Objective: Interpret + apply theories of population growth + decline, like how the DTM is used to explain population change over time + space. Identify stages of the DTM through the movement of CBR, CDR, and NIR/total pop.
The Demographic Transition Model

• **Theory** of how population changes (5 stages) as a country develops (from high birth/death rates → low birth/death rates).
  
  – Also provides insight into migration, fertility, economic dev., industry/urbanization, labor, politics, + **female empowerment**.

• **You will begin talking about countries based on where they are on the DTM.**
  
  – By placing a country on the DTM, you are defining the population dynamics + **economic context** of the country.
Demographic Transition Model

- Assign **CDR**, **CBR**, **Total Population** colors. Label them on your paper (see above).

- WRITE SMALL.

- We will start with **Stage 1:**
  
  - What is **CDR** + **CBR**? How is each measured?

  - **CBR** = # of live births / 1,000 ppl per yr
  
  - **CDR** = # of deaths / 1,000 ppl in pop.
Stage 1: “High Stationary”

- Other names: Hunting/gathering; Early Agricultural

- No country in world is @ Stage 1, but *most of human history was Stage 1 (millions of yrs).

- Examples:
  - Most of human history, Few remote groups (Amazon rainforest tribe), Nations in crisis

- Birth Rate (CBR) + Death Rate (CBD)?
  - CBR: High (>25)
  - CDR: High (>25)

- If both rates are high, what your Natural Increase (NIR)?
  - Stationary (-0.1 – 1.9%)
  - High CBR + CDR = low overall population; not growing fast (less than 1 billion the 1st million yrs. of human existence)
Stage 1:

**Reasons for CBR + CDR?**

- **Reasons for birth rate:**
  - *Children = $ economic assets* (source of labor; Children = more crops. No food → starve)
  - High IMR
  - Religious or social traditions; lack of *female empowerment*

- **Reasons for death rate:**
  - *“Age of pestilence and famine” “Lives short, brutal, hungry”*
  - Disease (pandemics, plague, famine/hunger, drought, constant war, childbirth dangerous – **MMR high**)
  - No modern medicine.
Stage 2: "Early Expansion"

Predict:
- What will be the big change in Stage 2?
- What causes the change in human history?
- What happens to CDR? CBR? Total population?
- CDR suddenly drops dramatically (8-25)
- CBR stays high (25-40)
- Total population very rapidly increases; steep J curve (1.5-3.5%)
Stage 2: “Early Expansion”

- Other names: Late Agricultural/ Industrializing
- Birth Rate (CBR)? Death Rate (CBD)? NIR?
  - **CBR** stays high (25-40); **CDR declines rapidly** – 1st break (8-25)
  - **Total population/NIR**: very rapid increase; steep J curve (1.5-3.5% -- enormous)

- Reasons for high birth rate?
  - *Traditions persist* (economics, religion, lack of female empowerment) → maintain high birth rate
  - Little access to birth control/ family planning.
  - Ppl slow to realize children = economic burdens, lower standard of living

- Reasons for declining death rate?
  - **Industrial Revolution** → Stabilizing food source, improved medical care, lower IMR + MMR
Examples:

- **After the UK in 1790s, what countries enter Stage 2 next?**
  - Western Europe (Belgium, Germany, etc): mid-1800s
  - USA: late 1800s
  - Southern + Eastern Europe: early 1900s

- **What do all these countries have in common?**
  - *Emigration* (leaving one’s country) during Stage 2.
  - All *modern MDCs*. Will leave Stage 2, move further along DTM.

- **When did LDCs enter Stage 2?**
  - **Post-WW2.** Primary reason **NOT economic development**
  - Western MDCs gave poorest countries vaccines, help w/sanitation, etc. *Positives? Negatives?*
    - (+) Brought CDR down; (-) same economies as before; CBRs will not follow → population exploding, **BUT** no economic development (*demographic trap*)
Countries/Regions in Stage 2 now?

- *Nigeria* (will overtake U.S. population wise)
- Egypt, Kenya, India? (late stage 2), sub-Saharan Africa, South Asia, poor countries in Central America, etc.
**Important to Keep in Mind:**

Stage 2 happens in **TWO** ways:

1. **MDCs = Industrial Revolution** w/ economic development.
2. **LDCs = Diffusion of medical tech** w/ no economic development.
Stage 3: "Late Expansion"

- **Predict:** What happens to the lines in Stage 3?  

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1     | High Stationary  
Hunting/gathering  
Early Agricultural |
| 2     | Early Expansion  
Late Agricultural  
Industrializing |
| 3     | Late Expansion  
Industrial Maturing |

- **CDR falling slowly:** (5-12)
- **NIR much slower:** (1.0-2.0%)  
- **CDR falling 1st break!**  
- **CBR falls 2nd break!**  
- **CDR declining slowly** (5-12)
Stage 3: “Late Expansion”

- **Other name:** Industrial/Maturing

- **Birth Rate (CBR)? Death Rate (CBD)? NIR?**
  - **CBR falling** – 2nd break (12-25); **CDR declines slowly** (5-12);
    - **Total population/NIR:** increase much slower (1.0-2.0%)

- **Reasons for lower birth rate?**
  - Fewer children needed in urban environment (ppl realize children = economic burdens)
  - **Tradition is waning** (secular influences, city living, beg. of birth control, *female empowerment late Stage 3*).
  - **Outside forces:** Government **anti-natalist** policies (China)

- **Reasons for lower death rate?**
  - Medical advances, immunizations, govt. action - better sanitation (prevents cholera), lifestyle/diet
Examples

- **Mexico, Brazil?** (very late stage 3), other Parts of Central + South America, **SE Asia** (Indonesia, Thailand, Vietnam), **India?** (early stage 3)
Stage 4: “Low Stationary”

What does “Low Stationary” mean for CBR + CBD rates + total population/NIR?

- High Stationary
  - Hunting/gathering
  - Early Agricultural

- Early Expansion
  - Late Agricultural
  - Industrializing

- Late Expansion
  - Industrial
  - Maturing

- Low Stationary
  - Tertiary
  - Mature

- CBR: Low (8-16)
- CDR: Low (5-12)

*Low rates = stable or slow increase (NIR: 0-1.0%)
*CBR = CDR ➔ Zero Population Growth (ZPG)

Stable/low NIR
(0-1.0%)
Stage 4: “Low Stationary”

- **Other name:** Tertiary/Mature/Post-Industrial
- **Birth Rate (CBR)? Death Rate (CBD)? NIR?**
  - CBR low(8-16), CDR low (5-12)
  - CBR = CDR → Zero Population Growth (ZPG)**
  - Total population/NIR: stable/low (0-1.0%)
- **Reasons for low birth rate?**
  - *Gender empowerment*, family planning, later marriages, less traditional values (secular, urban influences), govt. encourages pop control
- **Reasons for low death rate?**
  - Lifestyle changes (diet, exercise), good healthcare - improved treatment for chronic diseases extends life expectancy (Lipitor for high cholesterol lowers risk of strokes)
Examples:

- USA, UK, France, Canada, Scandinavia, other N. & W. Europe
  - immigration keeps US, UK, France @4, immigrants bring higher CBR with them from native countries.
Stage 5: Declining?/ Theoretical

- All countries in Stage 5 trying to fight it.
- Why might Stage 5 be a bad place to be?
  - What is so bad about having a declining population?
  - Can mean economic decline. Less workers!
- Birth rates? Death rates? Total Pop/NIR?
  - CBR = VERY low
  - CDR = Low, possibly going up/ increasing.
  - NIR = declining/ negative NIR (< 0%)
Stage 5: Examples?

- Germany, Japan, Italy, Eastern Europe - Russia
Stage 5: “Declining?”

• Reasons for very low birth rates (CBR)?
  – Continuation of stage 4 trends
  – *Pessimism over bleak future* (Russia, Eastern Europe – see similar pattern in “Rustbelt” states of US). *No kids b/c why would you bring kids into declining future?*

• Reasons for death rates (CDR)?
  – Large *elderly population* increases death rate
Solutions?
Ways to get out of 5?

• **Allow immigrants to come** (Germany).
  - U.S. also allows immigrants (keeps us @4; *higher pop not necessarily a bad thing)

• **Pronatalist policies** – encouraging childbirth as a positive thing (Denmark)

• **Automation, vending machines** (Japan)
  - Japanese believe in homogeneity; believe in sameness of population. Anti-immigration. Proud to not have outsiders.