SSCI 204
Final Proj

Singapore, A city study.

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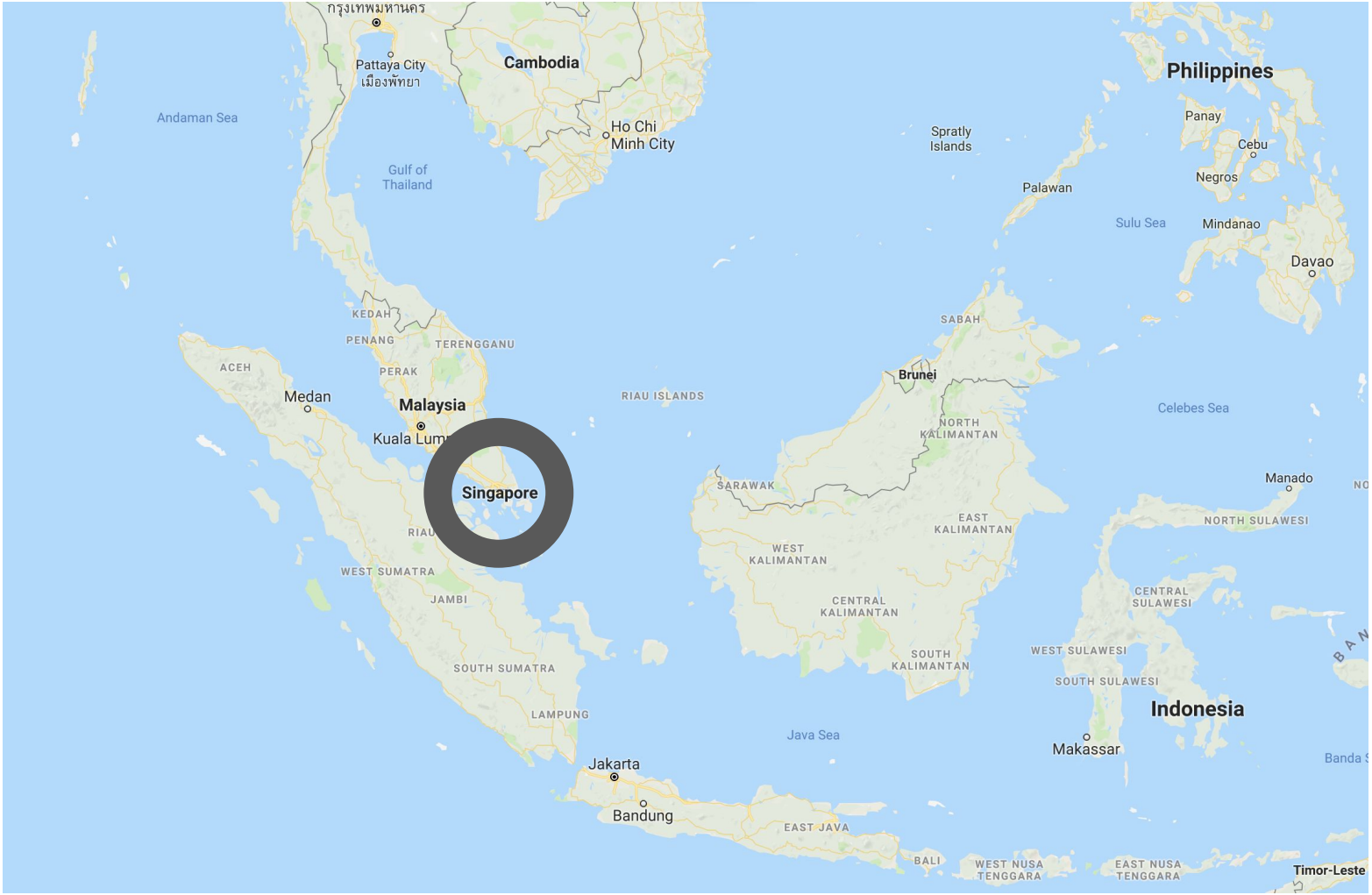
Pattaya City
เมืองพัทยา
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Thailand
Palawan
Sulu Sea
Mindanao
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KEDAH
PENANG
TERENGGANU
SABAH
ACEH
PERAK
Brunei
Medan
Malaysia
RIAU ISLANDS
Celebes Sea
NORTH
KALIMANTAN
Singapore
SARAWAK
Manado
EAST
KALIMANTAN
NORTH SULAWESI
WEST
KALIMANTAN
WEST SUMATRA
JAMBI
CENTRAL
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SOUTH SULAWESI
Indonesia
LAMPUNG
Java Sea
Makassar
Jakarta
Bandung
EAST JAVA
BALI
WEST NUSA
TENGGARA
EAST NUSA
TENGGARA
Timor-Leste

TO START:

Singapore

278 mi² - Area

5.6 Mil Population

297 Bil (USD) GDP

20154 people/mi^2 Population Density

52969 USD GDP per capita

```python
import sys

total_population = 5607000
#peopl
total_landArea = 278.2
#mile^2
total_gdp = 297000000000
#billion $ USD 2016


def populationDensityCalc():
    return total_population/total_landArea

def gdpPercapita():
    return total_gdp/total_population

def printf(format, *args):
    sys.stdout.write(format % args)


def main():
    printf("Population Density is: %d people/mi^2 \n", populationDensityCalc())
    printf("GDP per capita is: %d USD", gdpPercapita())


main()
```

Is that true that Singapore constantly **rely on low cost Immigrant** to fill its low income jobs, how does it affect local economy?

FOCUS

LINKING

Is that true that Singapore constantly **rely on low cost Immigrant** to fill its low income jobs, how does it affect local economy?

What will this affect the local economy when experience economic growth, or downfall?

KEY words:

Import Workers && Local Workers

Data set 1

Department of Statistics SG - Resident Households by Number of Working Persons, 2000 - 2017

Focus on the locals first: aging problem

```
Percentage of household that is not working from year: 2000,Percentage of household that is not working is: 0.036171
Percentage of household that is not working from year: 2001,Percentage of household that is not working is: 0.032962
Percentage of household that is not working from year: 2002,Percentage of household that is not working is: 0.043230
Percentage of household that is not working from year: 2003,Percentage of household that is not working is: 0.047422
Percentage of household that is not working from year: 2004,Percentage of household that is not working is: 0.050608
Percentage of household that is not working from year: 2005,Percentage of household that is not working is: 0.046657
Percentage of household that is not working from year: 2006,Percentage of household that is not working is: 0.051893
Percentage of household that is not working from year: 2007,Percentage of household that is not working is: 0.050986
Percentage of household that is not working from year: 2008,Percentage of household that is not working is: 0.049492
Percentage of household that is not working from year: 2009,Percentage of household that is not working is: 0.052697
Percentage of household that is not working from year: 2010,Percentage of household that is not working is: 0.054455
Percentage of household that is not working from year: 2011,Percentage of household that is not working is: 0.057582
Percentage of household that is not working from year: 2012,Percentage of household that is not working is: 0.060243
Percentage of household that is not working from year: 2013,Percentage of household that is not working is: 0.061388
Percentage of household that is not working from year: 2014,Percentage of household that is not working is: 0.070000
Percentage of household that is not working from year: 2015,Percentage of household that is not working is: 0.066269
Percentage of household that is not working from year: 2016,Percentage of household that is not working is: 0.074945
Percentage of household that is not working from year: 2017,Percentage of household that is not working is: 0.082875
```

We see a increase from:

2000 - 3.6%
2010 - 5.4%
2017 - 8.3%

```
17  def calcWorkingPopLocal():
18      wb1 = openpyxl.load_workbook(
19          'data/workBook2.xlsx')  # load workBook2.xlsx this is about the household that is working etc.
20      sheet1 = wb1['Title']
21      # total_amount_of_households = sheet1.cell(row=8, column=4).value # stop at 21
22      # total_amount_of_households_thats_not_working = sheet1.cell(row=7, column=4) # stop at 21
23      for x in range(4, 22):
24          percentage_of_household_not_working = sheet1.cell(row=7, column=x).value/sheet1.cell(row=8,column=x).value
25          year = sheet1.cell(row=6, column=x).value
26          printf("Percentage of household that is not working from year: %s,", year)
27          printf("Percentage of household that is not working is: %f \n", percentage_of_household_not_working)
```

Data set 1b

Department of Statistics SG - Labour Force, Aged 15 Years And Over, (June), Annual - 2000 - 2017

Even more and more households stopped working, the unemployment rate still remains low:

Possible reasons:

Migrant Workers

Where is the proof?

```
The year is: 2000, unemployed percentage is:| 0.044474 | base total employeable people | 2192.300000 thousands|
The year is: 2001, unemployed percentage is:| 0.027119 | base total employeable people | 2330.500000 thousands|
The year is: 2002, unemployed percentage is:| 0.041972 | base total employeable people | 2320.600000 thousands|
The year is: 2003, unemployed percentage is:| 0.045063 | base total employeable people | 2312.300000 thousands|
The year is: 2004, unemployed percentage is:| 0.044323 | base total employeable people | 2341.900000 thousands|
The year is: 2005, unemployed percentage is:| 0.042453 | base total employeable people | 2367.300000 thousands|
The year is: 2006, unemployed percentage is:| 0.034039 | base total employeable people | 2594.100000 thousands|
The year is: 2007, unemployed percentage is:| 0.028927 | base total employeable people | 2710.300000 thousands|
The year is: 2008, unemployed percentage is:| 0.027824 | base total employeable people | 2939.900000 thousands|
The year is: 2009, unemployed percentage is:| 0.040957 | base total employeable people | 3030.000000 thousands|
The year is: 2010, unemployed percentage is:| 0.028317 | base total employeable people | 3135.900000 thousands|
The year is: 2011, unemployed percentage is:| 0.026999 | base total employeable people | 3237.100000 thousands|
The year is: 2012, unemployed percentage is:| 0.025909 | base total employeable people | 3361.800000 thousands|
The year is: 2013, unemployed percentage is:| 0.026338 | base total employeable people | 3443.700000 thousands|
The year is: 2014, unemployed percentage is:| 0.025688 | base total employeable people | 3530.800000 thousands|
The year is: 2015, unemployed percentage is:| 0.026201 | base total employeable people | 3610.600000 thousands|
The year is: 2016, unemployed percentage is:| 0.027990 | base total employeable people | 3672.800000 thousands|
The year is: 2017, unemployed percentage is:| 0.029232 | base total employeable people | 3657.000000 thousands|
```

```
29  def laborForceCalc():
30      wb1 = openpyxl.load_workbook(
31          'data/labourForceAged15_over.xlsx')  # labourForceAged15_over.xlsx about employment rate
32      sheet1 = wb1['Title']
33      # first compare the total workforce pop and the unemployment rate of local residence pr + citizen
34      for x in range(2,20):# 2 ~ 19 from 2000 to 2017
35          year = sheet1.cell(row=6,column=x).value
36          total_laborForce = sheet1.cell(row=7,column=x).value
37          unemployeed_percentage = sheet1.cell(row=9,column=x).value/total_laborForce
38          printf("The year is: %s, unemployed percentage is:| %f | base total employeable people | %f thousands|\n", year, unemployeed_percentage, total_laborForce)
```

Why more people stopped working?

Based on the data we analysis on the previous slide, there is an ageing problem in Singapore; and there are reports that supports that:

Singapore feeling impact of rapidly ageing population

Stressing how demographics would define the country's destiny, Prime Minister Lee Hsien Loong said yesterday that the ageing population would cause profound problems for the country and that the impact is already being felt today.

AGING POPULATION

https://www.gov.sg/news/content/singapore-feeling-impact-of-rapidly-ageing-population

Foreign Workers

The amount of foreign worker with domestic and construction worker included **37% avg Over 2012 - 2017** and the percentage of domestic and construction workers in total foreign workforce is **16.5%** 2012 -> **18%** 2017

```
The percentage of foreign work force in total work force is: | 0.377268 | and time is: 2012-12-01 00:00:00
The percentage of foreign work force in total work force is: | 0.383773 | and time is: 2013-12-01 00:00:00
The percentage of foreign work force in total work force is: | 0.383964 | and time is: 2014-12-01 00:00:00
The percentage of foreign work force in total work force is: | 0.384230 | and time is: Dec 2015
The percentage of foreign work force in total work force is: | 0.379275 | and time is: Dec 2016
The percentage of foreign work force in total work force is: | 0.374077 | and time is: Dec 2017
```

```
The percentage of construction and domestic worker pop in foreign work force is: | 0.165261 | and time is: 2012-12-01 00:00:00
The percentage of construction and domestic worker pop in foreign work force is: | 0.162303 | and time is: 2013-12-01 00:00:00
The percentage of construction and domestic worker pop in foreign work force is: | 0.164122 | and time is: 2014-12-01 00:00:00
The percentage of construction and domestic worker pop in foreign work force is: | 0.166871 | and time is: Dec 2015
The percentage of construction and domestic worker pop in foreign work force is: | 0.172146 | and time is: Dec 2016
The percentage of construction and domestic worker pop in foreign work force is: | 0.180336 | and time is: Dec 2017
```

```
52  def calcOfworkVISA():
53      wb1 = openpyxl.load_workbook(
54          'data/foreign-workforce-numbers.xlsx')  # visa//work visa
55      sheet1 = wb1['Sheet1']
56      wb2 = openpyxl.load_workbook(
57          'data/labourForceAged15_over.xlsx')  # labourForceAged15_over.xlsx about employment rate
58      sheet2 = wb2['Title']
59      foreign_workers = sheet1.cell(row=9,column=2).value
60      total_laborForce = [sheet2.cell(row=7,column=14).value * 1000, sheet2.cell(row=7,column=15).value * 1000,
61                          sheet2.cell(row=7,column=16).value * 1000,
62                          sheet2.cell(row=7,column=17).value * 1000, sheet2.cell(row=7,column=18).value * 1000,
63                          sheet2.cell(row=7,column=19).value * 1000]
64      for x in range(2,8):# 2 - 8 from 2012 - 2017
65          year = sheet1.cell(row=2,column=x).value
66          result_percent = sheet1.cell(row=9, column=x).value/total_laborForce[x-2]
67          printf("The percentage of foreign work force in total work force is: | %f | and time is: %s \n", result_percent, year)
68      for x in range(2, 8):
69          year = sheet1.cell(row=2, column=x).value
70          result_percent = (sheet1.cell(row=9, column=x).value-sheet1.cell(row=10, column=x).value)/sheet1.cell(row=9, column=x).value
71          printf("The percentage of construction and domestic worker pop in foreign work force is: | %f | and time is: %s \n", result_percent,year)
```

Type of Foreign Workers

What is the composition of Singapore’s work visa?

- **EP - HIGH SKILLED**
  - Professional - Manager - Exec // minimal requirement $3600/mo
- **SP - MID SKILLED**
  - Mid skilled foreign workers // minimal requirement $2200/mo
- **WP - LOW/NONE SKILLED**
  - Construction - Manufacturing - Shipyard - Process - Services
  - Domestic workers
  - Nanny
  - Entertaining

Distribution of Foreign Workers

Use 2017 as a example:

WP = 13.7%

SP = 13.4%

WP = 70.5%

```
The amount of  EP is: | 0.137034 | and time is: 2012-12-01 00:00:00
The amount of  SP is: | 0.112276 | and time is: 2012-12-01 00:00:00
The amount of  WP is: | 0.743357 | and time is: 2012-12-01 00:00:00
-------------------------|2012-12-01 00:00:00|---------------------------------
The amount of  EP is: | 0.132491 | and time is: 2013-12-01 00:00:00
The amount of  SP is: | 0.121746 | and time is: 2013-12-01 00:00:00
The amount of  WP is: | 0.737288 | and time is: 2013-12-01 00:00:00
-------------------------|2013-12-01 00:00:00|---------------------------------
The amount of  EP is: | 0.131961 | and time is: 2014-12-01 00:00:00
The amount of  SP is: | 0.125470 | and time is: 2014-12-01 00:00:00
The amount of  WP is: | 0.731209 | and time is: 2014-12-01 00:00:00
-------------------------|2014-12-01 00:00:00|---------------------------------
The amount of  EP is: | 0.135443 | and time is: Dec 2015
The amount of  SP is: | 0.128739 | and time is: Dec 2015
The amount of  WP is: | 0.718734 | and time is: Dec 2015
-------------------------|Dec 2015|-----------------------------------
The amount of  EP is: | 0.138047 | and time is: Dec 2016
The amount of  SP is: | 0.129002 | and time is: Dec 2016
The amount of  WP is: | 0.712635 | and time is: Dec 2016
-------------------------|Dec 2016|-----------------------------------
The amount of  EP is: | 0.137208 | and time is: Dec 2017
The amount of  SP is: | 0.134795 | and time is: Dec 2017
The amount of  WP is: | 0.705556 | and time is: Dec 2017
-------------------------|Dec 2017|-----------------------------------
```

Conclusion 1

Singapore does rely heavily on foreign workers, especially low-skilled workers. In Singapore, the total labor force is:

3.6 mil // with 1.37 mil of foreign workers // with 70% low skilled worker

While low-skilled workers does contribute tremendously to Singapore's economy, and due to the multiplier effect, this also promote the local economy. However, this is based on the fact that the economy is booming. But what problem will occur when experiencing an economic downfall?

Problems

Little India Labor Riot

2013

https://www.theguardian.com/world/2013/dec/09/singapore-riots-decades-migrant-workers

Drawbacks

- With the support of low skilled workers, less incentive to achieve technology innovation // implementation of automation is not worth it when there is a steady supply of low-skilled workers with low wage
- Influx of population outside the country creates racial problems
- Possible human rights abuse // long working hrs & low wage
- Less incentive for company to hire local worker due to higher total cost

Possible Solutions

1. Higher minimum wage
2. Less open policy towards low-skilled foreign workers
3. Quota system implemented for work permits
4. Taxation

Trend Analysis

BLUE = EP

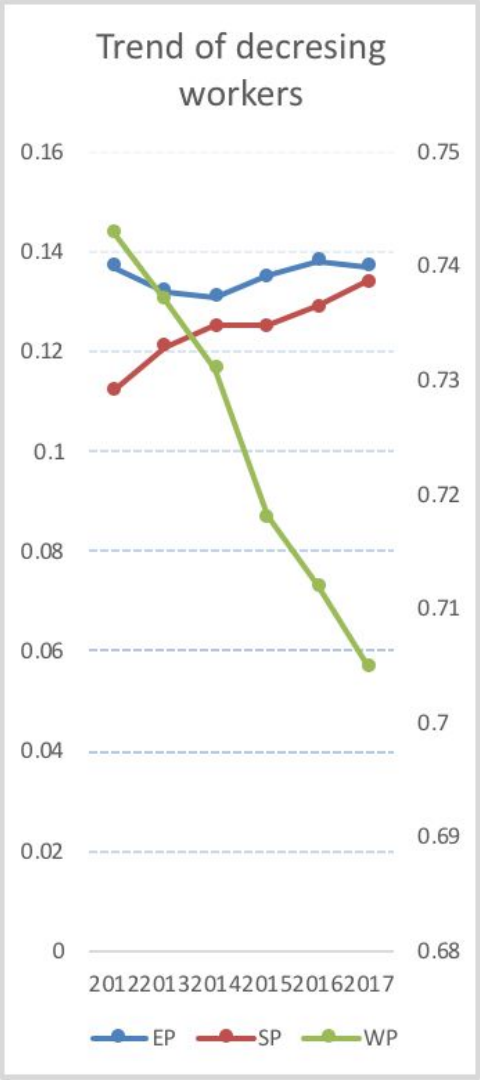
RED = SP

Uses Left axis

GREEN = WP // We can clearly see a decreasing population of low skilled foreign workers

Uses Right axis

What caused these changes?



Minimum Wage

A minimum wage increase for low skilled workers has been implemented, consider the work levy (Tax) on the business for the company. The incentive to hire foreign low-skilled workers decreased. The increasing of minimum wage started in 2013. This policy make the low-skilled job become more attractive to locals, while encourage companies to hire less foreign workers. The policy is implemented in 2014.

http://www.straitstimes.com/singapore/manpower/low-wage-workers-may-get-pay-rise-this-year

Policies

Adjust to economic growth and downfall:

Example

During the 1997-98 Asian financial crisis, there was no explicit mass repatriation of foreign workers. Instead, labour unions called for wage adjustments before undertaking retrenchments, with business costs reduced by eliminating the tax deduction for foreign worker contributions to the CPF. A tight permit allocation system and stricter enforcement measures were introduced in 1998 for the construction sector, in which permit entitlements were issued to main contractors. The main contractors were required to employ and house workers laid off and abandoned by sub- contractors. In March 1998 additional adjustments were made to encourage higher productivity in the construction sector through increases in the monthly levy on unskilled workers, (from $440 to $470) and sharp cuts in the levy on skilled workers (from $200 to $100); the widening disparity in levies between skilled and unskilled foreign workers is to incentivise employers to hire more foreign workers with skills.

https://dirp3.pids.gov.ph/ris/dps/pidsdps1124.pdf

What attract foreign workers?

- Income gap compared to surrounding countries
  - Especially low-skilled jobs
- Better utilities
  - High HDI, especially compared to nearby nations
- More job openings
  - Aging problem, and a better economy

Benefits

The foreign labor help Singapore as a small city state to create a much larger labor pool, maximize the efficiency, avoid the problem of isolated site. Meanwhile, with the introduction of quota policy + work levy, help reducing the problem of inefficiency, avoid the problem of city being to large.

With 1.3 mil foreign labor, and total 5.6 mil population, the large amount of foreign labor help the growth of local business, enlarge the labor pool while in the meantime stimulate the local economy. Generating large amount of tax revenue, while the low-wage help attract foreign investments. It is using other nations population to benefit itself’s economy.

Issues

The dependency on foreign low-skilled workforce to maintain local economy can create possible chain reaction when experiencing an economic downfall. The quota policy is effective, however, it is harsh, create a negative reputation, thus, attract less worker to work in Singapore in the future. While in the meantime, the low wage of foreign workers and the long working hours create human rights problems. With majority of foreign workers composed as racial minority, and harsh work environments, dissatisfaction will lead to some ethnic conflicts. Lastly, technology innovation on production will less likely to occur due to the cheap supply of labor.

Solutions

Focus more on the long term planning:

Actively adjusting the industry structure, and promoting manufacturing automation, with the bump of minimum wage in manufacturing, construction, service sectors; will generate larger incentive for locals to work at these positions. All this will help to gradually reduce the dependency on low-skilled foreign workforce, help the economy to shift upwards to help transform the industry status quo. In the meantime, the gradual reduction is less painful, create less conflict, and help to maintain reputation.