

SDGS and Math and TEXTILES & CLOTHING

Group 10

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SDGS and TEXTILES & CLOTHING

- Reduce overconsumption of clothing
- Promote recycling and upcycling
- Choose sustainable and eco-friendly fabrics
- Support ethical fashion brands
- Minimize textile waste during production
- Encourage second-hand and vintage fashion
- Extend the lifespan of clothing
- Raise awareness about sustainable fashion

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



11 SUSTAINABLE CITIES
AND COMMUNITIES



Introduction & SDG 11

SDG 11: Smart Cities – Smart Traffic Lights in the Netherlands

- SDG 11 aims to make cities safe, sustainable, and efficient.
- Traffic congestion is a major problem in many modern cities.
- Traffic jams waste time and raise accident risks.
- The Netherlands has developed a smart solution: Smart Traffic Lights.

Netherlands Smart Traffic Lights: Math, Benefits & How They Work

How Do Smart Traffic Lights Work? Math Connection & Benefits

- Smart traffic lights use sensors.
- They detect cars, bikes, pedestrians, and buses.
- Green light time changes based on traffic.
- Emergency and public transport get priority.

Smart traffic lights use:

- Optimization (reduce waiting time)
- Data analysis (predict traffic flow)

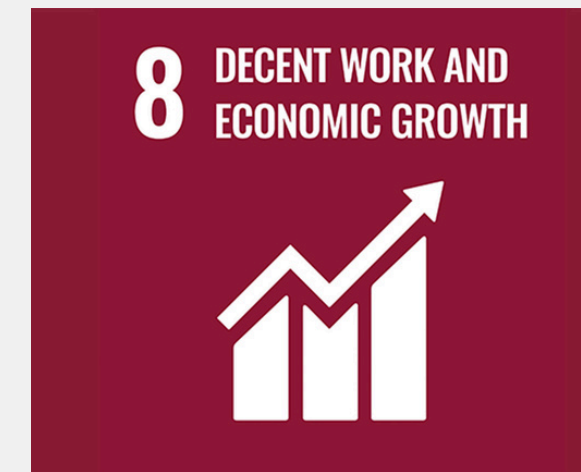
Benefits for SDG 11:

- less traffic jams
 - safer roads
- 

Mathematics for Decent Work and Economic Growth

Do you observe any SDGs being conducted in FJCU?

- Cultivating analytical skills in coursework
- Emphasizing data analysis and programming skills
- Developing logical thinking skills
- Interdisciplinary learning



SDGS8



Mathematics for Reducing Inequalities

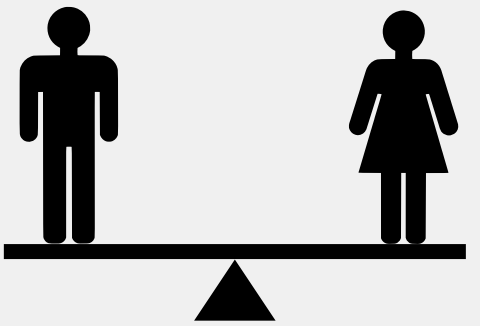
How much do different groups earn?

For example:

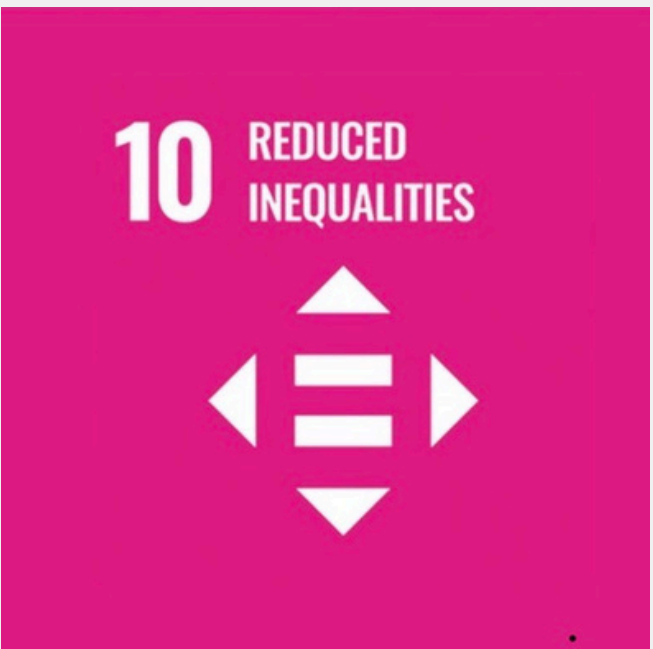


- High-income vs low-income groups

- Men vs women



- Urban areas vs rural areas



SDGS 10

Reduced Inequalities

Gini Coefficient (吉尼係數)

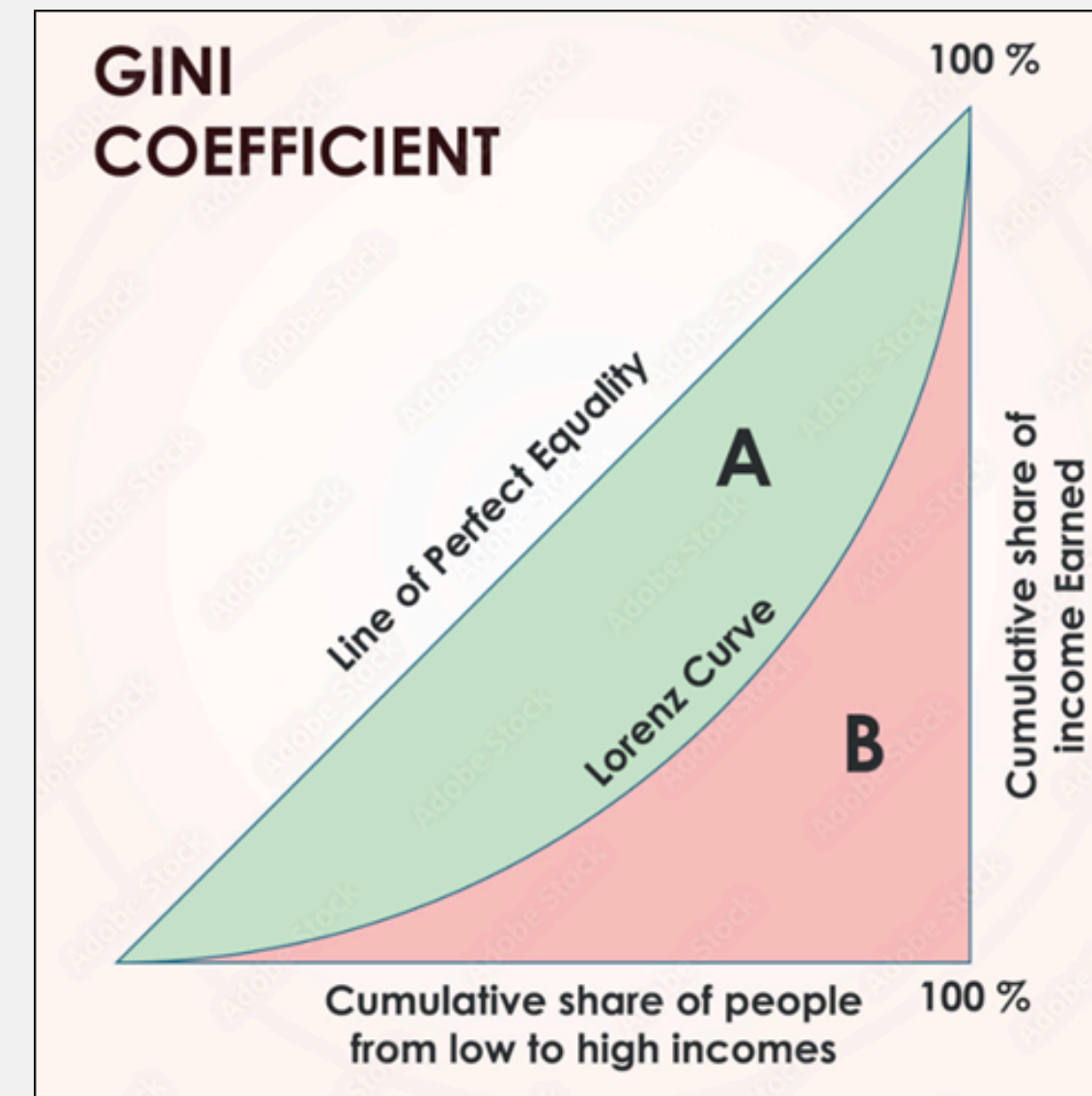


A higher Gini coefficient means greater inequality.

0 = Perfect equality

1 = Extreme inequality

We can use the Gini coefficient to measure the level of inequality.



Suppose we have 5 people:



Person	Income
Alex	10
Ben	10
Cindy	10
David	10
Eric	60

Step1: Calculate the difference between every pair of people.

	10	10	10	10	60
10	0	0	0	0	50
10	0	0	0	0	50
10	0	0	0	0	50
10	0	0	0	0	50
60	50	50	50	50	0

Step3: Calculate Gini

Coefficient

$$G = \frac{\text{Sum of all income differences}}{2 \times (\text{number of people})^2 \times (\text{average income})}$$

$$G = \frac{400}{2 \times (5^2) \times (20)} = 0.4$$

(a clear income inequality)

Step2. Sum of the differences.

$$50 + 50 + 50 + 50 + 50 + 50 + 50 + 50 = 400$$



Mathematical models can help governments decide the best ways to reduce inequality.

1. more job opportunities and increase minimum wages.

2. provide financial support and social welfare programs.

3. help distribute resources more fairly.



Image Source (Slide 12)

<https://www.yongxi-stat.com/wp-content/uploads/2025/09/圖片2.png>

Thank You

