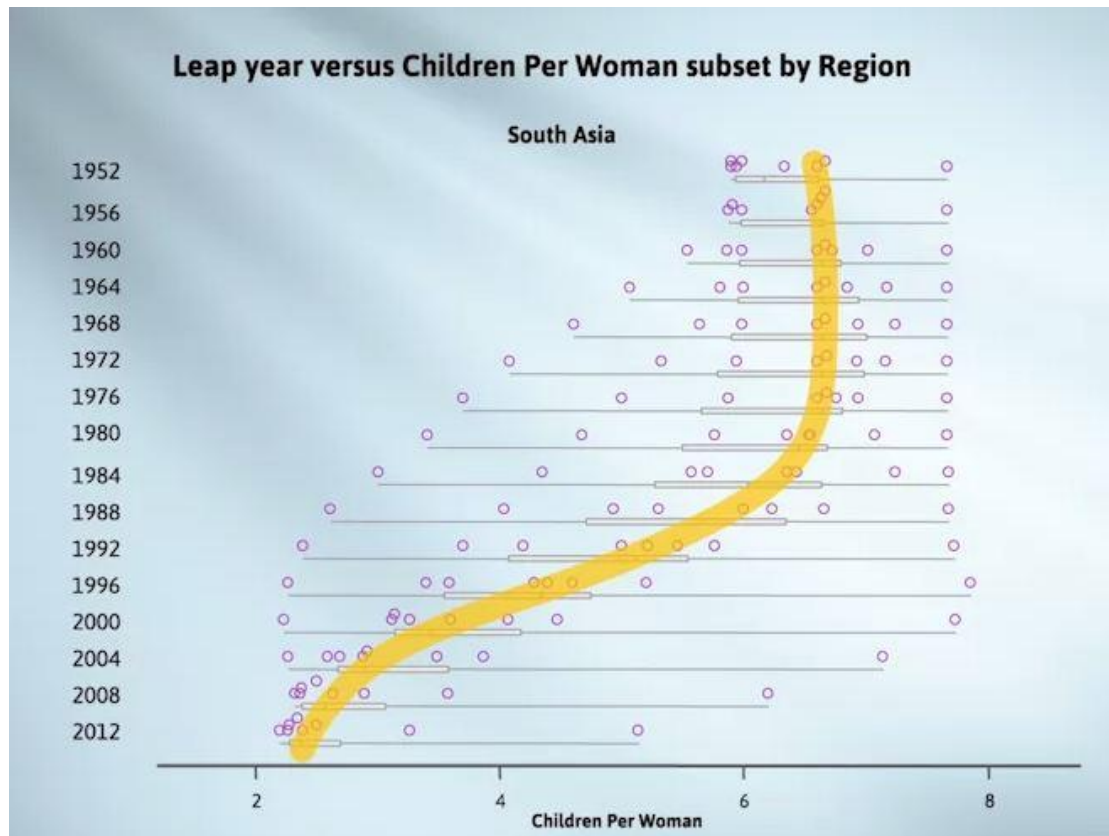
Here I've set up my graphic so that we're looking at Children per Woman broken out by a categorical version of year and look at this separately for each region.

I'll start by looking at Middle East and North Africa.



There's very little change between 1952 and about 1964. They're all centred at about the same value. They're sitting pretty much in a vertical column over the same scale values. But from 1968, the boxes start to shift to the left to smaller and smaller fertility rates.

Very recently the change seems to have slowed down, perhaps even stopped.



There's a very similar pattern for South Asia, but the slide to the left seems to have started a little later at about 1980, and there is no sign that it has stopped. The same basic pattern is repeated in region after region.

Europe and Central Asia had less far to go but in recent years are showing signs of a slight rise again. We've got all of this using two simple ingredients, one the ability to compare groups using dot plots and two the ability to look at subsets of units defined by a third variable. Here the groups were years and we subsetting over regions.

Previously the groups were regions and we subsetting over years. This is the last video for week two. I hope you've been finding time to do the exercises and quizzes that reinforce the ideas we've been building over the week and enable you to develop practical skills. See you again next week.

