CH 9 TRADE

QUESTIONS TO ANSWER...

TRADE AND ECONOMIC GROWTH?

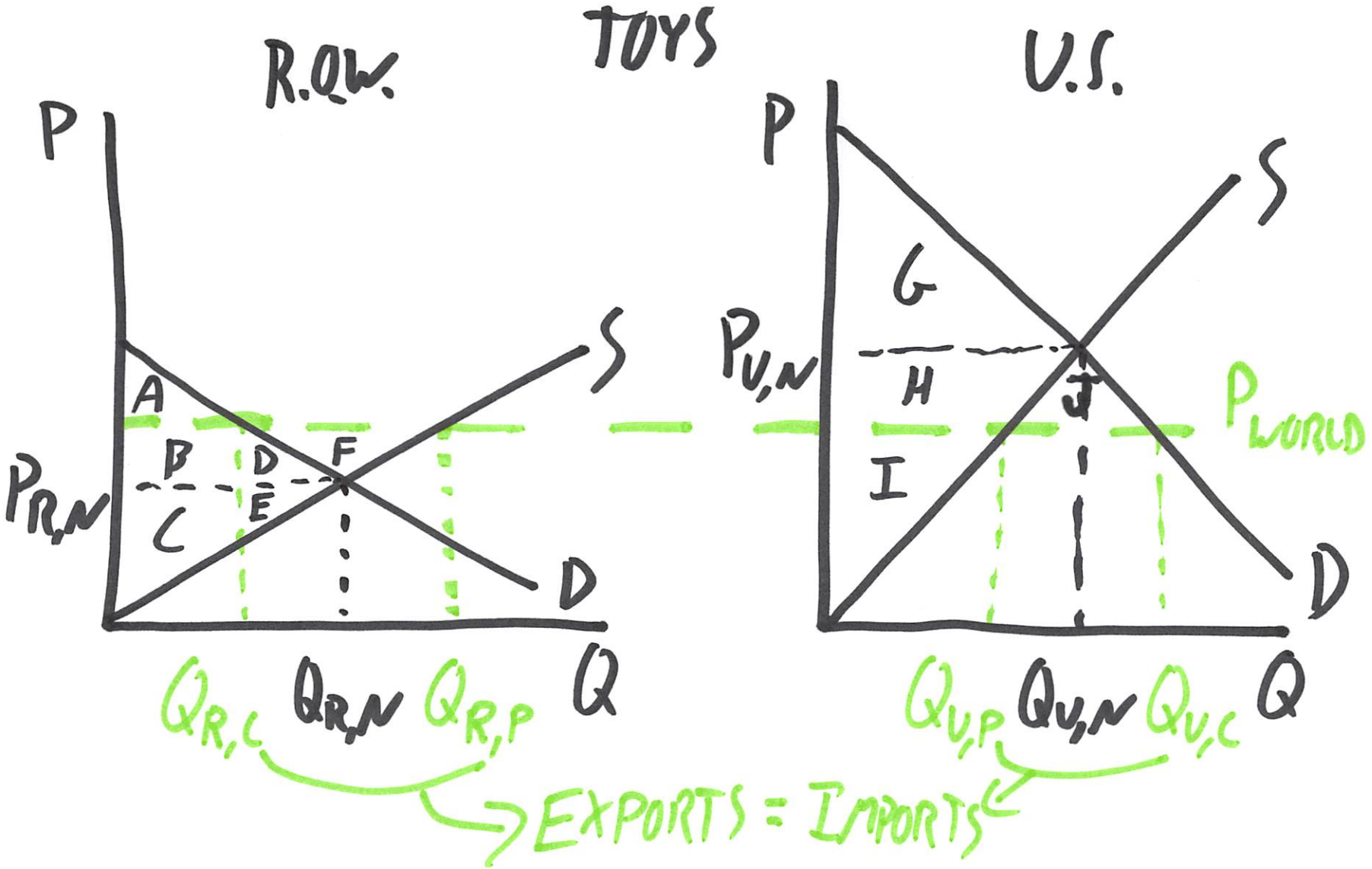
→ TECHNICALLY
  → IMPORTS HURT ECONOMY
  → EXPORTS BOOST ECONOMY
→ STATISTICALLY
  → ANY TRADE BOOSTS ECONOMY BY 7%

HOW DOES TRADE BENEFIT EVERYONE OVERALL?

WHO GAINS? WHO LOSES?

WHO TRADES WHAT?

→ DETERMINED BY ARBITRAGE: BUY LOW, SELL HIGH


TOYS
R.O.W.
U.S.
P
S
D
Q
A
B
C
D
E
F
$P_{R,N}$
$P_{U,N}$
G
H
I
J
P_{WORLD}
$Q_{R,C}$
$Q_{R,N}$
$Q_{R,P}$
$Q_{U,P}$
$Q_{U,N}$
$Q_{U,C}$
EXPORTS = IMPORTS

PRE-TRADE

CS: ROW: A + B + D

PS: ROW: C + E

CS: US: G

PS: US: H + I

TS: ROW: A + B + C + D + E

TS: US: G + H + I

POST-TRADE

CS: ROW: A ☹

PS: ROW: B + C + D + E + F ☺

CS: US: G + H + J ☺

PS: US: I ☹

TS: ROW: A + B + C + D + E + F ☺

TS: US: G + H + I + J ☺

WHO GAINS? BOTH COUNTRIES AS A WHOLE

PRODUCERS IN EXP. COUNTRY

CONSUMERS IN IMP. COUNTRY

WHO LOSES? CONSUMERS IN EXP. COUNTRY

PRODUCERS IN IMP. COUNTRY

CH. 9 TRADE RESTRICTIONS

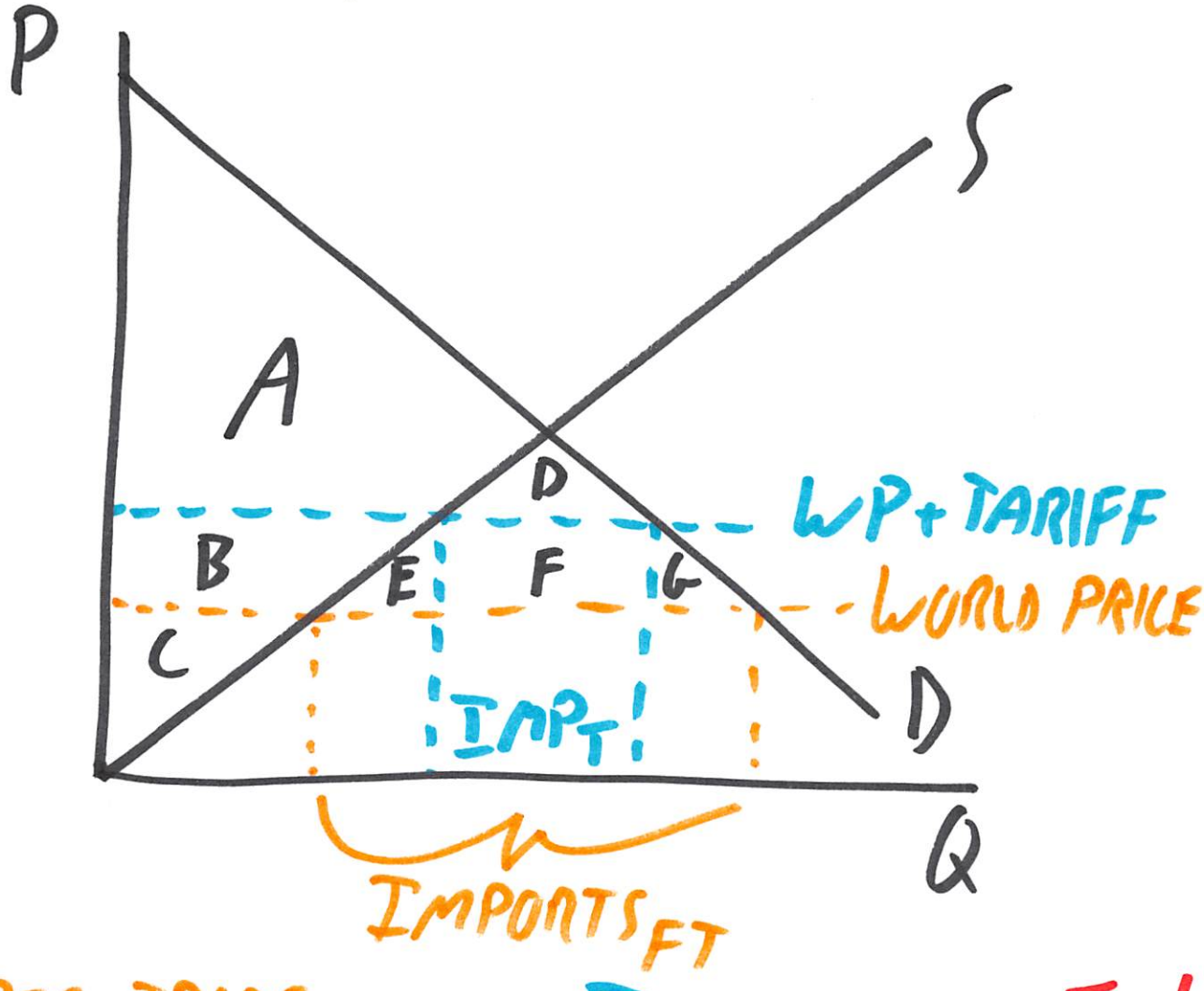
- TARIFF: TAX ON IMPORTS
  - DEPENDS ON GOOD
- QUOTAS: QUANTITY LIMIT ON IMPORTS
  - DEPENDS ON GOOD

PROVE: - TRADE RESTRICTIONS HURT CONSUMERS + BENEFIT PRODUCERS

- TARIFFS ARE BETTER THAN QUOTAS

	Selected Tariffs in the US 2004		
HTS Code	**Description**	**MFN/NTR Tariff**	**Special Tariff**
0805.40.40	Grapefruit	1.9¢/kg (Aug-Sep)	Free (CA,D,E,IL, J,JO,MX,SG) 1.6¢/kg (CL)
0805.40.60		1.5¢/kg (Oct)	Free (CA,D,E,IL, J,JO,MX,SG) 1.1¢/kg (CL)
0805.40.80		2.5¢/kg (Nov-Jul)	Free (CA,D,E,IL, J,JO,MX) 2.2¢/kg (CL,SG) Non-MFN: 3.3¢/kg
0806.10.20	Grapes, fresh	$1.13/m^3$ (Feb 15-Mar 31)	Free (A+,CA,CL,D,E,
0806.10.40		Free (Apr 1-Jun 30)	Non-MFN: $8.83/m^3$
0806.10.60		$1.80/m^3$ (any other time)	
6912.00.45	Ceramic tableware; plates not over 22.9 cm in maximum diameter and valued over $6 per dozen; plates over 22.9 but not over 27.9 cm in maximum diameter and valued over $8.50	4.50%	Free (A+,CA,CL,D,E, Non-MFN: 55%
8703.2x.00	Motor cars principally designed for the transport of persons, of all cylinder capacities	2.50%	Free (A+,B,CA,CL,D, Non-MFN: 10%
8704.22.50	Motor vehicles for the transport of goods (i.e., trucks), gross vehicle weight exceeding 5 metric tons but less than 20 metric tons	25%	Free (A+,B,CA,CL,D, E,IL,J,MX) 15% (JO) 22.5% (SG) Non-MFN: 25%
8712.00.15	Bicycles having both wheels not exceeding 63.5 cm in diameter	11%	Free (A+,CA,CL,D,E, IL,J,MX) 2.2% (JO) 9.6% (SG) Non-MFN: 30%
1701.11.05	Cane sugar:	1.4606¢/kg less .020668¢/kg for each degree under 100 degrees but not less than .943854¢/kg	Free (A*,CA,CL,E*,IL, Non-MFN: 4.3817¢/kg less
6404.11.20	Sports footwear; tennis shoes, basket-ball shoes, gym shoes, training shoes and the like: having uppers of which over 50% of the external surface area is leather	10.50%	Free (CA,CL,D,IL,J+, MX,R) 2.1% (JO) 9.1% (SG) Non-MFN: 35%
9508.31.00	Golf clubs	4.40%	Free (A,CA,CL,E,IL, Non-MFN: 30%
9101.11.40	Wristwatches	51¢ each + 6.25% on case and strap + 5.3% on battery	38.2¢ each + 4.6% on case and Free (CA,D,E,IL,J, J+,JO,MX,R
8517.21.00	Fax machines	Free	Non-MFN: 35%
0901.21.00	Coffee, non-decaffeinated	Free	Non-MFN: Free
0902.10.10	Tea, green tea, flavored	6.40%	Free (A,CA,CL,E,IL, J,JO,MX) 4.8% (SG) Non-MFN: 20%

TARIFF - ETHANOL 54¢ GALLON



FREE TRADE

CS: A+B+D+E+F+G

PS: C

TARIFF

CS: A+D ☹

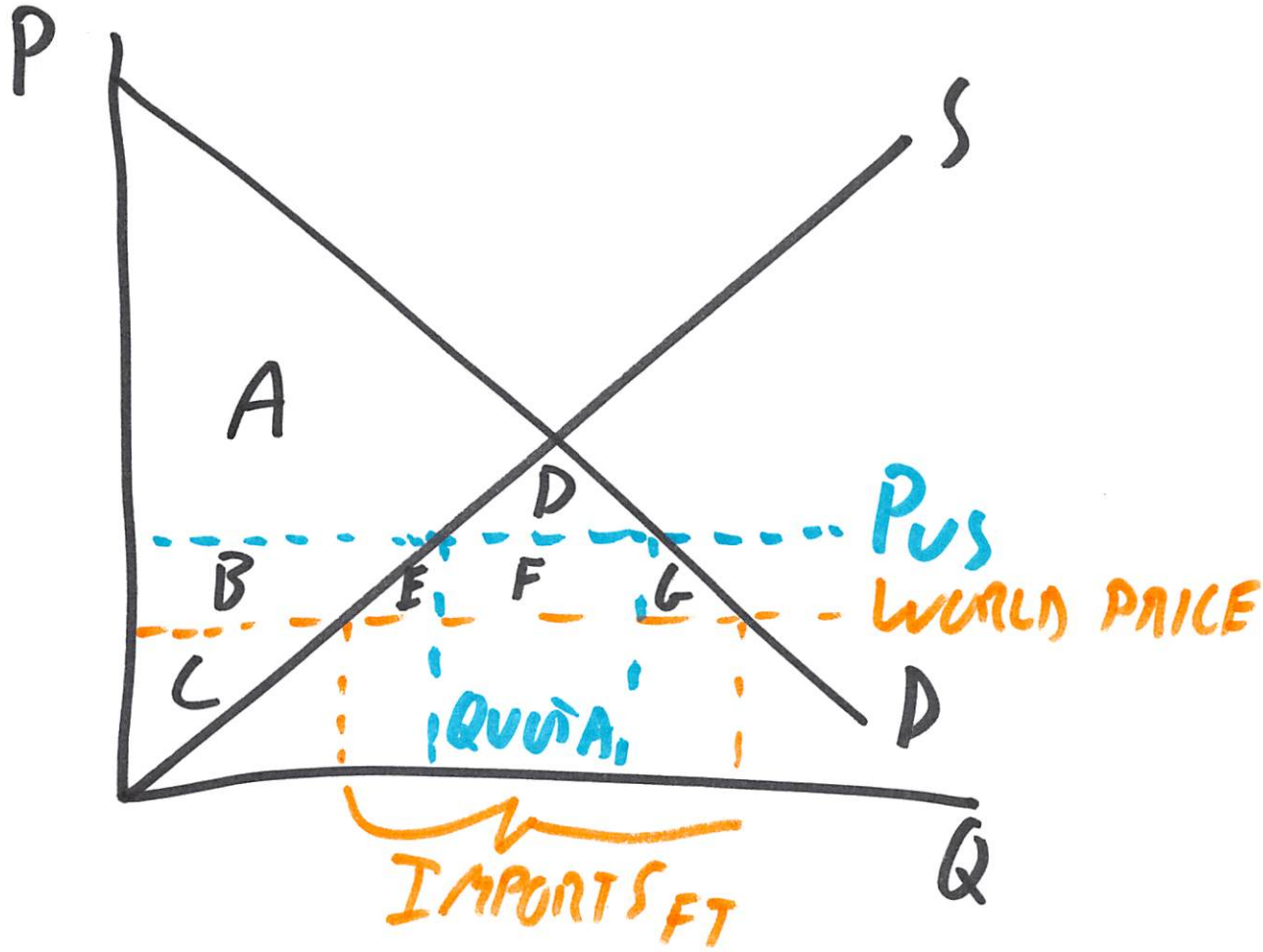
PS: B+C ☺

E+G

DEADWEIGHT LOSS

$Q_T \times TAX =$ TAX REV. : F

QUOTA - SUGAR



FREE TRADE

CS: A+B+D+E+F+G

PS: C

QUOTA

CS: A+D ☹

PS: B+C ☺

TAX REV.: 0

E+F+G

DEADWEIGHT LOSS

EARTH & ENVIRONMENT

China still emits ozone destroyer

Finding helps explain increase in emissions of banned CFC-11

BY MARIA TEMMING

China has continued producing an ozone-destroying chemical called CFC-11 in violation of an international agreement, researchers report.

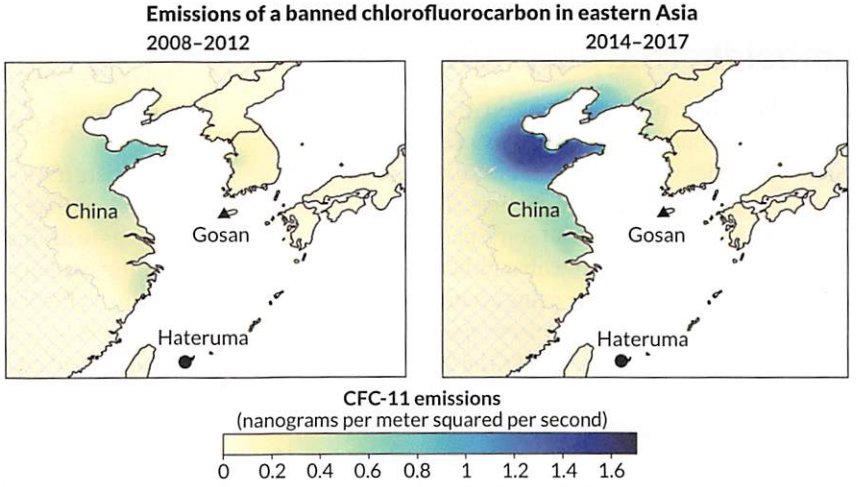
Air samples collected in South Korea and Japan suggest that eastern China emitted about 7,000 metric tons more trichlorofluoromethane a year from 2014 to 2017 than it did from 2008 to 2012. This boost explains a large fraction of the estimated global increase in CFC-11 emissions — between 11,000 and 17,000 tons annually — after 2012, researchers report in the May 23 *Nature*.

CFC-11 has been used to make foams for refrigeration and insulation. But each atom of chlorine from CFC-11 and similar molecules, collectively called chlorofluorocarbons, can destroy 100,000 atmospheric ozone molecules. Under the 1987 Montreal Protocol, an international treaty that phased out the production of CFCs by 2010, no one should be producing CFC-11 anymore.

"Now there is a very clear indication that some places are not adhering to the Montreal Protocol," says A.R. "Ravi" Ravishankara, an atmospheric scientist at Colorado State University in Fort Collins who wasn't involved in the work.

These results demonstrate "the need for verification and continued vigilance" in enforcing the treaty, he says. Continued production of the chemical may delay the recovery of the hole in the ozone layer (*SN: 12/24/16, p. 28*).

Hints of illegal CFC-11 production came in 2018. Observations revealed that the global decline of CFC-11 in the atmosphere slowed significantly after 2012, but the culprits responsible for ramping up emissions remained uncertain.



Going up Atmospheric data from Gosan station in South Korea and Hateruma station in Japan suggest that annual CFC-11 emissions in eastern China increased by about 7,000 metric tons between 2008–2012 (left) and 2014–2017 (right).

Sunyoung Park, a geochemist at Kyungpook National University in Daegu, South Korea, and colleagues homed in on the CFC-11 source by analyzing air samples collected from monitoring stations in North America, Europe, Australia and eastern Asia from 2008 to 2017.

"In the non-Asian stations, the signals are consistent with declining regional emissions, whereas at the eastern Asian stations, we saw signals that very strongly suggested that emissions increased," says Matthew Rigby, an atmospheric scientist at the University of Bristol in England. Stations in Japan and South Korea showed spikes in CFC-11 levels as plumes of pollution wafted overhead. The size of those spikes grew after 2012.

The team ran computer simulations to determine where the CFC-11 could have originated. From 2008 to 2012, eastern China emitted an average of about 6,400 tons of CFC-11 per year, the analysis indicated. That number increased to about 13,400 tons per year from 2014 to 2017. This pollution boost arose primarily around the northeastern Chinese provinces of Shandong and Hebei. The researchers found no evidence of significantly increasing emissions from any other eastern Asian country.

On-the-ground investigations by the Environmental Investigation Agency, an international nonprofit organization, and Chinese authorities have also turned up evidence of illegal CFC-11 use in manufacturing. "China will continue cracking down on illegal production and use of [ozone-depleting substances] and strengthen regulation over relevant industries," Zeng Rong, a spokesperson of the Chinese Embassy in England, wrote in a letter to the *Guardian* newspaper in August 2018 in response to a news article about China's production of CFC-11.

The annual 7,000-ton bump in CFC-11 emissions from eastern China accounts for only about 40 to 60 percent of the estimated global increase in CFC-11 emissions after 2012. That leaves scientists wondering where the rest is coming from, Ravishankara says. "It really would help if [we had] these measurements from other parts of the world." The monitoring network used in this study doesn't extend to other parts of Asia, Africa or South America.

Further investigations are also needed to tease out which industrial processes are responsible for the emissions, Rigby says. If CFC-11 is trapped inside newly manufactured materials like foams, that gas will eventually leak out, he says. "It's entirely possible that the total emissions that we've seen so far are actually a relatively small fraction of the total amount of CFC-11 that was produced." ■

M. RIGBY ET AL/NATURE 2019

CH.9 BENEFITS TO TRADE

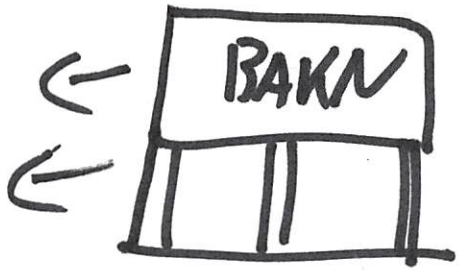
1. INCREASED TOTAL SURPLUS
2. INCREASED VARIETY OF GOODS
3. ECONOMIES OF SCALE
   (BIGGER IS CHEAPER)
4. TRADE → COMPETITION → BETTER QUALITY
5. TECHNOLOGY TRANSFERS

WHY RESTRICT TRADE?

1. JOBS ☹
2. INFANT INDUSTRY ☺
3. NATIONAL DEFENSE ☺
4. UNFAIR? COMPETITION (PLMC) ☺
   - POOR LABOR PRACTICES, LAX ENVIORNMENT STANDARDS
5. RETALIATION ☺

MORTGAGE → 205K

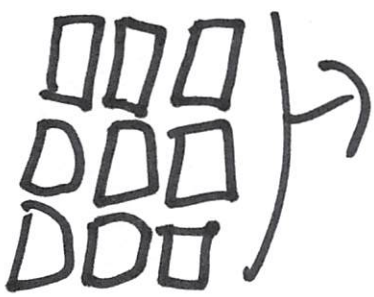
5% PRIME
9% ALT-A
11% SUBPRIME
NINA
NO-DOC



LEHMAN BROS.
BEAR STEARNS
MORGAN STANLEY
MERRIL LYNCH
GOLDMAN SACHS

MORTGAGE BACKED SECURITIES MBS

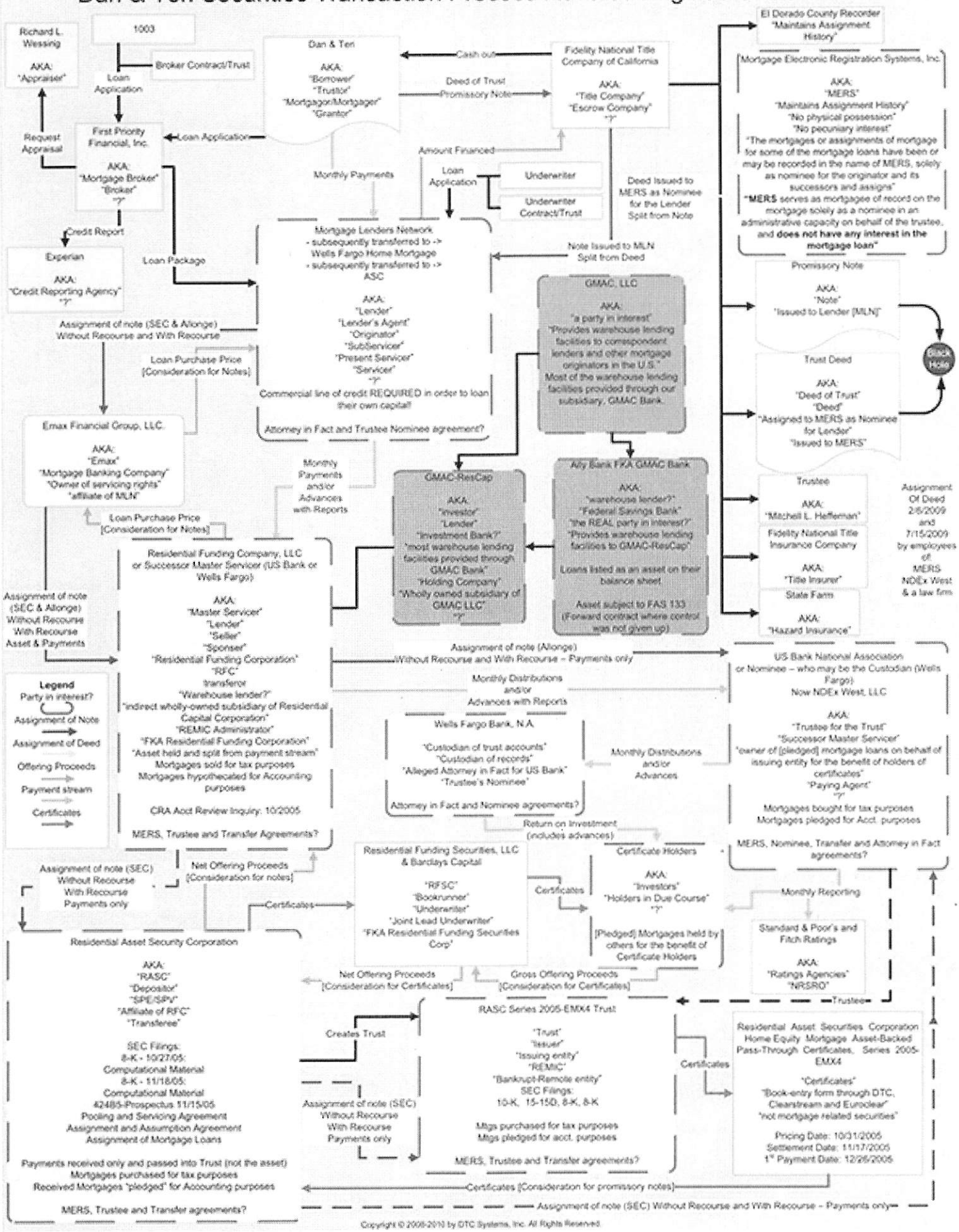
TRANCHES



CDS: CREDIT DEFAULT SWAPS

AIG

Dan & Teri Securities Transaction Process Reverse Engineered version 4.1



CH. 10 GDP - GROSS DOMESTIC PRODUCT
- SIZE OF THE ECONOMY
- GDP IS THE MARKET VALUE OF ALL FINAL GOODS + SERVICES CONSUMED WITHIN A COUNTRY IN A GIVEN PERIOD OF TIME

INFLATION - RATE AT WHICH AVERAGE PRICES INCREASE

UNEMPLOYMENT - % OF LABOR FORCE THAT'S OUT OF WORK

TRADE DEFICIT - IMBALANCE OF TRADE IN A COUNTRY
EXPORTS vs. IMPORTS

CH. 10 GDP

GDP IS THE MARKET VALUE...

$P_{APPLES} Q_{APPLES} + P_{BANANAS} Q_{BANANAS} \ldots$.
TOTAL REVENUE FROM MARKET SALES

... OF ALL...

EVERY GOOD + SERVICE THAT PEOPLE PAY FOR
- BLACK, ILLEGAL MARKETS
  NOT COUNTED
- BABYSITTING, HOMEMAKERS
  NOT COUNTED

... FINAL...

- NOT INTERMEDIATE GOODS
- NOT USED GOODS

... GOODS + SERVICES...

- BOTH STUFF + SERVICES
  - MEDICAL CARE, LAWYERS, PROFESSORS

...SOLD WITHIN A COUNTRY...

- PRODUCED IN UNITED STATES
- WORKER IN U.S.

...IN A PERIOD OF TIME.

- QUARTERLY, ANNUALLY
  - SEASONALLY ADJUSTED

GDP = Y = C + I + G + NX

C = CONSUMPTION BY HOUSEHOLDS (70%)

I = INVESTMENT SPENDING BY FIRMS ON MACHINERY, EQUIPMENT + INVENTORIES (16%) + SALES OF NEW HOMES + INTELLECTUAL PROP.

G = WHAT LOCAL, STATE + FEDERAL GOVERNMENTS SPEND (19%)

NX = NET EXPORTS = EXPORTS - IMPORTS

(-5%)

RECESSIONS - WHEN REAL GDP FALLS (AS DETERMINED BY NATIONAL BUREAU (NBER) ECONOMIC RESEARCH)

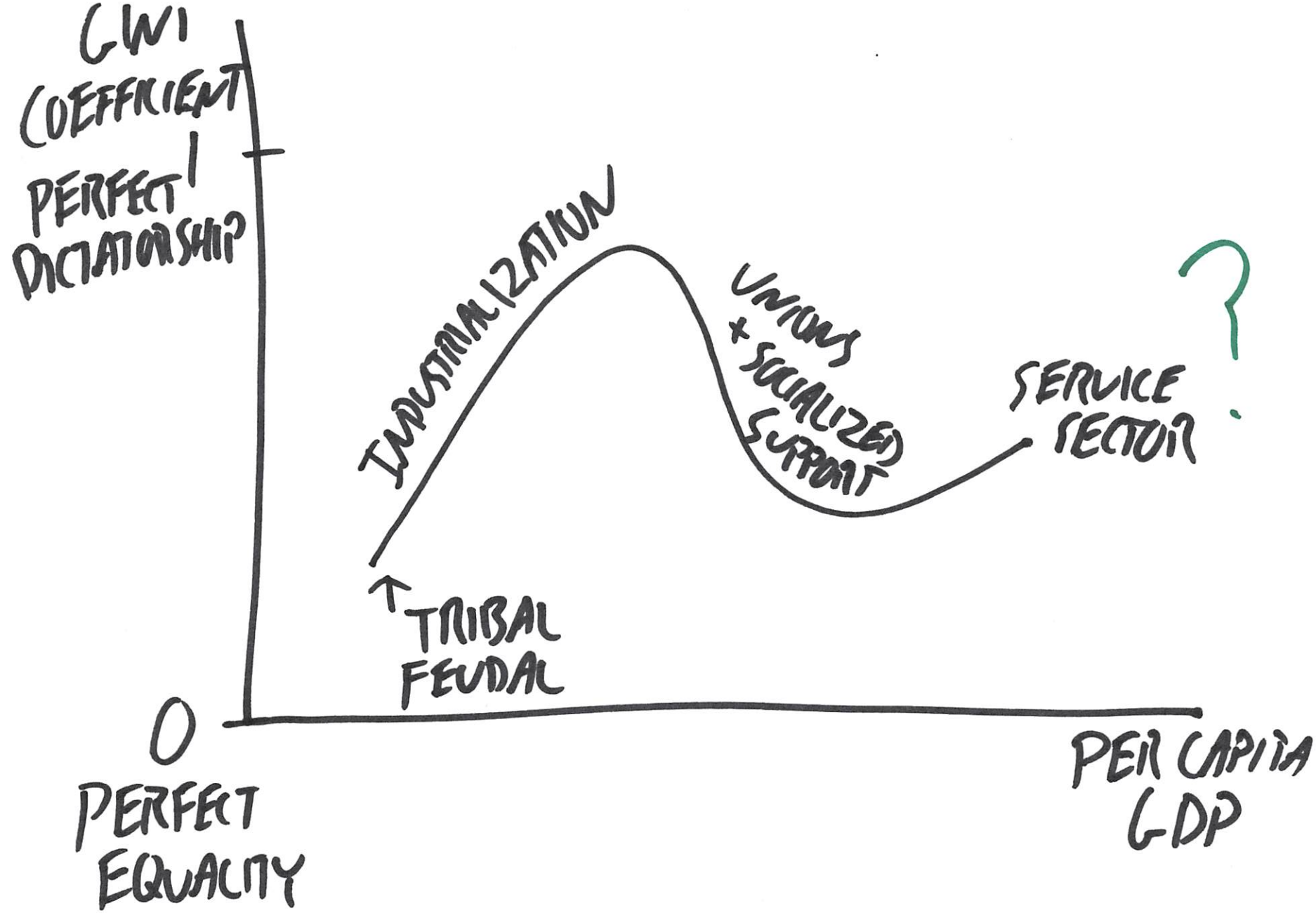
MEASURE WELL-BEING?

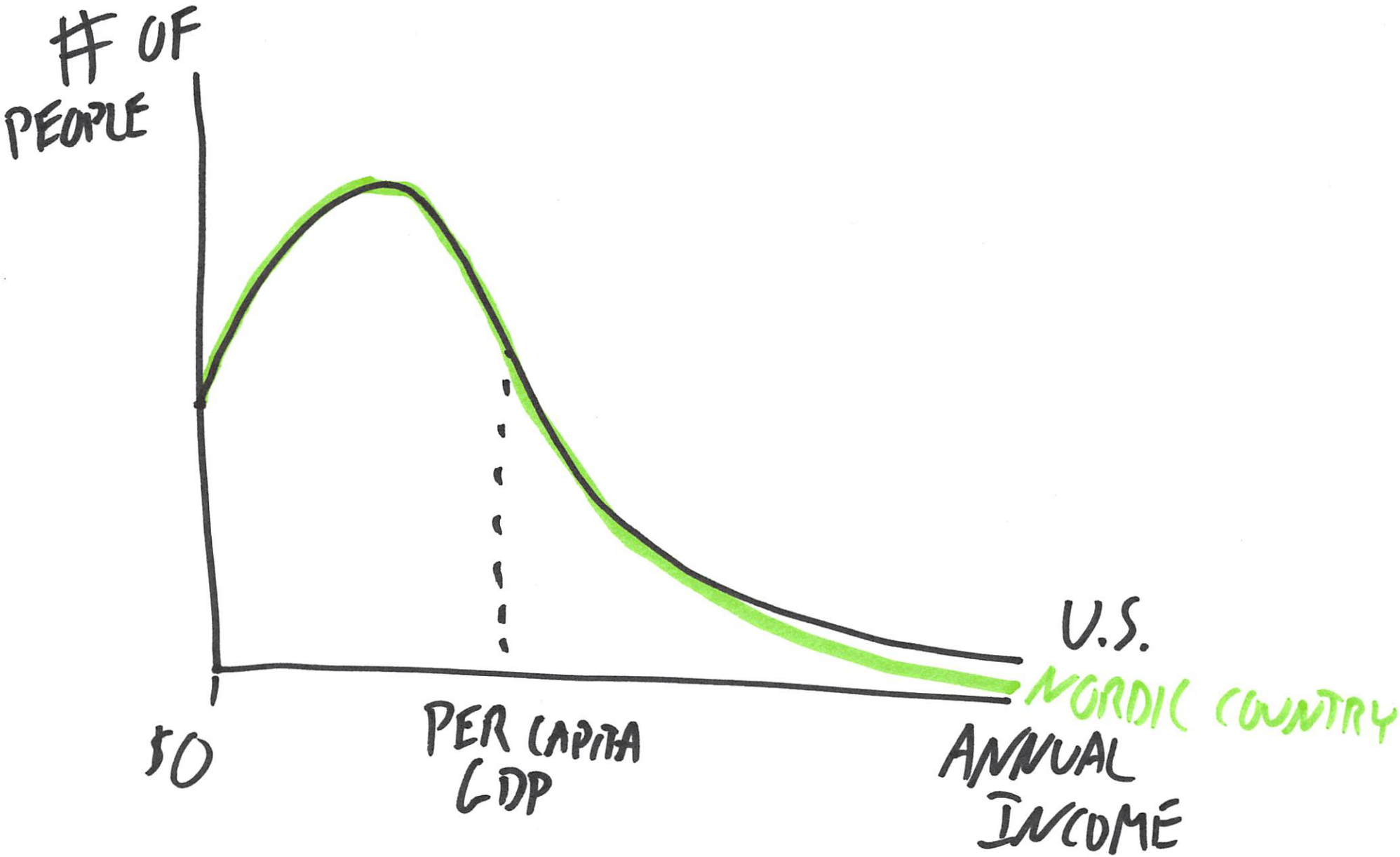
GDP PER CAPITA

$$= \frac{\text{REAL GDP}}{\text{POPULATION}}$$

- HIGHLY CORRELATED WITH
  - EDUCATION ACCESS
  - HEALTHCARE OUTCOMES
    - LIFESPANS
  - SQ FT OF HOUSEHOLDS
- KUZNETS CURVE

KUZNETS CURVE




OF PEOPLE
$0
PER CAPITA GDP
U.S.
NORDIC COUNTRY
ANNUAL INCOME

CH. 10 GDP

REAL GDP vs NOMINAL GDP

- CONSTANT PRICES
- TRUE PRODUCTIVE CAPACITY
- INFLATION ADJUSTED

- CURRENT PRICES
- VALUE OF GOODS + SERVICES ($)

$$\text{GDP DEFLATOR} = \frac{\text{NOMINAL GDP}}{\text{REAL GDP}} \times 100$$

↓

FEDERAL RESERVE INFLATION MEASURE

CH. 11 MEASURING INFLATION

INDEXED AUTOMATIC CORRECTION FOR PRICES BASED ON QUANTITY OF GOODS PRODUCED + CHANGING PRICES

(1) BASKET OF GOODS

3 GOODS

3 BURGERS
3 FRIES
1 DRINK
} → QUANTITIES

(2)

	BURGERS	FRIES	DRINKS
2005	P=7	P=3	P=4
2006	8	4	4
2007	9	4	5

(3) PRICE OF BASKET

IN 2005 ⇒ $3 \times 7 + 3 \times 3 + 1 \times 4 = \$34$

IN 2006 ⇒ $3 \times 8 + 3 \times 4 + 1 \times 4 = \$40$

IN 2007 ⇒ $3 \times 9 + 3 \times 4 + 1 \times 5 = \$44$

(4) CREATE A BASE YEAR = 100

$$INDEX_{05} = \frac{\$34}{\$34} \times 100 = 100$$

$$INDEX_{06} = \frac{\$40}{\$34} \times 100 = 117$$

$$INDEX_{07} = \frac{\$44}{\$34} \times 100 = 129$$

(5) FIND INFLATION

$$INFLATION_{2007} = \frac{129 - 117}{117} \times 100 = 10\%$$

$$INFLATION_{2006} = \frac{117 - 100}{100} \times 100 = 17\%$$

CH. 11 DIFFERENT INDEXES

CONSUMER PRICE INDEX (CPI)

- PRICE MEASUREMENT OF GOODS + SERVICES BOUGHT BY A TYPICAL CONSUMER
  - COLA - COST OF LIVING ADJUSTMENT
    - SOCIAL SECURITY, PENSION

PRODUCER PRICE INDEX (PPI)

- PRICE MEASUREMENT OF GOODS + SERVICES BOUGHT BY A TYPICAL FIRM
- WHAT BASKET?

CONS FOR PRICE INDEXES

1. PEOPLE SUBSTITUTE GOODS
   - PRICE INDEXES OVERESTIMATE INFLATION
2. PEOPLE BUY NEW GOODS
   - SEE ABOVE
3. QUALITY OF GOODS CHANGES
   - SEE ABOVE

REAL vs. NOMINAL

- INTEREST RATES

→ REAL INTEREST RATE =
NOMINAL INTEREST RATE
- INFLATION

COLLEGE TUITION 2013-201X: $10,400

" 2012-2013: $10,000

CASH FROM GRANDMA $10,000

NOMINAL INT. RATE = 1%

INFLATION = 4%

AFTER 1 YEAR = $10,100

REAL = NOM. - INF

-3% = 1% - 4%

[CH. 12] GROWTH + PRODUCTIVITY

$$Y = A[F(L, K, H, N)]$$

PRODUCTION FUNCTION → F(...)

A = TECHNOLOGY
GENERAL KNOWLEDGE → PATENTS

K = KAPITAL
TOOLS, MACHINERY, EQUIPMENT

L = LABOR
POPULATION

H = HUMAN CAPITAL
EDUCATION, TRAINING, EXPERIENCE + HEALTH

N = NATURAL RESOURCES
IMPORTANT, BUT TRADE IS A GOOD SUBSTITUTE

$$\frac{Y}{L} = A\left[F\left(1, \frac{K}{L}, \frac{H}{L}, \frac{N}{L}\right)\right]$$

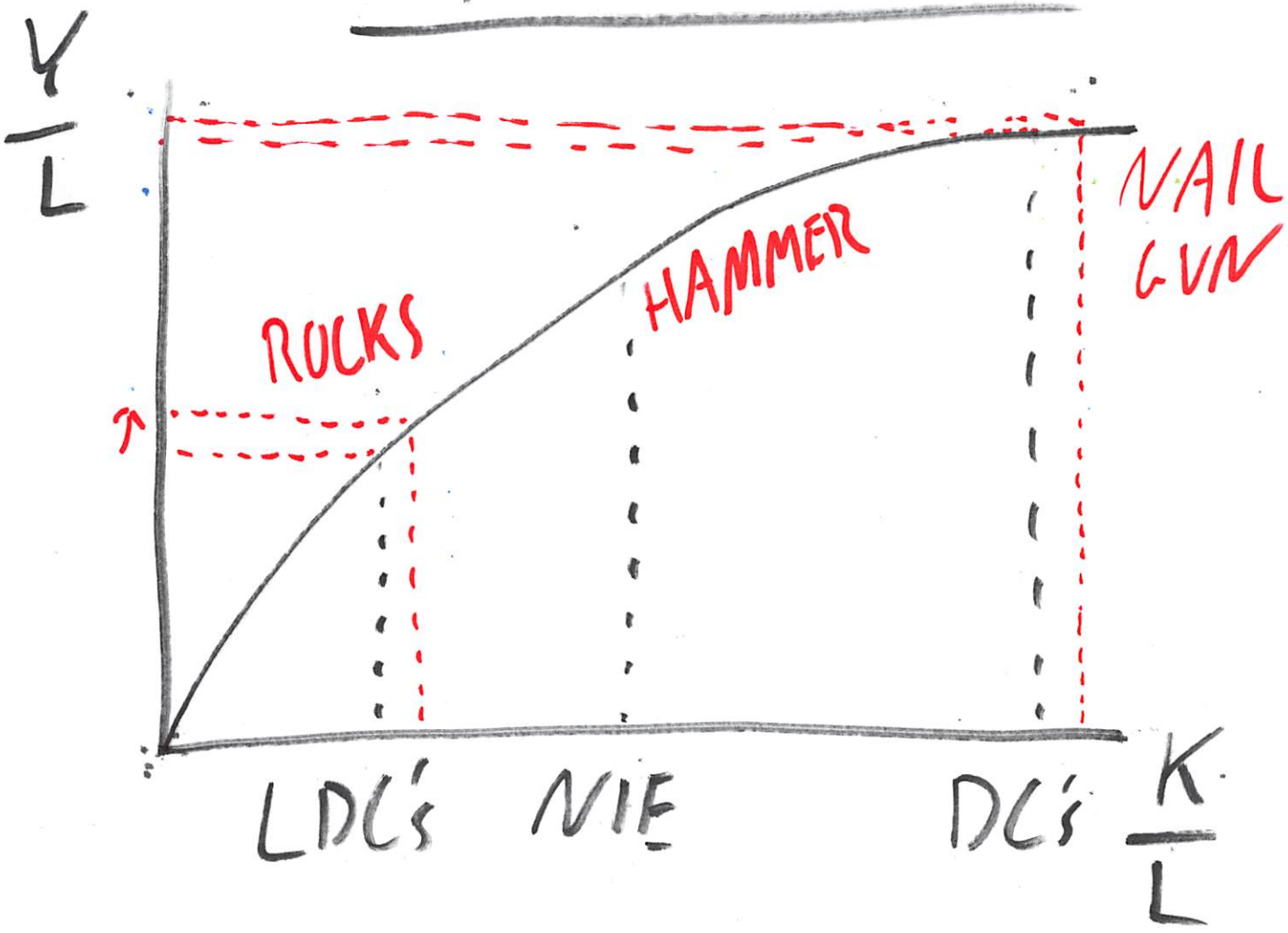
↑

PER CAPITA GDP

AVERAGE PRODUCTIVITY: OUTPUT OF MAN YEAR OF LABOR

LIVING STANDARDS

CATCH-UP EFFECT



CH. 12 PUBLIC POLICY METHODS FOR GROWTH

① INCREASE PRIVATE SAVINGS

- TAX CREDITS FOR SAVINGS
- DECREASE TAX RATES ON SAVINGS
- INCREASE TAXES ON CONSUMPTION

SAVINGS ↑ → INVESTMENT ↑
↳ KAPITAL ↑

- PARADOX OF SAVINGS
  SAVINGS ↑ → CONSUMPTION ↓
  SHORT-RUN GDP ↓
  LONG-RUN MORE K, I → GDP ↑
- BORROW SAVINGS FROM FOREIGNERS
  FOREIGN DIRECT INVESTMENT (FDI)
  ↳ HIGHLY CORRELATED TO GDP GROWTH

(2) INVEST IN HEALTH + EDUCATION

- INCREASING HUMAN CAPITAL
- POSITIVE EXTERNALITIES
  - → HEALTHY PEOPLE DON'T MAKE OTHERS SICK
  - → EDUCATED PEOPLE CAN TEACH OTHERS
- SICK PEOPLE DON'T WORK
- EDUCATED PEOPLE ARE MORE PRODUCTIVE

(3) PROPERTY RIGHTS + STABILITY

- RULE OF LAW
- MORE INVESTMENT

(4) FREE TRADE

- MAKES UP FOR POOR NAT. RESOURCES

(5) INCENTIVES FOR R+D

→ MORE INVESTMENT

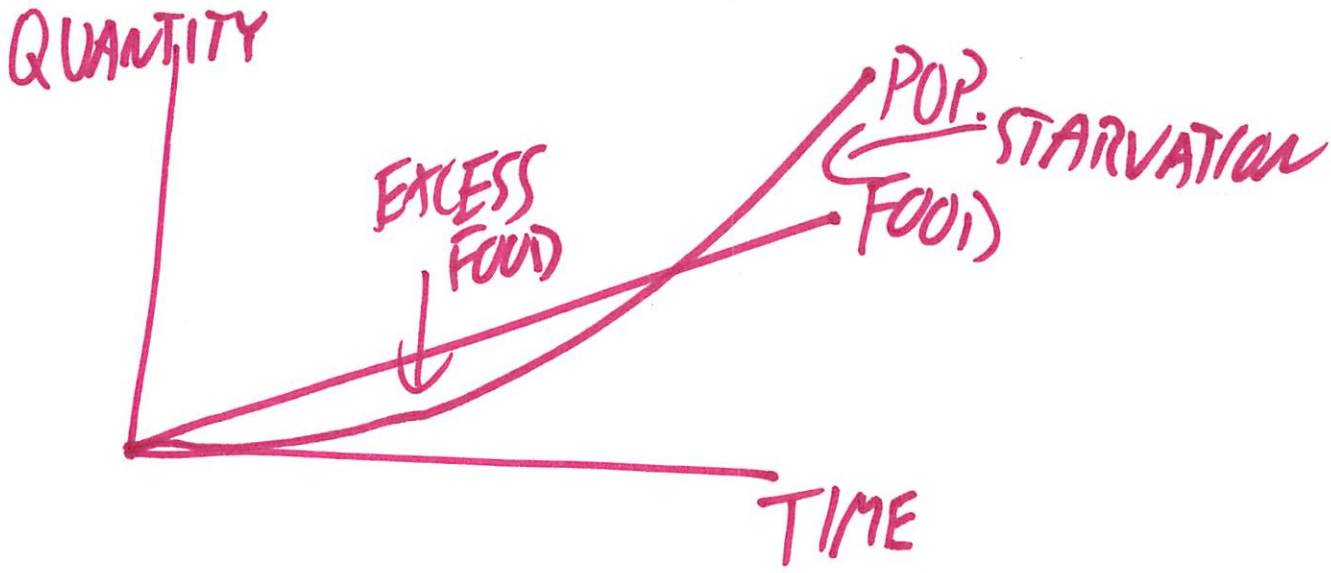
→ INCREASE IN TECHNOLOGY, A

(6) POPULATION GROWTH?

MALTHUS: POP. GROWTH = LESS GOODS

VS.

KREMER: NEW PEOPLE = NEW TECHNOLOGY


QUANTITY
POP.
STARVATION
FOOD
EXCESS
FOOD
TIME