Garments and Female Labor Force Participation, Fertility and Education

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Research question

To what extent did the labor demand shock in the form of opportunities in the garments industry

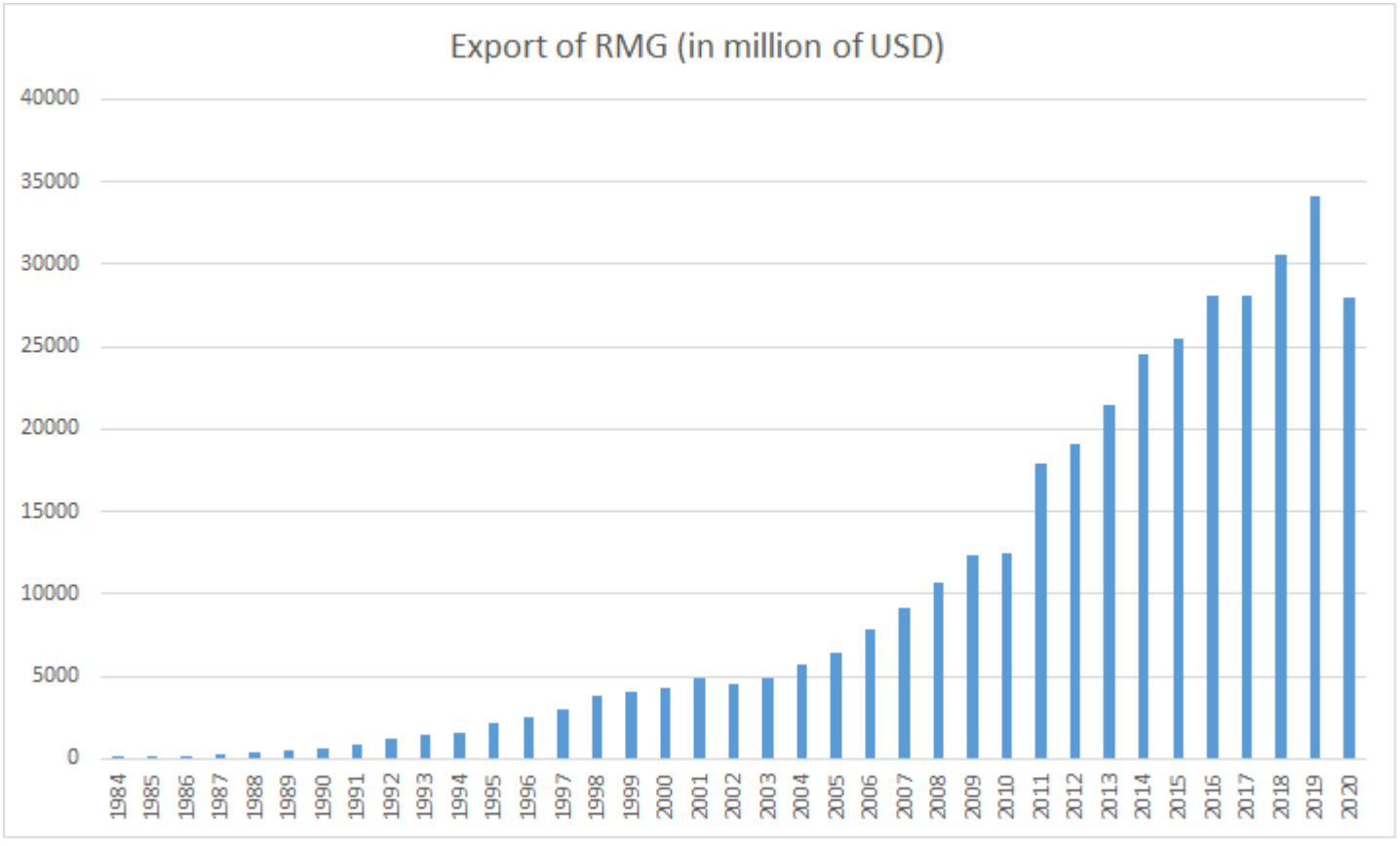
i) change female labor force participation,

ii) education, and

ii) female fertility?

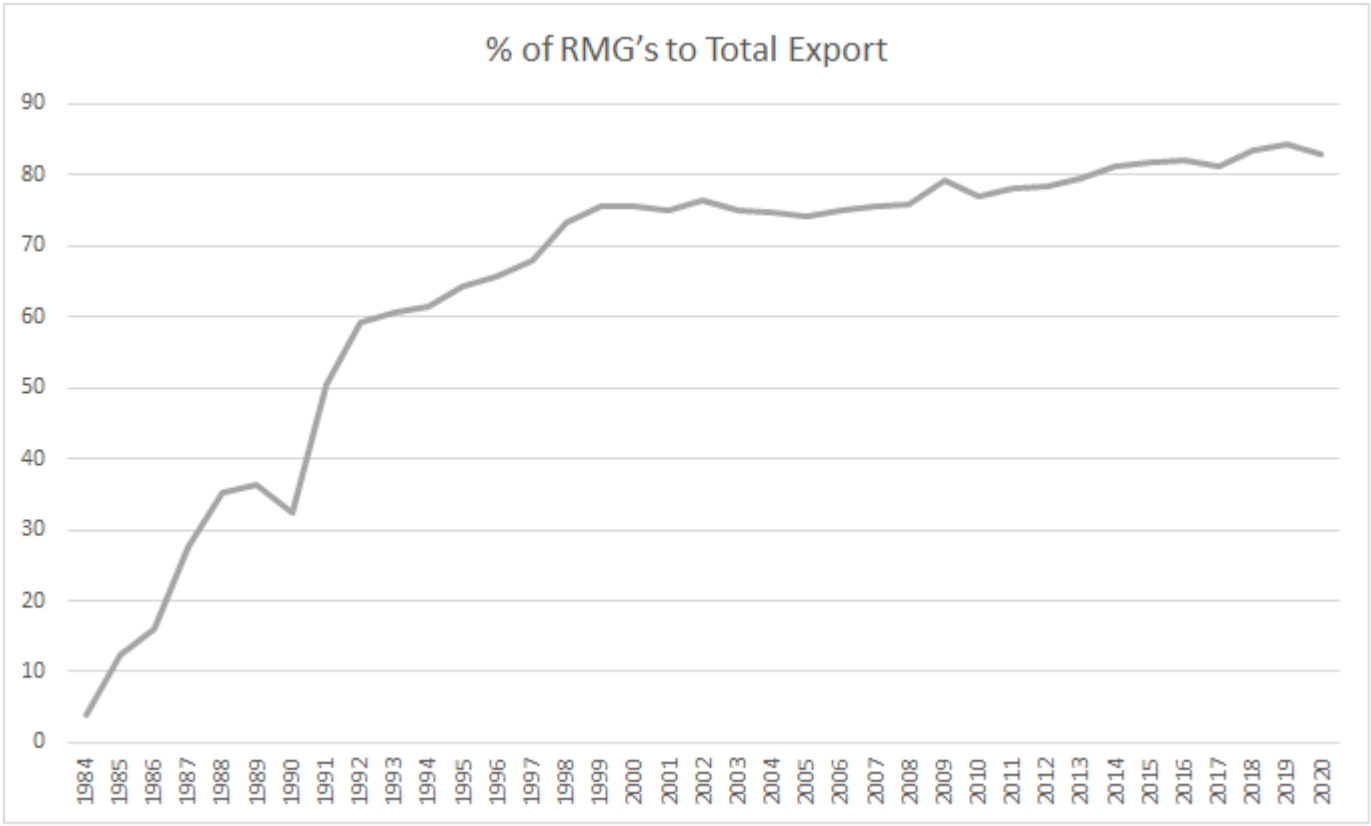
- Data permitting, I will also look at marriage age, marriage formation rates and divorce rates.

Rise of Garments in Bangladesh



Source: BGMEA

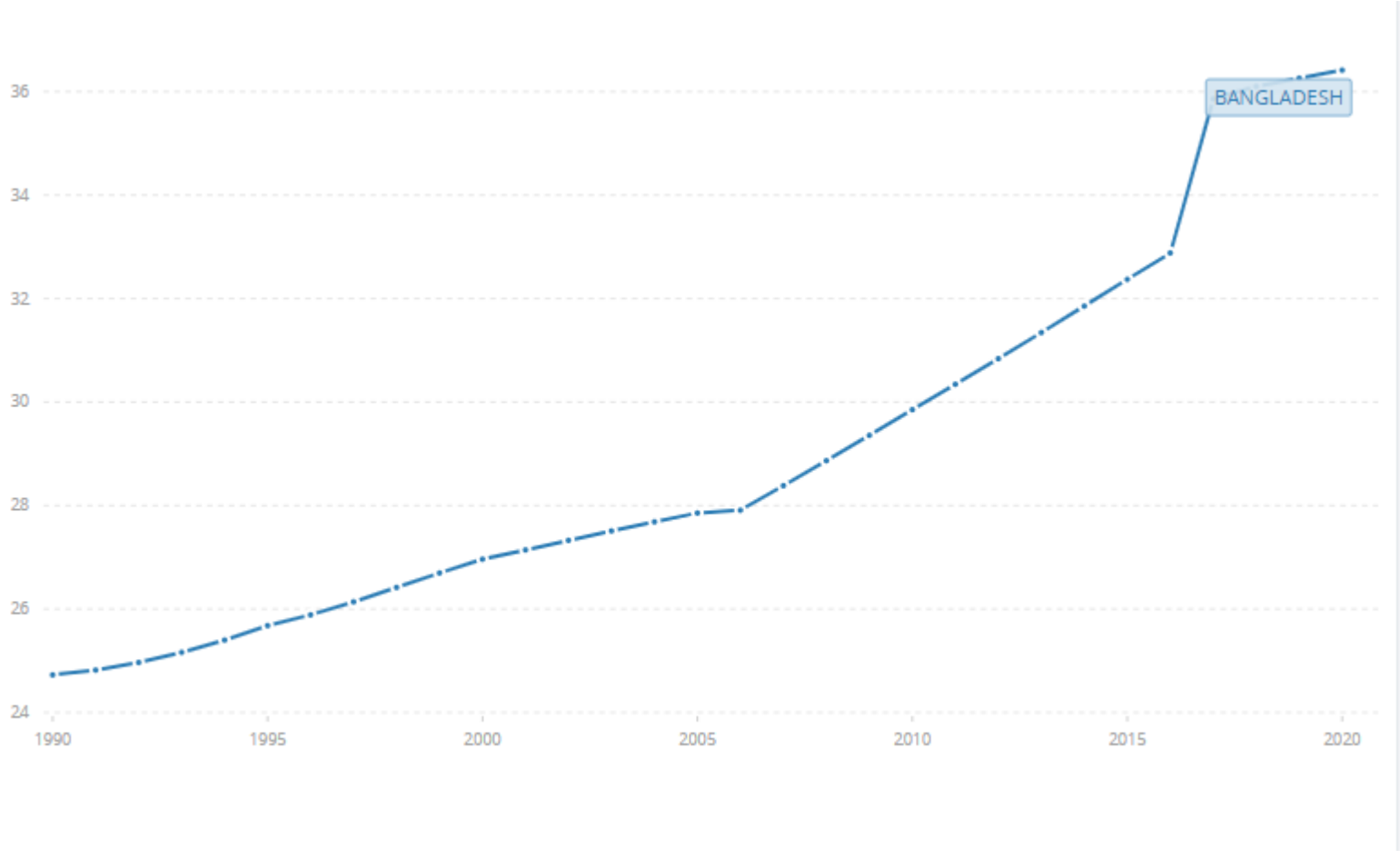
Rise of Garments in Bangladesh



Source: World Bank

Women at work

FLFPR (Percetage 15+)



Source: World Bank

Women in work

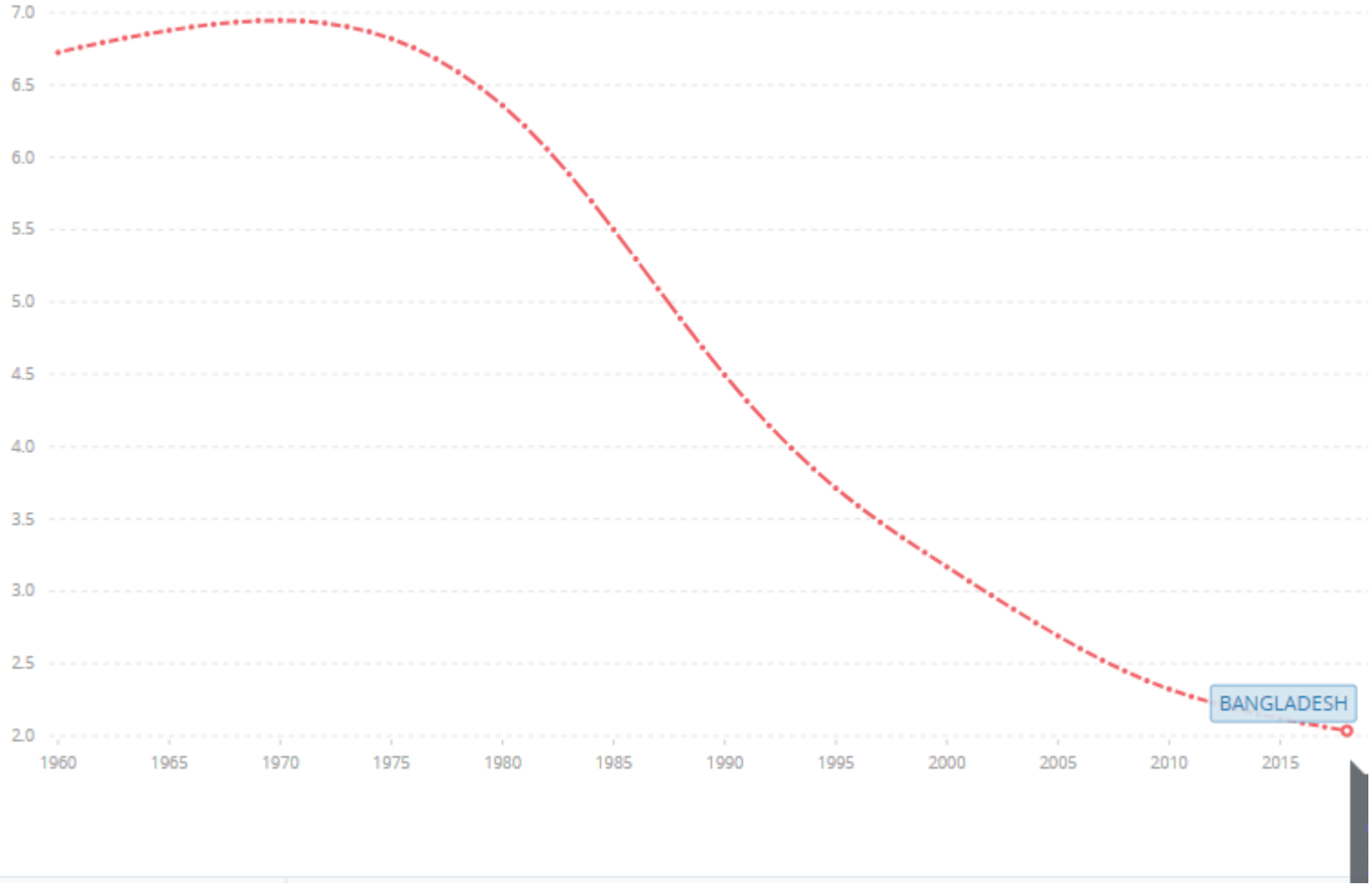
- Labor force participation is about 49% in 20-24 cohort (ADB 2016)

Women in RMG

- About 60% - 80% of workers in RMG industry are women (World Bank, 2017, ILO, 2020).
- This is about 4 million of women using the lower estimate.
    - 20% of female labor force participation comes from RMG (my estimates).

Fertility rates

One of the sharpest declines in fertility rates



Women in school

Lower secondary (about middle school) completion rates in total female population completion rate of **4.4% in 1981** to **41% in 2019.** (World Bank, 2020)

Literacy among **15-24 age group exceeds 96 percentage in 2019.** (World Bank, 2020)

Did not present in graph due to unavailability of data across all years.

Prior research

Heath and Mobarak (2015, JDE)

- Survey of 1395 households in 60 regions, 44 in garments commuting zones 16 away
- Three identification strategy
  - Girls in villages in the same sub-districts that are further away from factories, (parallel pre-trends)
  - Before and after of garments move
- They find that girls exposed to the garment sector
  - Delay in marriage and childbirth (Decline in fertility)
  - More likely to be enrolled in school
  - Older girls becoming more likely to be employed

Metholodology

Summary

The steps in this research are:

- Define regions (commuting zones ?)
- Use Demographic Health Survey (DHS) data, along with their cluster co-ordinates
    - Estimate values in the regions
- Collect location of garment factories, geo-code them
- Use regression to measure the impact of labor demand shock on variables of interest in different regions with variable rates of exposure to demand shock (could be zero).

Methodology

Specification

$$\Delta Y_{it} = \alpha_t + \beta_1 \, WLDS_{it} + X'\beta_{-1} + e_{it}$$

- Where ΔY_{it} are the outcome variables such as FLFPR, fertility, Education, marriage formations/divorces, etc in region i, period t.

- $WLDS_{i,t}$ is shock to labor demand for women in a region (discussed further in next slide)
- X' is a vector of control such as school / health clinics.

Methodology

Specification

Closely follows Autor et al (2013) "China Syndrome".

$$WLDS_{i,t} = \frac{RMG_{it}}{RMG_{BD,t}} * Exports_{RMG,t}$$

- WLDS - Women's Labor Demand Shock.

  - Where $\frac{RMG_{it}}{RMG_{BD,t}}$ measures the share of RMG exports of BD that is coming from region i.

– Measured using stated capacity, number of machines.

Data

DHS

- Surveys (sample size) in 2000 (9854), 2004 (10,500), 2007 (10,400), 2011 (17,141), 2018 (20,127).
- Number of clusters (sub-divisions of Bangladesh made by DHS) 341,359,361,600,359 and 672 respectively.

Data: DHS Clusters Map

- Have a random measurement error of 0-2 KMs for urban, 0-5 KMs for rural, 0-10 KMs for 1% of rurals.

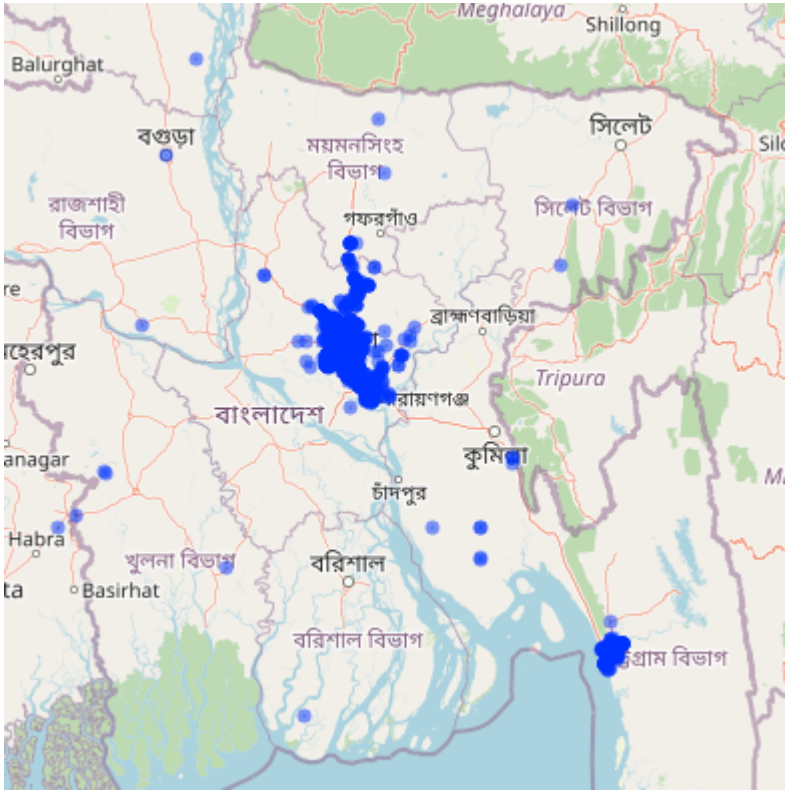
Data

Factory data

- I scraped the website of Bangladesh Garments Manufacturers and Exporters Association (BGMEA) and found data on
    - Factory address (geo-coded about 1/2 of them)
    - Establishment date 1978 - 2021
    - Data on number of machines, capacity and number of management employee (13,000 - 10.
    - I highly doubt the management employee data.
- Currently trying to scrape the website of knitwear manufacturers. But double counting is probable.

Garments locations

Needs work!



Expected contribution

What does this research bring ?

- Longer horizon allows us to pick up changes in norms / information assimilation about women in work.
    - Basically, lets us pick up some of the peer effects.
- This potentially adds more information in our measure of labor demand shock than previous studies.
- Risk
    - More patchy data considering the difficulty of conceiving of regions and the random error introduced to co-ordinates in DHS clusters.

Regions/Commuting zones

How do I concieve of regions ?

- I have data on administrative boundaries
    - But economic activity (commute, et cetera) does not follow strict administrative boundaries.
- I have data on road locations
- Both are pretty detailed.

Roads

Maybe some sort of distance ?