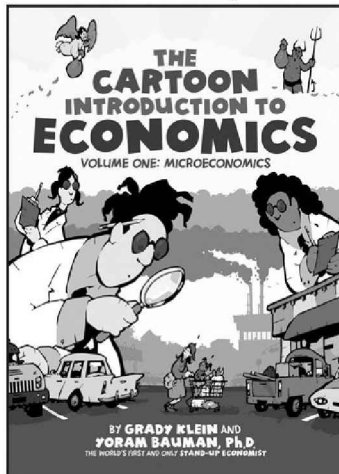


# THE CARTOON INTRODUCTION TO ECONOMICS

VOLUME TWO: MACROECONOMICS

BY **GRADY KLEIN** AND  
**YORAM BAUMAN, Ph.D.**  
THE WORLD'S FIRST AND ONLY **STAND-UP ECONOMIST**

ALSO BY **GRADY KLEIN AND  
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**VOLUME ONE:  
MICROECONOMICS**



**THE  
CARTOON  
INTRODUCTION TO  
ECONOMICS**  
VOLUME TWO: MACROECONOMICS

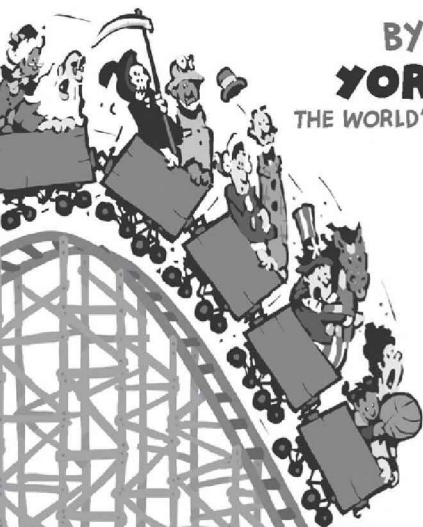


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A NOVEL GRAPHIC FROM HILL AND WANG  
A DIVISION OF FARRAR, STRAUS AND GIROUX  
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**HILL AND WANG**

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FOR ANNE AND LIAM AND BENJAMIN  
-GK

FOR LAURA  
-YB





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**PART  
ONE**  
*A SINGLE  
MACROECONOMY*





# CHAPTER 1

## INTRODUCTION

ECONOMICS IS  
ABOUT **OPTIMIZING**  
**INDIVIDUALS!**



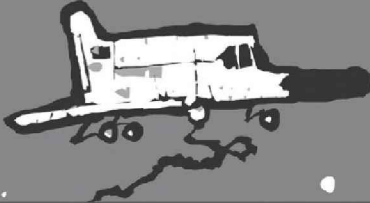
OUR PREVIOUS BOOK WAS ABOUT  
**MICROECONOMICS...**

... WHICH LOOKS AT **THE ACTIONS AND INTERACTIONS**  
OF OPTIMIZING INDIVIDUALS.

WE ASSUME THAT  
**EVERYBODY**  
IS AN OPTIMIZING  
INDIVIDUAL.

THAT JUST MEANS  
WE'RE ALL TRYING TO  
**SATISFY OUR OWN**  
PREFERENCES!





THIS BOOK IS ABOUT  
**MACROECONOMICS...**

... WHICH LOOKS AT ISSUES THAT AFFECT  
**THE ECONOMY OF AN ENTIRE COUNTRY...**

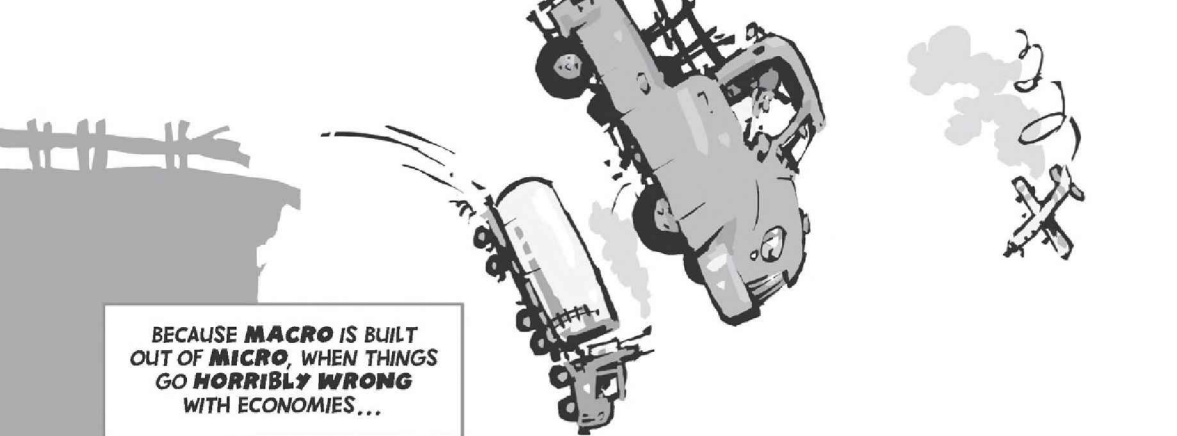


I SEE INFLATION,  
UNEMPLOYMENT,  
THE BUSINESS CYCLE,  
ECONOMIC GROWTH,  
FREE TRADE...



... OR EVEN THE **ENTIRE PLANET.**





BECAUSE **MACRO** IS BUILT  
OUT OF **MICRO**, WHEN THINGS  
GO **HORRIBLY WRONG**  
WITH ECONOMIES...

... **MACROECONOMISTS DON'T JUMP TO THE CONCLUSION THAT PEOPLE ARE CRAZY OR STUPID.**

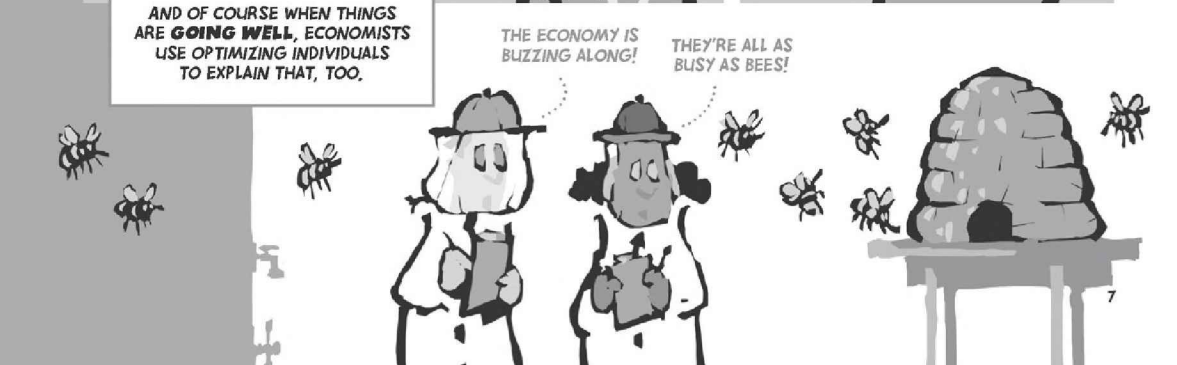


INSTEAD, **MACROECONOMISTS STRIVE TO UNDERSTAND  
HOW PEOPLE CAN BE OPTIMIZING...**

... **AND STILL GET INTO TROUBLE.**



AND OF COURSE WHEN THINGS  
ARE **GOING WELL**, ECONOMISTS  
USE **OPTIMIZING INDIVIDUALS**  
TO EXPLAIN THAT, TOO.



THE ECONOMY IS  
BUZZING ALONG!

THEY'RE ALL AS  
BUSY AS BEES!



**MACROECONOMICS HAS TWO BIG GOALS.**

**ONE IS TO INCREASE LIVING STANDARDS IN THE LONG RUN,  
SO THAT TODAY'S KIDS WILL BE BETTER OFF THAN THEIR GRANDPARENTS...**



BACK IN MY DAY WE DIDN'T  
HAVE **CELL PHONES...**

...OR THE  
**INTERNET!**



B4 TXTING?  
SUX 2B U,  
LOL, JK.



...JUST AS **THOSE GRANDPARENTS** WERE PROBABLY BETTER OFF THAN **THEIR GRANDPARENTS...**



BACK IN MY DAY  
WE DIDN'T HAVE SAFE  
DRINKING WATER...

...AND 10% OF KIDS  
DIED BEFORE THEIR  
FIRST BIRTHDAY.



SORRY, GRAMPS,  
NO TIME TO TALK, I HAVE  
TO GO HELP DAD **CLEAN  
THE OUTHOUSE.**



...AND SO ON.



BACK IN MY DAY  
WE DIDN'T HAVE  
**THE WHEEL.**

DID YOU REALLY  
HAVE TO CARRY YOUR  
**FIREWOOD BY HAND?**

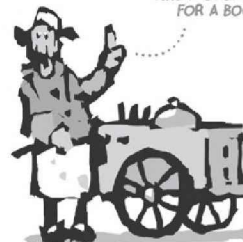
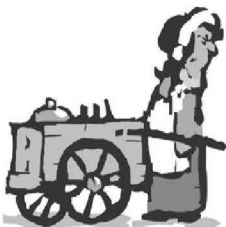


YES, AND  
IT WAS **UPHILL  
BOTH WAYS!**



**THE GOAL OF INCREASING LIVING  
STANDARDS GOES ALL THE WAY BACK TO  
ADAM "INVISIBLE HAND" SMITH.**

I'D LIKE TO MAKE AN INQUIRY  
INTO THE NATURE AND CAUSES OF  
**THE WEALTH OF NATIONS.**



HEY, THAT SOUNDS  
LIKE A GREAT TITLE  
FOR A BOOK!

IN 1776, ADAM SMITH INTRODUCED  
A **MACROECONOMICS METAPHOR**...

... THAT ECHOS TO THIS DAY,

"WHAT IS PRUDENCE IN  
THE CONDUCT OF EVERY  
**PRIVATE FAMILY**...

... CAN SCARCE BE  
FOLLY IN THAT OF A  
GREAT **KINGDOM**."

**FAMILIES**  
ARE TIGHTENING  
THEIR BELTS...

... AND THE  
**GOVERNMENT**  
NEEDS TO DO  
THE SAME.



THE IDEA THAT THE MACROECONOMY IS LIKE  
A WELL-ORGANIZED FAMILY IS CALLED  
**THE CLASSICAL VIEW.**

THAT'S WHY THE CLASSICAL  
VIEW OFTEN SOUNDS LIKE  
COMMON SENSE:

DON'T BORROW  
MORE THAN YOU  
CAN PAY BACK.

INVEST IN YOUR  
EDUCATION AND  
IN YOUR FUTURE.

OF COURSE YOU  
SHOULD TRADE WITH  
YOUR NEIGHBORS.

MAINTAIN THE  
RULE OF LAW.



MOST ECONOMISTS AGREE THAT  
THE CLASSICAL VIEW MAKES A LOT  
OF SENSE **IN THE LONG RUN.**

THERE'S ONLY ONE **PROBLEM:**

WHAT ABOUT THE  
**GREAT DEPRESSION?**

THE GREAT  
DEPRESSION?

**NEVER HEARD  
OF IT.**



UNDERSTANDING **BOOMS AND BUSTS**, LIKE THE **GREAT DEPRESSION** THAT STARTED IN 1929, IS THE **SECOND BIG GOAL** OF **MACROECONOMICS**.



THE UNEMPLOYMENT RATE HAS BEEN OVER 20% FOR 4 YEARS.

WOW, THIS DEPRESSION IS GREAT!

WHILE THE CLASSICAL VIEW EXPLAINS **LONG-RUN GROWTH** QUITE WELL, IT FAILS TO EXPLAIN THESE SHORT-RUN **BUSINESS CYCLE** FLUCTUATIONS.



**WE'VE LOST OUR JOBS!**

WELL... UM... DON'T WORRY...

... THE ECONOMY WILL IMPROVE IN THE **LONG RUN!**

THIS LED THE BRITISH ECONOMIST **JOHN MAYNARD KEYNES** TO MAKE THE **FIRST-EVER MACROECONOMICS JOKE**:



"IN THE LONG RUN WE ARE ALL DEAD."

THE IDEA THAT GOVERNMENT ACTION CAN PROMOTE SHORT-RUN STABILITY IS CALLED  
**THE KEYNESIAN VIEW.**



TO AVOID BOOMS  
AND BUSTS, WE HAVE TO  
DO SOMETHING!

WE CAN'T JUST LEAVE  
IT UP TO THE **FREE**  
**MARKET.**

WRITING IN 1931, KEYNES ENVISIONED A TIME WHEN GOVERNMENT ECONOMISTS  
COULD **SIMPLY AND EASILY FINE-TUNE THE ECONOMY.**



MACROECONOMISTS SHOULD  
BE LIKE DENTISTS: **HUMBLE**  
**AND COMPETENT.**

WE'RE GOING TO FILL  
THAT CAVITY AND GET  
YOU OUT OF HERE IN  
30 MINUTES!



UNFORTUNATELY, TRYING TO **EXPLAIN**  
THE UPS AND DOWNS OF THE **BUSINESS CYCLE,**  
MUCH LESS **FIX THEM...**

... HAS TURNED OUT TO BE AS  
**HARD AS PULLING TEETH.**





IN SUM, THE **TWO BIG GOALS** OF MACROECONOMICS ARE:

## TO EXPLAIN **HOW ECONOMIES GROW...**



400 YEARS AGO, ALMOST EVERYONE ON PLANET EARTH WAS **POOR...**

... 400 YEARS FROM NOW, MAYBE EVERYONE WILL BE **RICH!**

OVER THE **LONG TERM**, ENTIRE ECONOMIES OFTEN SEEM TO RUN LIKE **CLOCKWORK...**



...OR LIKE **A RACEHORSE...**

THE MACROECONOMY IS MOVING LIKE A **TREMENDOUS MACHINE!**



...OR, AS SUGGESTED BY THE CLASSICAL ECONOMISTS, LIKE **A WELL-ORGANIZED FAMILY.**

ALL IS FOR THE BEST IN THIS, THE **BEST OF ALL POSSIBLE WORLDS.**





# ...AND WHY ECONOMIES COLLAPSE.



NEVER MIND ABOUT  
400 YEARS...

... WHAT HAPPENED  
TO THE JOB I HAD  
YESTERDAY?



IN THE **SHORT TERM**, ENTIRE  
ECONOMIES SOMETIMES SEEM MORE  
LIKE A **BUSTED CLOCK**...



... OR LIKE A **BUCKING BRONCO**...



... OR, AS SUGGESTED BY THE KEYNESIAN ECONOMISTS,  
LIKE A **DYSFUNCTIONAL FAMILY**.



THIS BOOK LOOKS AT  
**MACROECONOMICS** BY  
STUDYING THE ECONOMY OF  
**ONE COUNTRY...**

THIS COUNTRY IS  
LIKE A GREAT BIG  
**HAPPY FAMILY!**

OH,  
PLEASE!

... AND THEN TRADE BETWEEN  
**TWO COUNTRIES...**

OR EVEN BETWEEN  
**TWO PLANETS.**

... AND THEN **GLOBAL  
MACROECONOMICS.**

HLWOO ZEELNOO  
FLOUDABLZ, **GHOW  
NEERP GRSA!**

ZANTROK SAYS WE  
HUMANS HAVE SOME BIG  
ISSUES TO DEAL WITH.

ALL ALONG, WE'LL BE FOLLOWING THE QUEST FOR  
**THE HOLY GRAIL OF MACROECONOMICS:**

**HOW TO GET ECONOMIES  
TO GROW WITHOUT CRASHING.**

WHAT WE'RE  
SEARCHING FOR...

... IS A WAY TO **INCREASE  
LIVING STANDARDS**  
IN THE LONG RUN...

... WHILE  
**MAINTAINING  
STABILITY** IN  
THE SHORT RUN.



IN THIS BOOK, WE WOULD **LOVE** TO BE ABLE TO PRESENT  
A **UNIFIED THEORY** OF MACROECONOMICS...



I'VE FIGURED OUT  
LONG-RUN GROWTH  
**AND** SHORT-RUN  
STABILITY!

CONGRATULATIONS,  
YOU WIN THE  
**NOBEL PRIZE!**

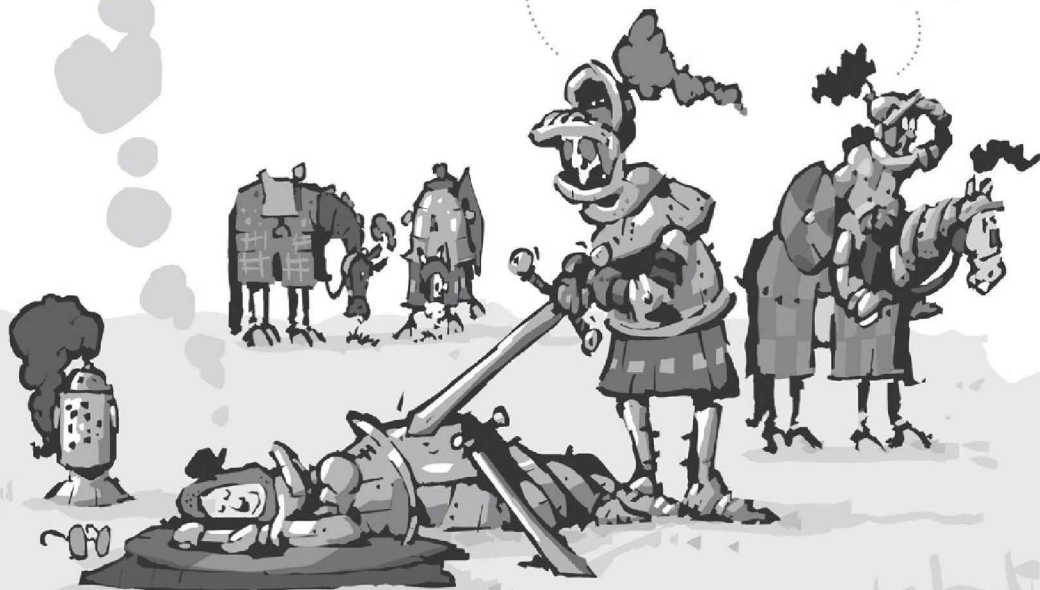


... BUT IN TRUTH, THE QUEST FOR  
THE HOLY GRAIL IS **STILL GOING ON.**

**WAKE UP!**

WE'VE GOT  
WORK TO DO,

I KNOW IT'S  
OUT THERE,



# CHAPTER 2

## UNEMPLOYMENT

WHAT HAS YOUR  
**JOB SEARCH**  
TURNED UP?

**NUTTIN',  
HONEY.**



THE BEST WAY TO UNDERSTAND  
THE **KEYNESIAN** VIEW  
OF THE ECONOMY...

THE MACROECONOMY IS  
LIKE A **DYSFUNCTIONAL**  
FAMILY!



... IS TO LOOK AT THE **LABOR MARKET**.

IN THE **SHORT RUN**, MESSED-UP ECONOMIES  
CAN LEAVE **LOTS** OF PEOPLE OUT OF WORK.

**GET A JOB!**

YOU'RE ONE  
TO TALK!



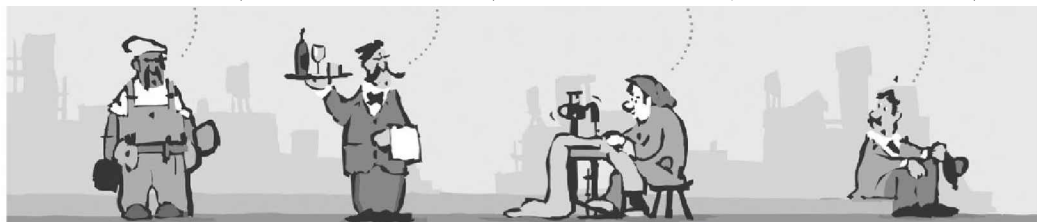
DURING THE **GREAT DEPRESSION**, FOR EXAMPLE,  
THE UNEMPLOYMENT RATE PEAKED IN 1933 AT A SHOCKING **25%**.

I HATE MY JOB,

I HATE MY JOB,

I HATE MY JOB,

LUCKY DUCKS,



MORE RECENTLY, THE "GREAT RECESSION" THAT STARTED IN DECEMBER 2007 FEATURED  
AN EXTENDED PERIOD OF **HIGH UNEMPLOYMENT**, PEAKING IN 2009 AT **10%**.

WHAT'S THE DIFFERENCE  
BETWEEN A RECESSION  
AND A DEPRESSION?

IT'S LIKE THE  
DIFFERENCE BETWEEN  
BEING SICK...

... AND BEING ON  
YOUR DEATHBED.





BUT LOOKING AT THE **LABOR MARKET** IS ALSO THE BEST WAY TO UNDERSTAND...

...THE **CLASSICAL VIEW OF THE ECONOMY.**



THE **MACROECONOMY** IS  
LIKE A **WELL-ORGANIZED**  
**FAMILY!**

**IN THE LONG RUN, DESPITE MASSIVE CHANGES IN  
THE LABOR MARKET OVER THE PAST TWO CENTURIES...**

LIKE POPULATION GROWTH...

WE'RE GOING TO NEED  
**100 MILLION MORE JOBS!**



THE ENTRY OF WOMEN INTO THE LABOR FORCE...

MAKE THAT  
**200 MILLION!**



TECHNOLOGICAL CHANGE...

I DON'T NEED A SECRETARY,  
I'VE GOT A **COMPUTER...**



AND GLOBALIZATION...

...AND IT'S MADE  
IN **CHINA.**



... **FREE-MARKET ECONOMIES** HAVE CONTINUED  
TO CREATE JOBS FOR PRETTY MUCH **EVERYBODY.**

I FILL UP THE  
**BANK ACCOUNT!**

I FILL UP THE  
**REFRIGERATOR!**

I FILL UP  
THE **DIAPERS!**



TO UNDERSTAND THE **CLASSICAL VIEW**,  
LET'S LOOK AT THE **U.S.** AND **EUROPE**.

UNTIL ABOUT 1800, THEIR JOB MARKETS WERE DOMINATED BY **AGRICULTURE**.



I NEED SOMEONE TO  
CLEAN THE **COBWEBS**  
OUT OF THIS BARN.

WE CAN  
DO THAT!



BY 1930, MOST OF THOSE JOBS WERE GONE, BUT THEY WERE  
REPLACED BY OTHER JOBS SUCH AS **MANUFACTURING**.



I TORE DOWN THE  
BARN AND BUILT THIS  
TEXTILE MILL...  
... AND I NEED SOMEONE  
TO COORDINATE OUR  
**WEB** OF SUPPLIERS.

WE CAN  
DO THAT!



AND IN THE 21ST CENTURY, MANY OF THOSE JOBS ARE GOING AWAY  
AND BEING REPLACED BY **SERVICE-SECTOR JOBS**.



I NEED SOMEONE  
TO MANAGE OUR  
**WEBSITE**.

WE CAN  
DO THAT!



THE LESSON HERE IS THAT, OVER TIME,  
**WORK DISAPPEARS FROM SOME PARTS**  
OF A FREE-MARKET ECONOMY...

... BUT **REAPPEARS**  
**ELSEWHERE.**

I LOST MY JOB  
TRAINING  
**HORSES**.



I GOT A JOB **BUILDING**  
**HIGH-SPEED TRAINS!**





THE AUSTRIAN ECONOMIST **JOSEPH SCHUMPETER** CALLED THIS PROCESS **CREATIVE DESTRUCTION.**

IN THE MORNING THIS WILL ALL BE WASHED AWAY...

... AND THEN WE CAN START AGAIN!

SADLY, THERE IS **NO GUARANTEE** THAT FREE-MARKET ECONOMIES WILL **ALWAYS** DO SO WELL AT CREATING JOBS FOR **EVERYONE**...

TOO BAD ALL THOSE FOLKS **CAN'T** FIND JOBS.

YES, MA'AM, WHAT A TRAGEDY.

... BUT SO FAR THE TRACK RECORD OF FREE MARKETS HAS BEEN **REMARKABLE.**

IT'S AS IF THE WHOLE ECONOMY IS GUIDED BY AN **INVISIBLE HAND!**

LIFE REALLY IS A BEACH!

WHEN IT COMES TO THE LABOR MARKET, THE CHALLENGE IS TO RECONCILE THE CLASSICAL AND THE KEYNESIAN VIEWS.



THE LABOR MARKET IS LIKE A PERFECTLY EFFICIENT CLOCK, MIRACULOUSLY WOUND BY THE GLORIOUS INVISIBLE HAND.

THEN HOW COME THE UNEMPLOYMENT RATE IS SO HIGH?



TO DO THIS, IT HELPS TO HAVE A GOOD DEFINITION OF "UNEMPLOYMENT," A SIMPLE-SOUNDING TERM THAT IS ACTUALLY QUITE TRICKY.

ARE WE UNEMPLOYED?

CAPITALIST PIGS MIGHT CALL ME UNEMPLOYED...

I THINK I'M IN LABOR...



... BUT I SAY I'M WORKING FOR THE REVOLUTION!



... HOW CAN I NOT BE IN THE LABOR FORCE?

ACCORDING TO ECONOMISTS, YOU'RE ONLY UNEMPLOYED IF YOU'RE ACTIVELY LOOKING FOR A PAYING JOB AND CAN'T FIND ONE.

not in the labor force

WE DON'T HAVE PAYING JOBS AND WE DON'T WANT 'EM.



in the labor force

WE'RE EMPLOYED: WE HAVE PAYING JOBS.



WE'RE UNEMPLOYED: WE WANT PAYING JOBS BUT DON'T HAVE 'EM.



SOME STATISTICS ALSO INCLUDE DISCOURAGED WORKERS, BUT TECHNICALLY YOU'RE ONLY UNEMPLOYED IF YOU'RE ACTIVELY LOOKING FOR WORK.

I'VE BEEN LOOKING FOR A JOB ALL DAY LONG, AND YOU'VE JUST BEEN SITTING ON THE COUCH?!

HEY, AT LEAST I'M NOT UNEMPLOYED!



**ECONOMISTS ALSO DISTINGUISH BETWEEN  
THREE BASIC TYPES OF UNEMPLOYMENT.**

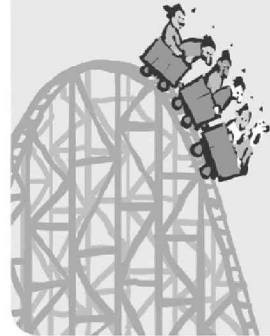
**FRictionAL**



**STRUCTURAL**



**CYCLICAL**



**THE FIRST TYPE, FRICTIONAL UNEMPLOYMENT, IS UNAVOIDABLE SHORT-TERM UNEMPLOYMENT CAUSED BY CHANGES IN THE ECONOMY AND IN PEOPLE'S LIVES.**



I MOVED TO PHOENIX TO BE NEAR MY PARENTS, AND IT'S TAKING ME A LITTLE TIME TO FIND A NEW JOB.

I GOT DOWNSIZED...

... BUT I HAVE THREE INTERVIEWS LINED UP FOR NEXT WEEK.



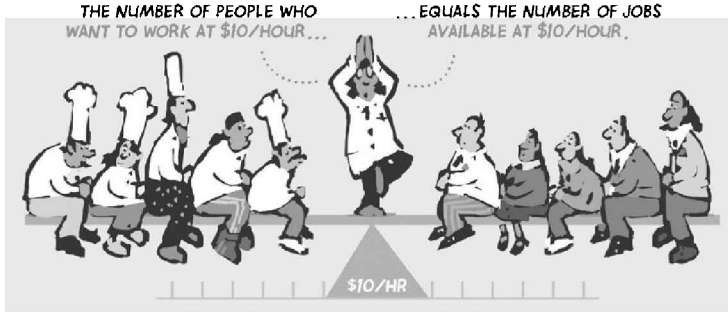
**FRICTIONAL UNEMPLOYMENT MAKES SENSE TO BOTH CLASSICAL AND KEYNESIAN ECONOMISTS.**

EVEN A PERFECTLY BUILT MACHINE HAS **FRICTION**...

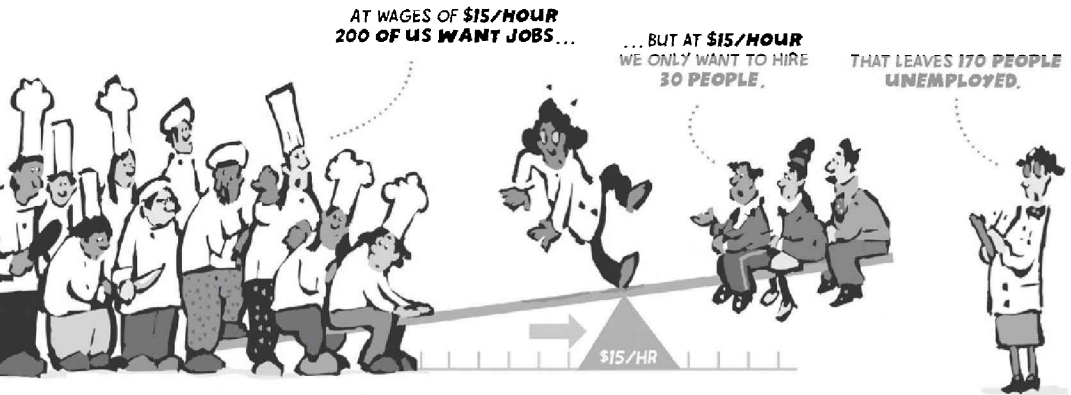
... AND THE SAME IS TRUE OF A MACROECONOMY, EVEN ONE THAT'S FUNCTIONING PERFECTLY.



TO UNDERSTAND THE **SECOND TYPE** OF UNEMPLOYMENT, RECALL FROM MICRO THAT THE **PRICE OF LABOR IS SUPPOSED TO BALANCE SUPPLY AND DEMAND.**



LONG-TERM UNEMPLOYMENT THAT RESULTS WHEN THIS PROCESS BREAKS DOWN IS CALLED **STRUCTURAL UNEMPLOYMENT.**



THE OBVIOUS QUESTION IS: **WHY DON'T WAGES FALL TO BALANCE SUPPLY AND DEMAND?**

ONE POSSIBLE CAUSE IS **MINIMUM WAGE LAWS.**

THE GOVERNMENT SAYS YOU **HAVE** TO PAY \$15/HOUR.

SO THE PRICE OF LABOR **CAN'T** GO DOWN!



ANOTHER POSSIBILITY IS **EFFICIENCY WAGES.**

WE COULD GET WORKERS AT \$10/HOUR...

... BUT WE'RE PAYING \$15/HOUR TO **AVOID** **TURNOVER...**

... AND TO MOTIVATE OUR EMPLOYEES TO **WORK HARD.**



**PARADOXICALLY, STRUCTURAL UNEMPLOYMENT CAN ALSO RESULT FROM GOVERNMENT POLICIES THAT ARE INTENDED TO PRESERVE JOBS.**

**JOBS ARE IMPORTANT!**

SO IF YOU WANT TO FIRE SOMEONE, YOU NEED A GOOD REASON...

... AND YOU HAVE TO PAY A PENALTY EQUAL TO 6 MONTHS' WAGES.



**THE PARADOX IS THAT FIRMS THAT CANNOT EASILY FIRE WORKERS ARE ALSO GOING TO BE SLOW TO HIRE WORKERS.**



CAN I HAVE A JOB?

WELL, WE DO HAVE WORK FOR YOU NOW...

... BUT WE DON'T WANT TO RISK BEING STUCK WITH YOU.



**IN OTHER WORDS, POLICIES INTENDED TO CREATE JOB SECURITY...**

**... CAN CREATE RIGIDITY IN THE LABOR MARKET THAT INCREASES UNEMPLOYMENT.**



MARKET FORCES CANNOT CREATE UNLESS THEY CAN ALSO DESTROY!



**MOST ECONOMISTS THINK THAT LEAVING MARKETS ALONE WOULD CREATE MORE JOBS.**



IT WOULD WORK A LOT BETTER IF YOU DIDN'T KEEP PUTTING YOUR HAND IN THERE!





IF YOU ADD TOGETHER **THE FIRST TWO TYPES** OF UNEMPLOYMENT...

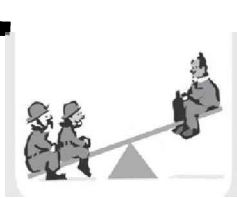
... YOU GET THE **NATURAL RATE** OF UNEMPLOYMENT.

**FRictionAL**

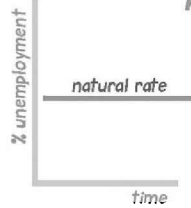
**STRUctURAL**



+



=



IT'S THE **AVERAGE UNEMPLOYMENT RATE** OVER TIME.



UP TO THIS POINT, CLASSICAL AND KEYNESIAN ECONOMISTS **TEND TO AGREE.**

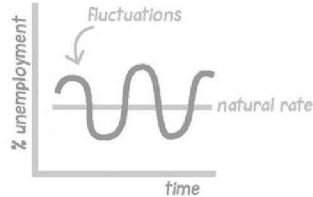
IN THE LONG RUN, THE ECONOMY TENDS TO **RETURN TO THE NATURAL RATE** OF UNEMPLOYMENT.



BUT THEY **DON'T AGREE** ABOUT THE THIRD TYPE OF UNEMPLOYMENT: **CYCLICAL UNEMPLOYMENT.**

CYCLICAL UNEMPLOYMENT REFERS TO **SHORT-TERM FLUCTUATIONS** AROUND THE NATURAL RATE...

... CAUSED BY THE UPS AND DOWNS OF THE **BUSINESS CYCLE.**



**CYCLICAL UNEMPLOYMENT HIGHLIGHTS THE DIFFERENCE BETWEEN THE CLASSICAL AND THE KEYNESIAN VIEWS.**



THE ECONOMY IS ALWAYS LIKE A RACEHORSE!

NONSENSE!  
SOMETIMES IT'S LIKE A BUCKING BRONCO!



**FORCED TO CHOOSE BETWEEN BASIC ECONOMIC THEORY...**

**... AND WHAT APPEARS TO BE A BASIC FACT OF LIFE...**



WAGES ADJUST TO BALANCE SUPPLY AND DEMAND.



UNEMPLOYMENT GOES UP DURING RECESSIONS...

...DUH!

**... CLASSICAL AND KEYNESIAN ECONOMISTS HEAD IN DIFFERENT DIRECTIONS.**

MAYBE ALL THOSE PEOPLE REALLY **AREN'T** UNEMPLOYED.

MAYBE THEY'RE JUST **CHOOSING NOT TO WORK.**

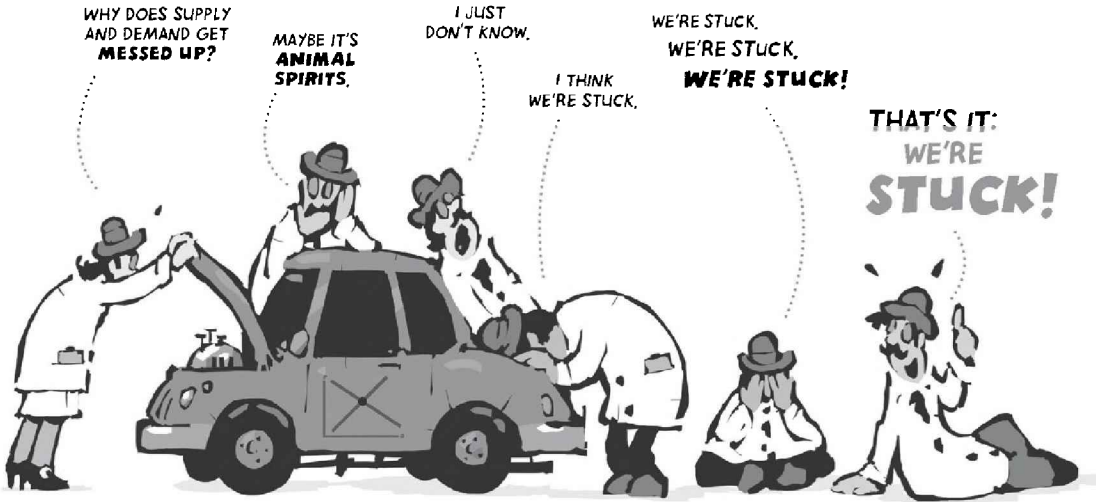
THOSE PEOPLE REALLY **ARE** UNEMPLOYED...

... SO THE BASIC THEORY **MUST BE WRONG.**

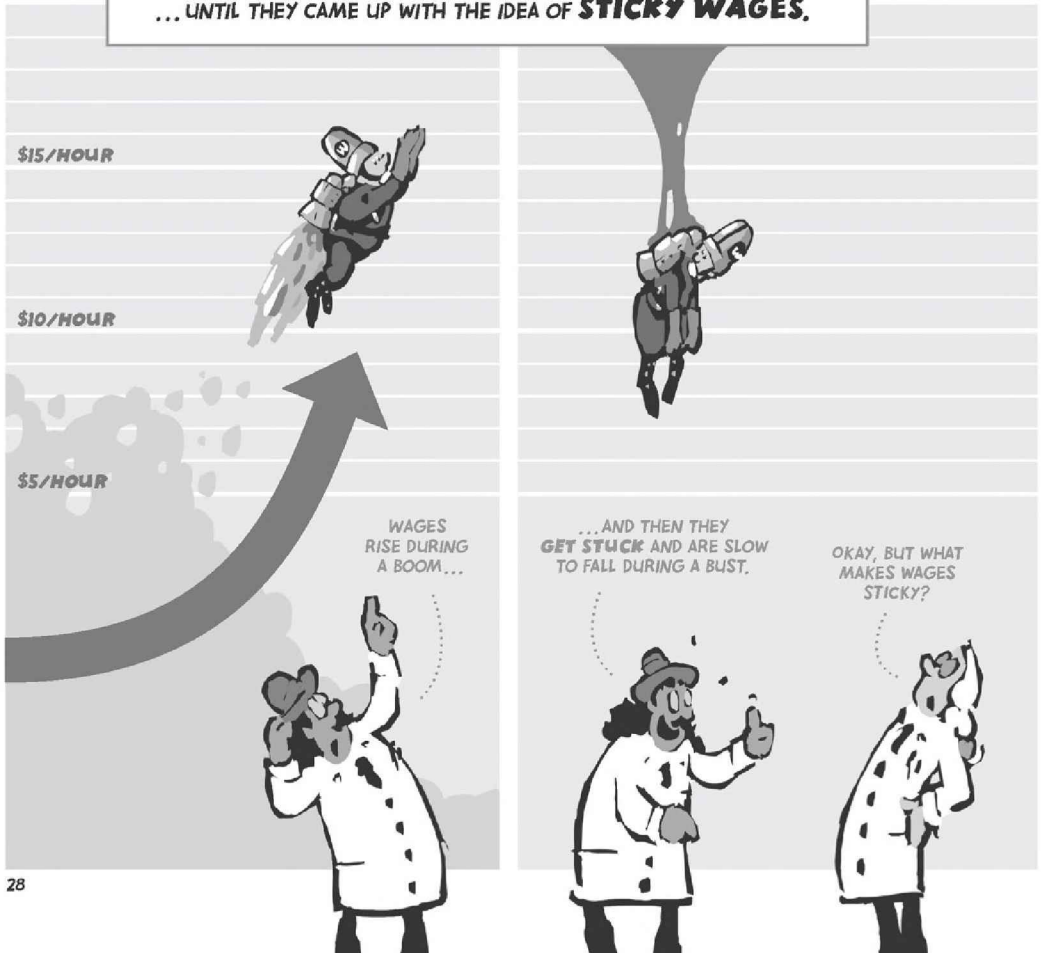
BUT HOW?



KEYNESIAN ECONOMISTS STRUGGLED FOR MANY YEARS TO FIND  
A THEORY TO EXPLAIN **CYCLICAL UNEMPLOYMENT...**



... UNTIL THEY CAME UP WITH THE IDEA OF **STICKY WAGES.**





ONE ARGUMENT FOR WHY WAGES ARE SLOW TO FALL IS THAT **JOB CONTRACTS CAN LAST FOR MANY YEARS.**



I'M GOING TO HIRE YOU FOR THE NEXT THREE YEARS AT \$15/HOUR.

OKAY, NO TAKE-BACKS!

ANOTHER ARGUMENT IS THAT WORKERS ARE **PSYCHOLOGICALLY RESISTANT TO WAGE CUTS.**



TELL ME, WHY DID YOU POISON YOUR BOSS'S COFFEE?

THAT JERK TRIED TO CUT MY SALARY!

NOT ALL MACROECONOMISTS **AGREE** THAT STICKY WAGES ARE IMPORTANT...

... BUT WITHOUT THEM, IT'S HARD TO COMBINE **THEORY AND EVIDENCE.**



YOU THINK UNEMPLOYMENT GOES UP DURING RECESSIONS BECAUSE OF **STICKY WAGES?**

COME ON, **GET REAL.**

WHAT'S YOUR ALTERNATIVE?

THAT THE GREAT DEPRESSION WAS REALLY A **GREAT VACATION?**



UNEMPLOYMENT CONTINUES TO BE A HOT TOPIC AMONG ECONOMISTS, INCLUDING THE THREE SCHOLARS WHO WON THE 2010 NOBEL PRIZE.

FINDING A JOB CAN BE **HARD**.

YEAH!

AND WE CAN **PROVE IT!**

CONGRATULATIONS, YOU WIN THE **NOBEL PRIZE!**



AND, AT LEAST FOR NOW, MANY KEYNESIAN ECONOMISTS ARE QUITE ATTACHED TO THE THEORY OF **STICKY WAGES**.



AND **WAGES** AREN'T THE ONLY THINGS THAT ARE **STICKY**.

OTHER KINDS OF **PRICES** CAN BE **STICKY** TOO!

# CHAPTER 3

## MONEY

**MONEY IS  
POWER!**

**MONEY  
IS EVIL!**

**BUT ISN'T MONEY  
JUST LITTLE BITS  
OF PAPER?**



FOR MOST PEOPLE, **MONEY** IS A KEY MEASURE OF ECONOMIC SUCCESS...



... BUT FOR ECONOMISTS, **MONEY** IS MERELY SOMETHING THAT **FACILITATES TRADE**.

IT'S LIKE **OIL** THAT **LUBRICATES** THE WHOLE ECONOMY.



IT KEEPS THE GEARS **RUNNING SMOOTHLY**.

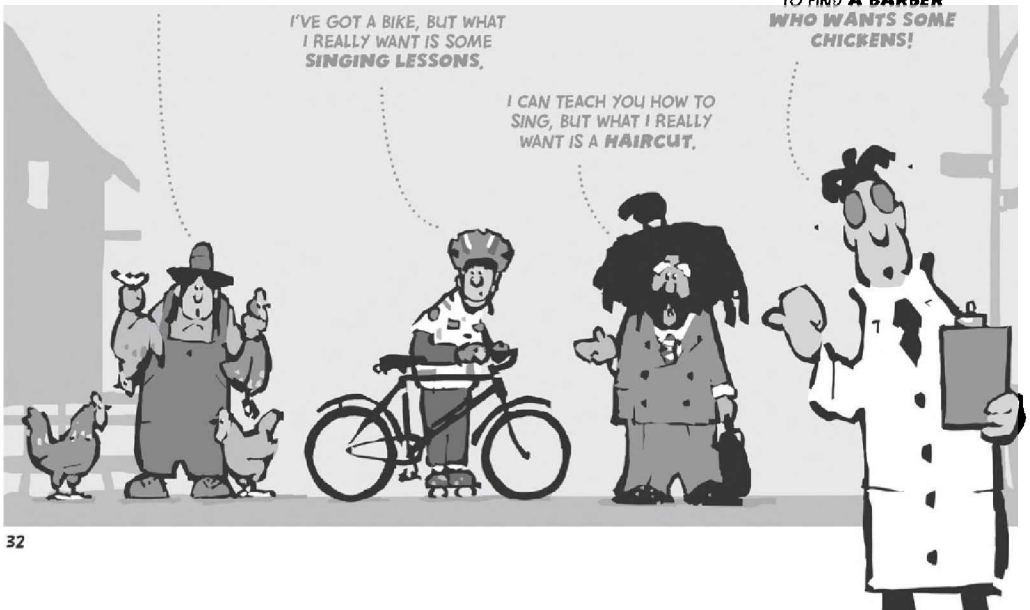
TO UNDERSTAND HOW MONEY SERVES AS A **MEDIUM OF EXCHANGE** IN AN ECONOMY, IMAGINE HOW COMPLICATED LIFE WOULD BE **WITHOUT IT**.

I'VE GOT SOME CHICKENS, BUT WHAT I REALLY WANT IS A **BIKE**.

NOW WE JUST NEED TO FIND A **BARBER WHO WANTS SOME CHICKENS!**

I'VE GOT A **BIKE**, BUT WHAT I REALLY WANT IS SOME **SINGING LESSONS**.

I CAN TEACH YOU HOW TO SING, BUT WHAT I REALLY WANT IS A **HAIRCUT**.



THROUGHOUT HISTORY, PEOPLE HAVE USED ALL KINDS OF THINGS AS MONEY,



IN MOST OF THESE CASES, THE KEY FACTOR WAS THAT "MONEY" WAS SOMETHING WITH **INTRINSIC VALUE**.



NOWADAYS, MOST MONEY IS **FIAT MONEY**, MEANING THAT IT HAS VALUE SIMPLY BECAUSE **EVERYBODY BELIEVES THAT IT DOES**.





IT MAY SEEM **CRAZY** THAT GOVERNMENTS HAVE THE POWER TO **CREATE MONEY OUT OF THIN AIR...**



... BUT IT'S **LESS CRAZY** WHEN YOU RECOGNIZE THAT THIS POWER IS OF **LIMITED VALUE.**

COUNTRIES CAN'T BECOME RICH JUST BY PRINTING MONEY.

IT WAS TOO GOOD TO BE TRUE.



IN FACT, WHEN IT COMES TO LONG-RUN GROWTH, MOST ECONOMISTS SAY THAT **MONEY IS NEUTRAL...**

... OR, TO MISUSE A RELATED TERM THAT'S MORE FUN, **SUPER-NEUTRAL.**

HELP!  
HELP!

SORRY, WE CAN'T HELP.

I'M NEUTRAL...

... AND I'M **SUPER-NEUTRAL!**



**THE THEORY OF MONEY NEUTRALITY** SAYS THAT IF THE AMOUNT OF MONEY IN CIRCULATION WAS TO **DOUBLE**...

... EVERYONE WOULD MAKE **TWICE** AS MUCH MONEY...

... BUT EVERYTHING WOULD COST **TWICE** AS MUCH,



FROM THIS PERSPECTIVE, CHANGES IN THE VALUE OF A DOLLAR ARE AS **IRRELEVANT** AS CHANGING THE DEFINITION OF A FOOT TO BE **6 INCHES** INSTEAD OF 12.



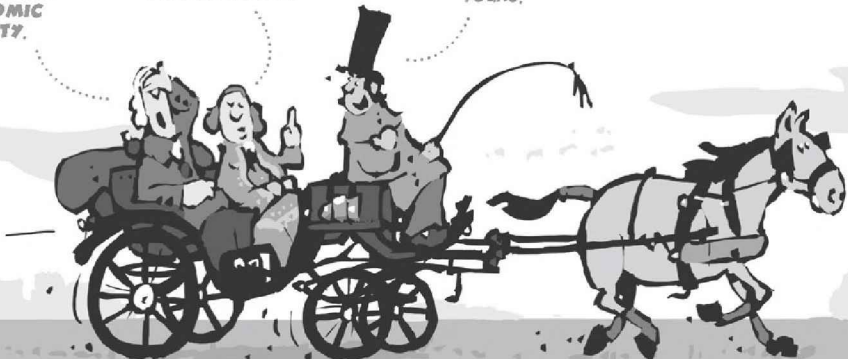
IN SHORT, THE THEORY OF MONEY NEUTRALITY SAYS THAT **MONEY DOESN'T MATTER.**

THIS IDEA GOES BACK TO THE CLASSICAL ECONOMIST **ADAM SMITH** AND HIS COLLEAGUE **DAVID HUME.**

MONEY IS A **VEIL** THAT DOESN'T AFFECT THE UNDERLYING **ECONOMIC REALITY.**

YOU'RE RIGHT! MONEY IS OF **NO CONSEQUENCE!**

IN THAT CASE, CAN I HAVE YOURS?



ALMOST ALL ECONOMISTS AGREE THAT  
MONEY DOESN'T MATTER IN THE LONG RUN...

HELP!

HELP!

I TOLD YOU...  
... I CAN'T  
HELP!

HELP!

HELP!

... BUT IN THE SHORT RUN, MOST ECONOMISTS—ESPECIALLY **KEYNESIANS**—BELIEVE THAT  
**MONEY ACTUALLY DOES MATTER!**

IN THE LONG RUN  
I'M SUPER-NEUTRAL...

... BUT IN THE SHORT RUN I'M  
MONETARY POLICY MAN.

THEY ARGUE THAT CHANGING THE VALUE OF A DOLLAR CAN TEMPORARILY ALTER  
THE **UNEMPLOYMENT RATE** AND OTHER IMPORTANT ECONOMIC VARIABLES.

IN ECONOMICS JARGON,  
WE SAY THAT CHANGES IN  
**NOMINAL VARIABLES...**

... CAN AFFECT  
**REAL VARIABLES.**

IN PLAIN ENGLISH, THIS  
MEANS THAT CHANGING  
THE NUMBER OF INCHES  
IN A FOOT...

... **CAN HELP**  
ME DUNK!

NO WONDER  
**MONETARY**  
**POLICY** IS SO  
IMPORTANT!



**MANAGING MONETARY POLICY IS ONE OF THE MAIN RESPONSIBILITIES OF GOVERNMENT ENTITIES CALLED CENTRAL BANKS.**

LIKE THE **FEDERAL RESERVE** IN THE UNITED STATES...

...THE **EUROPEAN CENTRAL BANK**...

...AND THE **BANK OF JAPAN**...



CENTRAL BANKS CAN'T DO MUCH ABOUT ECONOMIC GROWTH IN THE **LONG RUN**...

MONETARY POLICY IS ALL ABOUT THE **MONEY SUPPLY**...

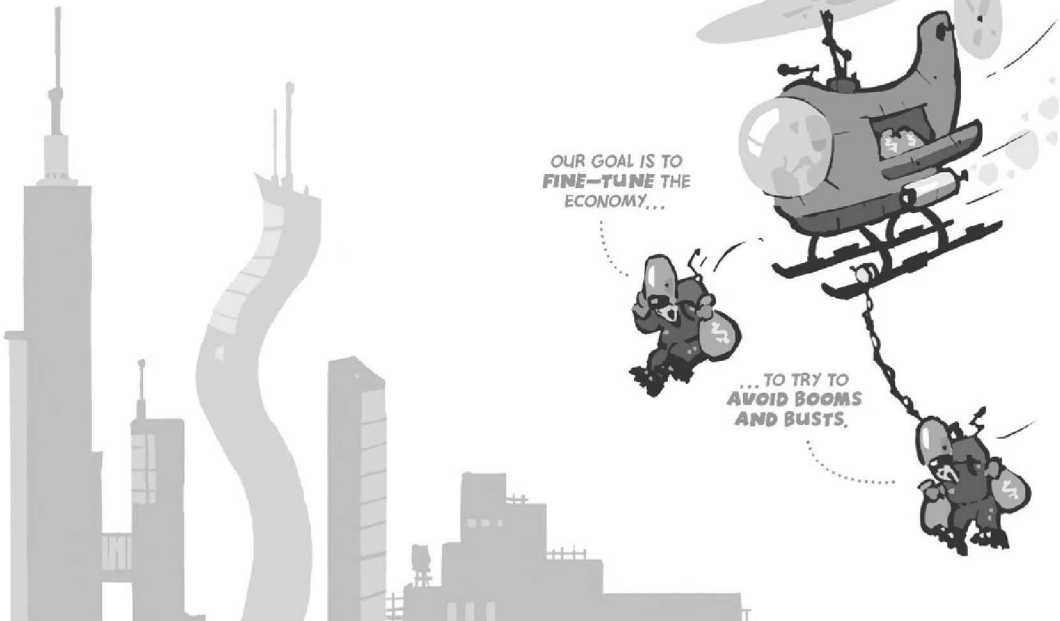
...AND IN THE LONG RUN MONEY IS NEUTRAL.



... BUT THEY WORK HARD TO **PROMOTE MACROECONOMIC STABILITY IN THE SHORT RUN.**

OUR GOAL IS TO **FINE-TUNE THE ECONOMY**...

... TO TRY TO **AVOID BOOMS AND BUSTS.**



TO SEE HOW CENTRAL BANKS WORK,  
IMAGINE A **SICK ECONOMY** THAT  
IS **STUCK IN THE DOLDRUMS**.

INVESTMENT  
IS DOWN.

EMPLOYMENT  
IS DOWN.

THIS IS THE **WORST  
PARTY EVER!**



THE CENTRAL BANK CAN STIMULATE THIS ECONOMY BY  
**INCREASING THE MONEY SUPPLY.**



SPEND!  
SPEND!

THIS GIVES BUSINESSES  
AND CONSUMERS INCENTIVES  
TO **INCREASE SPENDING**  
IN THE **SHORT RUN...**

I THINK I WILL BUY  
THAT NEW VIDEO  
GAME SYSTEM!

I THINK I WILL BUY  
THAT NEW TACO  
TRUCK!



... AND THAT EXTRA SPENDING HELPS **KICK-START ECONOMIC GROWTH.**

WE'LL GO INTO THE  
DETAILS ON THE NEXT  
FEW PAGES.



ON THE FLIP SIDE, IMAGINE A **BUBBLE ECONOMY** THAT IS **GROWING TOO FAST.**

BRING MORE  
BUBBLY!

THE CENTRAL BANK CAN PUT THE BRAKES ON THIS ECONOMY BY **DECREASING THE MONEY SUPPLY.**

ENOUGH!  
CALM DOWN!

THIS GIVES BUSINESSES AND CONSUMERS INCENTIVES TO **DECREASE SPENDING IN THE SHORT RUN...**

ONE VIDEO GAME SYSTEM IS ENOUGH FOR NOW.

MAYBE I'LL WAIT TO BUY THAT TACO TRUCK.

... AND THAT REDUCED SPENDING HELPS BRING THE ECONOMY **BACK UNDER CONTROL.**

OUR JOB IS TO TAKE AWAY THE PUNCH BOWL. JUST AS THE PARTY GETS GOING.

OF COURSE, CENTRAL BANKS DON'T **LITERALLY** USE HELICOPTERS AND SUCTION PUMPS.

BUMMER, BECAUSE THAT WOULD BE **AWESOME**.



**INSTEAD, THEY CHANGE THE MONEY SUPPLY USING OPEN-MARKET OPERATIONS.**



TO UNDERSTAND THESE, NOTE FIRST THAT THE CENTRAL BANK ESSENTIALLY SITS ON **A MOUNTAIN OF CASH...**

WHERE'D YOU GET **ALL THAT CASH?**



I COULD TELL YOU, BUT THEN I'D HAVE TO KILL YOU.

... AND ALSO ON A MOUNTAIN OF **NON-CASH ASSETS** LIKE GOLD AND **GOVERNMENT BONDS**.

**BONDS ARE IOUs.**



YOU CAN READ MORE ABOUT THEM IN THE GLOSSARY.

**OPEN-MARKET OPERATIONS ARE TRADES INVOLVING THESE PILES OF MONEY AND NON-CASH ASSETS.**

THESE TRADES ARE SO BIG THAT THEY AFFECT THE **WHOLE ECONOMY!**



**OPEN-MARKET OPERATIONS WORK BECAUSE OF SUPPLY AND DEMAND, IN THIS CASE THE SUPPLY OF AND DEMAND FOR MONEY.**

HOW MUCH OF YOUR WEALTH DO YOU WANT TO CARRY AROUND AS CASH...

... AND HOW MUCH DO YOU WANT TO INVEST?



**THE DEMAND FOR MONEY IS DETERMINED BY THE INTEREST RATE, WHICH YOU CAN THINK OF AS THE "PRICE" OF MONEY...**

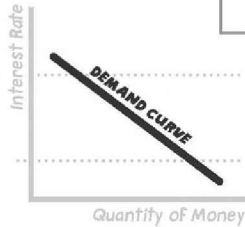
**AT HIGHER INTEREST RATES, PEOPLE WANT TO CARRY AROUND LESS MONEY.**

**AT LOWER INTEREST RATES, PEOPLE ARE WILLING TO HOLD ON TO MORE MONEY.**

YOU SHOULD PUT YOUR EXTRA MONEY INTO AN INTEREST-BEARING SAVINGS ACCOUNT.

I'D BE CRAZY TO HOLD IT IN MY POCKETBOOK.

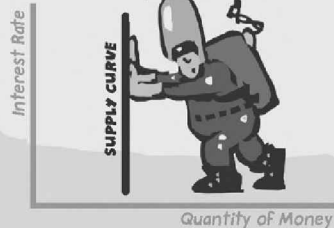
INTEREST RATES ARE SO LOW, I MIGHT AS WELL KEEP MY MONEY UNDER MY MATTRESS.



**... AND THE SUPPLY OF MONEY IS DETERMINED BY THE CENTRAL BANK.**

NEXT LET'S SEE HOW THE CENTRAL BANK CHANGES THE MONEY SUPPLY...

... AND HOW THAT GIVES US CONTROL OVER INTEREST RATES.





**WHEN THE CENTRAL BANK WANTS TO STIMULATE THE ECONOMY...**

...IT USES ITS PILE OF CASH TO **BUY BONDS**.



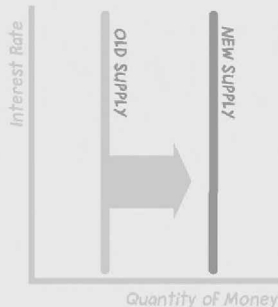
I'LL GIVE YOU THIS MONEY...  
...IF YOU GIVE ME THOSE BONDS.

O.K.A.Y.!

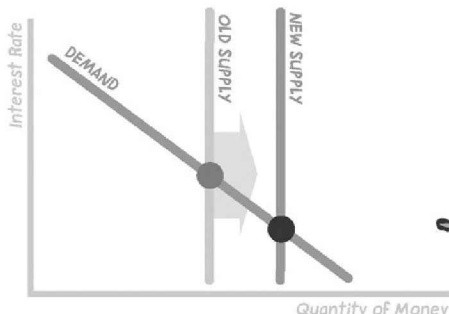


THE RESULT OF THESE OPEN-MARKET OPERATIONS IS **MORE MONEY IN CIRCULATION**.

THE MONEY SUPPLY **INCREASES**.



**AN INCREASE IN THE MONEY SUPPLY LOWERS INTEREST RATES...**



THE NEW INTEREST RATE IS LOWER!



...AND THAT **STIMULATES** THE ECONOMY BY ENCOURAGING **MORE BORROWING AND MORE SPENDING**.



I THINK I'LL BUY THAT NEW TACO TRUCK **NOW**.



**WHEN THE CENTRAL BANK WANTS TO CALM DOWN THE ECONOMY...**

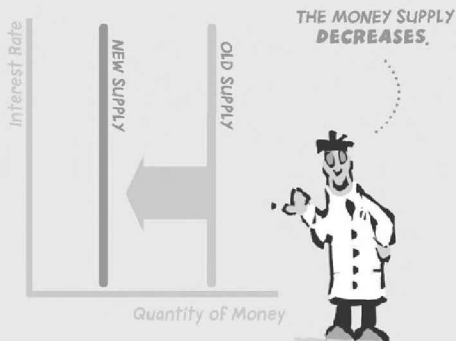
... IT SELLS BONDS FROM ITS PILE OF NON-CASH ASSETS.



I'LL GIVE YOU THESE BONDS ...  
... IF YOU GIVE ME THAT MONEY.

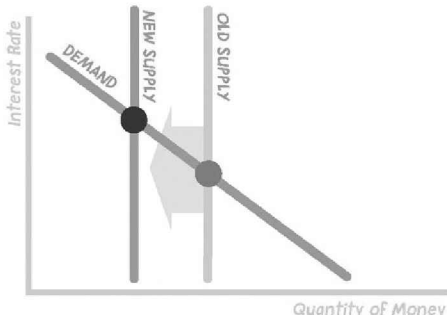
OKAY!

THE RESULT OF THESE OPEN-MARKET OPERATIONS IS LESS MONEY IN CIRCULATION.



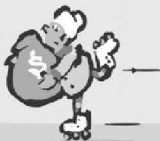
**A DECREASE IN THE MONEY SUPPLY RAISES INTEREST RATES...**

THE NEW INTEREST RATE IS HIGHER!



... AND THAT COOLS DOWN THE ECONOMY BY ENCOURAGING LESS BORROWING AND LESS SPENDING.

I THINK I'LL BUY THAT NEW TACO TRUCK LATER.





**BUT REMEMBER, THESE ARE  
SHORT-RUN EFFECTS.**

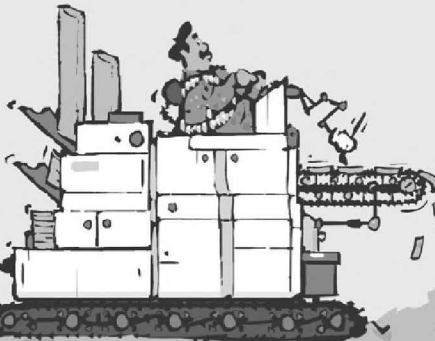
IN THE SHORT RUN,  
MORE MONEY CAN  
SPEED THINGS UP...

... AND LESS MONEY  
CAN SLOW THINGS  
DOWN,



**IN THE LONG RUN, YOU CAN'T  
GET RICH BY PRINTING MONEY...**

... YOU CAN ONLY GET  
**INFLATION.**



# CHAPTER 4

## INFLATION

**INFLATION** OR  
**DEFLATION**, TELL  
ME IF YOU CAN...

... WILL WE BE  
**ZIMBABWE**, OR WILL  
WE BE **JAPAN**?



**INFLATION IS A GENERAL INCREASE IN PRICES OVER TIME OR, EQUIVALENTLY, A GENERAL DECREASE IN THE VALUE OF MONEY.**



**THE MOST COMMON WAY TO MEASURE INFLATION IS WITH THE CONSUMER PRICE INDEX\* (CPI).**

THE CPI TAKES A **REPRESENTATIVE BUNDLE** OF GOODS AND SERVICES...

... AND TRACKS HOW THE **PRICE** OF THAT BUNDLE **CHANGES** OVER TIME.



**FOR EXAMPLE, IF THE BUNDLE COST \$100 IN 1920,...**

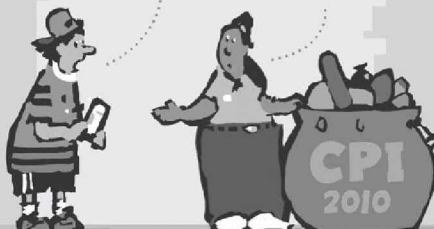
**... AND \$1,000 IN 2010...**

GIVE ME A BAR OF SOAP, A CAMPING TENT, A CANDY BAR, AND THREE MONTHS' RENT, ...

THAT'LL BE \$100.

GIVE ME A BAR OF SOAP, A CAMPING TENT, A CANDY BAR, AND THREE MONTHS' RENT, ...

THAT'LL BE \$1,000.



**... THEN WE WOULD SAY THAT THE PRICE LEVEL IN 2010 WAS 10 TIMES WHAT IT WAS IN 1920.**

**ECONOMISTS WHO CALCULATE INFLATION  
ENCOUNTER PLENTY OF DIFFICULTIES...**

WHAT DO WE DO WHEN  
CONSUMERS START BUYING  
CELL PHONES...



...AND STOP BUYING  
HAM RADIOS?



... BUT THE **BASIC IDEA** IS STRAIGHTFORWARD:

**THE FACT THAT THE CPI DOUBLED  
BETWEEN 1985 AND 2009...**

... MEANS THAT, **ON AVERAGE**, PRICES IN  
2009 WERE DOUBLE WHAT THEY WERE IN 1985.

THE PRICE OF THE  
REPRESENTATIVE  
BUNDLE IN 1985...



... WAS HALF  
OF ITS PRICE  
IN 2009.



IF AN APPLE COST  
\$0.50 IN 1985...



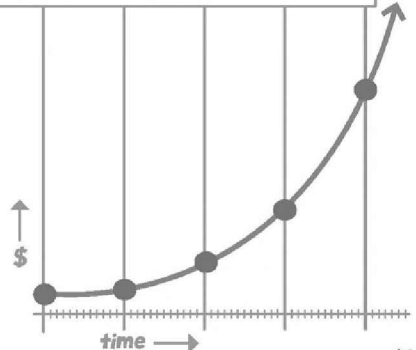
... ODDS ARE IT  
COST ABOUT  
\$1.00 IN 2009.



**A DOUBLING OF PRICES IN 24 YEARS** SOUNDS LIKE A LOT OF INFLATION...

... BUT IN FACT IT  
AVERAGES OUT TO ONLY  
ABOUT **3% PER YEAR**.

THE **RULE OF 70** SAYS THAT  
WITH INFLATION OF 3% PER YEAR,  
PRICES WILL DOUBLE IN ABOUT  
 $70/3 \approx 24$  YEARS.



**THE EASY QUESTION ABOUT INFLATION IS WHY IT HAPPENS.**

TO QUOTE **MILTON FRIEDMAN**, INFLATION IS "ALWAYS AND EVERYWHERE A **MONETARY PHENOMENON**."



WHEN THE GOVERNMENT PRINTS **TOO MUCH MONEY...**

CONGRATULATIONS, YOU WIN THE **NOBEL PRIZE!**

...THE VALUE OF MONEY GOES **DOWN.**

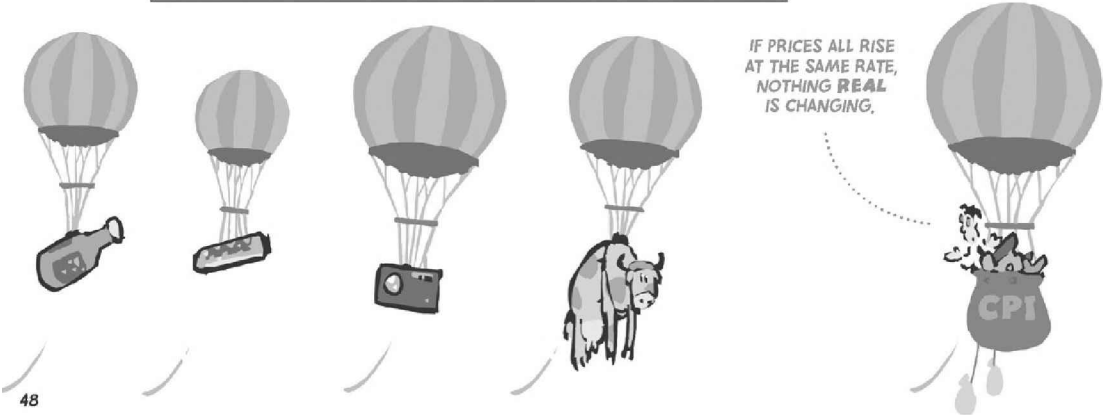
**THE HARD QUESTION ABOUT INFLATION IS WHY IT MATTERS.**



INFLATION IS **PUBLIC ENEMY #1.**

SO WHAT DOES THAT MAKE ME, **CHOPPED LIVER?**

THIS IS A HARD QUESTION BECAUSE ECONOMISTS THINK THAT **MONEY IS NEUTRAL** IN THE LONG RUN,



IF PRICES ALL RISE AT THE SAME RATE, NOTHING **REAL** IS CHANGING.

IN FACT, MANY ECONOMISTS THINK THAT THE GENERAL PUBLIC SUFFERS FROM **MONEY ILLUSION**.

TELL ME WHY YOU'RE ANGRY.

PRICES ARE GOING UP...

... EVERYTHING COSTS 10% MORE THAN LAST YEAR!



YES, BUT **EVERYTHING** INCLUDES THE **PRICE OF LABOR**...

THEY ARE **NOT!!**

... SO YOUR WAGES ARE GOING UP TOO.

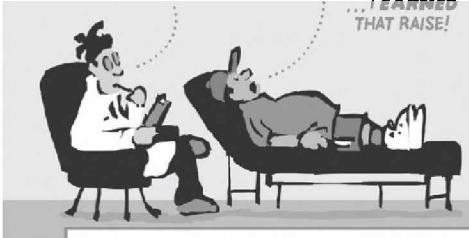


WAIT A MINUTE!

DIDN'T YOU GET A 10% RAISE LAST YEAR?

YEAH, BUT THAT'S **DIFFERENT**...

... I **EARNED** THAT RAISE!



THIS IS A CLASSIC CASE OF **MONEY ILLUSION!**

I'M GOING TO PRESCRIBE YOU SOME **NEUTRALIZE**.



**MONEY ILLUSION** HAPPENS WHEN PEOPLE THINK IN **NOMINAL TERMS**...

... RATHER THAN IN **REAL TERMS**.

A ONE-MONTH SUPPLY FOR **\$110?**

LAST YEAR IT WAS ONLY **\$100!**

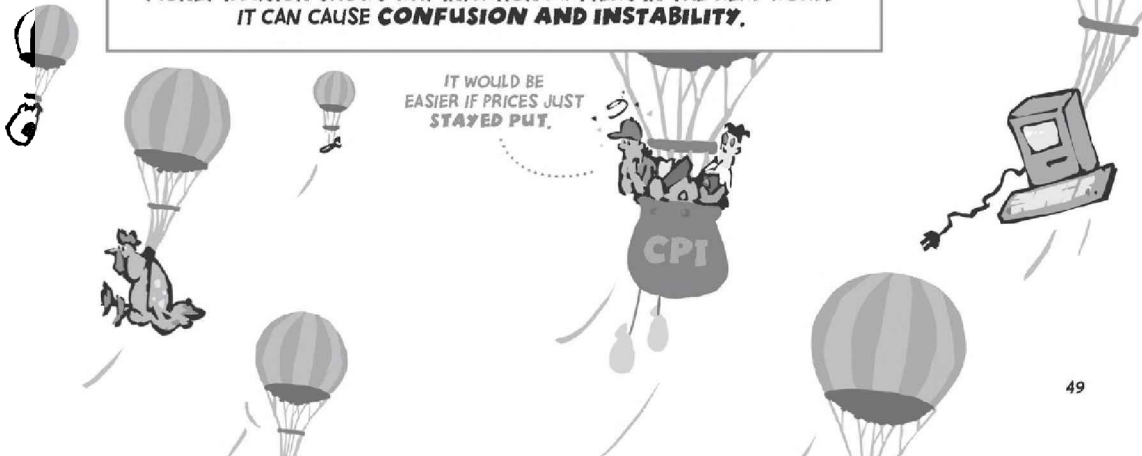


SIGH... LOOKS LIKE I'M GOING TO HAVE TO **INCREASE THE DOSAGE**.



**MONEY ILLUSION** SHOWS WHY INFLATION MATTERS IN THE REAL WORLD: IT CAN CAUSE **CONFUSION AND INSTABILITY**.

IT WOULD BE EASIER IF PRICES JUST STAYED PUT.





TO AVOID SUFFERING FROM MONEY ILLUSION,  
ECONOMISTS STUDY HOW PRICES CHANGE  
**IN REAL TERMS.**

**REAL PRICES ARE  
ADJUSTED FOR  
INFLATION.**

THEY SHOW US HOW  
THE PRICE OF SOMETHING  
HAS CHANGED **RELATIVE**  
TO THE **OVERALL**  
PRICE LEVEL.

FOR EXAMPLE, COMPARE  
THE PRICE OF MILK IN 1920...

... WITH THE PRICE OF MILK IN 2010.

THAT'LL BE  
\$0.72 PER  
GALLON.

THAT'LL BE  
\$3.00 PER  
GALLON.

BASED ON THIS COMPARISON OF **NOMINAL PRICES**,  
IT LOOKS AS IF MILK HAS GOTTEN A LOT MORE EXPENSIVE.

\$3.00 PER  
GALLON!?

WHEN I WAS A KID,  
MILK WAS ONLY \$0.72  
PER GALLON!



**BUT IF WE ADJUST FOR INFLATION BETWEEN 1920 AND 2010...**

IN 1920 MILK WAS \$0.72 PER GALLON.

BUT THE CPI SAYS THAT AVERAGE PRICES IN 2010 WERE 10 TIMES HIGHER THAN IN 1920...



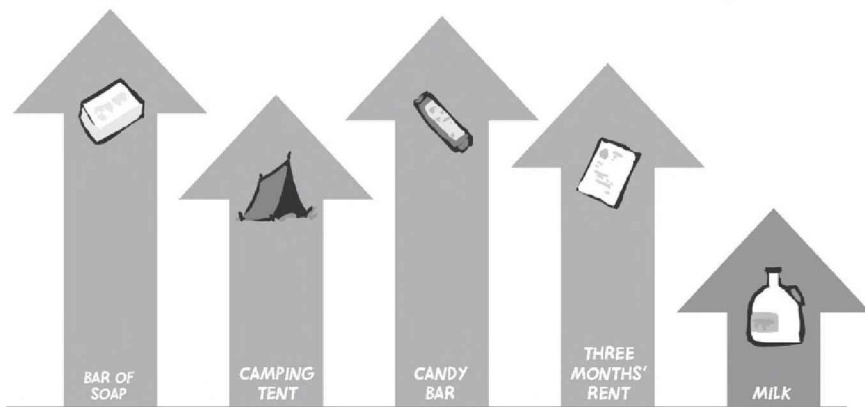
... SO IN TODAY'S DOLLARS THE PRICE OF MILK IN 1920 WAS ABOUT \$7.20 PER GALLON!



... WE SEE THAT THE **REAL PRICE OF MILK** HAS ACTUALLY **FALLEN**.



WHAT THIS MEANS IS THAT THE PRICES OF MOST OTHER THINGS HAVE **GONE UP MORE THAN THE PRICE OF MILK.**



YOU CAN ALSO GRASP THE **INTUITION** HERE BY THINKING ABOUT PRICES IN TERMS OF **WORK HOURS**.



SAYING THAT THE **REAL PRICE OF MILK HAS FALLEN**...

... IS LIKE SAYING THAT IT TAKES **FEWER HOURS OF WORK** FOR ME TO EARN ENOUGH TO BUY A GALLON OF MILK.





ECONOMISTS ALSO ADJUST  
**INTEREST RATES** TO  
ACCOUNT FOR INFLATION,

OTHERWISE WE CAN'T  
ACCURATELY COMPARE  
**MONEY TODAY...**

... WITH **MONEY**  
**TOMORROW.**

THE **NOMINAL INTEREST RATE**  
TELLS YOU THE GROWTH RATE OF  
MONEY IN THE BANK...

WOW, MY  
MONEY IS  
GROWING  
FAST!

... BUT YOUR **PURCHASING POWER**—  
YOUR ABILITY TO **BUY STUFF**—  
GROWS MORE SLOWLY BECAUSE OF INFLATION.

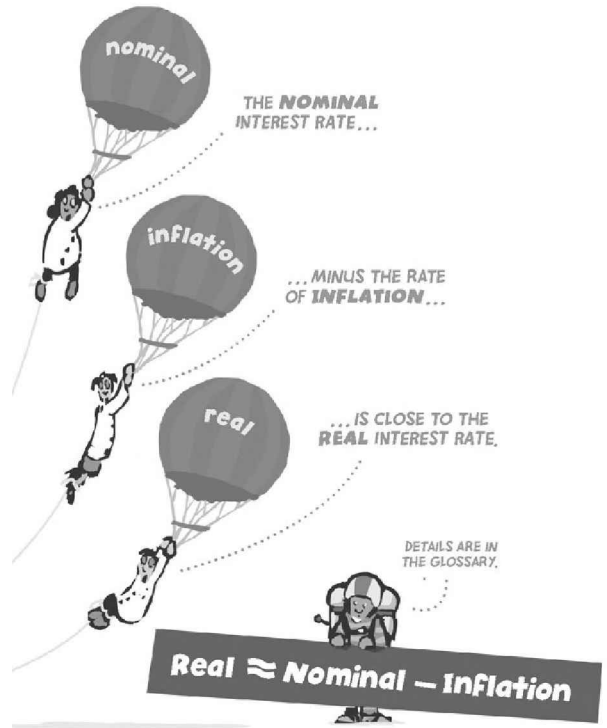
**PRICES** ARE  
GOING UP, TOO,  
SO YOUR MONEY  
ISN'T WORTH AS  
MUCH...

... AND THAT'S  
WHY WE NEED TO  
**ADJUST FOR**  
**INFLATION.**



THE **REAL INTEREST RATE**  
TELLS YOU HOW MUCH YOUR  
**PURCHASING POWER** IS GROWING.

**THERE'S A HANDY RULE OF THUMB THAT RELATES NOMINAL AND REAL INTEREST RATES.**



FOR EXAMPLE, IF THE **NOMINAL** INTEREST RATE IS 5% ...

IF I PUT \$100 IN THE BANK ...

... IN A YEAR YOU'LL HAVE 5% MORE MONEY ...



... AND INFLATION IS 3% ...

... BUT EVERY YEAR PRICES GO UP BY 3%.



... THE **REAL** INTEREST RATE IS ABOUT 2%.

IF I PUT \$100 IN THE BANK ...

... IN A YEAR YOU'LL HAVE 2% MORE PURCHASING POWER.



AS WITH PRICES, INTEREST RATES ARE USUALLY GIVEN IN **NOMINAL** TERMS. . .

... BUT IT'S THE **REAL** INTEREST RATE THAT DRIVES ECONOMIC DECISIONS.

OPEN A BANK ACCOUNT AND GET 5% INTEREST!

FIRST I NEED TO THINK ABOUT INFLATION AND THE REAL INTEREST RATE.

MONEY DOESN'T MATTER. . .

... WHAT MATTERS IS **PURCHASING POWER.**



WE'VE SEEN THAT **SMALL AMOUNTS** OF INFLATION CAN CAUSE **CONFUSION** AND **INSTABILITY...**

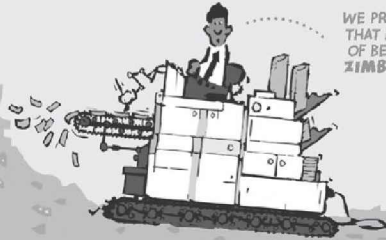


THE NEUTRALOZE ISN'T WORKING!



... BUT **LARGE AMOUNTS** CAN CAUSE **SERIOUS DAMAGE** TO ENTIRE ECONOMIES.

A GOOD RECENT EXAMPLE IS ZIMBABWE, WHICH EXPERIENCED **HYPERINFLATION** AT THE START OF THE 21ST CENTURY.



WE PRINTED SO MUCH MONEY THAT BY JULY 2008 A BOTTLE OF BEER COST **100 BILLION ZIMBABWEAN DOLLARS**.

HERE'S **120 BILLION...**

... KEEP THE CHANGE.



EVEN MORE MODERATE INFLATION—LIKE **13%** IN THE U.S. IN 1979—IS RISKY BECAUSE IT CAN GENERATE A **WAGE-PRICE SPIRAL**.

PRICES OF CONSUMER GOODS LIKE MILK ARE GOING UP...  
... SO I NEED A RAISE!



PRICES FOR LABOR AND FEED ARE GOING UP...  
... SO I NEED TO CHARGE MORE FOR MILK!



ECONOMISTS GENERALLY AGREE THAT INFLATION ANYWHERE NEAR **DOUBLE DIGITS** IS TROUBLE.

PRICES ARE GOING UP SO FAST THAT MY HEAD IS SPINNING!



**BUT INFLATION IS NOT THE ONLY TROUBLE WITH CHANGES IN THE PRICE LEVEL.**

**THERE'S ALSO DEFLATION, A GENERAL DECREASE IN PRICES OVER TIME,**



**DEFLATIONARY PERIODS LIKE THE GREAT DEPRESSION AND THE "LOST DECADES" IN JAPAN AT THE TURN OF THE 21ST CENTURY...**



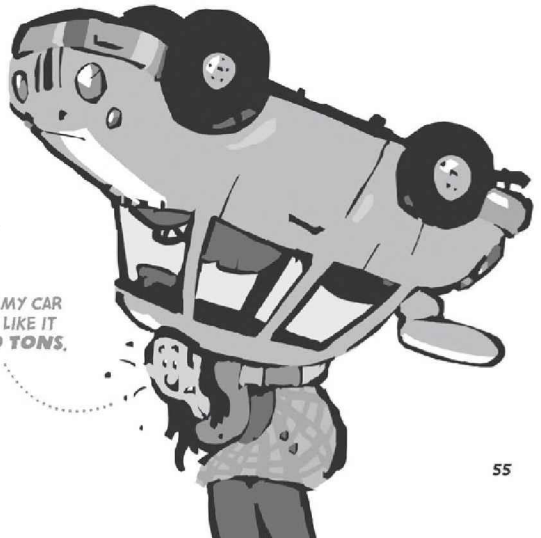
**... ARE PERHAPS EVEN MORE DANGEROUS THAN INFLATIONARY PERIODS,**

ONE WAY THAT DEFLATION CAN STIFLE THE ECONOMY...

... IS BY INCREASING DEBT LOADS IN **REAL** TERMS.

I BORROWED A **TON** OF **MONEY** TO BUY THIS CAR...

... AND NOW MY CAR LOAN FEELS LIKE IT WEIGHS **TWO TONS**.



BECAUSE HIGH INFLATION AND  
DEFLATION ARE **BOTH BAD**,  
MONETARY POLICY MAKERS HAVE  
TO BE **VERY CAREFUL**.

THIS IS GOING  
TO BE A TIGHT  
SQUEEZE.

A MISTAKE ON EITHER  
SIDE COULD PRODUCE  
SHORT-RUN INSTABILITY!



**MOST ECONOMISTS  
THINK THAT THE BEST TARGET IS  
2-3% INFLATION PER YEAR.**

A LITTLE BIT OF  
INFLATION HELPS  
**PROTECT AGAINST  
DEFLATION.**

ONCE YOU'RE  
TRAPPED, IT'S HARD  
TO GET OUT!





AIMING FOR INFLATION OF 2-3% PER YEAR CAN ALSO PROVIDE BENEFITS IN DEALING WITH **UNEMPLOYMENT** CAUSED BY **STICKY WAGES**.



WE STUDIED THIS ON PAGE 28.

DURING A RECESSION, WAGES CAN **GET STUCK** AT LEVELS THAT ARE **TOO HIGH**...

DARN, IT'S STUCK AGAIN.

... AND A SMALL AMOUNT OF INFLATION CAN HELP **BALANCE SUPPLY AND DEMAND**.

**WHAM!**

AH, THAT'S BETTER!



FOR EXAMPLE, WORKERS WHO ARE **PSYCHOLOGICALLY OPPOSED TO WAGE CUTS**...

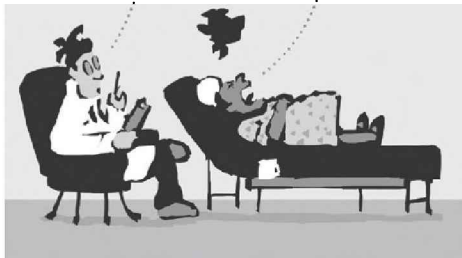
... DON'T SEEM TO MIND IT WHEN THEIR WAGES INCREASE BY 1% BUT INFLATION IS 3%.

TELL ME: WHY DID YOU POISON YOUR BOSS'S COFFEE?

THAT JERK TRIED TO **CUT MY SALARY BY 2%**!

UM, YOU KNOW YOU'RE EFFECTIVELY GETTING A **2% PAY CUT**, RIGHT?

WHAT CAN I SAY? I'M PERFECTLY HAPPY!





**OVERALL, ECONOMISTS  
VIEW INFLATION  
THE WAY DOCTORS  
VIEW ALCOHOL:**



**A LITTLE BIT MAY ACTUALLY BE A GOOD THING ...**

**IT'S TRUE!**

**A SMALL AMOUNT OF  
ALCOHOL EVERY DAY SEEMS TO  
BE GOOD FOR GROWN-UPS,**

**EXQUISITELY BALANCED  
FLAVORS, WITH HINTS OF ROSE  
PETALS AND RASPBERRIES,**

**REMEMBER, THAT'S  
A SMALL AMOUNT,  
FOR GROWN-UPS!**



**... BUT A LOT IS BAD BAD BAD.**

**A LITTLE BIT CAN  
EASILY SPIRAL OUT  
OF CONTROL,**

**THIS BUBBLY IS  
ADDICTIVE,**

**JUSH ONE  
MORSH,  
PLEESH,**



# CHAPTER 5

## GROSS DOMESTIC PRODUCT (GDP)

THIS IS  
**DISGUSTING!**

AND WE  
**MADE IT  
AT HOME!**



IF YOU WANT TO MEASURE THE  
**ECONOMIC POWER**  
OF A COUNTRY...

HOW DOES THE  
ECONOMIC POWER  
OF **SPAIN**...

... COMPARE WITH THE  
ECONOMIC POWER  
OF **BRAZIL**?



... A GOOD PLACE TO START IS WITH  
**GROSS DOMESTIC PRODUCT.**

IT'S LIKE MEASURING  
THE **HORSEPOWER** OF  
AN ENTIRE COUNTRY.

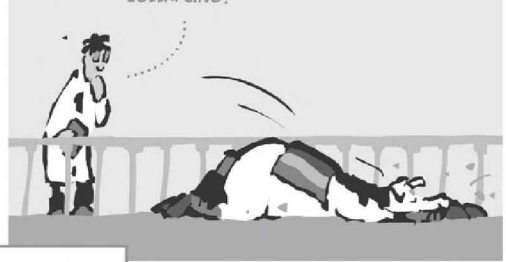


IN THIS CHAPTER WE'LL SEE HOW GDP SHEDS LIGHT ON **SHORT-RUN STABILITY...**

IS THIS ECONOMY SPRINTING AHEAD...

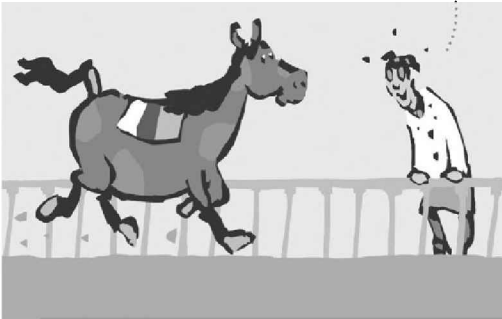


...OR IS IT COLLAPSING?

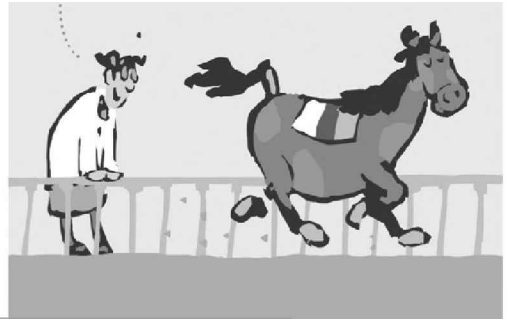


... AND ON **LONG-RUN GROWTH.**

WILL THIS ECONOMY CONTINUE TO RUN AND RUN...



... AND RUN AND RUN...?



**BUT FIRST, LET'S LEARN HOW TO CALCULATE GDP.**

THERE ARE **THREE APPROACHES...**

...THAT ARE ALL EQUALLY GOOD WAYS...

...TO MEASURE ECONOMIC POWER!





## THE VALUE-ADDED APPROACH

JUST AS WE CAN MEASURE THE **VALUE ADDED** TO THE MARKET ECONOMY EACH YEAR BY A **COMPANY'S** LABOR AND CAPITAL...

LAST YEAR WE SPENT \$200,000 ON FLOUR, CHEESE, TOMATOES, AND ELECTRICITY...

... AND WE PRODUCED PIZZA WORTH \$500,000...

... SO OUR COMPANY'S **VALUE ADDED** WAS \$300,000!



... **GDP** MEASURES THE **VALUE ADDED** TO THE MARKET ECONOMY BY AN **ENTIRE COUNTRY'S** LABOR AND CAPITAL.

LAST YEAR WE SPENT \$200 BILLION ON IMPORTS...

... AND WE PRODUCED **FINAL GOODS AND SERVICES** WORTH \$500 BILLION...

... SO OUR COUNTRY'S **VALUE ADDED** WAS \$300 BILLION.



THE VALUE-ADDED APPROACH IS THE **MOST INTUITIVE** WAY TO THINK ABOUT GDP.



$$\text{GDP} = \text{Final Outputs} - \text{Imports}$$



## THE NATIONAL INCOME APPROACH

EVERY DOLLAR OF VALUE ADDED **ENDS UP IN SOMEBODY'S POCKET**, SO GDP ALSO MEASURES **NATIONAL INCOME**.

OUR **TOTAL VALUE ADDED** OF \$300 BILLION...

... INCLUDES **LABOR INCOME** OF \$200 BILLION...

... AND **CAPITAL INCOME** OF \$100 BILLION.



THE NATIONAL INCOME APPROACH IS TO **FOLLOW THE MONEY**.



$$\text{GDP} = \text{Labor Income} + \text{Capital Income}$$

# 3

## THE EXPENDITURE APPROACH

TO SEE HOW GDP RELATES TO EXPENDITURES, WE START WITH THE VALUE-ADDED APPROACH...

$$GDP = \text{Final Outputs} - \text{Imports}$$

... AND THEN NOTE THAT EVERY DOLLAR SPENT ON FINAL OUTPUTS **COMES FROM SOMEBODY'S POCKET.**



THIS IS THE MOST COMMON WAY TO CALCULATE GDP.



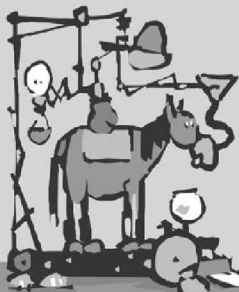
$$GDP = \overbrace{C + I + G + \text{Exports}}^{\text{Final Outputs}} - \text{Imports}$$

APPLYING THESE FORMULAS ISN'T EASY, WHICH IS WHY RICHARD STONE AND SIMON KUZNETS WON NOBEL PRIZES FOR WORKING OUT ALL THE COMPLICATIONS.

WE'VE DISCOVERED A CURE FOR INSOMNIA!

CONGRATULATIONS, YOU WIN THE NOBEL PRIZE!

ZZZZZZZZ...





HOWEVER YOU MEASURE IT, **GDP** GIVES MACROECONOMISTS A WAY TO **TELL A STORY** ABOUT AN **ENTIRE ECONOMY**.

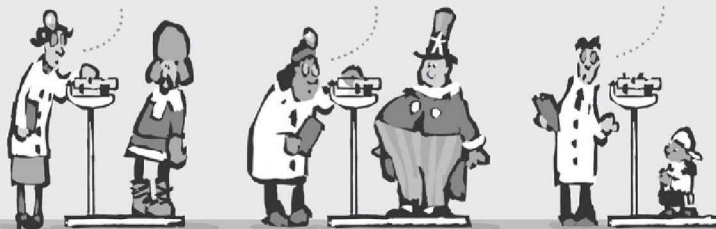


**GDP SHEDS LIGHT ON EVERYTHING FROM HEALTH CARE...**

HEALTH CARE SPENDING IN 2008 WAS ONLY 8% OF GDP IN FINLAND...

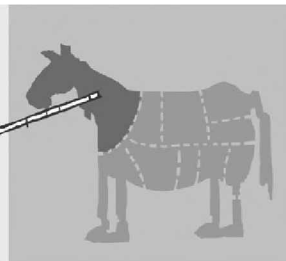
... BUT WAS 16% OF GDP IN THE UNITED STATES...

... AND IT'S GROWING FAST EVERYWHERE.



**... TO THE SIZE OF GOVERNMENT ...**

FEDERAL, STATE, AND LOCAL GOVERNMENTS IN THE U.S. MAKE UP ABOUT 35% OF GDP.



**... TO THE NATIONAL DEBT.**

DURING WORLD WAR II, THE U.S. NATIONAL DEBT SOARED TO **OVER 100% OF GDP.**

THEN IT WAS PRETTY STEADY AT 30-60% OF GDP FOR 50 YEARS.

AND AFTER THE 2008 FINANCIAL CRISIS, IT'S HEADING BACK UP **TOWARD 100%.**



**NO WONDER GDP IS THE MOST IMPORTANT STATISTIC IN MACROECONOMICS!**

THERE ARE ALSO  
**TWO VARIATIONS** ON GDP  
THAT HELP US TELL THE STORY  
OF AN ECONOMY.



## **REAL GDP ADJUSTS FOR INFLATION.**

ZIMBABWE'S NOMINAL GDP  
IS \$100 TRILLION AND  
GROWING FAST...

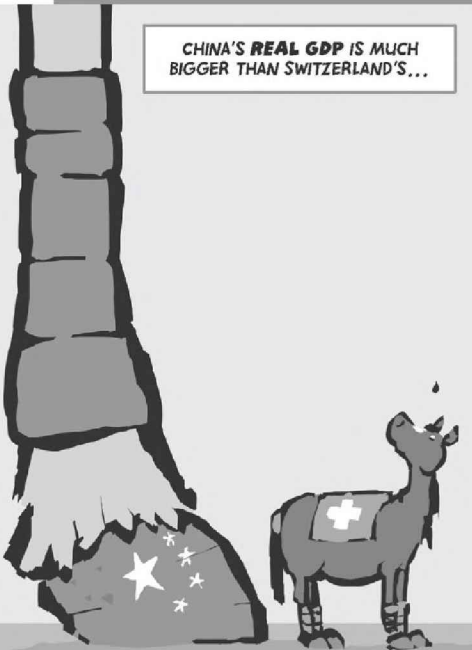


... BUT WHEN WE ADJUST FOR INFLATION,  
WE SEE THAT ITS **REAL GDP**  
HAS BEEN DECLINING.



## **REAL GDP PER CAPITA ADJUSTS FOR INFLATION AND POPULATION.**

CHINA'S **REAL GDP** IS MUCH  
BIGGER THAN SWITZERLAND'S...



... BUT WHEN YOU MEASURE  
GDP **PER PERSON**, SWITZERLAND'S  
IS MUCH BIGGER.



THE BEST WAY TO TELL HOW  
**STABLE AN ECONOMY IS IN  
THE SHORT TERM...**

**... IS TO LOOK AT REAL GDP.**

REAL GDP ADJUSTS  
FOR INFLATION...

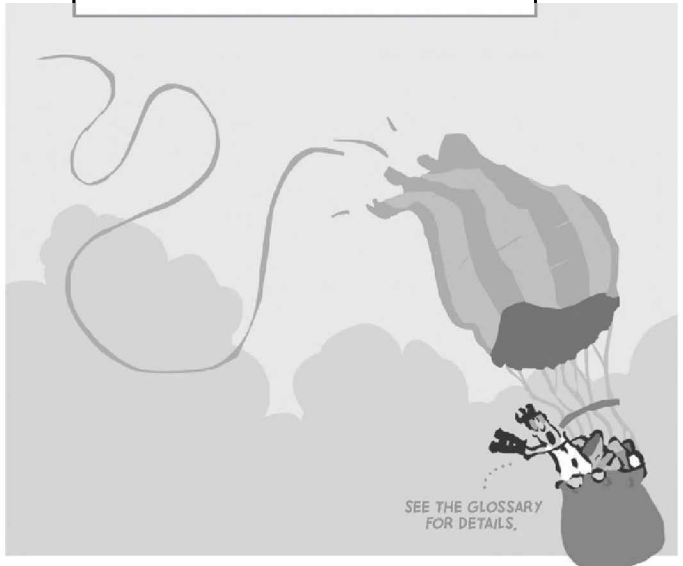
... BECAUSE WE DON'T  
WANT TO CONFUSE  
**RISING PRICES...**

... WITH ACTUAL  
**ECONOMIC  
GROWTH.**



ECONOMISTS COULD ADJUST  
GDP FOR INFLATION USING THE  
**CONSUMER PRICE INDEX...**

**... BUT IN PRACTICE THEY USE A RELATED  
MEASURE CALLED THE GDP DEFLATOR.**



ONCE WE ADJUST FOR INFLATION,  
**RECESSIONS** SHOW UP AS  
**DECLINES IN REAL GDP...**



DO YOU THINK HE  
NEEDS **REST**...

...OR **MORE**  
**STIMULUS?**

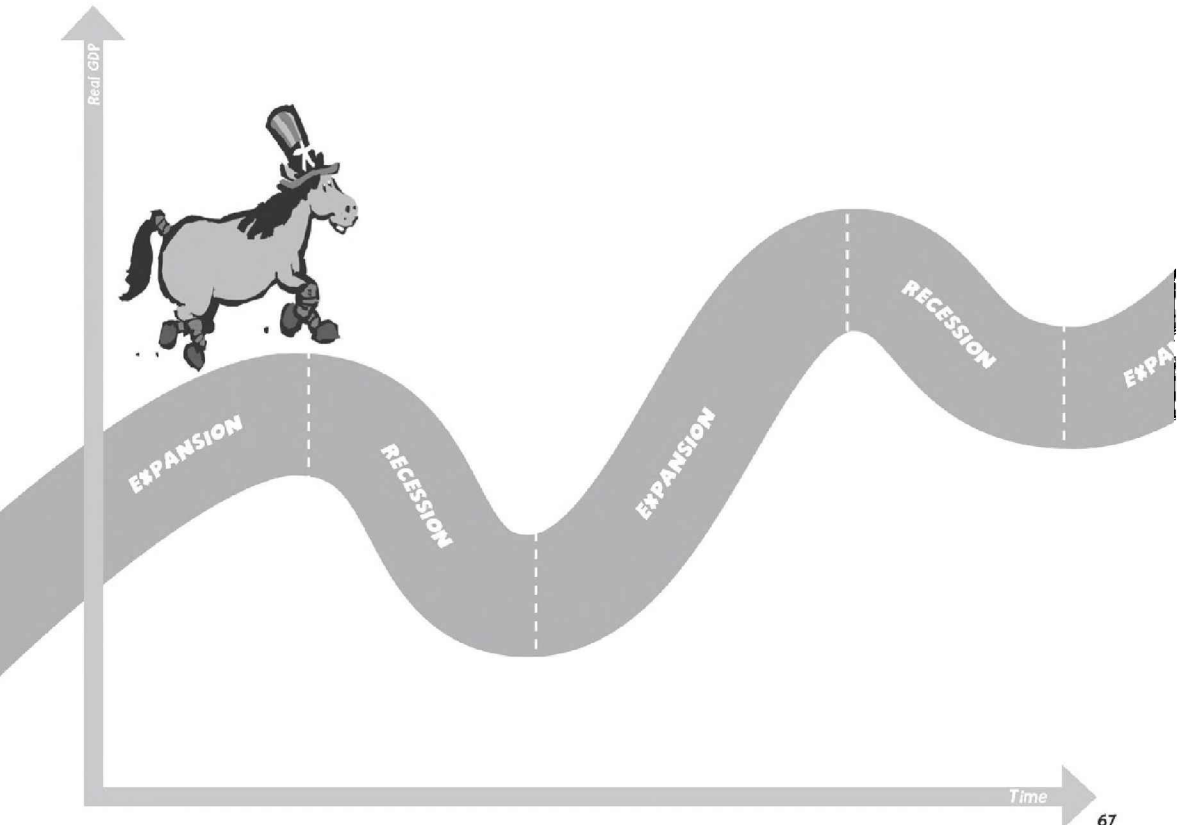
...AND **DEPRESSIONS** SHOW UP  
AS **STEEP AND PROLONGED**  
**DECLINES IN REAL GDP.**



THIS HORSE  
IS **DEAD**.

NO HE ISN'T...  
...HE'S JUST  
**RESTING!**

SINCE THE GREAT DEPRESSION, THE U.S. ECONOMY HAS GONE THROUGH  
THE UPS AND DOWNS OF THE **BUSINESS CYCLE** ABOUT A DOZEN TIMES.



**THE BEST WAY TO TELL IF AN ECONOMY IS GROWING IN THE LONG RUN...**

**... IS TO LOOK AT REAL GDP PER CAPITA.**

WE ADJUST FOR INFLATION  
AND POPULATION...

... SO THAT WE CAN GET A SENSE  
OF LIVING STANDARDS FOR THE  
AVERAGE PERSON.



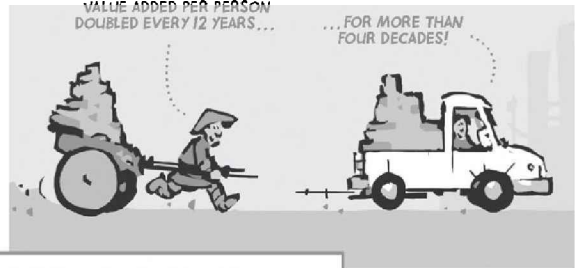
**FOR EXAMPLE, HERE'S A BRIEF ECONOMIC HISTORY OF POSTWAR JAPAN.**

**AFTER WORLD WAR II, THE JAPANESE  
ECONOMY WAS IN SHAMBLES.**



IT'S HARD TO CREATE  
VALUE ADDED WHEN  
EVERYTHING IS IN RUINS.

**THEN REAL GDP PER CAPITA GREW BY AN AMAZING  
6% PER YEAR FROM 1950 TO 1991...**



VALUE ADDED PER PERSON  
DOUBLED EVERY 12 YEARS...

... FOR MORE THAN  
FOUR DECADES!

**... AND THEN GREW BY LESS THAN 1% PER YEAR  
DURING THE "LOST DECADES" OF THE 1990s AND 2000s.**

THE BAD NEWS IS THAT  
LIVING STANDARDS ARE  
BARELY MOVING.

THE GOOD NEWS IS THAT JAPAN'S REAL  
GDP PER CAPITA IS STILL AMONG THE  
HIGHEST IN THE WORLD.



EVEN MORE FASCINATING IS THE STORY OF **CHINA**, WHICH HAD THE WORLD'S HIGHEST REAL GDP PER CAPITA IN THE **14TH CENTURY**.



WHAT IS THIS **GREAT BRITAIN** YOU SPEAK OF?

BAH! IT'S MERELY A HANDFUL OF **STONES** IN THE WESTERN OCEAN.



OVER THE NEXT 600 YEARS, HOWEVER, REAL GDP PER CAPITA **SOARED IN EUROPE**...

... AND **STAGNATED IN CHINA**.

LET'S HAVE A **RENAISSANCE**...

... AND THEN LET'S HAVE AN **INDUSTRIAL REVOLUTION!**



LET'S GET BURIED IN **BUREAUCRACY**...

... AND THEN LET'S HAVE A **CULTURAL REVOLUTION!**



THEN CAME THE **ECONOMIC REFORMS** OF 1978...

**LONG LIVE CAPITALISM!**

WE'RE SUPPOSED TO CALL IT **SOCIALISM WITH CHINESE CHARACTERISTICS**.



... AND REAL GDP PER CAPITA IN CHINA HAS BEEN ON THE **COMEBACK TRAIL** EVER SINCE.

WE STARTED WAY BEHIND...

... BUT WE'RE CATCHING UP FAST!



1980  
5% of U.S.

2010  
20% of U.S.

2040  
50% of U.S.?



OF COURSE, **TELLING A STORY WITH NUMBERS** ISN'T ALWAYS EASY, AND GDP HAS PLENTY OF **SHORTCOMINGS**.

\$5.8 TRILLION...

\$8.4 TRILLION...

\$10.2 TRILLION...



I DON'T LIKE THIS STORY.

YOU'RE TELLING IT **WRONG**.



ONE CONCERN IS THAT GDP FOCUSES ON THE **MARKET ECONOMY**, WHICH MEANS IT IGNORES **NON-MARKET ISSUES**...

...LIKE UNPAID **HOUSEHOLD LABOR**...

...AND **ENVIRONMENTAL QUALITY**.



SIGH.



SIGH...  
COUGH COUGH.

ANOTHER MAJOR CONCERN IS THAT GDP DOESN'T TELL US ANYTHING ABOUT THE **DISTRIBUTION** OF ECONOMIC POWER,

CHINA'S ECONOMIC GROWTH HAS CREATED A HUGE GAP BETWEEN **RICH AND POOR**...

IN 2005, ABOUT 36% OF THE POPULATION WAS LIVING ON LESS THAN \$2 A DAY.



... AND IN THE U.S. THE "GREAT RECESSION" OF 2007-2009 ENDED IN A **JOBLESS RECOVERY**.

IN 2009 REAL GDP FINALLY STARTED GOING BACK UP...

... BUT THERE WAS STILL LOTS OF **UNEMPLOYMENT**.



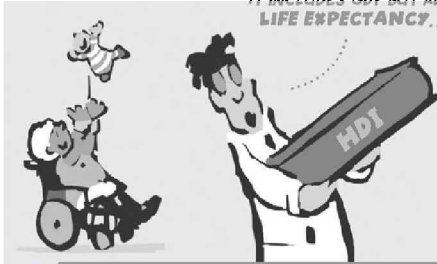
MACROECONOMISTS ARE OF COURSE  
AWARE OF GDP'S **LIMITATIONS**.

"THE WELFARE OF A NATION [CAN]  
SCARCELY BE INFERRED FROM A MEASURE  
OF **NATIONAL INCOME**."



IN POOR COUNTRIES THE **HUMAN DEVELOPMENT INDEX** MAY  
BE A BETTER ALTERNATIVE ...

IT INCLUDES GDP BUT ALSO  
**LIFE EXPECTANCY**...



... AND **LITERACY**  
**RATES**.



... AND IN RICH COUNTRIES SOME ECONOMISTS ARE QUESTIONING THE  
CONNECTION BETWEEN **GDP** AND **QUALITY OF LIFE**.

REAL GDP PER CAPITA  
IN THE U.S. **DOUBLED**  
FROM 1941 TO 1971...

... AND THEN  
**DOUBLED AGAIN** FROM  
1971 TO 2008...

... BUT ARE AMERICANS TODAY REALLY  
**THAT MUCH BETTER OFF?**



IN BOTH CASES, THE UNDERLYING ISSUE IS THAT **ECONOMIC POWER** IS AN  
INCOMPLETE MEASURE OF THE **HUMAN CONDITION**.

WE COULD  
**MASSIVELY INCREASE GDP**  
BY FORCING EVERYBODY TO  
WORK **80 HOURS A WEEK** IN  
**POLLUTING FACTORIES!**

UM ... NO THANKS.



**IN SUMMARY, GDP ISN'T PERFECT...**

JEEVES, DID YOU KNOW THAT GDP IS A **FLAWED MEASURE OF SOCIETAL WELL-BEING?**

NO, SIR, I HAD **NO IDEA.**



... BUT IT DOES GIVE US A **NUMERICAL SNAPSHOT OF A COUNTRY'S ECONOMY...**

**REAL GDP IS BEST IN THE SHORT RUN.**

**REAL GDP PER CAPITA IS BEST IN THE LONG RUN.**



... AND SOMETIMES A **NUMBER IS WORTH A THOUSAND CARTOONS.**

IN 2010, REAL GDP PER CAPITA IN **CHINA** WAS ABOUT **\$9,000...**

... WHILE IN **INDIA** IT WAS **\$4,000...**

... AND IN THE **U.S.** IT WAS **\$45,000!**



All values are in terms of purchasing power parity, which you can read about in the glossary.

# CHAPTER 6

## THE ROLE OF GOVERNMENT

HOLD ON...

... WE NEED TO WAIT  
FOR **UNCLE SAM!**



IF THE MACROECONOMY IS LIKE A FAMILY...

... THEN YOU CAN THINK OF  
THE **GOVERNMENT** AS A PARENT...



... FOR **BETTER**...

AFTER HOMEWORK  
REVIEW, LET'S GO  
FOR **ICE CREAM!**



... OR FOR **WORSE**.

I WANT SOME  
ICE CREAM,

TOO BAD, WE'RE GOING  
FOR **CIGARETTES**  
AND **BOOZE**.



OF COURSE, PARENTS AREN'T **ENTIRELY RESPONSIBLE** FOR THEIR CHILDREN.

I CAN'T EVEN USE  
A CALCULATOR...

... AND MY KID IS  
A **MATH WHIZ!**



I DON'T HAVE  
ANY RHYTHM...

... AND MY KID  
IS A **GREAT  
DANCER!**



I'VE NEVER KILLED  
A SINGLE PERSON...

... AND MY KID  
IS **ON DEATH  
ROW!**



SIMILARLY, GOVERNMENTS AREN'T **ENTIRELY RESPONSIBLE** FOR THE ECONOMY...



... BUT THEY DO HAVE A LOT OF INFLUENCE  
ON **SHORT-RUN STABILITY**  
AND **LONG-RUN GROWTH.**

WE'RE STILL HUNTING  
THE **TWO BIG GOALS**  
OF **MACROECONOMICS...**

... AND **GOVERNMENTS**  
PLAY A **BIG ROLE** IN  
**BOTH OF THEM!**





WE'VE ALREADY SEEN ONE IMPORTANT  
ROLE FOR THE GOVERNMENT IN  
PROMOTING SHORT-TERM STABILITY:  
**MONETARY POLICY.**

THIS LOOKS LIKE  
A JOB FOR MONETARY  
POLICY MAN!



**DURING A DOWNTURN** THE GOVERNMENT'S  
CENTRAL BANK CAN STIMULATE THE ECONOMY BY  
**INCREASING THE MONEY SUPPLY...**

...AND **DURING A BOOM** THE GOVERNMENT'S  
CENTRAL BANK CAN PUT ON THE BRAKES BY  
**DECREASING THE MONEY SUPPLY.**

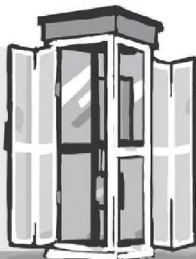


ECONOMISTS AGREE THAT MONETARY  
POLICY IS THE **FIRST LINE OF DEFENSE**  
AGAINST SHORT-TERM INSTABILITY.

BUT IF MONETARY POLICY ISN'T  
ENOUGH, THERE'S A BACKUP PLAN:  
**FISCAL POLICY.**

USUALLY I'M  
ALL WE NEED.

HI THERE, I'M  
**FISCAL POLICY**  
WOMAN.



**LIKE MONETARY POLICY, FISCAL POLICY IS A WAY FOR THE GOVERNMENT TO PROMOTE SHORT-RUN STABILITY.**



**UNLIKE MONETARY POLICY, FISCAL POLICY USES CHANGES IN TAXES AND SPENDING IN ORDER TO INFLUENCE THE ECONOMY.**

FEDERAL, STATE, AND LOCAL GOVERNMENTS IN THE U.S. CONTROL ABOUT 35% OF GDP...

... SO THEY CAN LEVERAGE A LOT OF POWER.



GOVERNMENTS OFTEN TRY TO **BOOST THE ECONOMY** DURING DOWNTURNS BY **INCREASING SPENDING** OR **CUTTING TAXES...**

... AND PROGRAMS LIKE **UNEMPLOYMENT BENEFITS** HELP TO **AUTOMATICALLY STABILIZE** THE ECONOMY THROUGHOUT THE BUSINESS CYCLE.

GOVERNMENT SPENDING ON UNEMPLOYMENT BENEFITS **INCREASES** DURING RECESSIONS...



I CAN'T WAIT TO BUY A NEW BIKE WITH MY **TAX REFUND!**

**New Bridge coming soon!**



... AND **DECREASES** DURING EXPANSIONS.



IF YOU THINK OF THE GOVERNMENT AS A PARENT, **FISCAL POLICY IS PRETTY STRAIGHTFORWARD.**

KEYNESIAN ECONOMISTS ARE LIKE **ACTIVE PARENTS.**



DURING A RECESSION THE GOVERNMENT CAN USE FISCAL POLICY TO TRY TO **BOOST** ECONOMIC ACTIVITY...

... JUST AS A **PARENT** TRIES TO **GIVE EXTRA FOOD TO AN UNDERWEIGHT CHILD.**



C'MON, EAT **THREE MORE SPOONFULS** AND THEN YOU'LL HAVE **MORE STRENGTH.**

AND DURING A BOOM THE GOVERNMENT CAN USE FISCAL POLICY TO TRY TO **SLOW** ECONOMIC ACTIVITY...

... JUST AS A PARENT TRIES TO GET AN **OVERWEIGHT CHILD** TO ADOPT A MORE **HEALTHY DIET.**

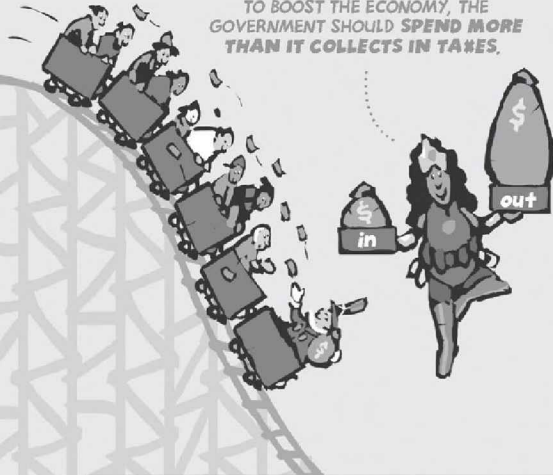


AND TODAY FOR DESSERT...

... **SPINACH!**

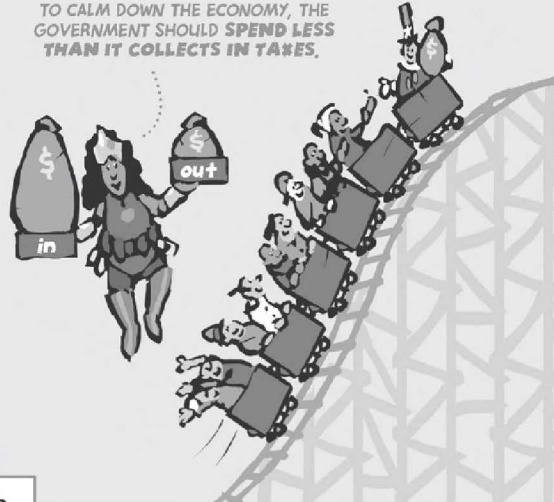
MORE SPECIFICALLY,  
THE IDEA OF FISCAL POLICY IS TO  
**CREATE BUDGET DEFICITS  
DURING RECESSIONS...**

TO BOOST THE ECONOMY, THE  
GOVERNMENT SHOULD **SPEND MORE  
THAN IT COLLECTS IN TAXES.**



... AND TO **CREATE BUDGET  
SURPLUSES DURING  
BOOM YEARS.**

TO CALM DOWN THE ECONOMY, THE  
GOVERNMENT SHOULD **SPEND LESS  
THAN IT COLLECTS IN TAXES.**



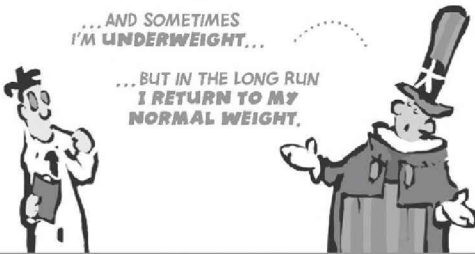
**IN AN IDEAL WORLD THESE ANNUAL DEFICITS AND  
SURPLUSES WOULD BALANCE EACH OTHER OUT  
IN THE LONG RUN...**

**... BUT IN REALITY IT HASN'T  
WORKED OUT THAT WAY.**

SOMETIMES I'M  
**OVERWEIGHT...**

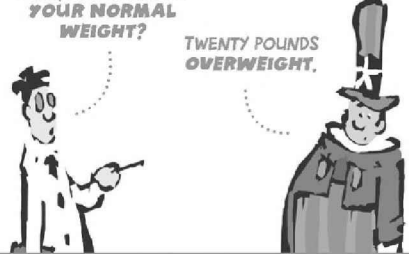
... AND SOMETIMES  
I'M **UNDERWEIGHT...**

... BUT IN THE LONG RUN  
I **RETURN TO MY  
NORMAL WEIGHT.**



I SEE, AND **WHAT'S  
YOUR NORMAL  
WEIGHT?**

**TWENTY POUNDS  
OVERWEIGHT.**



**AS A RESULT, SHORT-RUN FISCAL POLICY IS INCREASINGLY THREATENED BY  
THE ACCUMULATION OF LONG-RUN GOVERNMENT DEBT.**

**IF YOU BORROW TOO MUCH MONEY  
WHEN YOU DON'T NEED IT...**

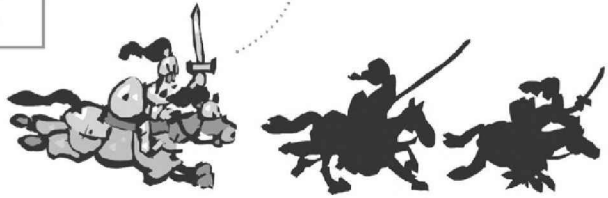
... YOU MIGHT NOT BE ABLE TO BORROW  
**WHEN YOU DO NEED IT.**





GOVERNMENTS ALSO HAVE A LOT OF INFLUENCE ON **THE SECOND BIG GOAL OF MACROECONOMICS.**

**LONG-RUN GROWTH!**



JUST AS **GOOD PARENTS CAN HELP THEIR CHILDREN SUCCEED...**

WHERE DO THE SUPPLY AND DEMAND CURVES INTERSECT?

AARGH! X MARKS THE SPOT!



... GOVERNMENTS CAN PROMOTE **LONG-RUN GROWTH...**

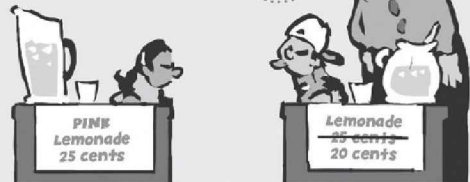
... BY ESTABLISHING AND PROTECTING **PROPERTY RIGHTS...**

BENJI, YOU MAY **NOT SUCK ON BILLY'S XBOX!**



... BY PROMOTING **INNOVATION** AND PROTECTING **COMPETITION...**

MAY THE BEST FIRM WIN!



... BY MAKING SMART PUBLIC INVESTMENTS IN **INFRASTRUCTURE AND EDUCATION...**

I BOUGHT YOU EACH A COPY OF **THE CARTOON INTRODUCTION TO ECONOMICS!**



... AND BY DEALING WITH **POLLUTION.**



**SOME ECONOMISTS ARGUE THAT GOVERNMENTS SHOULD DO EVEN MORE.**

THERE'S **MORE TO LIFE** THAN SHORT-RUN STABILITY AND LONG-RUN GROWTH!



**AS WE LEARNED IN MICROECONOMICS, EVEN WELL-FUNCTIONING MARKETS CAN GENERATE TREMENDOUS INEQUALITY.**

WHAT DO YOU CALL IT WHEN **ONE PERSON GETS ALL THE CAKE???**

I CALL IT **PEREFO EFFICIENT!**



YOU CAN REVIEW PEREFO EFFICIENCY ON PAGE 93 AND IN THE GLOSSARY.

**GOOD GOVERNMENTS CAN TRY TO IMPROVE MATTERS BY TAKING STEPS TO ALLEVIATE POVERTY.**



WE CAN ESTABLISH A **SOCIAL SAFETY NET...**

...BY **TAKING THE RICH TO PROVIDE FOR THE POOR.**

**JUST LIKE ROBIN HOOD!**





OF COURSE, GIVING GOOD GOVERNMENT A CHANCE TO IMPROVE THINGS ALSO GIVES **BAD GOVERNMENT** A CHANCE TO MAKE THINGS WORSE.

REMEMBER THAT ROBIN HOOD WAS AN **OUTLAW**...

... FIGHTING A **CORRUPT GOVERNMENT**.



IT WOULD BE **GREAT** IF GOVERNMENTS **ALWAYS** ACTED IN THE **PUBLIC** INTEREST...

I PROMISE TO GUARD THIS COOKIE JAR WITH MY LIFE!



... BUT **JAMES BUCHANAN** WON THE 1986 NOBEL PRIZE FOR SHOWING THAT GOVERNMENT REPRESENTATIVES OFTEN ACT LIKE OPTIMIZING INDIVIDUALS, **JUST LIKE THE REST OF US**.

POLITICIANS AREN'T ANGELS.

CONGRATULATIONS, YOU WIN THE **NOBEL PRIZE!**



HIS WORK ON **PUBLIC CHOICE THEORY** CAUTIONS THAT GOVERNMENT ACTION MIGHT **INCREASE** INEQUALITY RATHER THAN **REDUCE** IT.

I WANT TO HELP THE **POOR PEOPLE** OF MY COUNTRY...

... STARTING WITH **ALL OF MY POOR FRIENDS**.

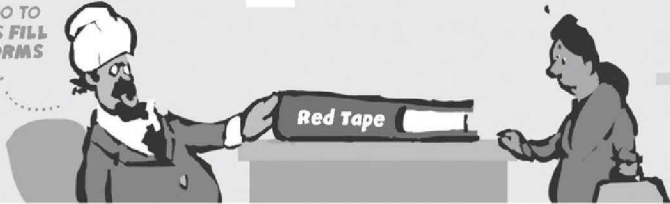


**EVEN WELL-INTENTIONED GOVERNMENTS, LIKE WELL-INTENTIONED PARENTS, CAN SOMETIMES MAKE LIFE PRETTY UNBEARABLE.**

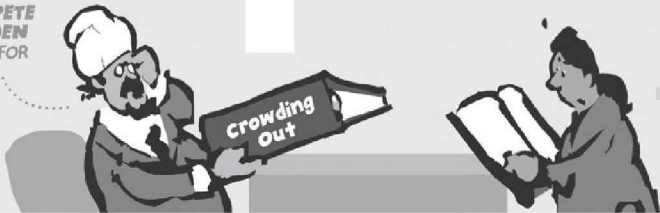


**SUPPLY-SIDE ECONOMISTS EMPHASIZE THE ECONOMIC DAMAGE THAT GOVERNMENTS CAN CAUSE...**

ALL YOU NEED TO DO TO START A BUSINESS IS **FILL OUT THESE 49 FORMS IN TRIPLICATE...**



... AND THEN **COMPETE WITH DEBT-LADEN GOVERNMENTS FOR A LOAN...**



... AND THEN **FORK OVER 50% OF YOUR PROFITS.**



... AND CONCLUDE THAT THE **INVISIBLE HAND** DOESN'T NEED MUCH **GOVERNMENT ASSISTANCE.**



**THE CHALLENGE FOR GOVERNMENTS, LIKE PARENTS, IS FINDING A GOOD MIDDLE GROUND BETWEEN BEING TOO HANDS-OFF...**

MY PARENTS DON'T MAKE ME DO **HOMEWORK** OR **CHORES**,

PLUS THEY LET ME HAVE ALL THE **CANDY** AND **SODA** I WANT...

...AND THEY DON'T EVEN MAKE ME **BRUSH MY TEETH!**



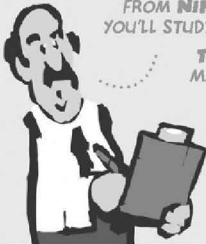
**... AND BEING TOO HANDS-ON.**

FROM **NINE TO TEN** YOU'LL STUDY **ECONOMICS**,

**TEN TO ELEVEN**, MATH AND **SCIENCE**,

**ELEVEN TO TWELVE**, **VOCABULARY**,

**TWELVE TO ONE**, I'LL NEVER MAKE IT!



**THE EXTENT OF GOVERNMENT INVOLVEMENT IS OFTEN MEASURED BY LOOKING AT GOVERNMENT SPENDING AS A PERCENTAGE OF GDP...**

CHILE: 20% OF GDP

U.S.: 35% OF GDP

FRANCE: 50% OF GDP



**... AND ALSO BY LOOKING AT THE EXTENT OF GOVERNMENT REGULATIONS.**

THAT GOVERNMENT IS BEST WHICH GOVERNS **LEAST**.

WE'VE GOT **ENVIRONMENTAL** REGULATIONS...

... **SAFETY** REGULATIONS...

... **WORKPLACE** REGULATIONS...



ULTIMATELY, GOVERNMENTS NEED TO STRIKE A BALANCE...

... BETWEEN THE JUNGLE...

EVERY BEAST  
FOR HERSELF!

SURVIVAL OF THE  
FITTEST!

YOU'RE  
ON YOUR  
OWN!

SINK OR  
SWIM!

KILL OR BE  
KILLED!

NO Rules

... AND THE ZOO.

WELFARE FROM  
THE CRADLE TO  
THE GRAVE.

NO SWIMMING,  
AND DEFINITELY  
NO KILLING.

DON'T WORRY,  
WE'RE IN  
CHARGE.

Nothing  
but Rules

**ECONOMISTS DON'T ALL SEE EYE TO EYE ABOUT  
THE ROLE OF GOVERNMENT...**

IT'S AS IF YOU'VE BEEN  
LOCKED IN A ZOO...

... YOU NEED TO GET  
OUT AND BREATHE  
FRESH AIR!

ON THE CONTRARY, YOU'VE  
GOT JUNGLE FEVER...

... YOU NEED  
BED REST.



... BUT THEY TEND TO AGREE THAT **MICROMANAGING** THE ECONOMY  
IS A **BAD IDEA**.

HOW OLD ARE  
YOUR CHILDREN?

THE **DOCTOR**  
IS FIVE, AND  
THE **LAWYER**  
IS THREE.



THAT'S BECAUSE ECONOMISTS HAVE MORE CONFIDENCE  
THAN MOST PEOPLE IN **THE BENEFITS OF TRADE**.

INDIVIDUAL OPTIMIZATION  
OFTEN LEADS TO **OUTCOMES**  
THAT ARE GOOD FOR THE  
**GROUP AS A WHOLE!**

AND THAT BRINGS US  
TO OUR **NEXT TOPIC**.





**PART  
TWO**  
*INTERNATIONAL  
TRADE*





# CHAPTER 7

## TRADE AND TECHNOLOGY



**FREE TRADE**  
IS PRETTY MUCH THE  
FAVORITE TOPIC OF  
ECONOMISTS...

EVEN WHEN WE **SEEM**  
TO BE TALKING ABOUT  
SOMETHING ELSE...

... THE ODDS ARE THAT  
WE'RE **REALLY** TALKING  
ABOUT **TRADE**.



... BUT FOR THE GENERAL PUBLIC IT'S PRETTY **CONTROVERSIAL**.



SO LET'S START OUT WITH A LESS CONTROVERSIAL TOPIC:  
**TECHNOLOGICAL PROGRESS.**

HEY, EVERYONE,  
CHECK IT OUT:

**I'M STREAMING  
THE PROTEST ON  
MY BLOG.**

COOL,

WOW!

AWESOME!

LEMME SEE!



FOR ECONOMISTS, **TECHNOLOGY** REFERS TO THE WAY **INPUTS** GET TURNED INTO **OUTPUTS**...

I PUT IN  
LABOR AND  
CAPITAL...



...AND  
**VOILÀ!**



...AND **TECHNOLOGICAL PROGRESS** REFERS  
TO **IMPROVEMENTS IN THAT PROCESS.**

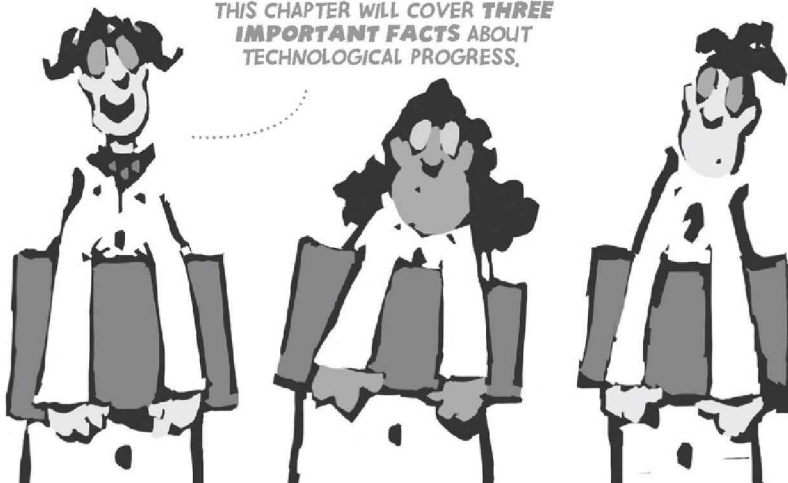
I PUT IN  
LABOR AND  
CAPITAL...



...AND  
**VOILÀ!**



THIS CHAPTER WILL COVER **THREE**  
**IMPORTANT FACTS** ABOUT  
TECHNOLOGICAL PROGRESS.



# FACT #1:

TECHNOLOGICAL  
PROGRESS CREATES  
LOSERS AS WELL  
AS WINNERS.

IT'S TEMPTING TO THINK OF  
TECHNOLOGICAL PROGRESS AS A KIND OF  
MIRACLE THAT BENEFITS EVERYONE...

... BUT HISTORY SHOWS THAT THIS  
VIEW IS **OVERLY SIMPLISTIC**.

WE'RE IN  
THE MONEY...

UM...  
... WE'RE NOT.

FOR EXAMPLE, SHIPPING GOODS IN  
CONTAINERS WAS **REVOLUTIONARY**...

... BUT IT DESTROYED THE LIVELIHOODS OF  
THOUSANDS OF **DOCKWORKERS**.

I CAN UNLOAD  
20 TONS IN  
20 MINUTES!

YOU JUST  
CRUSHED 20  
JOBS!

SIMILARLY, THE **INTERNET** ALLOWED PEOPLE  
TO BUY THEIR OWN AIRPLANE TICKETS...

... BUT THAT RUINED BUSINESS  
FOR **TRAVEL AGENTS**.

I THINK I'LL TRAVEL TO  
INDIA TOMORROW!

EVERYONE ELSE  
CAN TRAVEL...

... BUT WE'RE  
BROKE!

IN SHORT, TECHNOLOGICAL PROGRESS CAN BE **PAINFUL**.

IF YOU REMEMBER  
SOME **JARGON** FROM  
**MICROECONOMICS**...

**A PARETO  
IMPROVEMENT**  
IS A CHANGE THAT MAKES AT  
LEAST ONE PERSON BETTER OFF  
AND **NOBODY** WORSE OFF.



**PARETO  
IMPROVEMENT!**



**PARETO  
IMPROVEMENT!**



... WHAT THIS MEANS IS THAT TECHNOLOGICAL PROGRESS DOES  
**NOT** USUALLY LEAD TO **PARETO IMPROVEMENTS**.



~~**IMPROVEMENT!**~~



**LOTS OF PEOPLE ARE  
BETTER OFF** BECAUSE  
OF TECHNOLOGICAL  
PROGRESS...

... **BUT SOME PEOPLE  
ARE WORSE OFF...**

... **ESPECIALLY IN  
THE SHORT RUN,**



OF COURSE, THIS DOESN'T MEAN TECHNOLOGICAL PROGRESS IS **BAD**.

WHICH BRINGS US  
TO FACT #2...

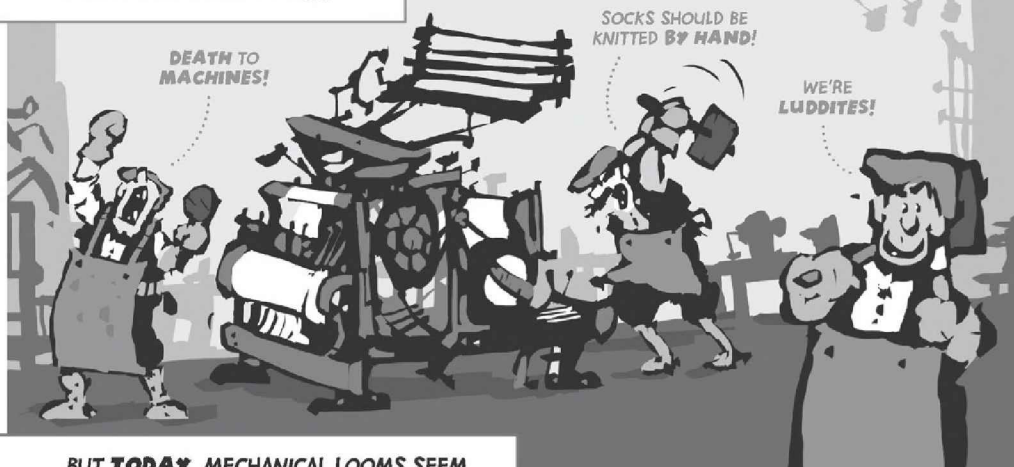


# FACT #2:

**TECHNOLOGICAL  
PROGRESS IS PRETTY  
AWESOME.**



**IN THE EARLY 1800S, BRITISH TEXTILE  
WORKERS DECLARED WAR ON THE  
MECHANICAL LOOMS THAT  
THREATENED THEIR JOBS...**



**DEATH TO  
MACHINES!**

**SOCKS SHOULD BE  
KNITTED BY HAND!**

**WE'RE  
LUDDITES!**

**... BUT TODAY, MECHANICAL LOOMS SEEM  
LIKE A GIFT FROM THE HEAVENS.**



**CHEAP SOCKS! AND  
NO MORE REPETITIVE  
SEWING BY HAND!**

**IF YOU DON'T LIKE  
THIS, YOU MUST BE  
A LUDDITE!**

**THE SAME PATTERN IS EVIDENT WITH MOST  
FORMS OF TECHNOLOGICAL PROGRESS,**



**THE INVENTION OF  
ELECTRICITY RUINED  
THE CANDLE INDUSTRY...**

**... BUT WHO WANTS  
TO GO BACK TO THE  
DARK AGES?**

**TECHNOLOGICAL PROGRESS IS AWESOME BECAUSE IT ALLOWS US TO GENERATE MORE OUTPUTS FROM THE SAME AMOUNT OF INPUTS.**

IT USED TO TAKE 300 HOURS OF WORK AND \$9,000 WORTH OF RAW MATERIALS TO MAKE A CAR...



...NOW WE CAN MAKE TWO CARS WITH THOSE SAME INPUTS.

**VOILÀ!**



**AS A RESULT, OVER TIME WE'VE BEEN ABLE TO PRODUCE MORE OF EVERYTHING FOR EVERYBODY.**

**MORE FOOD.**

I HATE SPINACH!



**MORE CLOTHES.**

I DON'T WANNA GET DRESSED!



**MORE ADVENTURE.**

I WANNA GO HOME!



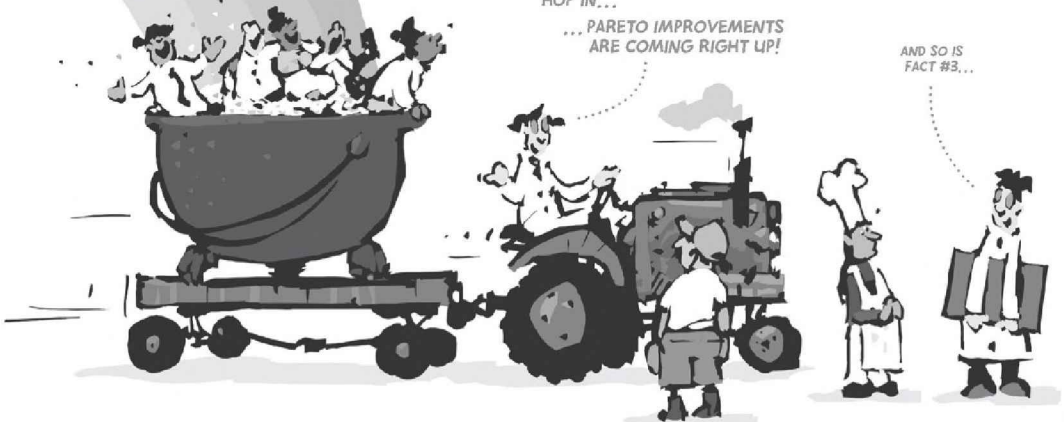
**SO EVEN THOUGH IN THE SHORT RUN TECHNOLOGICAL PROGRESS CREATES LOSERS AS WELL AS WINNERS...**

**... IN THE LONG RUN JUST ABOUT EVERYBODY IS LIKELY TO BE BETTER OFF.**

HOP IN...

... PARETO IMPROVEMENTS ARE COMING RIGHT UP!

AND SO IS FACT #3...



# FACT #3:

**TECHNOLOGICAL PROGRESS  
AND TRADE ARE ESSENTIALLY  
INDISTINGUISHABLE.**

WE WARNED YOU!  
EVEN WHEN WE SEEM  
TO BE TALKING ABOUT  
SOMETHING ELSE...

... WE'RE REALLY TALKING  
ABOUT **TRADE!**



WHAT THIS MEANS IS THAT **FOR ANY STORY ABOUT TECHNOLOGICAL PROGRESS...**

... THERE IS A **SIMILAR STORY** ABOUT **TRADE...**

WE FOUND A WAY TO  
TURN **CORN** INTO  
**PLASTIC BAGS!**

YOU PUT SOME CORN AND  
SOME ENZYMES INTO OUR  
PATENTED ROLLING MILL...

I PUT SOME CORN  
ON THIS BOAT...



... AND VOILÀ,  
PLASTIC BAGS!



... AND THE BOAT  
COMES BACK WITH  
PLASTIC BAGS!

... AND FOR ANY STORY  
ABOUT **TRADE...**

... THERE IS, AT LEAST IN THEORY, A **SIMILAR  
STORY** ABOUT **TECHNOLOGICAL PROGRESS.**

I PUT **AVOCADOS**  
ON THIS BOAT...

... AND THE BOAT  
COMES BACK  
WITH **STEEL!**



YOU'RE NOT GOING TO  
BELIEVE WHAT WE CAN  
MAKE OUT OF **AVOCADOS!**



BECAUSE OF FACT #3, YOU SHOULD THINK OF  
TRADE AND TECHNOLOGICAL PROGRESS AS  
**IDENTICAL TWINS.**



LIKE TECHNOLOGICAL PROGRESS, TRADE HELPS US GENERATE  
**MORE OUTPUTS FROM THE SAME AMOUNT OF INPUTS.**



OUR **FIRST TWO** FACTS ABOUT TECHNOLOGICAL PROGRESS  
THEREFORE LEAD TO **TWO IDENTICAL** FACTS ABOUT TRADE:

**FACT #1:**  
TRADE CREATES  
LOSERS AS WELL  
AS WINNERS.

**FACT #2:**  
TRADE IS PRETTY  
AWESOME.

THEY PUT  
MY JOB ON  
A BOAT... ...AND IT DIDN'T  
COME BACK.

BUT LOOK AT ALL  
THIS OTHER AMAZING  
STUFF THAT DID!



A LOT OF THE CONTROVERSIES ABOUT **FREE TRADE** STEM FROM PEOPLE **FORGETTING** FACT #1 OR FACT #2.

**FACT #1:**  
TRADE CREATES  
LOSERS AS WELL  
AS WINNERS.

SO DON'T  
FORGET THEM,

AND DON'T  
FORGET FACT  
#3 EITHER!

**FACT #2:**  
TRADE IS PRETTY  
AWESOME.

**FACT #3:**  
TECHNOLOGICAL  
PROGRESS AND TRADE  
ARE ESSENTIALLY  
INDISTINGUISHABLE.

NEITHER TRADE  
NOR TECHNOLOGICAL PROGRESS  
CREATES **PARETO IMPROVEMENTS**  
IN THE SHORT RUN...

... BUT IN THE LONG RUN  
THEY'RE LIKELY TO MAKE  
**EVERYONE** BETTER OFF.



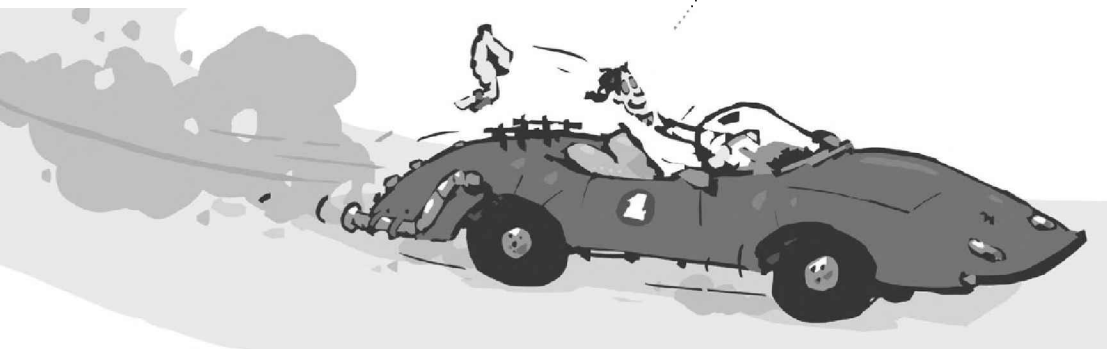


# CHAPTER 8

## THE CLASSICAL VIEW OF TRADE

THE ECONOMY IS LIKE  
A WELL-OILED MACHINE...

... AND **TRADE** GIVES IT  
A **TURBO BOOST!**





THE WAY THAT **CLASSICAL ECONOMISTS LIKE ADAM SMITH** LOOK AT INTERNATIONAL TRADE IS **SIMPLE AND POWERFUL...**

"IF A FOREIGN COUNTRY CAN SUPPLY US WITH A COMMODITY **CHEAPER THAN WE OURSELVES CAN MAKE IT...**

... **BETTER BUY IT [FROM] THEM** WITH SOME PART OF THE PRODUCE OF OUR OWN INDUSTRY, EMPLOYED IN A WAY IN WHICH WE HAVE SOME ADVANTAGE."



... AND COMES DIRECTLY FROM THE VIEW THAT THE **MACROECONOMY IS LIKE A WELL-ORGANIZED FAMILY.**

"IT IS THE MAXIM OF EVERY PRUDENT MASTER OF A FAMILY..."

... NEVER TO ATTEMPT TO MAKE AT HOME WHAT IT WILL **COST HIM MORE TO MAKE THAN TO BUY.**"



ALTHOUGH TRADE CREATES **LOSERS** AS WELL AS **WINNERS**, CLASSICAL ECONOMISTS FOCUS ON THE **GAINS TO SOCIETY AS A WHOLE.**

TRADE IS PRETTY AWESOME...

... JUST LIKE TECHNOLOGICAL PROGRESS!



CLASSICAL ECONOMISTS ALSO EMPHASIZE THAT TRADE BETWEEN TWO COUNTRIES CAN BENEFIT **BOTH** COUNTRIES.



IN 1817 **DAVID RICARDO'S** THEORY OF **COMPARATIVE ADVANTAGE** SHOWED THAT THESE **MUTUAL BENEFITS** ARE POSSIBLE WHEN COUNTRIES ARE **DIFFERENT**...

PORTUGAL HAS A GOOD CLIMATE FOR GROWING **GRAPES**.



ENGLAND HAS A GOOD CLIMATE FOR GROWING **WHEAT**.



LET'S TRADE **BOTTLES OF WINE** FOR **BAGS OF FLOUR**!



... BUT MODERN ECONOMISTS BELIEVE THAT **MUTUAL BENEFITS** ARE POSSIBLE EVEN WHEN COUNTRIES ARE **SIMILAR**.

SWEDES MAKE **VOLVOS**.



GERMANS MAKE **BMW's**.



WE CAN BOTH GAIN FROM TRADE!



**PAUL KRUGMAN** WON THE 2008 NOBEL PRIZE FOR HIS WORK IN THIS AREA.



AND IF WE EVER START TRADING WITH **OTHER PLANETS**, I CAN EXPLAIN THAT TOO!



CONGRATULATIONS, YOU WIN THE **NOBEL PRIZE!**



THE **BENEFITS OF TRADE** ARE MOST OBVIOUS WHEN YOU THINK ABOUT **FAMILIES TRADING WITH OTHER FAMILIES...**

WITHOUT YOU, MRS. TAYLOR, MY LIFE WOULD BE **THREADBARE!**

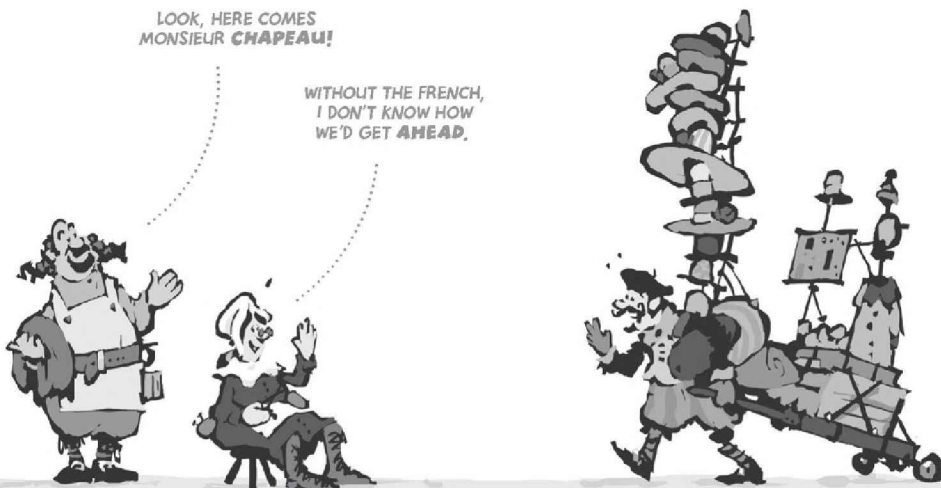
OH, **BLESS YOUR SOUL, MR. SHOEMAKER,**



... BUT YOU CAN ALSO EASILY SEE THE **BENEFITS OF TRADING WITH OTHER COUNTRIES...**

LOOK, HERE COMES **MONSIEUR CHAPEAU!**

WITHOUT THE FRENCH, I DON'T KNOW HOW WE'D GET **AHEAD.**





**... OR EVEN  
WITH ALIENS.**

TAKE ME TO YOUR  
**LEADING ECONOMIST.**



YOU MIGHT NOT THINK THAT **ADAM SMITH** WOULD HAVE MUCH TO SAY ABOUT **ALIENS...**

LIFE ON OTHER PLANETS?

I'M STILL GETTING USED TO THE IDEA OF LIFE IN SOUTH AMERICA.

... BUT IN FACT **CLASSICAL ECONOMICS** TEACHES US AN IMPORTANT LESSON ABOUT **INTERSTELLAR TRADE:**

IF WE ENCOUNTER BEINGS FROM ANOTHER PLANET...

OR IF THEY ENCOUNTER US!

... AND IF BOTH SIDES **ENGAGE PEACEFULLY** IN **FREE TRADE...**

WANT THIS CANDY BAR? THEN YOU HAVE TO **TRADE ME** FOR IT...

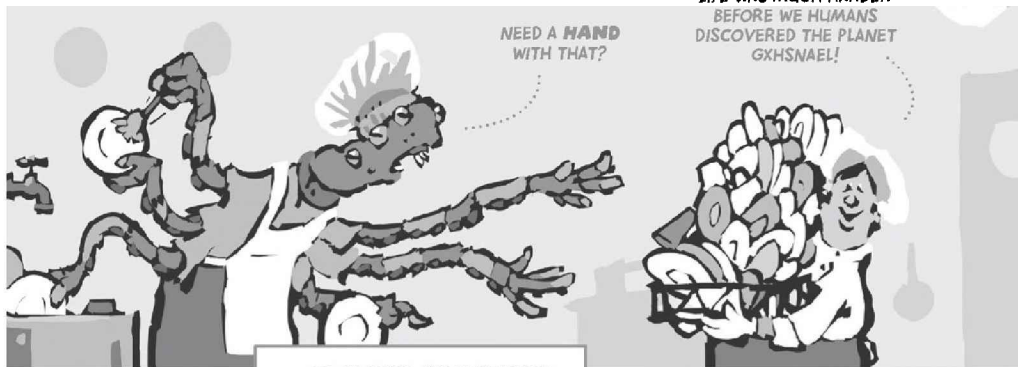
... **AND NO BULLYING!**

... THEN THIS **ALIEN ENCOUNTER** WOULD BE **PRETTY AWESOME** FOR **BOTH SIDES.**

I'M BETTER OFF, AND SO IS MY NEW FRIEND **ZANTROK!**

**ZEEKROX FLOUDZ, HOOGHA HOO GHOW ZGR STEVE!**

**WE EARTHLINGS WOULD BENEFIT REGARDLESS OF WHETHER THE ALIENS WERE LESS ADVANCED THAN US...**



**... OR MORE ADVANCED.**



**PLUS THERE WOULD BE ADDED BENEFITS FROM SHARING NEW VARIETIES OF FOOD AND ARTS.**





OF COURSE, THERE WOULD BE A DOWNSIDE:  
INTERSTELLAR TRADE WOULD CREATE  
**LOSERS** AS WELL AS **WINNERS**.



MY JOB  
GOT OUTSOURCED  
TO XANRAK 7!



BUT CLASSICAL ECONOMISTS RESPOND TO  
CONCERNS ABOUT **OUTSOURCING**...



IT'S NO WONDER  
YOU LOST YOUR JOB,

NOTHING IS  
MADE ON PLANET  
EARTH ANYMORE.

... BY POINTING OUT THAT **FAMILIES** ENGAGE IN OUTSOURCING TOO.

WE DO?

HOW?

WELL, YOU DON'T **BAKE**  
**YOUR OWN BREAD**,  
DO YOU?!

THAT'S WHY THERE ARE  
SO MANY FAMILIES NAMED  
**SHOEMAKER** AND **TAYLOR**  
AND **BAKER**...

... AND SO FEW  
FAMILIES NAMED  
**EVERYTHING**.



WHETHER YOU'RE A FAMILY, A COUNTRY, OR A PLANET,  
**OUTSOURCING** ALLOWS YOU TO **FOCUS ON WHAT YOU'RE GOOD AT**.

WE'LL MAKE  
JETPACKS...



... WE'LL MAKE  
PHARMACEUTICALS...



... AND WE'LL ALL  
GAIN FROM TRADE!



THE IDEA THAT **OUTSOURCING IS GOOD FOR SOCIETY** MAY SEEM SHOCKING...



HOW CAN IT BE GOOD WHEN I LOSE MY JOB?

... BUT REMEMBER THAT CLASSICAL ECONOMISTS VIEW THE ECONOMY AS A **FINELY TUNED JOB-CREATING MACHINE.**



NO BIG DEAL, THE ECONOMY WILL CREATE A NEW JOB FOR YOU!



THIS ALSO EXPLAINS WHY CLASSICAL ECONOMISTS BELIEVE THAT THE BEST THING ABOUT TRADE ISN'T **EXPORTING...**

... BUT **IMPORTING.**

EVERYBODY ALWAYS TALKS ABOUT HOW TRADE **CREATES JOBS...**

... BUT WHAT'S REALLY GREAT IS ALL THE **COOL STUFF WE CAN BUY.**



AS ALWAYS, THIS CLASSICAL VIEW PARALLELS THE PERSPECTIVE OF A **WELL-ORGANIZED FAMILY.**

THERE'S ALWAYS WORK TO DO **HERE AT HOME.**



SO THE ONLY REASON TO GET A JOB WORKING FOR **SOMEBODY ELSE...**

... IS TO GET MONEY **SO YOU CAN BUY STUFF!**



CLASSICAL ECONOMISTS ALSO TAKE AN UNEXPECTED POSITION ON ISSUES OF UNFAIR COMPETITION...

... LIKE **CURRENCY MANIPULATION** ...

THEY'RE KEEPING THEIR CURRENCY ARTIFICIALLY CHEAP TO PROMOTE THEIR EXPORTS!



... AND **DUMPING**.

THEY'RE EXPORTING RAY GUNS TO US AT PRICES BELOW THEIR COST OF PRODUCTION.

THAT'S **DUMPING**, AND THAT'S **NOT FAIR**...

... THEY'RE TRYING TO **STEAL THE MARKET!**



THE CLASSICAL VIEW OF THESE ACTIVITIES IS THAT YOU **SHOULDN'T WORRY ABOUT THEM**.

CURRENCY MANIPULATION AND DUMPING ARE **GOOD FOR US**.



AS WITH OUTSOURCING, THIS CLASSICAL VIEW IS DRIVEN BY A **CONFIDENT ATTITUDE ABOUT JOB CREATION...**

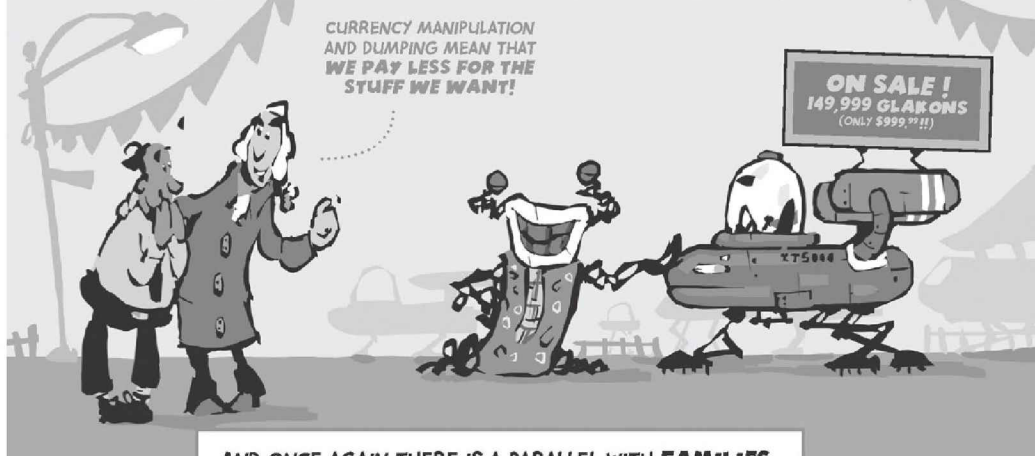
WE EARTHLINGS MIGHT HAVE TO STOP MAKING RAY GUNS, BUT THE ECONOMY WILL CREATE JOBS ELSEWHERE.

IT'S **CREATIVE DESTRUCTION!**



... AND BY A FOCUS ON **IMPORTS**, NOT **EXPORTS**.

CURRENCY MANIPULATION AND DUMPING MEAN THAT WE PAY LESS FOR THE STUFF WE WANT!



AND ONCE AGAIN THERE IS A PARALLEL WITH **FAMILIES**.

WOULD YOU COMPLAIN IF MR. SHOEMAKER WAS SELLING YOU BOOTS AT PRICES THAT WERE **TOO LOW?**

WELL, NO.

DUH.

THEN DON'T WORRY, BE HAPPY!





AS WE'LL SEE IN THE NEXT CHAPTER, THIS CLASSICAL PERSPECTIVE CAN BE A LITTLE SIMPLISTIC.

ON THE **ONE HAND**, THERE'S THE CLASSICAL VIEW OF TRADE.

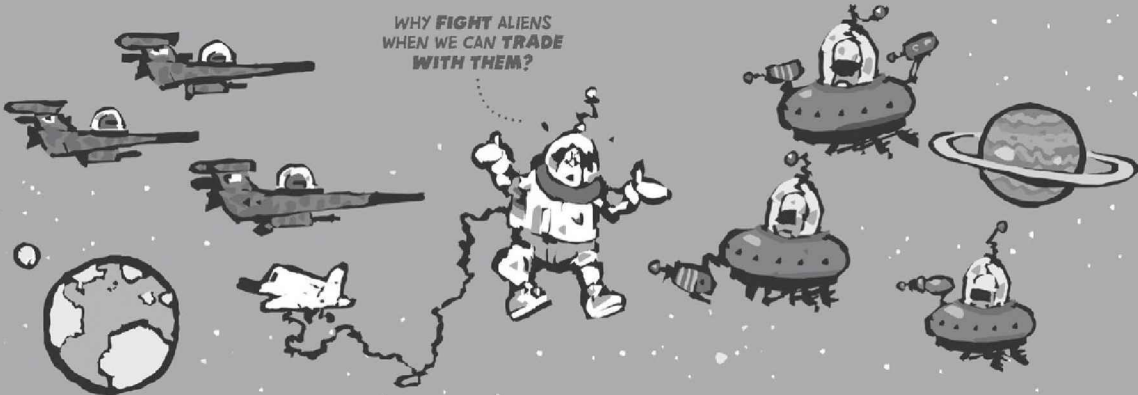
ON THE **OTHER HAND**, THERE ARE SOME **COMPLICATIONS**.

WHAT ABOUT THE **3RD, 4TH, AND 5TH HANDS?**



NONETHELESS, CLASSICAL ECONOMICS CONTRIBUTES VALUABLE IDEAS TO DISCUSSIONS OF FREE TRADE, WHETHER IT'S WITH A NEIGHBORING **PLANET...**

WHY **FIGHT** ALIENS WHEN WE CAN **TRADE** WITH THEM?



... OR WITH A NEIGHBORING **HOUSEHOLD** OR **COUNTRY**.

"COMMERCE... OUGHT NATURALLY TO BE, AMONG NATIONS, AS AMONG INDIVIDUALS..."

... A BOND OF **UNION** AND **FRIENDSHIP...**"



# CHAPTER 9

## COMPLICATIONS

"COMMERCE, WHICH OUGHT  
NATURALLY TO BE, AMONG NATIONS,  
AS AMONG INDIVIDUALS, A BOND OF  
**UNION AND FRIENDSHIP...**

... HAS BECOME THE  
MOST FERTILE SOURCE  
OF **DISCORD AND  
ANIMOSITY!**"





THE CLASSICAL VIEW IS THAT ECONOMIES ARE LIKE **WELL-ORGANIZED FAMILIES**.

HEY, DAD, I SUCCESSFULLY TRADED WITH THE NEIGHBOR KIDS!

THAT'S GREAT, LET'S INVITE THEM OVER FOR COOKIES!



THE RESULTING CONCLUSIONS ABOUT **TRADE** SEEM SO COMPELLING...

TRADE BETWEEN COUNTRIES IS JUST LIKE TRADE BETWEEN FAMILIES...

...IT MAKES LOTS OF PEOPLE BETTER OFF.



... THAT IT'S A BIT OF A SHOCK TO ENCOUNTER **COMPLICATIONS** RELATED TO **HUMAN RIGHTS**...

HAVE YOU NOTICED THAT THE NEIGHBORS FORCE THEIR CHILDREN TO TEND THE OVENS 18 HOURS A DAY?

YEAH, BUT AS LONG AS WE CAN BUY BREAD FROM THEM CHEAP, WHO CARES?!



... AND THE **ENVIRONMENT**...

DON'T CATCH ANY MORE FISH FROM THE LAKE OR THEY'LL GO EXTINCT.

LOOK WHAT I BOUGHT FROM THE NEIGHBORS!



... AND NATIONAL SECURITY...

MY DEAR MRS. MATFIELD,  
DON'T WORRY ABOUT RUNNING  
OUT OF AMMUNITION...

... WE CAN ALWAYS GO NEXT  
DOOR AND BUY MORE FROM  
THE MCCOYS!



... AND INFANT INDUSTRIES.

I JUST LEARNED  
TO DRIBBLE A  
BASKETBALL!

GREAT, NOW GET  
OUT THERE AND  
COMPETE!



AND OF COURSE THERE ARE **SHORT-RUN COMPLICATIONS**  
RELATING TO THE **BUSINESS CYCLE.**

WE MIGHT ALL  
BENEFIT FROM TRADE  
IN THE **LONG RUN...**

... BUT IN THE **SHORT RUN**  
I'M GOING TO **THROW UP!**



**THESE COMPLICATIONS  
CANNOT BE EASILY  
DISMISSED.**

THE CLASSICAL PERSPECTIVE PROMISES THAT TRADE BETWEEN COUNTRIES BENEFITS **BOTH** COUNTRIES...

... AND SO, IN THE LONG RUN,  
TRADE IS LIKELY TO LEAD TO  
**PARETO IMPROVEMENTS.**

I REST MY  
CASE!

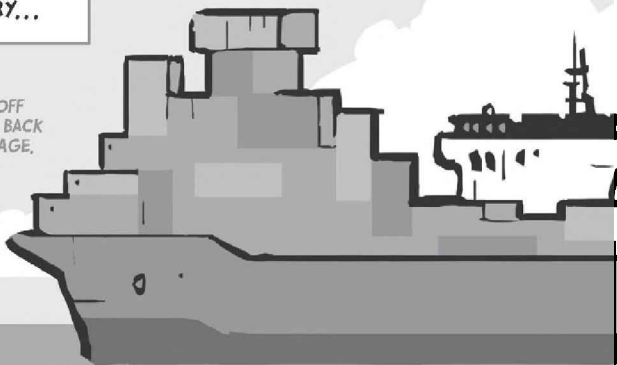
**OBJECTION!**



... SO WE NEED TO TAKE A CLOSER LOOK AT  
TRADE THAT MIGHT HURT **OUR** COUNTRY...

WE ARE NOW TOTALLY  
**DEPENDENT** ON GOODS  
FROM OVERSEAS,

IF THEY CUT OFF  
TRADE, WE'D BE BACK  
IN THE STONE AGE.



... AND TRADE THAT MIGHT HURT  
**THEIR** COUNTRY...

OUR FIRMS CAN'T COMPETE  
AGAINST BIG WESTERN  
COMPANIES.

WE'LL STAY  
POOR FOREVER.



... AND TRADE THAT MIGHT HURT  
**BOTH** COUNTRIES.

BECAUSE OF GLOBAL  
WARMING, TRADE COULD  
MAKE **EVERYONE**  
WORSE OFF.

WE'LL COME  
BACK TO THIS  
IN CHAPTER 14.



LET'S TAKE A **CLOSE LOOK** AT ONE IMPORTANT EXAMPLE,  
**SWEATSHOP LABOR.**

I SPEND 16 HOURS A DAY TAKING  
A **CLOSE LOOK** AT THESE  
T-SHIRTS I'M SEWING.

Wages:  
\$0.30/hour

SWEATSHOP LABOR CAN OF COURSE PROVIDE  
**BENEFITS FOR MANUFACTURERS AND THEIR CUSTOMERS...**

I SAVE A LOT IN  
**LABOR COSTS...**

... AND THAT  
**SAVES ME MONEY**  
AT THE STORE.

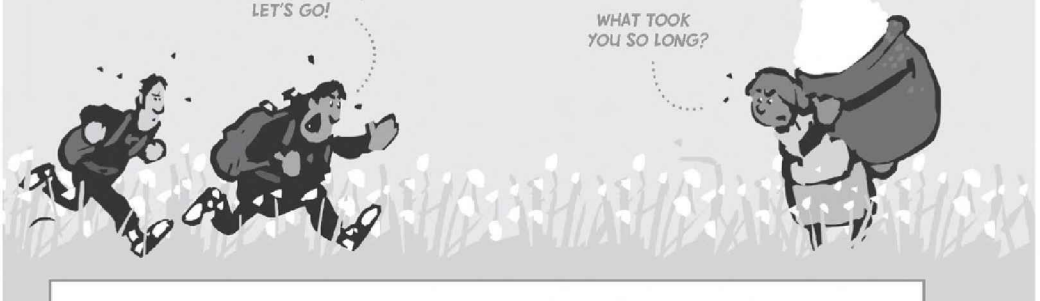
... BUT MANY PEOPLE THINK OF IT  
AS **EXPLOITATION, LIKE SLAVERY.**

**WOE  
IS SHE!**

UNLIKE **SLAVERY**, HOWEVER, MANY SWEATSHOPS DON'T INVOLVE **EXPLOITATION BY FORCE...**

WE'VE COME TO GET  
YOU OUT OF HERE,  
LET'S GO!

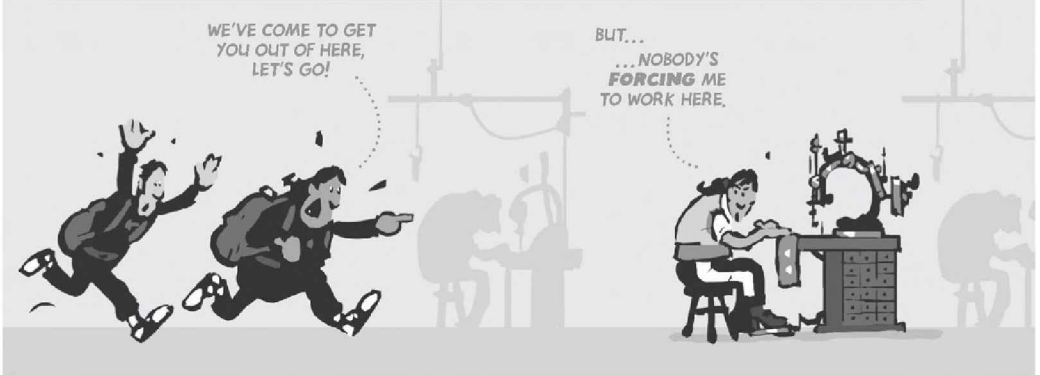
WHAT TOOK  
YOU SO LONG?



... BUT RATHER, **EXPLOITATION BY CHOICE.**

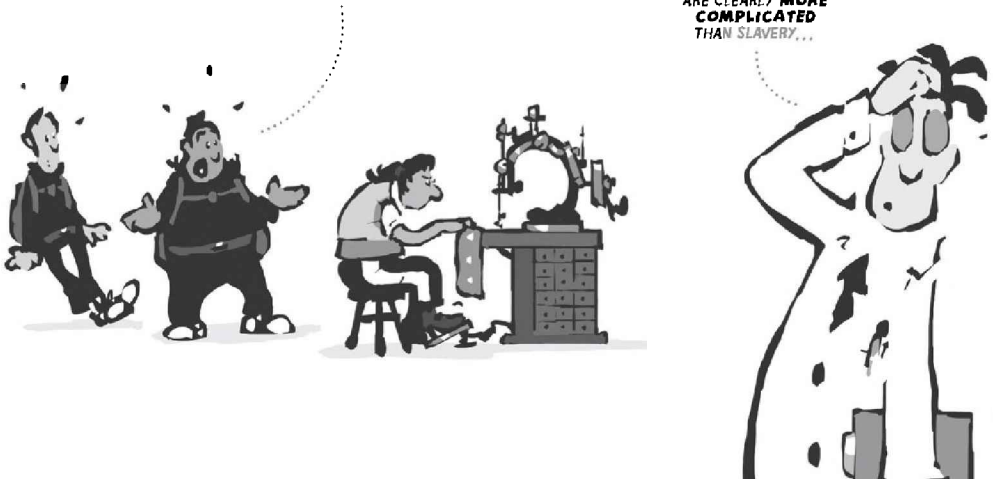
WE'VE COME TO GET  
YOU OUT OF HERE,  
LET'S GO!

BUT...  
... NOBODY'S  
**FORCING** ME  
TO WORK HERE.



**HUH?**  
SO THEN **WHY**  
**ARE YOU HERE!?!?**

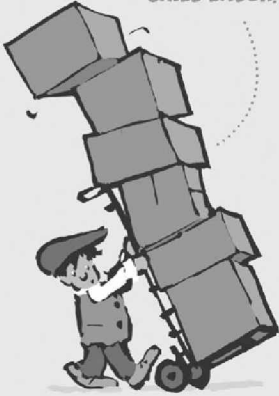
SWEATSHOPS  
ARE CLEARLY **MORE**  
**COMPLICATED**  
THAN SLAVERY...





**OPPONENTS OF SWEATSHOPS POINT OUT THAT SIMILAR WORKING CONDITIONS USED TO EXIST IN THE U.S. AND OTHER RICH COUNTRIES...**

AND DON'T FORGET ABOUT CHILD LABOR...



...14-HOUR WORKDAYZZZZ...



...AND UNSAFE WORKPLACES.



**... BUT WE PASSED LAWS BANNING THESE PRACTICES.**

THESE SITUATIONS ARE MORALLY WRONG.

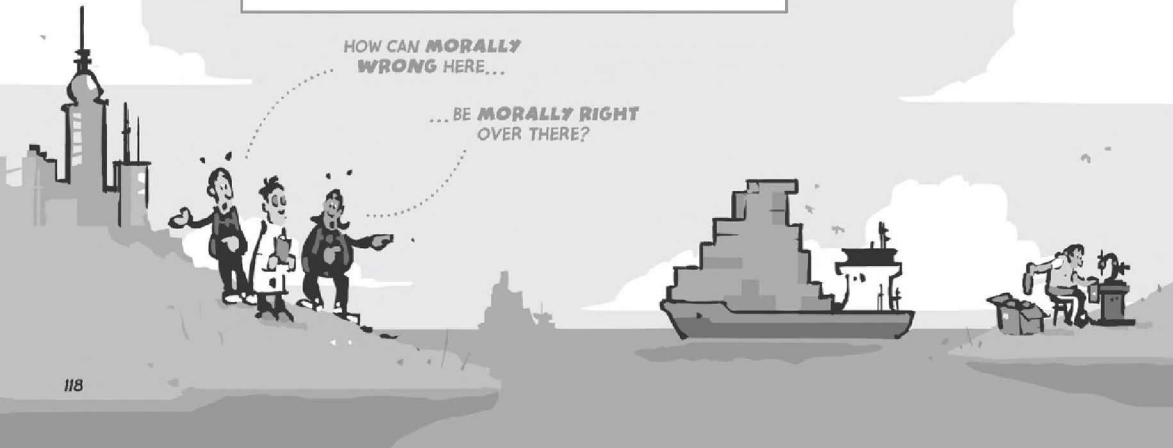


**AND IF SWEATSHOPS ARE ILLEGAL IN RICH COUNTRIES...**

**... HOW CAN IT BE OKAY TO HAVE THEM IN POOR COUNTRIES THAT SELL TO US?**

HOW CAN MORALLY WRONG HERE...

... BE MORALLY RIGHT OVER THERE?



**ANTI-SWEATSHOP ACTIVISTS ARGUE THAT WE NEED TO PROTECT THE HEALTH AND SAFETY OF ALL WORKERS.**

IF WE DON'T LOOK OUT FOR HER RIGHTS, WHO WILL?

CERTAINLY NOT THE CORRUPT DICTATOR WHO RUNS HER COUNTRY!



**THEY WARN THAT THE ALTERNATIVE IS A SLIPPERY SLOPE...**

IF SWEATSHOPS ARE OKAY, HOW ABOUT CHILD LABOR?

OR SELLING YOUR ORGANS?

OR HIRING FOREIGNERS TO WORK FOR PENNIES IN OUR COUNTRY?

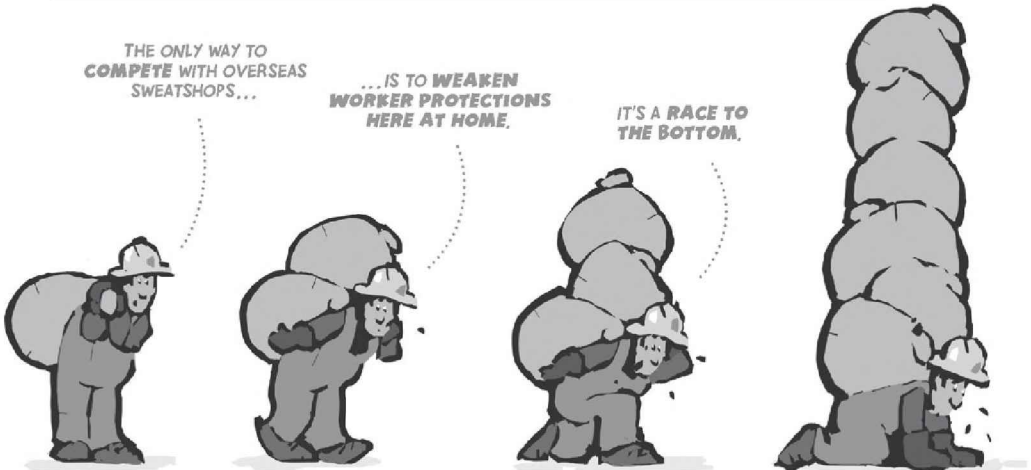


**... THAT COULD ULTIMATELY THREATEN WORKING STANDARDS EVERYWHERE.**

THE ONLY WAY TO COMPETE WITH OVERSEAS SWEATSHOPS...

... IS TO WEAKEN WORKER PROTECTIONS HERE AT HOME.

IT'S A RACE TO THE BOTTOM.



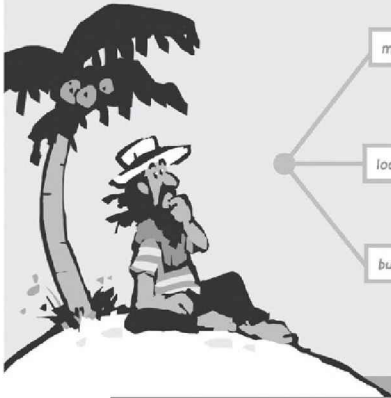
**SUPPORTERS OF SWEATSHOPS RESPOND THAT "EXPLOITATION" MAY BE THE BEST AVAILABLE OPTION FOR MANY PEOPLE.**

WHAT IF THE ONLY THING WORSE THAN **BEING EXPLOITED...**

**... IS NOT BEING EXPLOITED?**



**IN MICROECONOMICS WE LEARNED THAT OPTIMIZING INDIVIDUALS LOOK AT THEIR OPTIONS AND CHOOSE THE BEST ONE.**



**SO IF WORKING IN A SWEATSHOP IS THE OPTION SOMEONE CHOOSES...**

**... THEN THE OTHER OPTIONS MUST HAVE BEEN EVEN WORSE.**



THE SAD TRUTH ABOUT THE WORLD IS THAT MANY PEOPLE LIVE IN **GRINDING POVERTY**...

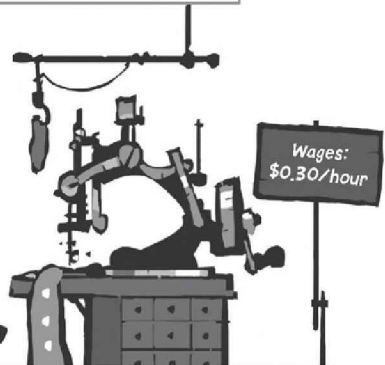


... AND IN COMPARISON SWEATSHOP JOBS CAN SEEM **TERRIFIC**.

**30 CENTS AN HOUR?**

AWESOME!

THIS IS THE JOB I'VE BEEN DREAMING OF!



THAT'S WHY SOME STAUNCH ANTI-POVERTY ACTIVISTS **DEFEND SWEATSHOPS**.

**POOR COUNTRIES NEED MORE SWEATSHOPS, NOT FEWER.**



IT'S DIFFICULT TO MAKE PEOPLE BETTER OFF BY **LIMITING THEIR OPTIONS**.

IN THE END, THE QUESTION OF WHETHER SWEATSHOPS ARE GOOD OR BAD IS **TRICKY**.

YOUR HONOR, WE NEED MORE TIME.



MAKING MATTERS EVEN TRICKIER IS THE PROBLEM OF **THE WOLF IN SHEEP'S CLOTHING**.

CONCERNS ABOUT HUMAN RIGHTS OR OTHER ISSUES MIGHT BE **GENUINE**...

...OR THEY MIGHT JUST BE A **COVER FOR PROTECTIONISM**.



IN OTHER WORDS, SOME OF THE OPPOSITION TO HAVING SWEATSHOPS IN **POOR COUNTRIES**...

THINK ABOUT ALL THE POOR PEOPLE **SUFFERING** IN THOSE SWEATSHOPS...

...AND THEIR **PITIFUL WAGES**.



...COMES FROM MEMBERS OF **RICH COUNTRIES** WHOSE **TRUE CONCERN IS FOR THEIR OWN JOBS AND PROFITS**.

IF WE HAVE TO COMPETE WITH OVERSEAS SWEATSHOPS, MY PROFITS WILL **PLUMMET**...

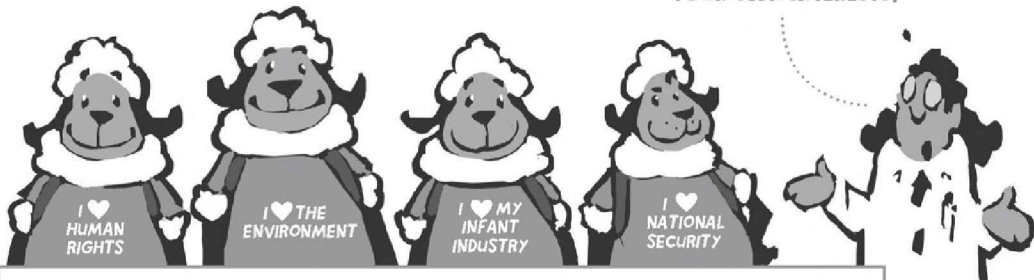
...AND MY **JOB WILL DISAPPEAR**.





THE WOLF-IN-SHEEP'S-CLOTHING PROBLEM BEDEVILS ALL ARGUMENTS ABOUT FREE TRADE.

HOW DO WE KNOW YOU'RE NOT JUST **PROTECTING YOUR OWN INTERESTS?**



THE FACT IS THAT SOME BUSINESSES AND WORKERS IN RICH COUNTRIES WILL SAY ANYTHING TO **AVOID COMPETITION FROM POOR COUNTRIES...**

PROTECTING OUR INDUSTRY IS CRUCIAL FOR **NATIONAL SECURITY!**

BUT YOU DON'T MAKE GUNS, YOU MAKE **BUTTER.**

... AND SOME BUSINESSES AND WORKERS IN POOR COUNTRIES WILL SAY ANYTHING TO **AVOID COMPETITION FROM RICH COUNTRIES.**

OUR DOMESTIC DIAPER INDUSTRY NEEDS PROTECTION AGAINST HUGE FOREIGN CORPORATIONS.

BUT YOU'VE BEEN MAKING THAT "INFANT INDUSTRY" ARGUMENT FOR YEARS...

... AND IT'S DRIVING UP PRICES FOR ALL OF US POOR CONSUMERS!

THESE ARGUMENTS ARE MADE OUT OF **NARROW SELF-INTEREST**, WHICH MAY NOT MATCH UP WITH THE **GENERAL WELFARE.**

IT'S TRUE THAT **THEY** MAY LOSE FROM FREE TRADE.

BUT TRADE IS STILL PRETTY AWESOME...

... JUST LIKE **TECHNOLOGICAL PROGRESS!**





OVERALL, THE CASE FOR FREE TRADE IS NOT THE 100% SLAM DUNK THAT CLASSICAL ECONOMISTS MAKE IT OUT TO BE...

THAT'S NOT A SLAM DUNK AT ALL,



... AND IT'S DEFINITELY TRUE THAT THERE ARE OTHER THINGS THAT FOLKS IN RICH COUNTRIES CAN DO TO HELP FOLKS IN POOR COUNTRIES,

WE'LL GET TO THIS IN THE NEXT CHAPTER!



BUT MOST ECONOMISTS ARGUE THAT THE **BURDEN OF PROOF** IN THE DEBATE ABOUT FREE TRADE LIES WITH THOSE WHO OPPOSE IT.

A LOT OF THE TIME, TRADE BENEFITS EVERYONE.

SO IF YOU'RE OPPOSED TO TRADE, YOU NEED TO SHOW HOW TRADE EITHER HURTS US OR HURTS THEM...

... AND IF YOU CAN'T, THEN MAYBE YOU SHOULD BUY A T-SHIRT!



# CHAPTER 10

## FOREIGN AID



**SOME PEOPLE IN RICH COUNTRIES  
JUST WANT TO DO WELL  
FOR THEMSELVES.**

I'M GOING TO  
MAKE A PILE OF  
MONEY...



**BY PURSUING THEIR  
OWN SELF-INTEREST,  
HOWEVER,...**

...BY BUILDING  
A FACTORY  
IN CHINA,...

... THEY OFTEN END UP  
HELPING OTHERS.

... AND CREATING  
JOBS FOR HUNDREDS  
OF CHINESE WORKERS.



**THAT'S THE MIRACLE OF ADAM SMITH'S INVISIBLE HAND.**

GEE, THANKS FOR  
THE JOBS AND  
INVESTMENT!

**DON'T THANK ME—  
I'M JUST TRYING TO  
MAXIMIZE MY  
PROFIT!**



**UNFORTUNATELY, WORLD HISTORY HASN'T EXACTLY FOLLOWED ADAM SMITH'S VISION OF FREE TRADE...**

YOU'RE AFRAID OF ME  
BULLYING YOU?

YOU WERE THE ONE  
INVOLVED IN **SLAVERY**  
AND **COLONIALISM** AND  
THE **OPIUM WARS** AND...



... AND THAT'S JUST ONE REASON WHY SOME PEOPLE  
**WANT TO DO MORE TO HELP POOR COUNTRIES.**

AN **EXTRA DOLLAR**  
MEANS A LOT MORE TO THEM  
THAN IT DOES TO US.

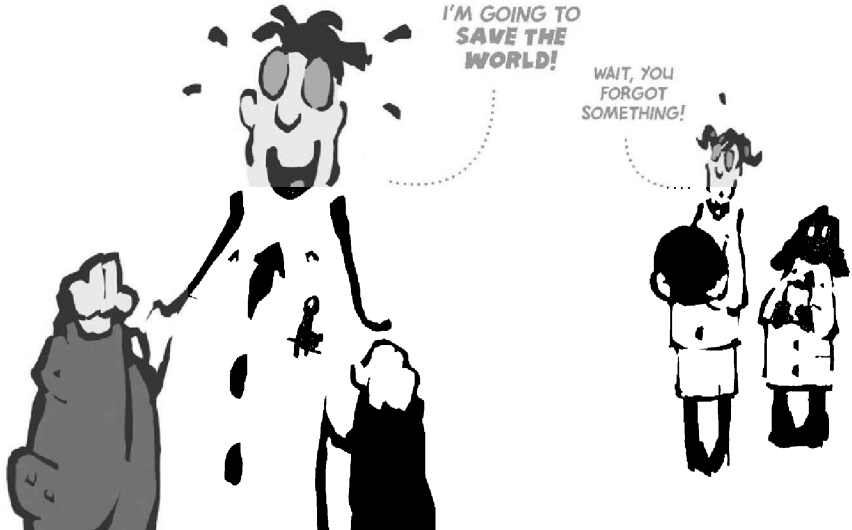
IF THE TABLES WERE  
TURNED, WE'D WANT  
THEM TO DO MORE  
TO HELP US.



THE **FIRST IMPORTANT LESSON** FOR THOSE WHO WANT TO HELP...

I'M GOING TO  
**SAVE THE  
WORLD!**

WAIT, YOU  
FORGOT  
SOMETHING!



... IS **HUMILITY**.

**GOOD INTENTIONS**  
AREN'T ALWAYS ENOUGH TO  
GET **GOOD OUTCOMES**.

TRUST ME,  
YOU'LL NEED  
THIS.



ONE GOOD EXAMPLE INVOLVES **NATURAL RESOURCES** LIKE **FISHERIES**.

**FISHERIES** ARE A CLASSIC  
**TRAGEDY OF THE COMMONS**...

SELF-INTEREST LEADS  
EACH OF US TO **FISH** AS  
MUCH AS POSSIBLE...



... UNTIL THERE ARE  
**NO MORE FISH**  
LEFT TO CATCH.



... AND **ECONOMISTS** USED TO THINK THEY KNEW  
**EVERYTHING** ABOUT HOW TO RESPOND.

**GOVERNMENTS** NEED TO  
PREVENT **OVERFISHING**  
WITH **REGULATION**...



... LIKE A **CATCH LIMIT**  
OR A **TRADABLE**  
**PERMIT SYSTEM**.



BUT IT TURNS OUT THAT THE **TRAGEDY OF THE COMMONS** IS **NOT INEVITABLE**.



YOU THINK YOU  
KNOW **EVERYTHING**...

... BUT THINK  
AGAIN.

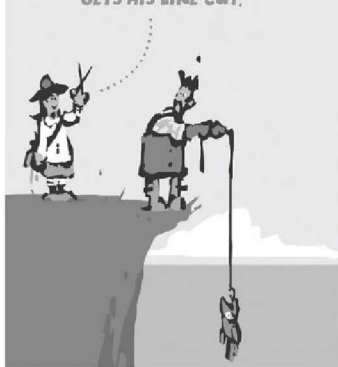


**IN SOME PARTS OF THE WORLD, LOCAL COMMUNITIES  
HAVE MANAGED TO PROTECT THEIR OWN FISHERIES.**

ANYBODY WHO DYNAMITES  
THE BAY GETS **WICKED**  
OUT OF THE CLAN.



ANYBODY WHO FISHES IN  
ANOTHER FAMILY'S COVE  
GETS HIS LINE CUT.



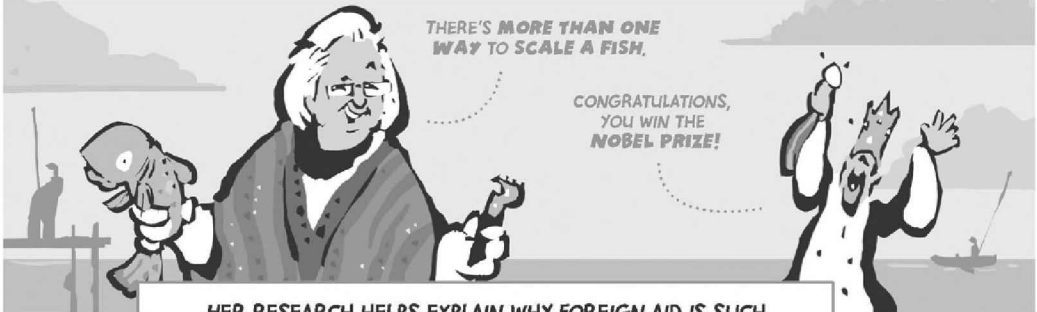
OUR **COMMUNITY  
NORMS** ARE THAT WE  
RESPECT OUR ELDER'S...



...AND WE RESPECT  
OUR NATURAL  
RESOURCES TOO.

**ELINOR OSTROM** SHARED THE NOBEL PRIZE IN 2009 FOR STUDYING  
THESE **BRILLIANT HOMEGROWN SOLUTIONS.**

THERE'S **MORE THAN ONE**  
WAY TO SCALE A FISH.



CONGRATULATIONS,  
YOU WIN THE  
**NOBEL PRIZE!**

HER RESEARCH HELPS EXPLAIN WHY FOREIGN AID IS SUCH  
**A DELICATE BALANCING ACT.**

SOMETIMES ADVICE  
FROM FOREIGNERS MAKES  
THINGS **BETTER...**

...AND SOMETIMES  
IT MAKES THINGS  
**WORSE.**





GIVEN THE CHALLENGES OF HELPING A **STRUGGLING FAMILY**...

HOW IS THAT **MATTRESS** I GAVE YOU?

FIRST OUR **COW** ATE PART OF IT AND **DIED**...



... AND THEN THE REST ACCIDENTALLY **CAUGHT FIRE** AND **BURNED DOWN THE HOUSE**,

SO NOW, THANKS TO YOU, WE HAVE **NOTHING**.



... IT'S NO SURPRISE THAT HELPING A **STRUGGLING ECONOMY** IS ALSO HARD.

AREN'T YOU GLAD I ADVISED YOU TO **GROW COFFEE FOR EXPORT**?

WELL, YOU FORGOT TO MENTION THAT **WORLD COFFEE PRICES WOULD COLLAPSE**...



... AND THAT WE'D HAVE A **HUGE DROUGHT**.

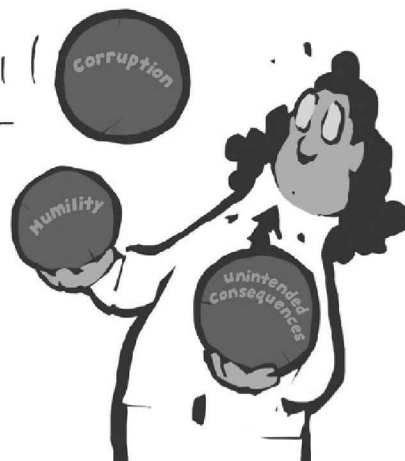
IF YOU HAVE ANY MORE GREAT IDEAS, PLEASE **KEEP THEM TO YOURSELF**.



IN PART THIS IS BECAUSE OF THE **VARIETY OF PROBLEMS** THAT CAN HAMPER REFORM EFFORTS.

HAPPY ECONOMIES ARE ALL ALIKE...

... BUT EVERY UNHAPPY ECONOMY IS **UNHAPPY IN ITS OWN WAY**.



OF COURSE, IT'S ALSO POSSIBLE  
TO BE **TOO CAUTIOUS.**

**HELP!**

OUR HOUSE  
IS BURNING  
DOWN!

AND LOCUSTS  
ARE EATING ALL  
OF OUR CROPS!

AND MEN WITH  
GUNS STOLE ALL  
OUR MONEY!

SORRY, WE  
CAN'T HELP.

WE'RE TRYING  
TO BE **HUMBLE.**

THE DELICATE BALANCING ACT OF FOREIGN AID IS EVEN EVIDENT IN PROGRAMS LIKE **MICROFINANCE**...

CAN YOU LOAN ME \$2  
SO I CAN START A BUSINESS  
SELLING RICE CAKES?



YES, I CAN!  
I'M A BANKER  
TO THE POOR.

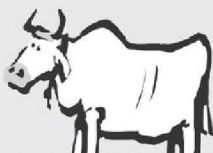


... WHICH THE ECONOMIST **MUHAMMAD YUNUS** STARTED IN HIS NATIVE BANGLADESH,

AT A REGULAR BANK YOU  
CAN'T BORROW MONEY  
WITHOUT COLLATERAL...



... AND IF ALL YOU HAVE ARE  
PENNIES, YOU CAN'T EVEN OPEN  
A SAVINGS ACCOUNT.



BUT THE  
**GRAMEEN BANK** IS  
DIFFERENT!



THE SUCCESS OF MICROFINANCE WON YUNUS AND HIS **GRAMEEN BANK** THE 2006 NOBEL PEACE PRIZE...

NO COLLATERAL?  
NO CREDIT?  
**NO PROBLEM!**



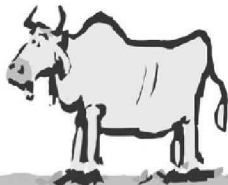
CONGRATULATIONS,  
YOU WIN THE  
NOBEL PEACE  
PRIZE!



... BUT WHEN IT COMES TO FOREIGN AID, **CONTROVERSY** IS NEVER FAR BEHIND.

THEY'RE CHARGING  
20% INTEREST?!

THAT'S HIGHWAY  
ROBBERY!



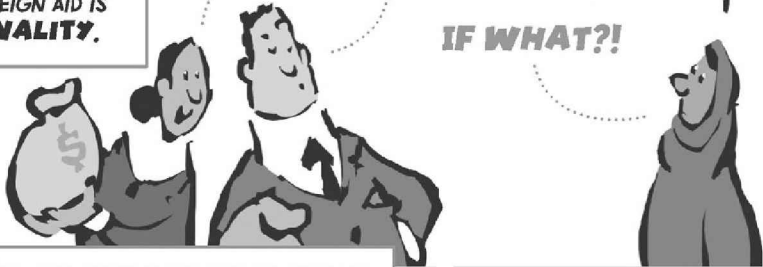
WOULD YOU RATHER  
NOT HAVE A LOAN  
AT ALL?



PERHAPS THE **MOST CONTROVERSIAL ASPECT OF FOREIGN AID IS CONDITIONALITY.**

WE'LL HELP YOU...  
... BUT ONLY **IF**...

**IF WHAT?!**



ON THE ONE HAND, **CONDITIONAL AID PROGRAMS DON'T INVOLVE MUCH HUMILITY...**

... ESPECIALLY COMPARED WITH **UNCONDITIONAL AID, LIKE MEDICAL CARE,**

... **IF YOU DO WHAT WE SAY.**

THAT'S **INSULTING!**

WHAT DO YOU THINK I AM, **YOUR PUPPET?**

I CAN'T FIX **EVERYTHING...**

... BUT I CAN FIX YOUR **BROKEN ARM.**



ON THE OTHER HAND, **WEALTHY FOREIGN COUNTRIES AND INTERNATIONAL INSTITUTIONS...**

... LIKE THE **INTERNATIONAL MONETARY FUND (IMF)**, WHICH GIVES **EMERGENCY LOANS** TO STRUGGLING COUNTRIES...

... AND THE **WORLD BANK**, WHICH MAKES **DEVELOPMENT LOANS...**



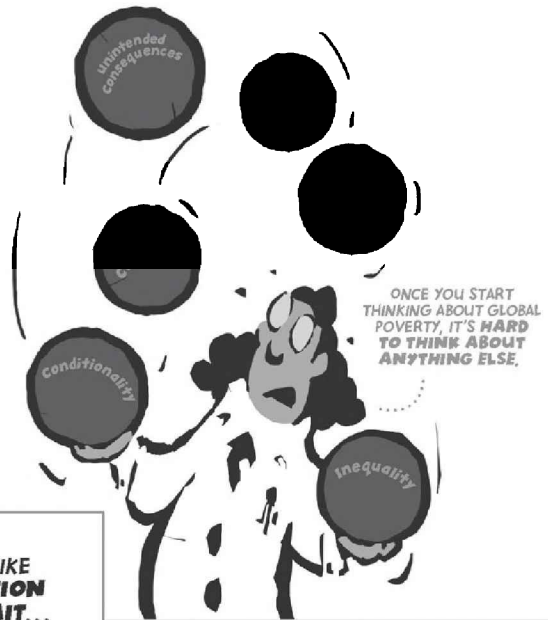
... ARE UNLIKELY TO JUST GIVE AWAY MONEY **WITH NO STRINGS ATTACHED.**

IT'S **OUR MONEY...**

... AND WE WANT TO SEE IT SPENT **WISELY.**



**DEVELOPMENT ECONOMISTS WORK HARD TO MANAGE ALL THESE CHALLENGES AND IMPROVE FOREIGN AID.**



**ECONOMIC RESEARCH RANGES FROM EXPERIMENTS RUN BY GROUPS LIKE INNOVATIONS FOR POVERTY ACTION AND THE POVERTY ACTION LAB AT MIT...**

LET'S SEE IF STUDENTS LEARN MORE WHEN THEY GET SCHOOL SUPPLIES **FOR FREE**.

LET'S SEE IF PEOPLE USE ANTIMALARIAL BED NETS MORE **WHEN THEY HAVE TO PAY FOR THEM**.



**... TO STUDIES OF HOMEGROWN ANTIPOVERTY PROGRAMS LIKE MEXICO'S OPORTUNIDADES.**

OUR POOR FAMILY GETS MONEY FROM THE GOVERNMENT...

... BUT ONLY **IF** OUR KIDS STAY IN SCHOOL AND GET REGULAR HEALTH CHECKUPS.





**ECONOMISTS CAN ALSO HELP BY ANALYZING THE BARRIERS TO ECONOMIC GROWTH...**

**MALARIA AND PNEUMOCOCCAL DISEASES KILL MILLIONS OF PEOPLE...**

...BUT BECAUSE THOSE DEATHS **MOSTLY OCCUR IN POOR COUNTRIES...**

...THERE'S NO FINANCIAL INCENTIVE FOR DRUG COMPANIES TO DEVELOP A VACCINE.



... AND CREATING INNOVATIVE WAYS TO **OVERCOME THOSE BARRIERS.**

RICH COUNTRIES AND FOUNDATIONS ARE OFFERING A **\$1.5 BILLION PRIZE** FOR VACCINE DEVELOPMENT!



FINALLY, ECONOMISTS CAN HELP BY ADVISING POOR COUNTRIES ABOUT **MACROECONOMIC POLICY...**

IF YOU PRINT TOO MUCH MONEY, YOU'RE JUST GOING TO GET **INFLATION.**



... AND BY ADVISING RICH COUNTRIES ABOUT THE **BEST WAYS** TO PROVIDE FOREIGN AID.

HOW CAN WE HELP **THEM** GET THEIR ACT TOGETHER?

WE'RE GLAD YOU ASKED! A GOOD **FIRST STEP...**

... IS FOR **YOU** TO GET **YOUR ACT** TOGETHER.

LET'S SEE WHY...





**WHEN IT COMES TO FOREIGN AID, MANY ECONOMISTS OBSESS ABOUT GETTING RICH COUNTRIES TO REDUCE THEIR TRADE BARRIERS.**

**AARGH!**

WHY WON'T YOU LISTEN  
TO ADAM SMITH?!

THIS IS ESPECIALLY TRUE IN **AGRICULTURE**, AN AREA WHERE  
POOR COUNTRIES OFTEN HAVE A **COMPARATIVE ADVANTAGE**.

IN A FAIR FIGHT, OUR  
**CHEAP LABOR...**

... **BEATS THEIR FANCY  
TECHNOLOGY.**

UNFORTUNATELY, MANY  
RICH COUNTRIES ENGAGE IN  
**PROTECTIONISM...**

Trade Barrier:  
**KEEP  
OUT!**

... AND PROVIDE **SUBSIDIES TO THEIR OWN PRODUCERS.**

HERE'S SOME  
MONEY TO HELP YOU  
**COMPETE WITH ALL  
THEIR CHEAP LABOR.**

THESE POLICIES PROVIDE  
**OBVIOUS BENEFITS**  
TO FARMERS IN RICH  
COUNTRIES...

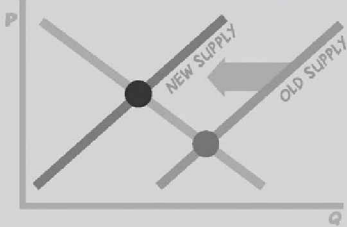
IT'S RAINING  
MONEY!

... BUT TRADE BARRIERS **HURT**  
**RICH-COUNTRY CONSUMERS...**

... AND SUBSIDIES **HURT**  
**RICH-COUNTRY TAXPAYERS,**

RESTRICTING  
INTERNATIONAL  
COMPETITION...

... MEANS THAT I HAVE  
TO PAY **MORE** AT THE  
GROCERY STORE.



EVERY DOLLAR IN FARM  
SUBSIDIES **COMES OUT**  
**OF MY POCKET!**



PERHAPS WORST OF ALL, THESE POLICIES  
**HURT FARMERS IN POOR COUNTRIES.**

WE CAN WIN  
A **FAIR FIGHT...**

... BUT NOT WHEN  
THE DECK IS STACKED  
AGAINST US.



WHEN YOU CONSIDER THAT WHAT RICH-WORLD GOVERNMENTS SPEND ON THEIR OWN FARMERS...

... IS ON AVERAGE 4 TIMES LARGER THAN WHAT THEY SPEND ON FOREIGN AID...

HERE, HAVE SOME GOLDEN EGGS.

HERE, HAVE SOME EGGS.



... IT'S NO WONDER THAT MANY ECONOMISTS BELIEVE THAT **ONE OF THE BEST FORMS OF AID IS TRADE.**

IF YOU WANT TO HELP POOR COUNTRIES...

**... MAKE IT EASY TO BUY STUFF FROM THEM!**



# CHAPTER 11

## FOREIGN CURRENCIES

LET'S  
**MERGE OUR  
CURRENCIES!**

I LIKE YOU A LOT,  
I REALLY DO...

... BUT I'M JUST NOT  
SURE I'M READY.



**DIFFERENT COUNTRIES USE DIFFERENT CURRENCIES.**

IN THE U.S. WE USE **DOLLARS**.



IN INDIA WE USE **RUPEES**.



IN EUROPE MANY COUNTRIES USE **EUROS**.



**THIS CAN COMPLICATE INTERNATIONAL TRADE...**

**\$150** IS MY FINAL OFFER!



I WON'T PAY ANY MORE THAN **₹7,500**.



I'LL GIVE YOU **€120**.



IT'S AS IF THEY'RE SPEAKING DIFFERENT LANGUAGES.



**... BUT THERE'S A SOLUTION.**



**THE FOREIGN EXCHANGE MARKET IS WHERE PEOPLE TRADE ONE CURRENCY FOR ANOTHER.**

I WANT TO TRADE **RUPEES** FOR **DOLLARS**.



I WANT TO TRADE **DOLLARS** FOR **RUPEES**.



DOES ANYONE WANT TO TRADE **PESOS** FOR **KROONI**?



**IN MANY WAYS, THE FOREIGN EXCHANGE MARKET IS JUST LIKE ANY OTHER MARKET...**

LIKE THE MARKET FOR APPLES...



...OR THE MARKET FOR CARS...



...OR THE MARKET FOR BORROWING AND LENDING MONEY.



**... IT'S ALL SUPPLY AND DEMAND!**

FOR EXAMPLE, SOME PEOPLE WANT TO TRADE **DOLLARS FOR RUPEES...**

I WANT TO BUY STOCK IN AN INDIAN COMPANY.

I'D BETTER GET SOME INDIAN MONEY!



...AND SOME PEOPLE WANT TO TRADE **RUPEES FOR DOLLARS...**

I WANT TO GO ON VACATION IN NEW YORK CITY.

I'D BETTER GET SOME AMERICAN MONEY!



**... AND THE RESULT IS AN EXCHANGE RATE.**

IN 2010 THE EXCHANGE RATE WAS ABOUT **₹ 50 PER \$1.**

OR, EQUIVALENTLY, **\$0.02 PER ₹1.**





EXCHANGE RATES ARE CALLED  
**FLOATING OR FLEXIBLE**  
WHEN THEY FLUCTUATE BASED ON  
MARKET SUPPLY AND DEMAND.

WE'RE MOVING  
WITH THE WINDS  
AND THE TIDES.



IT'S TEMPTING TO THINK THAT IT'S **GOOD**  
WHEN YOUR CURRENCY GETS **STRONGER...**

IF **ONE DOLLAR** USED TO  
TRADE FOR **0,8 EUROS...**

... BUT NOW IT TRADES  
FOR **1,2 EUROS...**



... THEN THE DOLLAR IS  
**GETTING STRONGER**  
AGAINST THE EURO.



... AND **BAD** WHEN YOUR CURRENCY GETS **WEAKER...**

IF **ONE DOLLAR** USED TO  
TRADE FOR **0,8 EUROS...**

... BUT NOW IT TRADES  
FOR **0,6 EUROS...**



... THEN THE DOLLAR IS  
**GETTING WEAKER**  
AGAINST THE EURO.



... BUT THE TRUTH IS THAT EXCHANGE RATE FLUCTUATIONS  
PRODUCE BOTH **WINNERS AND LOSERS.**

**NYAA NYAA,**  
MY CURRENCY IS  
STRONGER THAN YOUR  
CURRENCY!

**NYAA NYAA,**  
THAT'S JUST THE  
WAY I LIKE IT!



**EXCHANGE RATE FLUCTUATIONS HAVE DIFFERENT EFFECTS ON EXPORTERS...**

OTHER THINGS BEING EQUAL,  
I PREFER A **WEAKER** DOLLAR...

... BECAUSE WHEN I SELL MY  
GOODS IN EUROS, THAT MEANS  
I MAKE MORE IN DOLLARS.

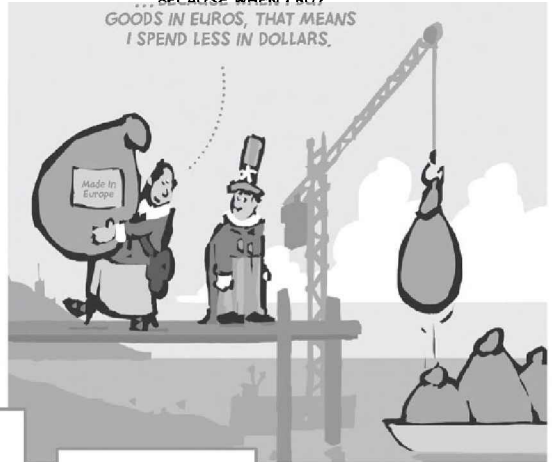


THIS IS LIKE THE WAY  
**FLUCTUATING RATES OF INFLATION**  
HAVE DIFFERENT EFFECTS ON **BORROWERS...**

**... AND IMPORTERS.**

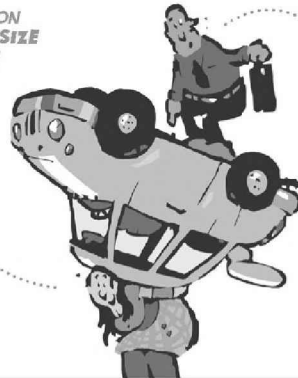
OTHER THINGS BEING EQUAL,  
I PREFER A **STRONGER** DOLLAR...

... BECAUSE WHEN I BUY  
GOODS IN EUROS, THAT MEANS  
I SPEND LESS IN DOLLARS.



**... AND LENDERS.**

UNEXPECTED INFLATION  
WOULD **REDUCE THE SIZE**  
OF MY DEBTS IN  
REAL TERMS.



INFLATION MIGHT  
HELP HER...

... BUT I'M ON  
THE OTHER SIDE  
OF THE COIN.

AS WITH INFLATION, HOWEVER, TOO MUCH  
**CONFUSION AND UNCERTAINTY** CAN BE BAD FOR EVERYONE.



ONE WAY TO AVOID CONFUSION  
AND UNCERTAINTY IS TO HAVE  
**FIXED EXCHANGE RATES...**

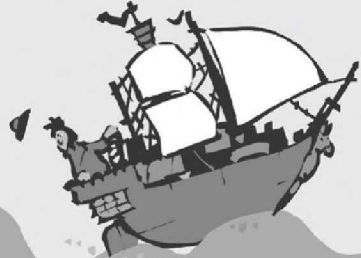


FIXED EXCHANGE  
RATES ARE ALSO  
CALLED **PEGS**.

... BUT THAT REQUIRES  
**GOVERNMENT  
INTERVENTION.**

AHOY THERE, I'M  
MONETARY POLICY MAN...

... AND I'M HERE  
TO **ANCHOR THE  
EXCHANGE RATE.**



JUST LIKE A CENTRAL BANK CAN BUY  
AND SELL **ASSETS** TO INFLUENCE  
**INTEREST RATES...**

WE COVERED THAT  
IN CHAPTER 3.



... A CENTRAL BANK CAN BUY AND SELL **FOREIGN CURRENCY**  
TO INFLUENCE **EXCHANGE RATES.**

BY WEIGHING IN ON ONE  
SIDE OR THE OTHER...

... I CAN KEEP THE  
EXCHANGE RATE **FIXED.**



FOR EXAMPLE, UNTIL 1994 **MEXICO** PEGGED ITS **PESO** TO THE **U.S. DOLLAR.**

UNFORTUNATELY, IT CAN BE **HARD TO KEEP FIXED EXCHANGE RATES FIXED.**

MEXICO LEARNED THIS LESSON THE **HARD WAY.**



IN 1994 LOTS OF PEOPLE WANTED TO **SELL MEXICAN PESOS AND BUY U.S. DOLLARS...**

... SO IN ORDER TO MAINTAIN A FIXED EXCHANGE RATE, THE MEXICAN GOVERNMENT HAD TO **DO THE OPPOSITE.**



**BUT WHEN THIS KEPT GOING...**

... AND GOING...

... AND GOING...

YES, I CAN SELL YOU DOLLARS.



YES, I CAN SELL YOU DOLLARS.



YES, I CAN SELL YOU DOLLARS.



... EVENTUALLY THERE WAS A **CURRENCY CRISIS.**

UM, WE DON'T HAVE ANY MORE DOLLARS TO SELL.

SO MUCH FOR TRYING TO KEEP THE EXCHANGE RATE STABLE!



IN ORDER TO KEEP EXCHANGE RATES STABLE, SOME COUNTRIES HAVE GONE TO **EXTREME MEASURES**,

ALL THIS COMMOTION...

I CAN'T TAKE IT ANYMORE!



FOR EXAMPLE, IN 2000 ECUADOR COMPLETELY **ABANDONED ITS OWN CURRENCY** IN FAVOR OF THE U.S. DOLLAR,

¿QUIÉN ES JORGE WASHINGTON?



ECUADOR'S GOAL WAS TO **GAIN STABILITY...**

WE NO LONGER HAVE EXCHANGE RATE FLUCTUATIONS WITH OUR BIGGEST TRADING PARTNER...

... AND HOPEFULLY THE U.S. GOVERNMENT WILL KEEP INFLATION UNDER CONTROL TOO!



... BUT THE PRICE WAS A **LOSS OF INDEPENDENCE.**

... FOR RICHER OR FOR POORER...

... BUT I SURE HOPE IT'S FOR RICHER!





ANOTHER EXTREME EXAMPLE FEATURES THE EUROPEAN COUNTRIES THAT JOINED TOGETHER IN 1999...



... TO ADOPT A **SINGLE CURRENCY**.

AU REVOIR,  
**FRANC!**

AUF  
WIEDERSEHEN,  
**MARK!**

¡ADIOS,  
**PESETA!**

CIAO,  
**LIRA!**

HELLO,  
**EURO!**



ONCE AGAIN, THE BENEFIT WAS **ELIMINATING** THE DIFFICULTIES ASSOCIATED WITH HAVING MULTIPLE CURRENCIES...

WE'RE GOING TO HONEYMOON IN FRANCE, ITALY, AND GERMANY...

... AND WE **WON'T HAVE TO CHANGE CURRENCIES!**



... AND ONCE AGAIN THE COST WAS A **LOSS OF INDEPENDENCE** FOR THESE EUROPEAN ECONOMIES.



HEY, WHO'S DANCING ON MY TOES?



IT CAN BE HARD TO WEIGH THE **COSTS AND BENEFITS** OF A **CURRENCY UNION...**



IS THIS MARRIAGE WORTH IT?

... WHICH IS WHY **ROBERT MUNDELL** WON THE 1999 NOBEL PRIZE FOR HIS WORK ON **OPTIMAL CURRENCY AREAS.**



JUST CALL ME THE **LOVE DOCTOR!**

CONGRATULATIONS, YOU WIN THE **NOBEL PRIZE!**



IT'S NO SURPRISE THAT MUNDELL'S WORK HIGHLIGHTS THE IMPORTANCE OF **TOGETHERNESS...**



IF YOU'RE **ALREADY MOVING IN UNISON**, A CURRENCY UNION MAKES SENSE.



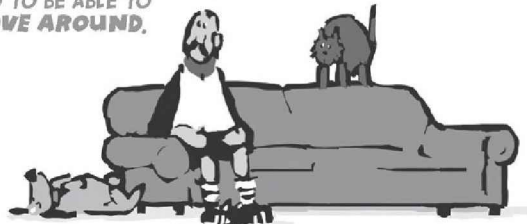
IF YOU'RE NOT, YOU COULD BE IN **BIG TROUBLE.**



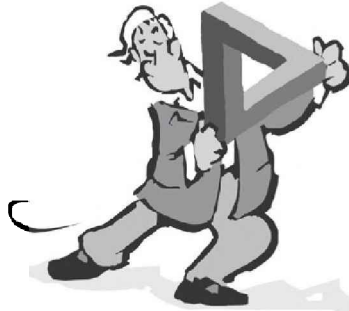
... BUT IT ALSO HIGHLIGHTS THE IMPORTANCE OF **LABOR AND CAPITAL MOBILITY.**

IF ONE AREA IS BOOMING AND ONE IS CRASHING...

... **PEOPLE AND RESOURCES** NEED TO BE ABLE TO **MOVE AROUND.**



THE BIGGEST SURPRISE IN MUNDELL'S WORK CONCERNS A TRIO KNOWN AS THE **IMPOSSIBLE TRINITY**:



**FREELY TRADED CURRENCY**

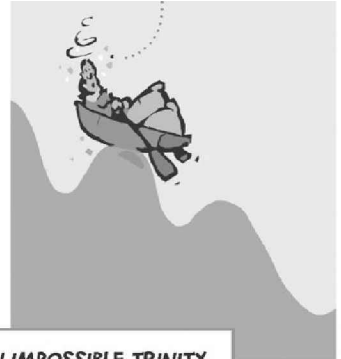
**INDEPENDENT MONETARY POLICY**

**FIXED EXCHANGE RATES**

PEOPLE SHOULD BE ABLE TO **BUY AND SELL CURRENCIES**...  
... WITHOUT GOVERNMENT RESTRICTIONS.

WE WANT TO BE ABLE TO BOOST OR SLOW DOWN OUR ECONOMY BY **CHANGING THE MONEY SUPPLY**.

WE DON'T WANT **CONFUSION AND INSTABILITY**.



HAVING ALL THREE **SOUNDS GREAT**, BUT THEY'RE AN **IMPOSSIBLE TRINITY** BECAUSE YOU CAN ONLY HAVE **TWO OUT OF THREE**.

JUST LIKE YOU CAN ONLY HAVE **TWO OUT OF THREE** OF SOME OTHER THINGS:

I WANT TO BE A **COUCH POTATO**...

... AND **EAT TONS OF DONUTS**...

... AND **KEEP MY WEIGHT UNDER CONTROL**.

I WANT **LOW TAXES**...

... **LOTS OF GOVERNMENT SERVICES**...

... AND A **BALANCED BUDGET**.

SORRY, YOU HAVE TO **GIVE UP ONE**.



ULTIMATELY, DIFFERENT COUNTRIES CHOOSE **DIFFERENT COMBINATIONS** OF THE IMPOSSIBLE TRINITY.

CHINA RESTRICTS  
FREE TRADE IN ITS  
CURRENCY.



ECUADOR GIVES UP  
CONTROL OVER ITS  
MONETARY POLICY.



THE U.S. AND CANADA  
ALLOW THEIR EXCHANGE  
RATES TO FLOAT.



WHICH ONES TO CHOOSE IS **NOT AN EASY QUESTION...**

Marriage  
Counselor:  
\$45/hour.

WE ONLY HAVE  
5 MINUTES LEFT...  
... WHICH IS 4 MINUTES  
CANADIAN.



... AND AS WITH MARRIAGE, THERE'S **NOT ALWAYS A RIGHT ANSWER.**

OTHER CURRENCIES...  
... CAN'T LIVE **WITH 'EM**,  
CAN'T LIVE **WITHOUT 'EM!**





**PART  
THREE**  
GLOBAL  
MACROECONOMICS

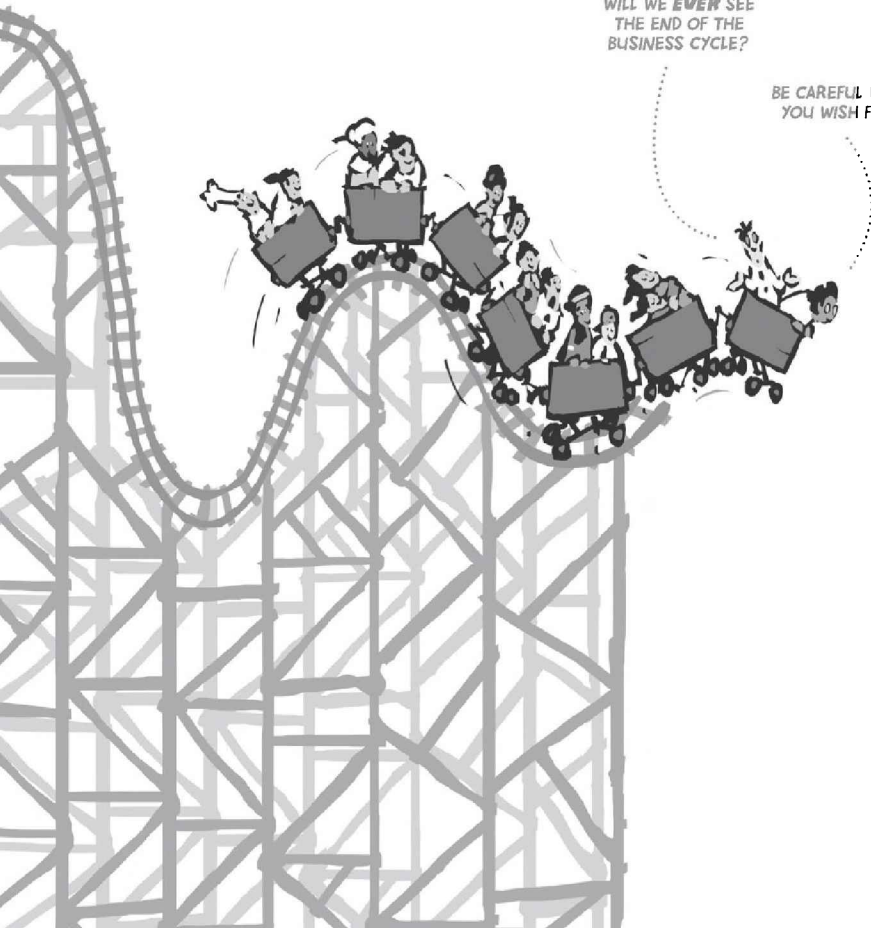


# CHAPTER 12

## THE END OF THE BUSINESS CYCLE?

WILL WE **EVER** SEE  
THE END OF THE  
BUSINESS CYCLE?

BE CAREFUL WHAT  
YOU WISH FOR.





IN CHAPTER 2 WE NOTED THAT THE DIFFERENCE BETWEEN A **RECESSION** AND A **DEPRESSION**...

... IS LIKE THE DIFFERENCE BETWEEN BEING **SICK**...

VOMITING,  
HIVES, BOILS,  
FEVER...



... AND BEING **ON YOUR DEATHBED**.

SHOULD WE CALL AN ECONOMIST?

DON'T BOTHER, CALL A PRIEST.



THERE IS, OF COURSE, A FORMAL DEFINITION OF **RECESSION**.

A **SIGNIFICANT DECLINE IN ECONOMIC ACTIVITY**...

... SPREAD ACROSS THE ECONOMY...

... THAT LASTS MORE THAN A FEW MONTHS.

COUGH COUGH COUGH.



THERE'S NO **FORMAL RULE** FOR WHEN A BAD RECESSION TURNS INTO A **DEPRESSION**, BUT THERE IS A **CRUEL ECONOMICS JOKE**.

IN A RECESSION, YOU LOSE YOUR JOB...

... IN A DEPRESSION, I LOSE MINE.



AT THE END OF THE 20TH CENTURY, ECONOMISTS LIKE **ROBERT LUCAS** EXPRESSED GREAT CONFIDENCE THAT **DEPRESSIONS WERE A THING OF THE PAST.**

"[THE] CENTRAL PROBLEM OF DEPRESSION—PREVENTION HAS BEEN SOLVED."

CONGRATULATIONS, YOU WIN THE NOBEL PRIZE!



AND NO WONDER: MORE THAN **TWO DECADES** OF LOW INFLATION, LOW UNEMPLOYMENT, AND RELATIVELY STEADY GROWTH IN THE RICH WORLD...

CALL IT THE **GREAT MODERATION.**

OR THE **GOLDBLOCKS ECONOMY.**

NOT TOO HOT, NOT TOO COLD, BUT JUST **RIGHT!**



... MADE IT SEEM AS IF THE **END OF THE BUSINESS CYCLE** WAS **WITHIN REACH.**

LOOKS LIKE YOU'LL **NEVER BE SICK AGAIN!**



THEN CAME THE **FINANCIAL CRISIS** OF 2008...

ON SECOND THOUGHT...



... AND SUDDENLY THE **GREAT DEPRESSION** DIDN'T SEEM LIKE **ANCIENT HISTORY.**

**THE GREAT DEPRESSION** STARTED AFTER A **DECADE OF PROSPERITY**  
FEATURING SOARING STOCK MARKETS AND HOUSING PRICES IN THE U.S.



THEN, IN 1929, THE **STOCK MARKET CRASHED...**



...A WAVE OF **BANK FAILURES** SWEEPED THE COUNTRY...



...NATIONAL ECONOMIES AND INTERNATIONAL TRADE **COLLAPSED...**

WE'LL TRADE YOU SOME OF  
OUR **NOTHING** FOR SOME  
OF YOUR **NOTHING**.



...AND **UNEMPLOYMENT SOARED.**

WE'D TAKE JOBS DOING  
**ANYTHING...**

...BUT WE'RE STUCK  
DOING **NOTHING.**



COMPARED TO THE **GREAT DEPRESSION**...

... THE **"GREAT RECESSION"** WAS NOTHING.

1929 – 1933

2007 – 2009

DECLINE IN U.S. REAL GDP

27%



5%



PEAK U.S. UNEMPLOYMENT

25%



10%



DECLINE IN WORLD TRADE

36%



20%



DURATION OF RECESSION

43 MONTHS WITHOUT ECONOMIC GROWTH.



18 MONTHS? PIECE OF CAKE.



**MANY FACTORS CONTRIBUTED TO THE GREAT DEPRESSION...**

HYPOTHERMIA,  
GANGRENE, HYPOXIA,  
MALNUTRITION...



... BUT AT THE TOP OF THE LIST WAS  
**BAD MONETARY POLICY** BY THE FEDERAL RESERVE,

LET'S  
**OPERATE!**



AS WE LEARNED IN CHAPTER 3,  
THE WAY TO STIMULATE THE ECONOMY  
IS TO **LOOSEN** MONETARY POLICY...

I'VE NEVER  
DONE THIS BEFORE...

... BUT **DON'T**  
**WORRY!**



... BUT THE FED, WHICH HAD BEEN  
CREATED ONLY A FEW YEARS EARLIER,  
**DID JUST THE OPPOSITE.**

YOU MEAN I WASN'T  
SUPPOSED TO  
**AMPUTATE THE**  
**LEFT LEG?**

CLASSIC ROOKIE  
MISTAKE.





IN CONTRAST, THE FED'S RESPONSE TO THE "GREAT RECESSION" WAS TO TAKE ACTION TO STIMULATE BORROWING AND SPENDING...



... AND IN FACT THE FED LOWERED INTEREST RATES ALL THE WAY TO ZERO.

YOU CAN BORROW MONEY AT 0% INTEREST.

PLEASE TAKE IT!



TEMPTING, BUT I'M STILL NOT SURE IT'S WORTH IT.

ONE OF THE BIG DEBATES ABOUT THE 2008 CRISIS IS WHETHER THE FED **COULD HAVE DONE EVEN MORE...**



... OR WHETHER MONETARY POLICY HAD **MET ITS MATCH.**

MAYBE WE NEED TO GET HELP FROM **FISCAL POLICY.**

DID I HEAR SOMEONE CALLING MY NAME?





UNFORTUNATELY, DURING THE **GREAT DEPRESSION** THE U.S. GOVERNMENT ALSO **BOTCHED FISCAL POLICY.**



THE ECONOMIC ORTHODOXY IN THOSE DAYS FAVORED **BALANCED BUDGETS...**

IN THESE TOUGH TIMES WE NEED TO **LIVE WITHIN OUR MEANS.**

I AGREE: THE ECONOMY IS LIKE A **WELL-ORGANIZED FAMILY!**

... AND THE VIEWS OF **JOHN MAYNARD KEYNES...**

ACTUALLY, THE ECONOMY IS LIKE A **DYSFUNCTIONAL FAMILY!**

... WERE SEEN AS **HERESY.**

**YOU'RE THE ONE WHO'S DYSFUNCTIONAL!**

WE NEED TO BALANCE THE BUDGET BY **CUTTING SPENDING AND RAISING TAXES!**

NOWADAYS, THE KEYNESIAN IDEA OF **FISCAL STIMULUS** IS PRETTY **MAINSTREAM**...

IT WOULD BE **BEST** TO FUND USEFUL PUBLIC INVESTMENTS...

... BUT EVEN **PAYING PEOPLE TO DIG HOLES** IN THE GROUND MIGHT BE BETTER THAN NOTHING.



... AND THE **STIMULUS BILLS** AND **TAX CUTS** OF 2008-2009 WERE RIGHT OUT OF THE **KEYNESIAN PLAYBOOK**.

IF MONETARY POLICY DOESN'T WORK, YOU HAVE TO TRY FISCAL STIMULUS.



MOST ECONOMISTS AGREE THAT WITHOUT THESE POLICIES THE 2008 RECESSION WOULD HAVE BEEN **EVEN WORSE**...

FOR A WHILE THERE, IT FELT LIKE 1929 ALL OVER AGAIN.



... JUST LIKE MANY ECONOMISTS THINK THAT **MASSIVE DEFICIT SPENDING** DURING WORLD WAR II HELPED END THE GREAT DEPRESSION.

I WOULD HAVE PREFERRED TO JUST **DIG HOLES** IN THE GROUND.

I GUESS THERE ARE NO CLASSICAL ECONOMISTS IN FOXHOLES.



IN SHORT, THE ECONOMISTS OF TODAY **DO NOT GIVE HIGH MARKS** TO THE ECONOMISTS OF THE 1930s,

YOU MISTAKENLY  
AMPLUTATED **BOTH**  
MY LEGS?!



Heart Surgery Ward

AND EVEN WHEN THE ECONOMISTS OF THE 1930s **GET THINGS RIGHT...**

OVER 1,000  
ECONOMISTS AGREE:

**RESTRICTING  
INTERNATIONAL TRADE  
WILL NOT INCREASE  
EMPLOYMENT,**



... ELECTED OFFICIALS **MESSED THINGS UP ANYWAY,**

WE NEED TO  
ENCOURAGE AMERICANS  
TO **BUY LOCAL,**



ONE WAY TO DO  
THAT IS TO **TAX  
IMPORTS...**



... AND THAT'S WHY WE PASSED  
THE **SMOOT-HAWLEY  
TARIFF ACT OF 1930!**



THE RESULT WAS THAT **EVERYBODY LOST.**

OTHER COUNTRIES  
**RETALIATED** BY IMPOSING  
TARIFFS OF THEIR OWN...



... AND NOW **AMERICAN  
EXPORTS ARE  
SUFFERING!**



MAYBE STARTING  
A **TRADE WAR**  
WASN'T SUCH  
A GOOD IDEA.

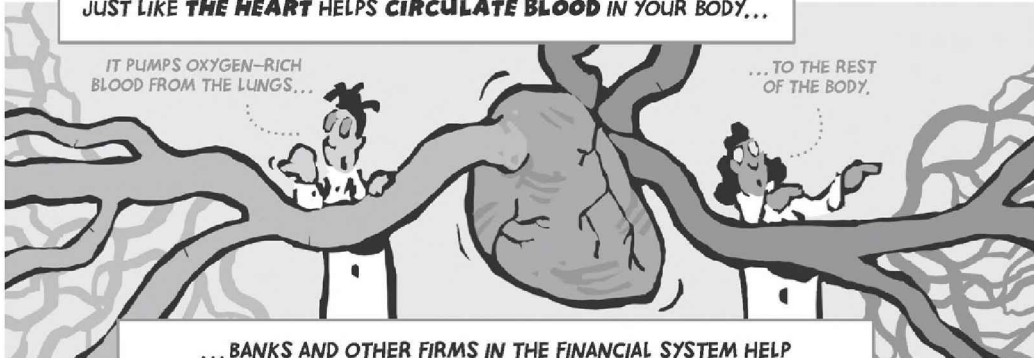


**WE'VE LEARNED A LOT SINCE THE GREAT DEPRESSION, BUT THERE'S ONE AREA WHERE WE STILL HAVE A LOT MORE TO LEARN.**



# THE FINANCIAL SYSTEM.

**JUST LIKE THE HEART HELPS CIRCULATE BLOOD IN YOUR BODY...**



IT PUMPS OXYGEN-RICH BLOOD FROM THE LUNGS...

...TO THE REST OF THE BODY.

**... BANKS AND OTHER FIRMS IN THE FINANCIAL SYSTEM HELP CIRCULATE MONEY AND CREDIT THROUGHOUT AN ECONOMY.**



THEY TAKE MONEY IN FROM PEOPLE WHO WANT TO SAVE IT...

... AND LOAN MONEY OUT TO PEOPLE WHO WANT TO BORROW IT.

**SO IT'S NO SURPRISE THAT FAILURES IN THE FINANCIAL SYSTEM CAN SICKEN THE ENTIRE ECONOMY.**

DISCOMFORT IN YOUR CHEST OR UPPER BODY?

SHORTNESS OF BREATH?

COLD SWEAT?

CALL 9-1-1, YOU'RE HAVING A FINANCIAL CRISIS.



**UNFORTUNATELY, THESE FAILURES ARE ALL TOO COMMON.**



THE TROUBLE WITH THE FINANCIAL SYSTEM IS THAT IT'S TRAPPED BETWEEN **MARKET FAILURE...**

...AND **GOVERNMENT FAILURE.**

A **FREE-MARKET** FINANCIAL SYSTEM IS PRONE TO INSTABILITY...

...BUT **GOVERNMENT REGULATION** DOESN'T WORK SO WELL EITHER.

ONE PROBLEM WITH THE **FREE-MARKET** APPROACH IS THAT BANKS BORROW MONEY **SHORT-TERM...**

... BUT LOAN IT OUT **LONG-TERM.**

HERE'S A DEPOSIT.

GREAT, YOU CAN WITHDRAW IT AT ANY TIME!

HERE'S A LOAN.

GREAT, I'LL PAY YOU BACK IN 2 YEARS!

THAT MAKES THEM VULNERABLE TO **BANK RUNS.**

WE'VE HEARD **RUMORS** THAT THIS BANK IS IN TROUBLE!

SO WE **ALL** WANT TO WITHDRAW ALL OUR MONEY...

... **RIGHT NOW.**

IN THAT CASE, OUR BANK REALLY IS IN TROUBLE.

**BANK RUNS** CAN DESTROY BANKS **EVEN IF THEY'RE HEALTHY...**

... AND LEAVE MANY DEPOSITORS WITH **NOTHING.**

WE'RE THE VICTIMS OF A **SELF-FULFILLING PROPHECY.**

NEXT TIME I HEAR RUMORS, I'M GOING TO RUSH TO BE AT THE FRONT OF THE LINE.

THAT WOULD ONLY CAUSE **MORE CHAOS.**

**IN ORDER TO AVOID BANK RUNS,  
MANY GOVERNMENTS OFFER  
DEPOSIT INSURANCE...**

DON'T WORRY: IF THE BANK FAILS,  
WE'LL **COVER YOUR LOST  
DEPOSITS** UP TO \$250,000.



**... BUT DEPOSIT INSURANCE FUNCTIONS AS  
A KIND OF BAILOUT THAT CAN PROMOTE  
RISKY BEHAVIOR.**

SINCE OUR DEPOSITS  
ARE **INSURED...**

... WE NO LONGER  
HAVE MUCH REASON  
TO BE CAREFUL.



**SIMILAR CHALLENGES APPEAR  
THROUGHOUT THE FINANCIAL SYSTEM...**

THIS BANK IS **TOO BIG TO  
FAIL**. IF IT GOES UNDER,  
IT COULD DRAG DOWN THE  
WHOLE ECONOMY...

... SO THE  
GOVERNMENT **HAS**  
TO BACK IT UP.



**... GIVING RISE TO WHAT ECONOMISTS CALL  
MORAL HAZARD.**

IF THE GOVERNMENT IS  
BACKING US UP...

... THEN WE CAN MAKE  
ALL SORTS OF **CRAZY  
INVESTMENTS!**



**IN SUM, THE FINANCIAL SYSTEM IS A CRUCIAL PART OF THE ECONOMY  
THAT APPEARS TO BE PRONE TO INSTABILITY.**

WITH **BANK RUNS**  
ON ONE SIDE...

... AND **MORAL  
HAZARD** ON  
THE OTHER...

... IT'S NO WONDER THE  
FINANCIAL SYSTEM IS SO  
**HARD TO TAME.**





ECONOMISTS CONTINUE TO STRUGGLE TO CONTROL THE FINANCIAL SYSTEM...

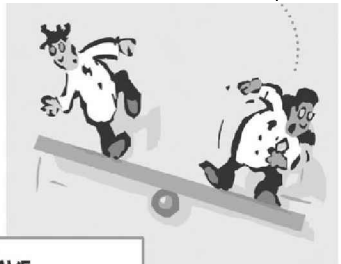
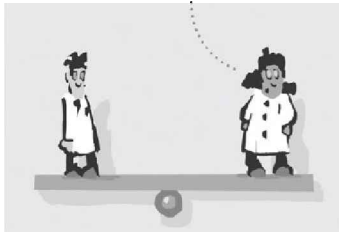


... BUT IRONING OUT ALL THE KINKS MAY BE IMPOSSIBLE.

WHEN THINGS START TO SEEM MORE STABLE...

... THEN EVERYONE TAKES MORE RISKS...

... AND THAT MAKES THINGS UNSTABLE AGAIN.



SO EVEN THOUGH MONETARY POLICY AND FISCAL POLICY HAVE IMPROVED TREMENDOUSLY SINCE THE GREAT DEPRESSION...



... WE'RE STILL A LONG WAY FROM SEEING THE END OF THE BUSINESS CYCLE.



# CHAPTER 13

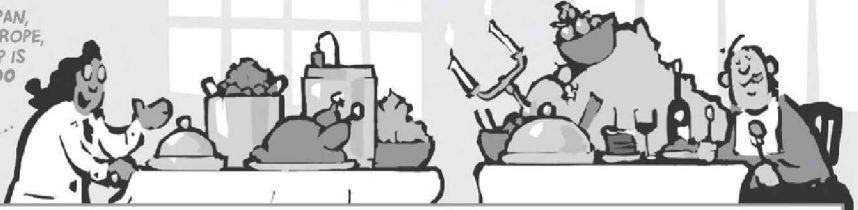
## THE END OF POVERTY?

THERE'S **PLENTY** FOR  
**EVERYONE**, COMING  
RIGHT UP!



OF THE 7 BILLION OR SO PEOPLE ON EARTH IN 2010,  
**ABOUT 1 BILLION LIVE IN RICH COUNTRIES...**

IN THE U.S., JAPAN,  
AND WESTERN EUROPE,  
PER CAPITA GDP IS  
OVER \$30,000  
A YEAR.



**... ABOUT 4.5 BILLION LIVE IN MIDDLE-INCOME COUNTRIES...**

IN CHINA, BRAZIL, AND  
SOUTH AFRICA, PER CAPITA  
GDP IS THE EQUIVALENT OF  
ABOUT \$10,000 A YEAR.



**... AND ABOUT 1.5 BILLION LIVE IN LOW-INCOME COUNTRIES.**

IN PAKISTAN, NIGERIA, AND  
NICARAGUA, PER CAPITA GDP  
AVERAGES LESS THAN  
\$3,650 A YEAR...

... ONLY A FEW  
DOLLARS A DAY.



IN LOW- AND MIDDLE-INCOME COUNTRIES, POVERTY IS SO WIDESPREAD THAT  
THE IDEA OF **ENDING POVERTY** SEEMS LIKE A **FANTASY**.



**BUT ECONOMISTS HAVE A  
WILDLY OPTIMISTIC IDEA CALLED  
CATCH-UP.**

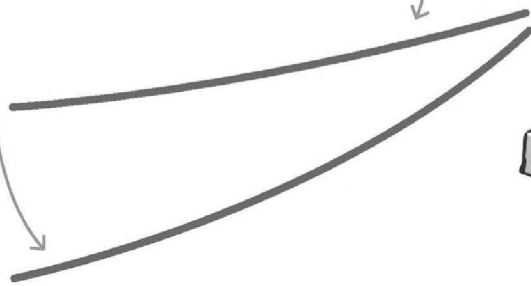
WHAT'S  
CATCH-UP?



**THE IDEA IS THAT  
PER CAPITA GDP IN  
POORER COUNTRIES...**

**... WILL CONVERGE  
WITH PER CAPITA GDP  
IN RICHER COUNTRIES...**

**... SO THAT EVENTUALLY  
ALL COUNTRIES  
WILL BE RICH!**



**OF COURSE, CATCH-UP WILL TAKE TIME.**

SMELLS GREAT,  
WHEN IS IT GOING  
TO BE READY?

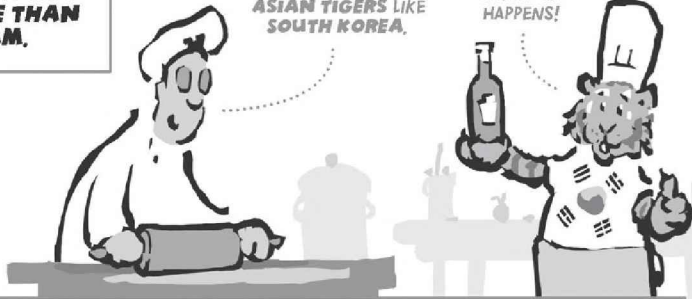
EVENTUALLY.



THE GOOD NEWS IS THAT CATCH-UP IS MORE THAN JUST A DREAM.

LOOK AT THE ASIAN TIGERS LIKE SOUTH KOREA,

CATCH-UP HAPPENS!



THE ECONOMIC THEORY BEHIND CATCH-UP IS THAT **ADDITIONAL INVESTMENTS ARE MORE PRODUCTIVE IN POOR COUNTRIES THAN IN RICH COUNTRIES.**

AN EXTRA SEWING MACHINE PRODUCES MORE VALUE IN A POOR COUNTRY.

AN EXTRA YEAR OF EDUCATION PRODUCES MORE VALUE IN A POOR COUNTRY.

IT'S MARGINAL ANALYSIS!



AS A RESULT, POOR COUNTRIES WILL NATURALLY ATTRACT MORE INVESTMENT...

INVESTING IN A RICH COUNTRY GIVES ME A 5% RETURN...



... BUT INVESTING IN A POOR COUNTRY GIVES ME A 10% RETURN!



... PUTTING THEM ON THE ROAD TO RICHES.

JUST LIKE A MALNOURISHED FAMILY WILL GAIN WEIGHT FASTER THAN A HEALTHY FAMILY...

... CATCH-UP SUGGESTS THAT POOR COUNTRIES WILL GROW FASTER THAN RICH COUNTRIES.





**THE BAD NEWS IS THAT  
CATCH-UP IS NOT THE  
WHOLE STORY...**

LOOK AT  
NORTH KOREA  
OR SOMALIA.



**... AND IT DEFINITELY ISN'T AUTOMATIC.**

YOU CAN'T GET A  
TASTY DINNER JUST BY  
THROWING A BUNCH OF  
INGREDIENTS IN A PAN.



**INSTEAD, IT REQUIRES THE RIGHT CONDITIONS...**

JUST A BIT MORE OLIVE  
OIL AND GARLIC AND IT'S  
PERFECT.

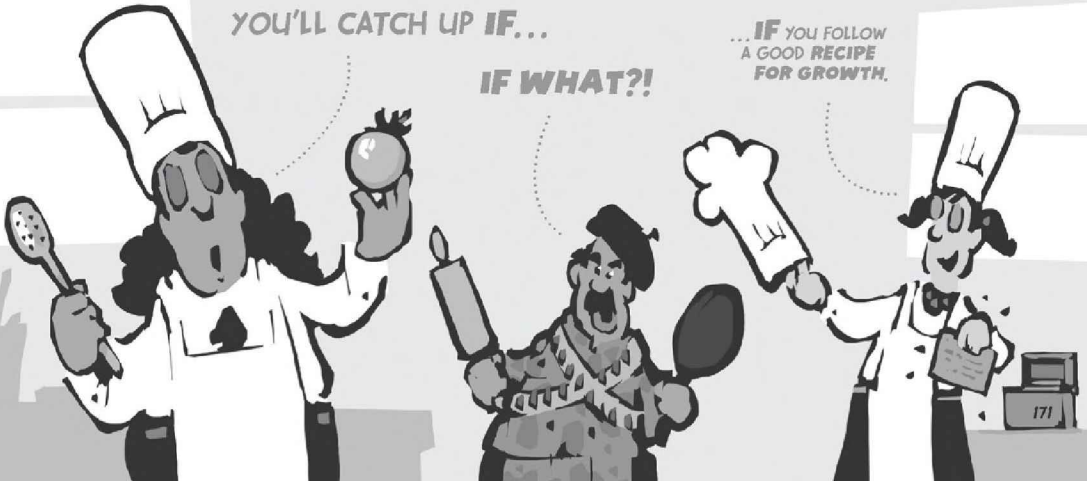


**... AND THAT'S WHY MOST ECONOMISTS NOW SUPPORT THE IDEA OF  
CONDITIONAL CONVERGENCE.**

**YOU'LL CATCH UP IF...**

**IF WHAT?!**

**... IF YOU FOLLOW  
A GOOD RECIPE  
FOR GROWTH.**



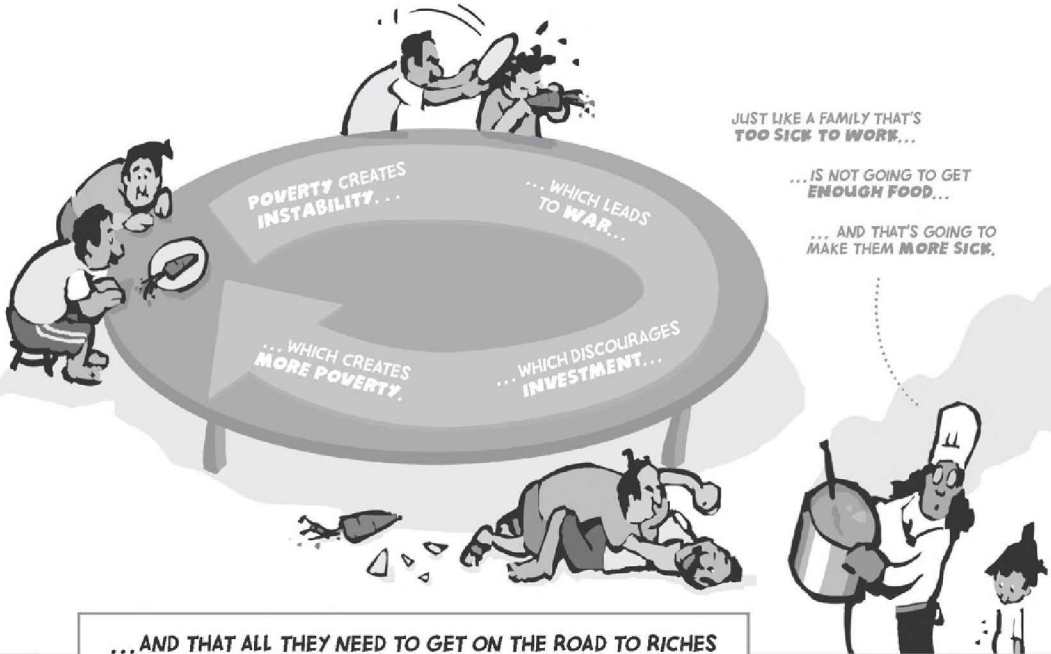


MACROECONOMISTS AGREE ON **SOME BUT NOT ALL** OF THE BASIC ELEMENTS OF THE **RECIPE FOR GROWTH.**

ONIONS ARE GOOD,  
BUT **FENNEL?**  
ARE YOU  
**CRAZY?**

THAT'S GOING  
TO RUIN IT.

FOR EXAMPLE, SOME ECONOMISTS THINK THAT POOR COUNTRIES ARE STUCK IN A **POVERTY TRAP**...



JUST LIKE A FAMILY THAT'S  
**TOO SICK TO WORK...**

... IS NOT GOING TO GET  
**ENOUGH FOOD...**

... AND THAT'S GOING TO  
MAKE THEM **MORE SICK.**

... AND THAT ALL THEY NEED TO GET ON THE ROAD TO RICHES  
IS A **BIG BOOST** TO BREAK THE CYCLE.

WHAT THIS  
SOUP NEEDS...

... IS A HEFTY DOSE OF  
**FOREIGN AID.**

OTHER ECONOMISTS ARGUE THAT A POVERTY TRAP  
ISN'T THE FUNDAMENTAL PROBLEM...

RICH COUNTRIES LIKE GREAT  
BRITAIN STARTED OUT AS  
POOR COUNTRIES...

... BUT SOMEHOW  
THEY GOT OUT  
OF THE POVERTY  
TRAP.



... AND THAT THE RECIPE FOR GROWTH DEPENDS MORE  
ON **GOOD GOVERNMENT...**



... AND EVEN ON FACTORS LIKE **GEOGRAPHY.**

COUNTRIES THAT  
ARE LANDLOCKED HAVE  
A HARD TIME ENGAGING IN  
INTERNATIONAL TRADE...

... ESPECIALLY IF THE  
COUNTRIES SURROUNDING  
THEM ARE IN TROUBLE.



DEVELOPMENT ECONOMISTS MAY NOT AGREE ABOUT **EVERYTHING...**

THERE ARE **TOO MANY COOKS** IN THIS KITCHEN!



COUNTRIES LIKE **CHINA** AND **INDIA** HAVE IMPLEMENTED SOME OF THESE **BASIC IDEAS...**

... BUT THEY DO AGREE ON **THE BASICS.**

IT'S BASICALLY **BEANS AND RICE** AND A LITTLE **SALT.**

YUP.

THAT'S TRUE.



WE NOW HAVE A LARGELY **MARKET-BASED ECONOMY...**

... **PEACE AND STABILITY...**

... **AND OPENNESS TO WORLD TRADE!**



... **AND ARE MAKING PROGRESS IN THE LONG CLIMB OUT OF POVERTY.**



GOOD THING THIS LADDER HAS ROOM FOR **4 BILLION MORE PEOPLE!**

THESE SUCCESS STORIES MAKE ECONOMISTS **OPTIMISTIC** ABOUT DEFEATING GLOBAL POVERTY...



... BUT THEY'RE ALSO AWARE OF **TROUBLE SPOTS**.

IN SOME COUNTRIES, PER CAPITA GDP HASN'T IMPROVED **FOR GENERATIONS**.



THESE TROUBLE SPOTS POSE A DAUNTING CHALLENGE, ESPECIALLY IN **AFRICA**...

HOW AM I SUPPOSED TO MAKE A GOOD MEAL WITH THESE?



... AND THE FATE OF THE SO-CALLED **BOTTOM BILLION** IS A KEY QUESTION FOR THE 21ST CENTURY.



WHAT WE NEED IS A **MAGICAL BOTTOM BILLION BOUILLON**.

**OVERALL, HOWEVER, THE VISION OF POOR COUNTRIES CATCHING UP WITH RICH COUNTRIES IS COMPELLING...**

I CAN SEE THE MOUNTAINTOP!

**IT'S THE END OF POVERTY.**

WE'RE ALMOST THERE!



**... SO COMPELLING THAT IT'S EASY TO LOSE SIGHT OF REALITY.**

**THERE'S POVERTY IN RICH COUNTRIES TOO.**





**SIMPLY DEFINING POVERTY CAN BE DIFFICULT IN THE RICH WORLD...**



SHOULD IT JUST BE ABOUT HAVING **FOOD ON THE TABLE AND A ROOF OVER YOUR HEAD?**



WHAT ABOUT ACCESS TO **HEALTH CARE?**



OR ACCESS TO THE **INTERNET?**

... AND SOME ECONOMISTS ARGUE THAT THE FOCUS SHOULD BE ON **RELATIVE POVERTY**.

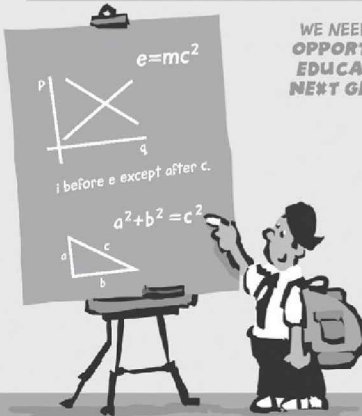


WHEN EVERYONE ELSE IS MAKING **\$60,000 A YEAR...**



... MAKING **\$30,000 A YEAR** CAN BE **HAZARDOUS TO YOUR HEALTH**.

**HOWEVER YOU DEFINE IT, THE WAY TO REDUCE POVERTY IN RICH COUNTRIES IS CLEAR...**



WE NEED TO PROVIDE **OPPORTUNITY AND EDUCATION** TO THE NEXT GENERATION...



... WHILE ALSO CARING FOR THOSE WHO **SLIP THROUGH THE CRACKS**.



... BUT GETTING INTO THE DETAILS WOULD REQUIRE A **WHOLE DIFFERENT BOOK**.



COOKING **PASTA ALFREDO** IS TOTALLY DIFFERENT...

... FROM COOKING **PAD THAI**.





**SADLY, POVERTY IS NOT GOING TO END IN THE 21ST CENTURY.**

WE'VE SERVED  
BILLIONS AND  
BILLIONS.

KEEP IT UP, THERE'S  
BILLIONS MORE  
LEFT TO GO.

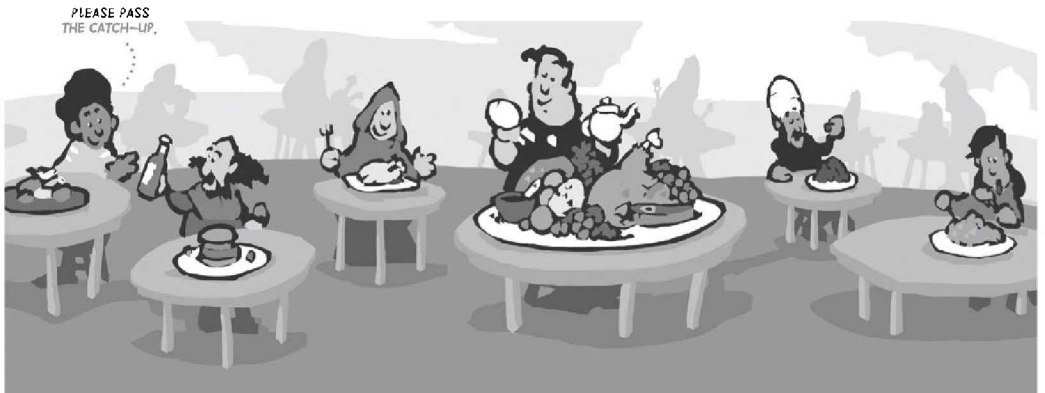


**BUT THE GLOBAL LANDSCAPE IS RAPIDLY SHIFTING...**

**... AWAY FROM ISLANDS OF AFFLUENCE AMID A SEA OF SCARCITY...**



**... AND TOWARD A RICHER AND MORE PROSPEROUS WORLD.**



PLEASE PASS  
THE CATCH-UP.

# CHAPTER 14

## THE END OF PLANET EARTH?

THANKS TO **CHEAP COAL**,  
MORE AND MORE PEOPLE NOW  
**HAVE ELECTRICITY!**

**OH,  
GOOD!** **OH,  
NO!**



BY 2050 THE NUMBER OF PEOPLE ON PLANET EARTH IS PROJECTED TO HIT **9 BILLION**...



HAPPY BIRTHDAY TO YOU!



AND TO THE 24 MILLION OTHER PEOPLE WHO SHARE YOUR BIRTHDAY!

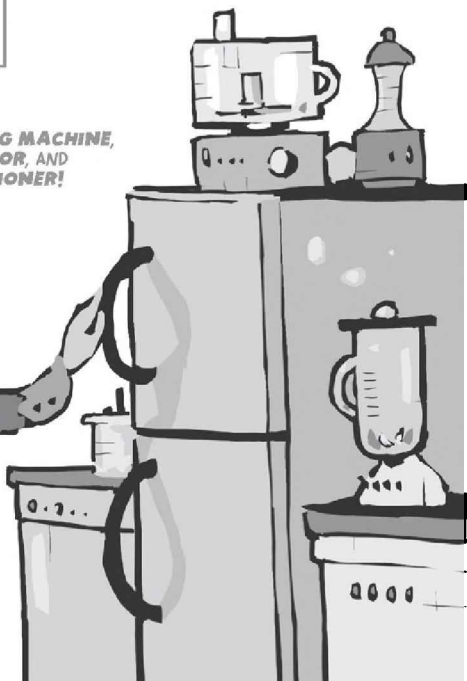
... UP FROM **JUST 1 BILLION** IN THE YEAR 1800 AND **ONLY 6 BILLION** IN THE YEAR 2000.



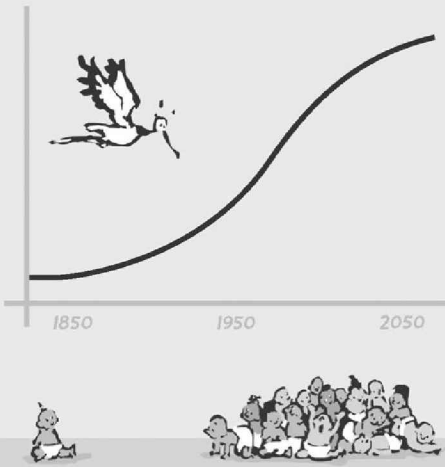
AND, AS WE SAW IN THE LAST CHAPTER, MANY OF THESE PEOPLE ARE LIKELY TO BE **MUCH RICHER** THAN THEIR PARENTS AND GRANDPARENTS.

GOODBYE, POVERTY...

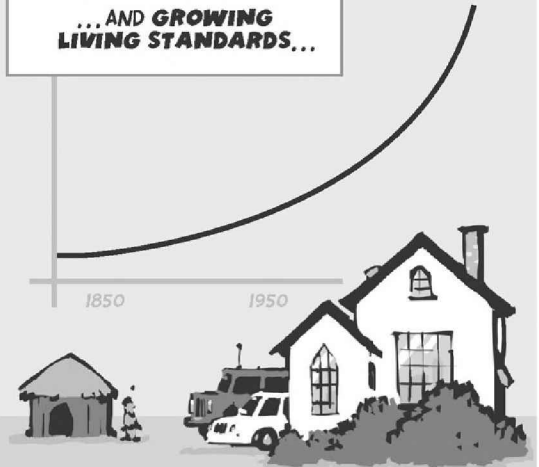
...HELLO, **WASHING MACHINE, REFRIGERATOR, AND AIR CONDITIONER!**



**THE COMBINATION OF  
GROWING POPULATIONS...**



**...AND GROWING  
LIVING STANDARDS...**



**... RAISES CONCERNS ABOUT  
RUNNING OUT OF FOOD,  
MINERALS, AND OTHER VALUABLE  
NATURAL RESOURCES...**

**PEAK OIL! PEAK COAL!  
PEAK EVERYTHING!**



**... AND ABOUT PROBLEMS  
LIKE GLOBAL WARMING,**

**AND GLOBAL WARMING'S  
PARTNER IN CRIME,  
OCEAN ACIDIFICATION,**



**EXPERT OPINION ABOUT THE FATE OF THE PLANET RANGES FROM PESSIMISM...**

I WOULDN'T BE SHOCKED IF BY 2100 **MOST THINGS HAVE BEEN DESTROYED.**

NOTHING COULD BE MORE **MISLEADING** TO OUR CHILDREN THAN OUR PRESENT **AFFLUENT SOCIETY.**

WE CAN'T KEEP **THROWING EVERYTHING IN THE GARBAGE.**

WE HAVE TO **RECYCLE.**

**THE END IS NEAR!**

**... TO OPTIMISM.**

**THE BEST IS YET TO COME!**

WITHIN A CENTURY OR TWO...  
... MOST OF HUMANITY WILL BE **AT OR ABOVE** TODAY'S WESTERN LIVING STANDARDS.

**RECYCLING IS GARBAGE!**

**THE END OF POVERTY IS NEAR!**

THE **PESSIMISTS** ARE WORRIED THAT HUMAN CIVILIZATION IS HEADING TOWARD THE EDGE OF A CLIFF.

THERE'S **NOBODY** DRIVING THE BUS!

**HELP!**



THE **OPTIMISTS** ARE CONVINCED THAT EVERYTHING WILL BE **FINE**...

LET'S PARTY!



... IN LARGE PART BECAUSE OF THEIR FAITH IN **FREE-MARKET ECONOMICS**.

DIDN'T YOU HEAR ME?

THERE'S **NOBODY** DRIVING THE BUS!

DON'T WORRY, THERE'S AN **INVISIBLE HAND** DRIVING THE BUS!





**ECONOMISTS HAVE A LOT TO SAY ABOUT THE DEBATE BETWEEN THE OPTIMISTS AND THE PESSIMISTS.**

STARTING WITH THIS:

**THE PESSIMISTS ARE *WRONG*.**



**THE BASIC PESSIMIST ARGUMENT GOES BACK TO THE 18TH-CENTURY PHILOSOPHER **THOMAS MALTHUS**,**

"THE POWER OF POPULATION [GROWTH] IS SO SUPERIOR TO THE POWER IN THE EARTH TO PRODUCE SUBSISTENCE...

... THAT **PREMATURE DEATH** MUST IN SOME SHAPE OR OTHER VISIT THE HUMAN RACE."



**FORTUNATELY, MALTHUS *WAS WRONG*...**

**TECHNOLOGY** ALLOWED THE FOOD SUPPLY TO GROW EVEN FASTER THAN THE HUMAN POPULATION.



BUT WAIT, I HAVEN'T EVEN GOTTEN TO THE PART ABOUT "EPIDEMICS, PESTILENCE, AND PLAGUE!"



**... AND MODERN-DAY PESSIMISTS HAVE A **LONG HISTORY** OF SIMILAR FAILURES.**



WHAT THE PESSIMISTS DON'T SEE IS THAT **FREE MARKETS OFTEN WORK MIRACLES.**

INDIVIDUAL OPTIMIZATION CAN LEAD TO **GOOD OUTCOMES** FOR THE GROUP AS A WHOLE!



FOR EXAMPLE, MARKETS FOR **COPPER** AND MANY OTHER **NATURAL RESOURCES** ARE WELL EQUIPPED TO DEAL WITH THE POSSIBILITY OF **INCREASING SCARCITY.**

IF **COPPER** BECOMES SCARCE, THEN THE **PRICE OF COPPER** WILL GO UP...



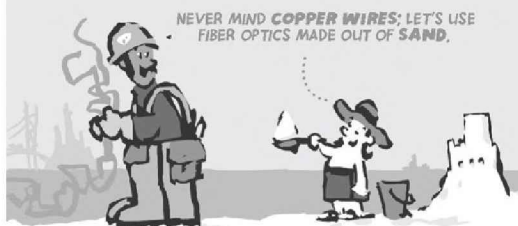
... AND THAT WILL PROVIDE INCENTIVES FOR PEOPLE TO **FIND NEW SOURCES...**



... AND TO **CONSERVE** THE COPPER WE HAVE NOW...



... AND TO **DISCOVER ALTERNATIVES.**



IN SHORT, WHEN MARKETS ARE WORKING WELL, ECONOMISTS ARE HAPPY PUTTING THE **INVISIBLE HAND** IN CHARGE OF THE FUTURE,

IT SOUNDS EVEN BETTER WHEN YOU CONSIDER THAT THE **ALTERNATIVE...**

... IS FOR **ME** TO TAKE CONTROL OF THE BUS!



**BUT WELL-FUNCTIONING MARKETS ARE NOT THE END OF THE STORY.**

THE PESSIMISTS  
ARE WRONG...

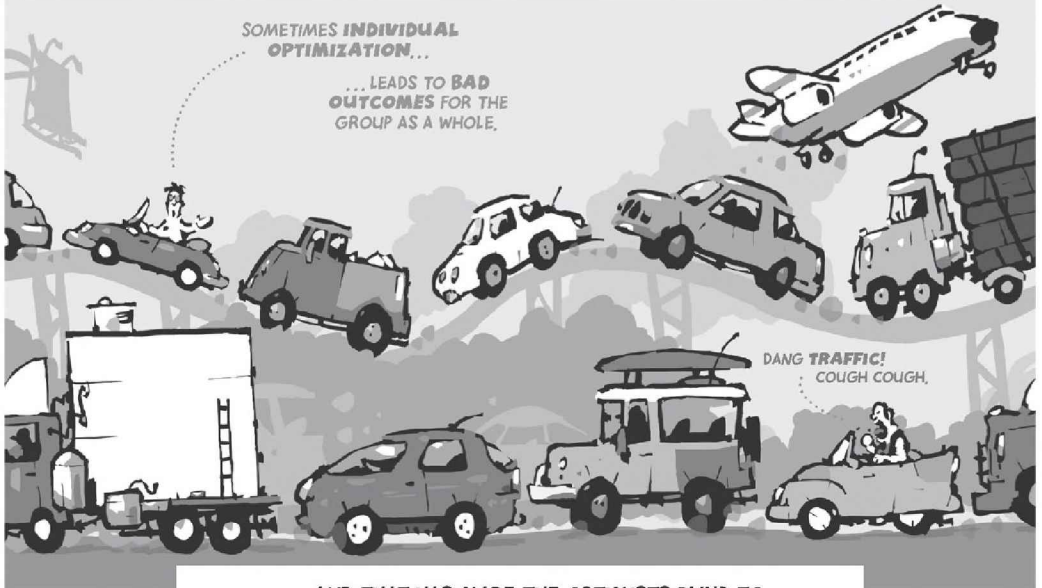
... BUT THE **OPTIMISTS**  
ARE **ALSO WRONG!**



WHAT THE OPTIMISTS FAIL TO SEE IS THAT MARKETS **DON'T ALWAYS WORK WELL...**

SOMETIMES **INDIVIDUAL**  
**OPTIMIZATION...**

... LEADS TO **BAD**  
**OUTCOMES FOR THE**  
**GROUP AS A WHOLE.**



... AND THAT HAS MADE THE OPTIMISTS BLIND TO  
**MARKET FAILURES LIKE CLIMATE CHANGE,**

"MY GUESS IS THAT GLOBAL  
WARMING [WILL BE] BARELY WORTHY OF  
CONSIDERATION TEN YEARS FROM NOW..."

HE SAID THAT  
IN 1994.

**BAD GUESS.**

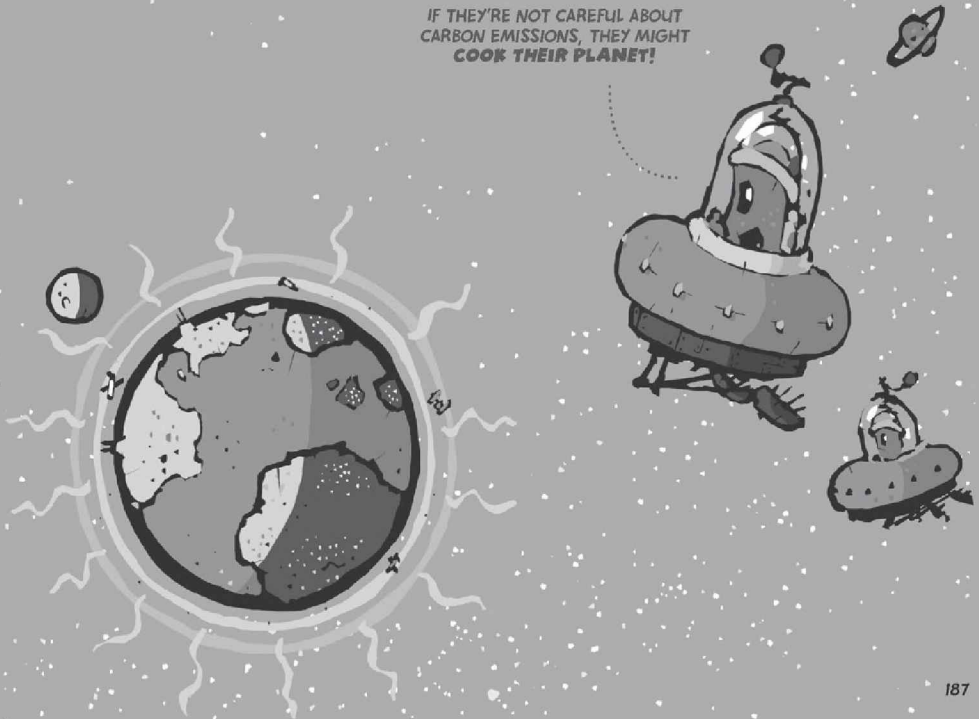


WE SAW LOTS OF EXAMPLES OF **MARKET FAILURE**  
IN THE **MICRO** BOOK...



...AND SOMETIMES THE RESULTS ARE SO BAD  
THAT THEY'RE VISIBLE AT THE **MACRO** LEVEL.

IF THEY'RE NOT CAREFUL ABOUT  
CARBON EMISSIONS, THEY MIGHT  
**COOK THEIR PLANET!**





HERE'S WHAT **ECONOMISTS** NEED TO KNOW ABOUT **CLIMATE SCIENCE**:

FIRST, WE'RE ADDING **BILLIONS OF TONS OF CO<sub>2</sub>** TO THE ATMOSPHERE **EACH YEAR**.

PRIMARYLY BY **BURNING FOSSIL FUELS** LIKE COAL, OIL, AND NATURAL GAS...

... BUT ALSO BY **CUTTING DOWN MILLIONS OF ACRES OF TREES**.

SECOND, **100 YEARS OF SCIENTIFIC THEORY** PREDICTS THAT THIS WILL **INCREASE GLOBAL AVERAGE TEMPERATURES** AND OTHERWISE CHANGE THE CLIMATE.

YOU MEAN  
**IT'S JUST  
A THEORY?**

YES...

... BUT SO IS  
**THE THEORY  
OF GRAVITY.**



THIRD, WE'VE BEEN TESTING THIS THEORY  
IN A **PLANETARY EXPERIMENT...**

LET'S SEE WHAT HAPPENS IF  
WE **DOUBLE** THE AMOUNT OF  
CO<sub>2</sub> IN THE ATMOSPHERE!

UM, COULDN'T WE DO THIS  
TEST ON A **DIFFERENT**  
PLANET?

SORRY, THIS IS THE  
**ONLY ONE THAT'S**  
AVAILABLE.



... AND THE EVIDENCE SO FAR **SUPPORTS THE THEORY.**



WE PREDICTED THAT AVERAGE  
TEMPERATURES WOULD RISE ABOUT  
**0.36 DEGREES FAHRENHEIT**  
EACH DECADE...

... AND THOSE  
PREDICTIONS HAVE  
BEEN PRETTY CLOSE  
TO THE MARK!



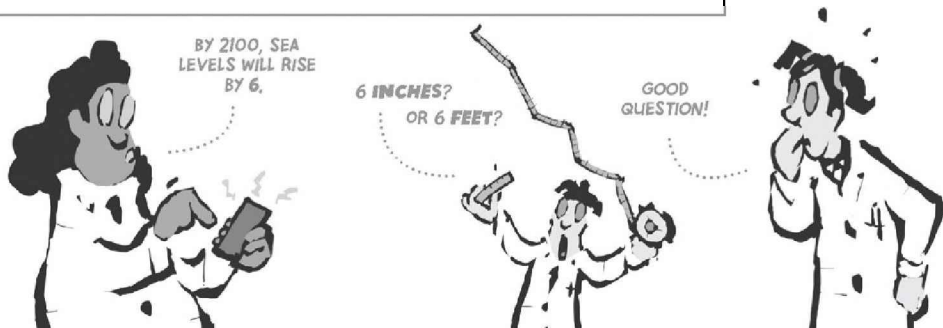
THAT'S WHY ALMOST ALL **SCIENTISTS AGREE** THAT **MOST** OF THE INCREASE  
IN GLOBAL AVERAGE TEMPERATURE SINCE THE MID-20TH CENTURY...

... IS VERY LIKELY  
DUE TO **HUMAN**  
ACTIVITY.





ALTHOUGH THE **BASIC SCIENCE IS SOLID**, THERE'S LOTS OF **UNCERTAINTY** ABOUT THE **SPECIFICS** OF WHAT WILL HAPPEN...



... AND ABOUT THE ABILITY OF HUMAN SOCIETIES TO **ADAPT** TO A CHANGING CLIMATE,



AN OFTEN-USED ANALOGY IS THAT CONTINUING WITH BUSINESS AS USUAL IS LIKE **POKING A BEAST WITH A SHARP STICK**.



THESE UNCERTAINTIES ARE A BIG REASON ECONOMISTS **DON'T AGREE** ABOUT **HOW AGGRESSIVELY** WE SHOULD FIGHT CLIMATE CHANGE...



WE'D BETTER **ACT FAST...**

...CLIMATE CHANGE  
COULD REDUCE WORLD  
GDP BY 20%.



WE SHOULD **GO SLOW...**

... Fossil fuels  
are a key part  
of economic  
growth.

... BUT THEY **DO AGREE** THAT THE **BEST WAY**  
TO FIGHT CLIMATE CHANGE IS WITH THE **TOOLS OF ECONOMICS.**

THE WAY TO GET  
LESS POLLUTION...



... IS TO **MAKE**  
**POLLUTING MORE**  
**EXPENSIVE!**



**MARKET FORCES** ARE THE MOST  
POWERFUL WAY TO PROMOTE INNOVATION  
IN **CLEAN TECHNOLOGY...**



... AND THE BEST WAY TO HARNESS  
**MARKET FORCES** IS TO PUT  
A PRICE ON CARBON.

AND WE CAN USE THE  
REVENUE FROM  
CARBON PRICING...

... TO **REDUCE**  
EXISTING TAXES!



THE **BIG PICTURE** IS THAT  
ECONOMISTS **DON'T WORRY**  
THAT WE'LL RUN OUT OF NATURAL  
RESOURCES LIKE COPPER...

WHEN YOU HAVE  
**WELL-FUNCTIONING**  
MARKETS...

... YOU CAN ENTRUST  
THE FUTURE TO THE  
**INVISIBLE HAND.**



... BUT THEY **DO WORRY** ABOUT PROBLEMS LIKE **CLIMATE CHANGE**...

IT'S THE GREATEST  
**MARKET FAILURE**  
THE WORLD HAS EVER  
SEEN.



... AND THIS GIVES ECONOMISTS A **UNIQUE PERSPECTIVE** ON  
THE ENVIRONMENTAL CHALLENGES OF THE 21ST CENTURY.

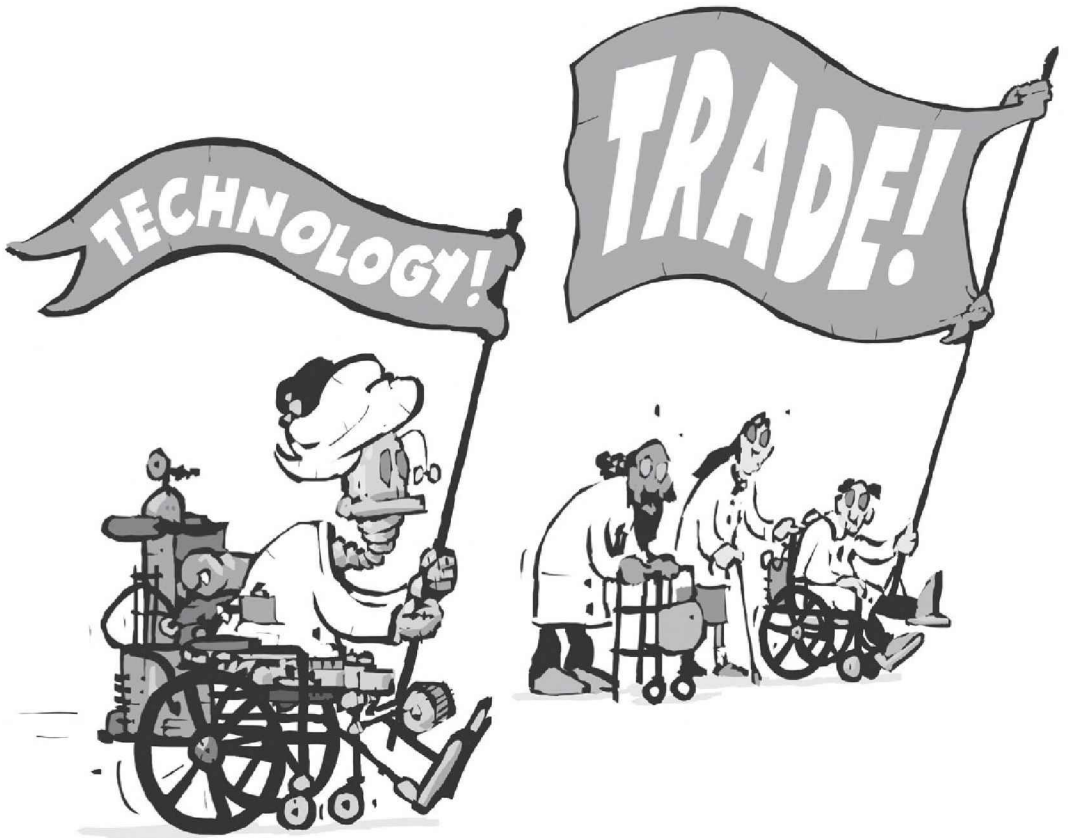


WE'RE NOT  
WORRIED ABOUT  
**RUNNING OUT**  
OF FOSSIL FUELS...

... WE'RE WORRIED  
ABOUT **NOT**  
RUNNING OUT OF  
FOSSIL FUELS!

# CHAPTER 15

THE END OF YOUTH?



IN THE 20TH CENTURY, MACROECONOMIES WERE LIKE **YOUNG FAMILIES**...

... BUT IN THE 21ST CENTURY, THEY'RE **SHOWING SOME SIGNS OF AGE**.

**GROW UP...**

... YOU'RE TOO **OLD** FOR DIAPERS!



**GROW UP...**

... YOU'RE TOO **YOUNG** FOR DIAPERS!



AGING POPULATIONS ARE MOST NOTICEABLE IN **RICH COUNTRIES**...

... WHERE THE TREND IS BEING ACCENTUATED BY THE **RETIREMENT OF THE BABY BOOMERS**.

IN 15 YEARS, THE ENTIRE U.S. WILL LOOK THE WAY FLORIDA LOOKS TODAY!



WILL YOU STILL NEED ME, WILL YOU STILL FEED ME, NOW THAT I'M SIXTY-FOUR?



BUT **POOR COUNTRIES** ARE ALSO STARTING TO GO THROUGH THE DEMOGRAPHIC TRANSITION FROM **YOUTH TO MATURITY**.

THANKS IN PART TO THE **ONE-CHILD POLICY**...

... **CHINA** IS GOING TO BE THE **FIRST COUNTRY** THAT GETS **OLD** BEFORE IT GETS **RICH**.





**OF COURSE, AN AGING POPULATION IS NOT NECESSARILY A BAD THING.**

CONSIDERING THE **ALTERNATIVE**, IT'S NOT BAD AT ALL.



**BUT INCREASING LIFE SPANS WILL REQUIRE ADJUSTMENTS FROM **INDIVIDUALS**...**

I'M SPENDING LESS TODAY...



... SO THAT I CAN HAVE MORE **WHEN I'M REALLY OLD.**



**... FROM FAMILIES...**

OUR **KIDS ARE FINALLY MOVING OUT...**



... BUT NOW OUR **PARENTS ARE MOVING IN!**



**... AND FROM **GOVERNMENTS**.**

MANY GOVERNMENT PROGRAMS TRY TO HELP SENIORS AGE **GRACEFULLY...**



... BUT NOW THOSE **PROGRAMS THEMSELVES ARE STRUGGLING.**





IN THE U.S., AGING IS LIKELY TO BE **ESPECIALLY DIFFICULT...**



...FOR **SOCIAL SECURITY**...

...AND **MEDICARE**.

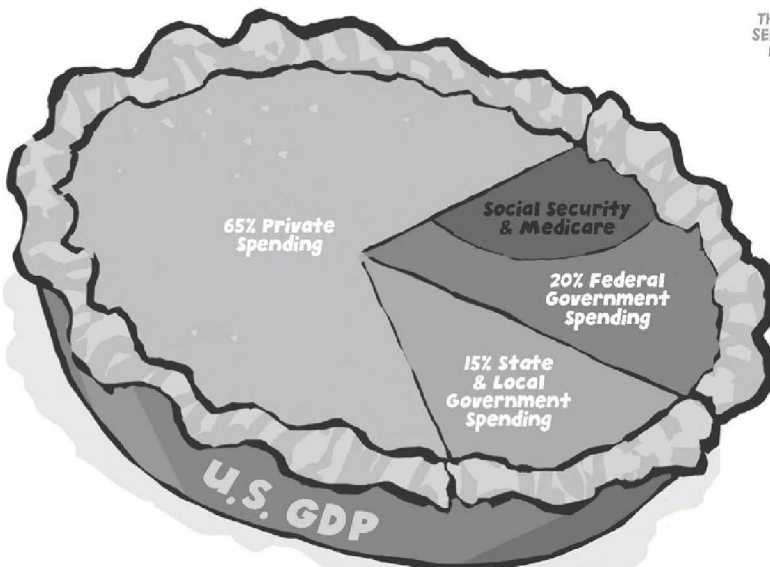
CREATED IN 1935, SOCIAL SECURITY PROVIDES **INFLATION-ADJUSTED CASH PAYMENTS** TO RETIREES.

CREATED IN 1965 AND EXPANDED MOST RECENTLY IN 2003, MEDICARE PAYS FOR **MEDICAL CARE** FOR RETIREES.



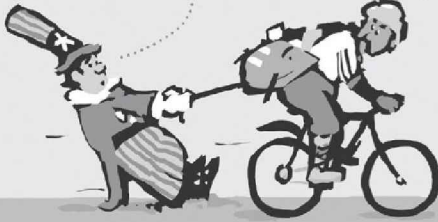
THESE FEDERAL GOVERNMENT PROGRAMS ARE **SO BIG**, THEY MAKE UP A SIGNIFICANT PORTION OF THE **ENTIRE U.S. GDP**.

THEY'RE SO BIG, I CAN SEE THEM WITHOUT MY READING GLASSES!



**IN FACT, THE U.S. GOVERNMENT HAS BEEN DESCRIBED AS  
A GIANT INSURANCE COMPANY...**

YOU PAY TAXES WHILE  
YOU'RE WORKING...



... AND WE'LL MAKE  
SURE YOU'RE NOT A  
PENNYLESS BASKET  
CASE IN YOUR OLD AGE.



**... WITH A SIDE INTEREST IN NATIONAL DEFENSE,**



YOUR  
FIRST MISSION...

... IS TO HELP ME SEND  
OUT THESE SOCIAL  
SECURITY CHECKS.

**THAT'S BECAUSE SOCIAL SECURITY, HEALTH CARE, AND THE MILITARY  
EACH GOBBLE UP ABOUT 20% OF THE ENTIRE FEDERAL BUDGET.**



WHILE IT'S TEMPTING TO COMPARE MEDICARE AND SOCIAL SECURITY TO **INDIVIDUAL RETIREMENT ACCOUNTS...**



... THEY ACTUALLY WORK MORE LIKE A **BUCKET BRIGADE.**

TODAY'S WORKERS PAY IN...

... AND TODAY'S RETIREES TAKE OUT.



FORMALLY, THIS BUCKET BRIGADE SYSTEM IS KNOWN BY A NIFTY ACRONYM:

**PAYGO.**

**P**ay

**A**s

**Y**ou

**G**o

...OH.

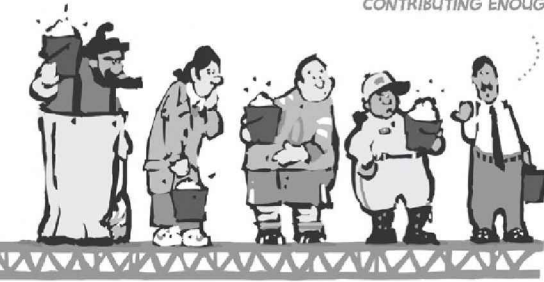


INFORMALLY, IT'S KNOWN AS **TROUBLE.**

**TAXES PAID BY WORKERS ARE ENOUGH  
TO COVER THE PROMISES MADE TO RETIREES *RIGHT NOW*.**

AT THE MOMENT, **WE'RE**  
CONTRIBUTING ENOUGH...

... TO PAY FOR THE  
BENEFITS THAT **WE'RE**  
RECEIVING.



**BETWEEN 2010 AND 2050, HOWEVER, THE PORTION  
OF GDP GOBBLED UP BY SOCIAL SECURITY IS  
PROJECTED TO *INCREASE BY 25%*...**

**... AND THE PORTION CONSUMED  
BY MEDICARE IS PROJECTED TO  
ALMOST *DOUBLE*.**

WE'RE GOING TO LIVE  
ANOTHER 30 YEARS...

... SO YOU BETTER  
GET US MORE PIE!

THIS PATIENT IS  
**HEMORRHAGING  
RED INK.**



**SINCE THE PORTION OF GDP  
CONTRIBUTED BY WORKERS IS LIKELY  
TO *STAY ABOUT THE SAME*...**

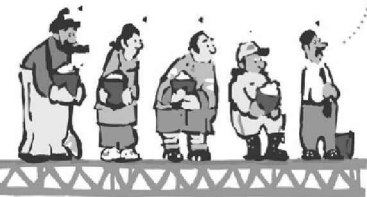
SOCIAL SECURITY AND  
MEDICARE TAXES AMOUNT  
TO ABOUT 15% OF WAGES.

I DON'T KNOW IF  
I CAN FORK OVER  
ANY MORE.

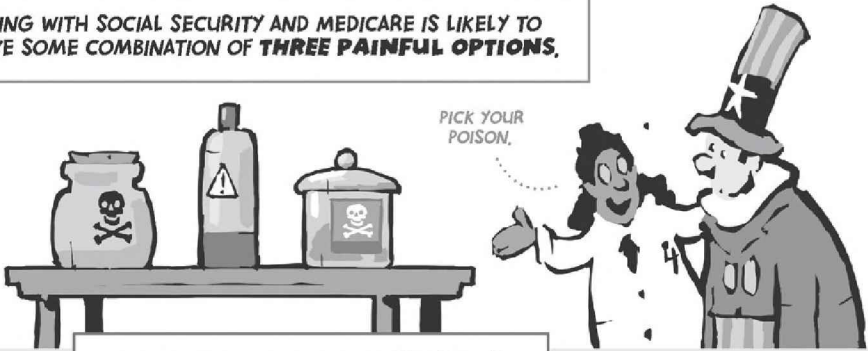


**... THAT MEANS THE BUCKET BRIGADE IS *HEADED FOR A BREAKDOWN*.**

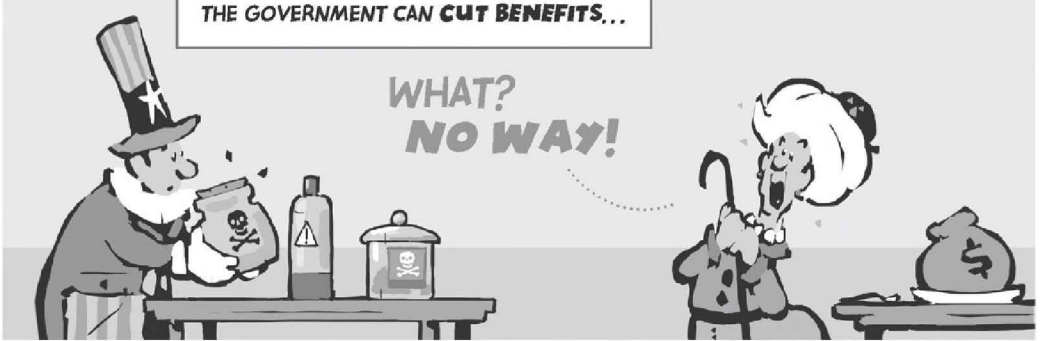
UH-OH.



DEALING WITH SOCIAL SECURITY AND MEDICARE IS LIKELY TO INVOLVE SOME COMBINATION OF **THREE PAINFUL OPTIONS**.



THE GOVERNMENT CAN **CUT BENEFITS...**



... **INCREASE TAXES...**



... OR **BORROW THE MONEY.**

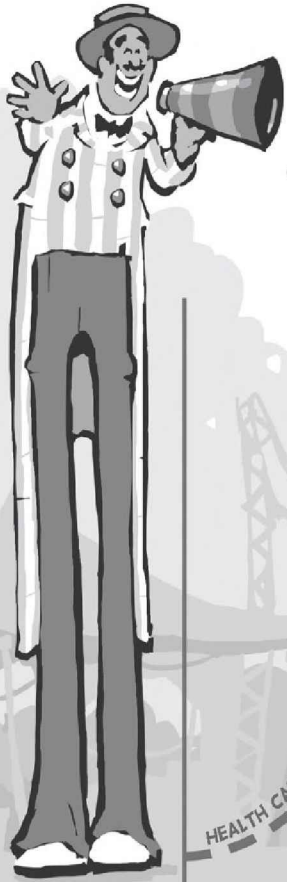




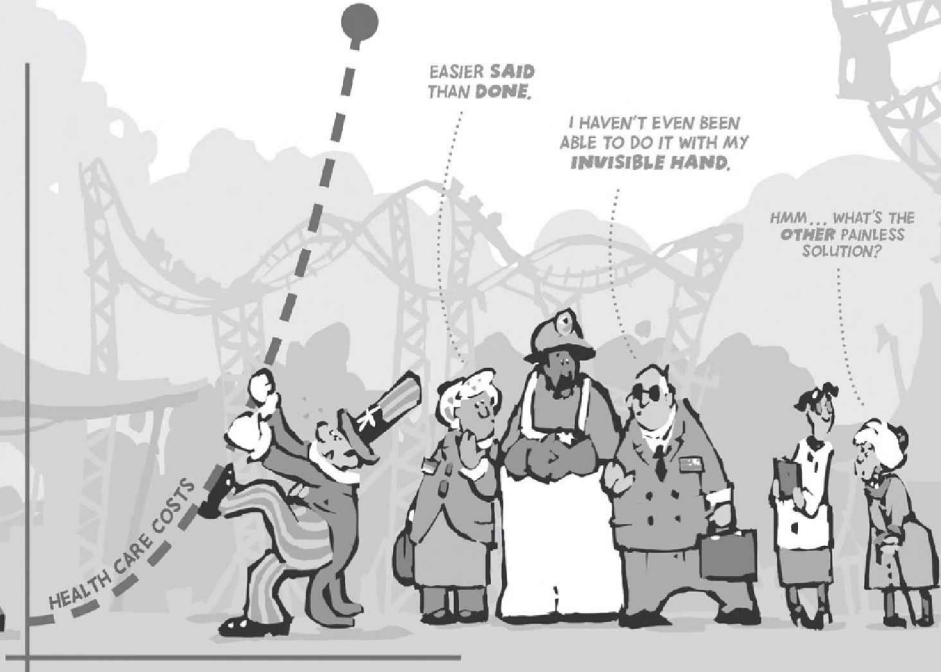
TWO OTHER **POTENTIAL SOLUTIONS** ARE **RELATIVELY PAINLESS...**



ONE IDEA IS TO **IMPROVE EFFICIENCY** BY FINDING **CHEAPER WAYS** TO PROVIDE HEALTH CARE,



STEP RIGHT UP AND TRY TO **BEND THE COST CURVE.**



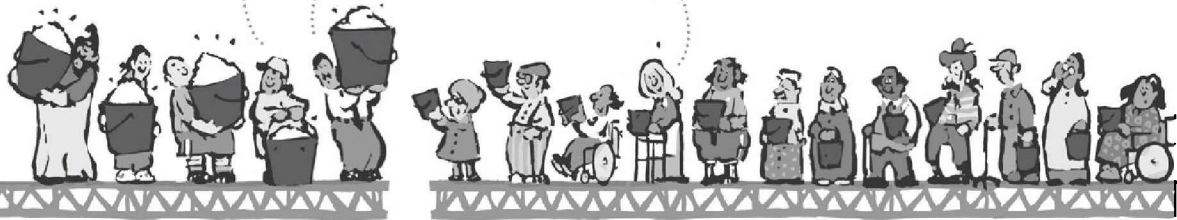


THE **OTHER** RELATIVELY PAINLESS SOLUTION IS TO SIMPLY  
**GROW OUR WAY OUT OF OUR FINANCIAL PROBLEMS...**

IF WE CAN GET **RAPID  
ECONOMIC GROWTH...**

... WE'LL BRING IN MORE  
IN PAYROLL TAXES...

... AND IT WILL BE EASIER TO PAY FOR  
SOCIAL SECURITY AND MEDICARE!



... JUST LIKE A FAMILY WITH **GROWING INCOME** CAN MORE EASILY SUPPORT AGING PARENTS,



BILLY BROUGHT HOME  
HIS **FIRST PAYCHECK!**

GREAT,  
FORK IT  
OVER.

BUT THIS RUNS INTO **ANOTHER DIFFICULTY:**  
IT'S NOT JUST **PEOPLE** THAT ARE SLOWING DOWN,



THE **RATE OF TECHNOLOGICAL PROGRESS**  
MIGHT BE **SLOWING DOWN TOO.**

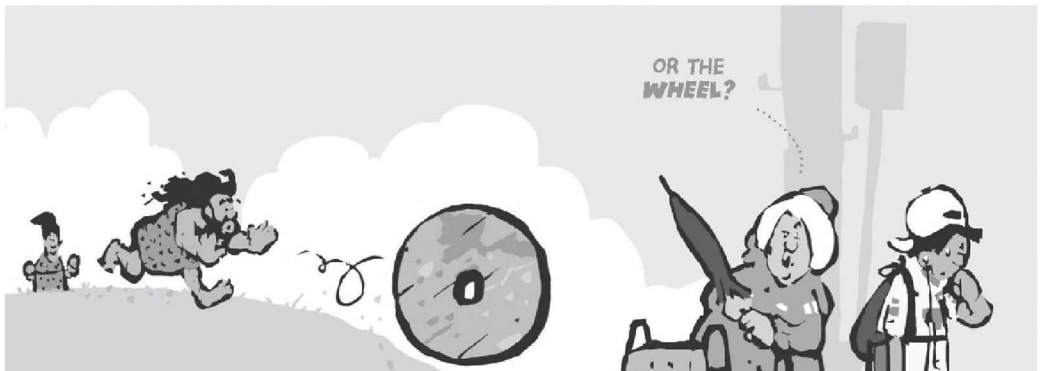
ECONOMIC GROWTH  
**AIN'T WHAT IT  
USED TO BE,  
SONNY BOY.**



THE IDEA THAT TECHNOLOGICAL PROGRESS IS **SLOWING DOWN** MIGHT SEEM **ABSRD...**



... BUT IT BECOMES MORE PLAUSIBLE WHEN YOU TAKE A **CLOSER LOOK AT HISTORY.**



ECONOMISTS MEASURE THE **ECONOMIC IMPACT** OF NEW TECHNOLOGIES  
BY LOOKING AT HOW THEY AFFECT **WORKER PRODUCTIVITY**...



JOHN HENRY,  
HE COULD HAMMER.

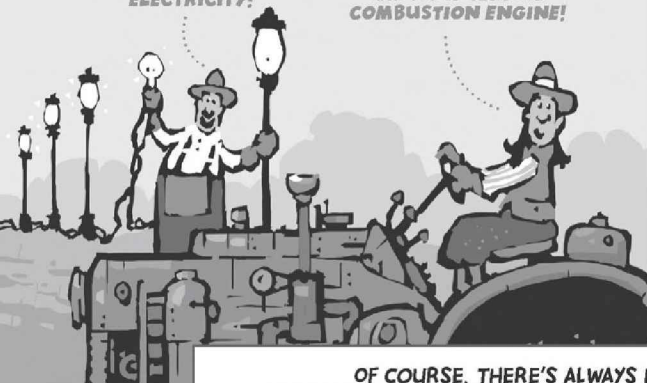
BUT WITH **POWER  
TOOLS** I CAN HAMMER  
TEN TIMES FASTER!



... AND THE FACT IS THAT AFTER A **GOLDEN AGE  
IN THE MID-20TH CENTURY**...

WE'VE GOT  
**ELECTRICITY?**

AND THE **INTERNAL  
COMBUSTION ENGINE!**



... THE GROWTH IN WORKER  
PRODUCTIVITY **SLOWED DOWN**.

WE'VE GOT...

... **TWITTER.**

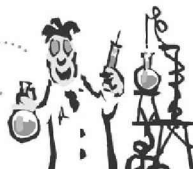


OF COURSE, THERE'S ALWAYS HOPE THAT  
PRODUCTIVITY GROWTH WILL PICK UP AGAIN...

MAYBE THE NEXT GREAT  
WAVE WILL INVOLVE  
**ROBOTICS**...



... OR  
**BIOTECHNOLOGY**...



... OR **CARTOON  
BOOKS!**



... BUT FOR NOW ECONOMISTS ARE STILL WRESTLING WITH AN OBSERVATION NOBEL PRIZE WINNER  
**ROBERT SOLOW** MADE IN 1987 ABOUT **ECONOMIC GROWTH**.

"YOU CAN SEE THE **COMPUTER AGE** EVERYWHERE  
BUT IN THE **PRODUCTIVITY STATISTICS**."

CONGRATULATIONS,  
YOU WIN THE  
**NOBEL PRIZE!**

<http://bit.ly/gR9Qz6>



FOR BETTER OR WORSE, THE U.S. IS **NOT ALONE**  
IN DEALING WITH BOTH DEMOGRAPHIC AND TECHNOLOGICAL AGING.



**MOST COUNTRIES IN THE RICH WORLD  
ARE HEADING TOWARD SERIOUS DEBT PROBLEMS.**



**AND WHILE MOST POOR COUNTRIES  
ARE AVOIDING DEBT PROBLEMS...**

**...IT'S ONLY BECAUSE THEIR SOCIAL  
SAFETY NETS ARE PRETTY WEAK,**

OUR GOVERNMENT  
FINANCES ARE  
AGING NICELY...

... BUT OUR  
SENIOR CITIZENS  
ARE NOT.





AS WE HEAD INTO THE 21ST CENTURY, ALMOST ALL COUNTRIES WILL FACE A DIFFICULT CONFLICT BETWEEN WHAT SEEMS TO BE **MORALLY RIGHT...**

**RICH COUNTRIES** SHOULD BE ABLE TO TAKE GOOD CARE OF THEIR ELDERS ...

... AND **POOR COUNTRIES** SHOULD BE RICH ENOUGH SOON.



... AND WHAT SEEMS TO BE **ECONOMICALLY SUSTAINABLE.**

HOW MUCH **HIGHER** CAN TAXES GO?

YOU CAN'T LIVE OFF A CREDIT CARD FOREVER.

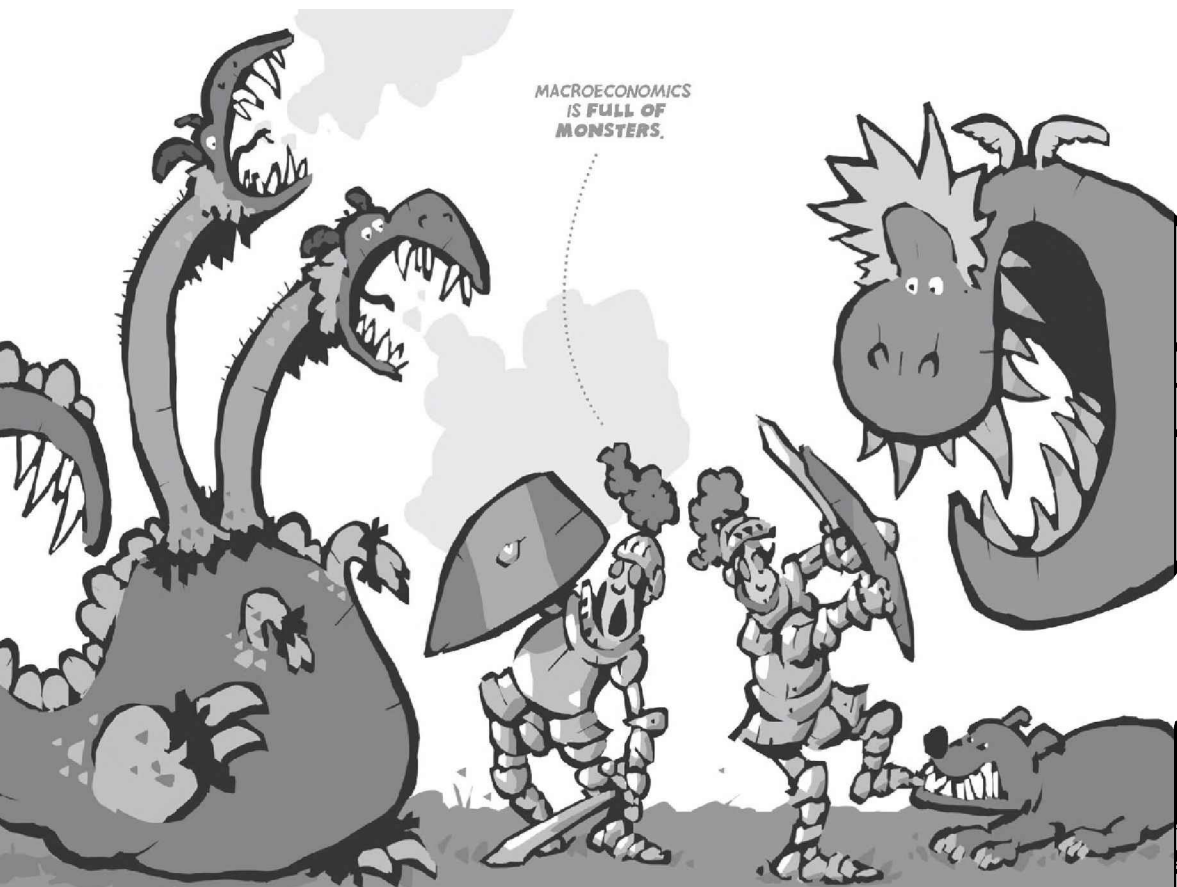
**WAAAH!!**



# CHAPTER 16

## THE END

MACROECONOMICS  
IS FULL OF  
MONSTERS.





LIKE OUR MICROECONOMICS BOOK...

micro

I'M AN  
OPTIMIZING  
INDIVIDUAL.

...THIS **MACROECONOMICS** BOOK  
STARTED SMALL...

macro

WE'RE A SINGLE  
ECONOMY.

... AND THEN GOT **BIGGER...**

STRATEGIC  
INTERACTIONS!

INTERNATIONAL  
TRADE!

... AND **BIGGER.**

COMPETITIVE  
MARKETS!

GLOBAL  
ECONOMIC  
ISSUES!



**AS WE LEARNED EARLY ON, MACRO IS BUILT ON  
MICROFOUNDATIONS.**

A COUNTRY'S  
**MACROECONOMY** IS  
INFLUENCED BY MILLIONS  
OF INDIVIDUAL **MICRO**  
DECISIONS!



**BUT THERE ARE MAJOR DIFFERENCES BETWEEN THE BIG QUESTION OF MICRO...**

UNDER WHAT  
CIRCUMSTANCES DOES  
INDIVIDUAL OPTIMIZATION  
LEAD TO OUTCOMES THAT  
ARE GOOD FOR THE GROUP  
AS A WHOLE?



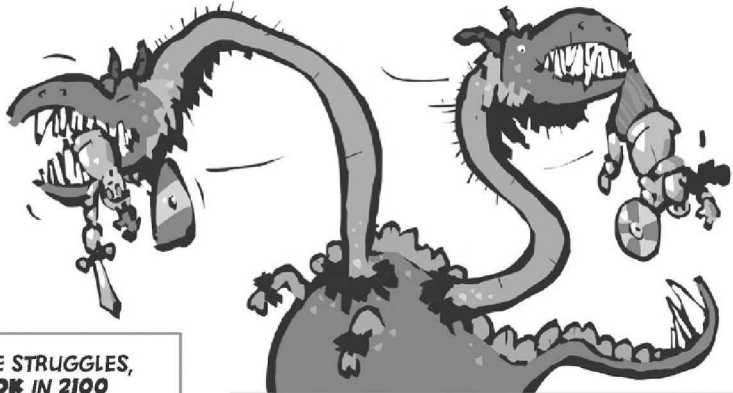
**... AND THE TWO-HEADED-MONSTER PROBLEM OF MACRO.**

HOW CAN WE GET  
ECONOMIES TO  
**GROW...**

**... WITHOUT  
CRASHING?**



ONE BIG DIFFERENCE BETWEEN MICRO AND MACRO IS THAT  
**MACRO IS HAVING MORE TROUBLE TAMING ITS MONSTERS.**



BECAUSE OF THESE STRUGGLES,  
A **MACRO BOOK IN 2100**  
COULD LOOK **RADICALLY**  
**DIFFERENT** THAN THIS ONE...

... JUST AS **TODAY'S MACRO** LOOKS  
RADICALLY DIFFERENT THAN IT DID IN 1900.

NOW BASED ON  
**AUSTRO-MINSKYIAN**  
PRINCIPLES!



HUH?

THE JOKE ABOUT **MACRO** IS THAT  
THE **QUESTIONS ARE**  
**ALWAYS THE SAME...**

... BUT EVERY FEW YEARS  
WE **CHANGE THE**  
**ANSWERS.**



IN CONTRAST, A **MICRO BOOK IN 2100** WILL ALMOST CERTAINLY LOOK  
JUST ABOUT THE **SAME** AS IT DOES TODAY.



THAT'LL  
BE \$150.

JUST MAKE SURE  
TO **ADJUST FOR**  
**INFLATION!**

FUNDAMENTALLY, **MICRO IS STABLE** BECAUSE IT FOCUSES ON **ONE BASIC STORY...**

ONCE UPON A TIME THERE WAS AN OPTIMIZING INDIVIDUAL...

... THE REST IS JUST MATH!

... AND **MACRO IS UNSTABLE** BECAUSE IT HAS **COMPETING STORIES** ABOUT THE NATURE OF THE ECONOMY...

THE ECONOMY IS LIKE A **WELL-ORGANIZED FAMILY!**

NO, IT'S LIKE A **DYSFUNCTIONAL FAMILY!**

... AND THE **ROLE OF GOVERNMENT.**

THE GOVERNMENT IS A **GOOD PARENT** THAT CAN PROMOTE GROWTH AND STABILITY!

NO, IT'S A **BAD PARENT** THAT SHOULD BE INVOLVED AS LITTLE AS POSSIBLE!

SOMETIMES IT SEEMS AS IF THE STORY LINES OF  
MACROECONOMICS ARE **COMING TOGETHER...**

FINALLY, WE'RE ALL ON  
THE SAME PAGE!



... AS WITH THE **NEOCLASSICAL SYNTHESIS...**

ECONOMIES ARE LIKE  
DYSFUNCTIONAL FAMILIES  
**IN THE SHORT RUN...**

... BUT LIKE  
WELL-ORGANIZED FAMILIES  
**IN THE LONG RUN.**



... OR THE **WASHINGTON CONSENSUS.**

THE WAY TO HELP  
POOR COUNTRIES  
BECOME RICH...

... IS TO PROMOTE  
INTERNATIONAL TRADE...

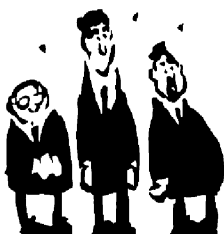
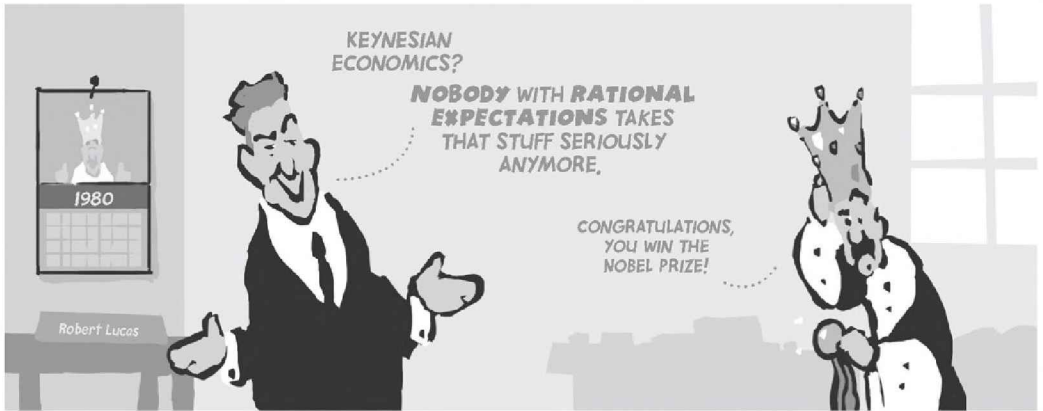
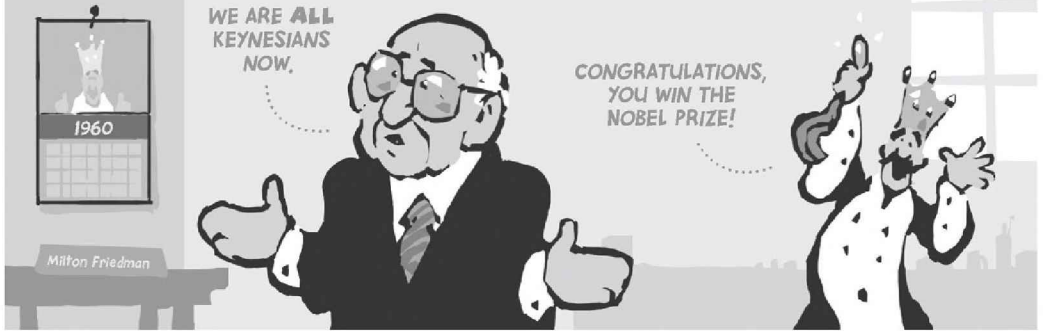
... BALANCED GOVERNMENT  
BUDGETS...

... AND FREE MARKETS.





AT OTHER TIMES IT SEEMS AS IF  
MACROECONOMISTS ARE **HOPELESSLY FAR APART.**



FOR THE NEXT FEW YEARS  
I'M GOING TO GIVE  
THE NOBEL PRIZE TO  
**MICROECONOMISTS.**



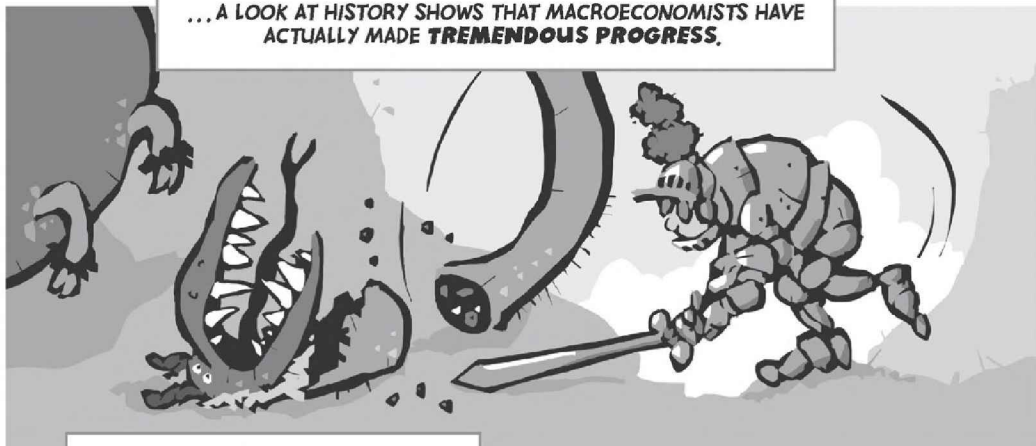
ALTHOUGH THE DISAGREEMENTS  
BETWEEN MACROECONOMISTS ARE  
EASY TO JOKE ABOUT...

IF ALL THE ECONOMISTS IN  
THE WORLD WERE PLACED  
END TO END...

... WE STILL WOULDN'T  
REACH A CONCLUSION.



... A LOOK AT HISTORY SHOWS THAT MACROECONOMISTS HAVE  
ACTUALLY MADE **TREMENDOUS PROGRESS.**



DEBATES ABOUT **MERCANTILISM...**

ECONOMIC GROWTH COMES  
FROM **HOARDING GOLD  
AND SILVER!**



... OR **SELF-SUFFICIENCY...**

ECONOMIC GROWTH COMES  
FROM **DOING EVERYTHING  
OURSELVES!**



... SEEM POSITIVELY **OLD-FASHIONED** NOW THAT MACROECONOMISTS HAVE  
A **BETTER UNDERSTANDING OF INTERNATIONAL TRADE.**

TRADE CREATES **LOSERS**  
AS WELL AS **WINNERS...**



... BUT IN THE LONG RUN  
IT'S **PRETTY AWESOME**  
FOR **EVERYBODY.**



JUST LIKE  
TECHNOLOGICAL  
PROGRESS!



**SIMILARLY, GIVEN WHAT WE NOW KNOW ABOUT MONETARY POLICY...**

IN THE LONG RUN, MONEY IS NEUTRAL...

... BUT IN THE SHORT RUN, YOU'LL GET INFLATION IF YOU PRINT TOO MUCH OF IT.



... IT'S AMAZING TO LOOK BACK AT FIGHTS ABOUT THINGS LIKE THE **GOLD STANDARD**.

TAKING THE U.S. OFF THE GOLD STANDARD WILL BE THE **END OF WESTERN CIVILIZATION!**

STOP TRYING TO CRUCIFY MANKIND UPON A **CROSS OF GOLD!**



AND **MACROECONOMISTS** HAVE LEARNED A GREAT DEAL FROM THE **MISTAKES OF THE GREAT DEPRESSION**.

LET'S **TIGHTEN** THE MONEY SUPPLY.



OH, NO!



LET'S **BALANCE** THE BUDGET **NO MATTER WHAT.**



NO, NO!!



LET'S **REDUCE OVERPRODUCTION** AND GET OUR FARMERS TO **GROW LESS.**



NO, NO, NO!!!





IN THE YEARS AHEAD,  
EDUCATING **NON-ECONOMISTS**  
ABOUT THE **FUNDAMENTALS...**

MAKE WAY  
FOR **CREATIVE  
DESTRUCTION!**

ONE OF THE  
BEST FORMS  
OF AID...

...IS **TRADE!**

... IS GOING TO BE JUST AS IMPORTANT AS BATTLING  
THE **TWO BIG PROBLEMS OF MACROECONOMICS.**

I'M STRUGGLING  
WITH **SHORT-RUN  
STABILITY.**  
I NEED YOUR HELP!

SURE, BUT FIRST YOU  
NEED TO HELP ME  
WITH **LONG-RUN  
GROWTH!**

WE'LL ONLY LEARN THE OUTCOME OF THESE STRUGGLES **IN THE LONG RUN.**

HOW WILL WE  
KNOW IF WE'RE  
**VICTORIOUS?**

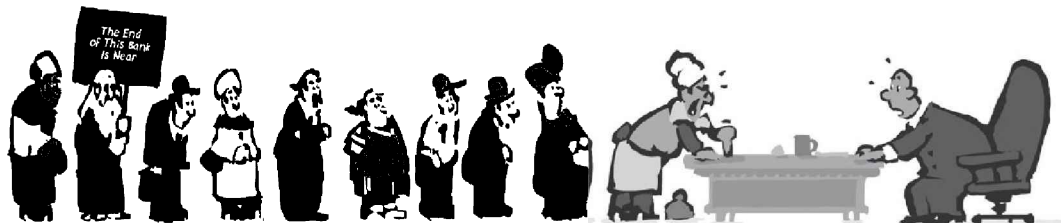
WE'LL HAVE **STABILITY  
AND PROSPERITY...**

...AND  
**CATCH-UP!**

AND WE LEARNED ON PAGE 10 ABOUT **WHAT HAPPENS IN THE LONG RUN...**







# GLOSSARY

## **AUTOMATIC STABILIZERS**

TAXES OR SPENDING PROGRAMS—SUCH AS UNEMPLOYMENT BENEFITS, WHICH RISE DURING RECESSIONS AND FALL DURING EXPANSIONS—THAT NATURALLY ACT TO COUNTER THE BUSINESS CYCLE: 77

## **BANK RUN**

A PANIC IN WHICH DEPOSITORS ALL TRY TO WITHDRAW MONEY FROM A BANK AT THE SAME TIME: 164

## **BOND**

IN RETURN FOR LENDING MONEY TO A COMPANY OR GOVERNMENT, THE LENDER GETS A BOND, WHICH OBLIGATES THE BORROWER TO PAY BACK THE LOAN (PLUS INTEREST) AFTER A SPECIFIED PERIOD OF TIME: 40–43

## **BUDGET DEFICIT / SURPLUS**

A GOVERNMENT RUNS A **BUDGET DEFICIT** IN A GIVEN YEAR IF REVENUES (MONEY IN) ARE LESS THAN EXPENDITURES (MONEY OUT), A **BUDGET SURPLUS** IF REVENUES ARE GREATER THAN EXPENDITURES, AND A **BALANCED BUDGET** IF THE TWO ARE EQUAL; THE ACCUMULATION OF ALL ANNUAL **NATIONAL DEFICITS** IS THE **NATIONAL DEBT**: 79, 149, 160–161

## **BUSINESS CYCLE**

SHORT-TERM ECONOMIC FLUCTUATIONS: 11, 113, 153–166  
AND CYCLICAL UNEMPLOYMENT: 26

## **CARBON PRICING**

A CARBON TAX OR CAP-AND-TRADE POLICY THAT SEEKS TO REDUCE CARBON EMISSIONS BY MAKING POLLUTING EXPENSIVE: 191–192, 217

## **COMPARATIVE ADVANTAGE**

THE IDEA THAT TWO INDIVIDUALS (OR TWO COUNTRIES) CAN BOTH GAIN FROM TRADE EVEN IF ONE OF THEM IS BETTER THAN THE OTHER AT EVERYTHING: 101, 136

## **CAPITAL**

MACHINERY, HOUSES, OR OTHER ASSETS: 91  
CAPITAL INCOME: 62





**CATCH-UP**

THE IDEA—ALSO CALLED **CONVERGENCE**—THAT POOR COUNTRIES WILL GROW FASTER THAN RICH COUNTRIES: 169–171

**CENTRAL BANK**

A GOVERNMENT AGENCY (SUCH AS THE EUROPEAN CENTRAL BANK OR THE FED) THAT IS IN CHARGE OF THE MONEY SUPPLY: 37

**CLASSICAL ECONOMICS**

A SCHOOL OF THOUGHT THAT VIEWS THE ECONOMY AS A WELL-ORGANIZED FAMILY AND THEREFORE SEES LITTLE NEED FOR GOVERNMENT INTERVENTION: 9

CONTRAST WITH KEYNESIAN ECONOMICS: 12–13, 18–19, 22, 27

AND THE LABOR MARKET: 19–21

AND MONEY NEUTRALITY: 35

AND TRADE: 99–110

AND NEOCLASSICAL SYNTHESIS: 212

**CLIMATE CHANGE / GLOBAL WARMING**

AN INCREASE IN GLOBAL AVERAGE TEMPERATURE, ESPECIALLY AS A RESULT OF BURNING FOSSIL FUELS AND OTHER HUMAN ACTIVITIES: 115, 181, 186–192

**CONDITIONAL AID**

FOREIGN AID THAT IS PROVIDED WITH STRINGS ATTACHED: 133

**CONSUMER PRICE INDEX (CPI)**

A WAY TO MEASURE INFLATION IN CONSUMER PRICES: 46–47, 51  
COMPARED TO GDP DEFLATOR: 222

THE CPI COMPARES PRICES IN YEARS X AND Y BY TRACKING THE COST OF A **REPRESENTATIVE BUNDLE** OF CONSUMER GOODS AND SERVICES. HERE'S AN EXAMPLE:



LET'S IMAGINE AN ECONOMY WHERE THERE ARE ONLY TWO CONSUMER GOODS, CHICKEN AND BEEF.

	PRICE OF CHICKEN	POUNDS OF CHICKEN IN BUNDLE	PRICE OF BEEF	POUNDS OF BEEF IN BUNDLE
YEAR X	\$1/POUND	200	\$3/POUND	100
YEAR Y	\$2/POUND	200	\$4/POUND	100



FIRST WE CALCULATE **THE BUNDLE'S PRICE IN YEAR X:**

$$(\$1 \times 200) + (\$3 \times 100) = \$500.$$

THEN WE CALCULATE **THE BUNDLE'S PRICE IN YEAR Y:**

$$(\$2 \times 200) + (\$4 \times 100) = \$800.$$

FINALLY, WE CONCLUDE THAT INFLATION (AS MEASURED BY THE CPI) WAS **60%** BETWEEN YEAR X AND YEAR Y BY COMPARING THE TWO:

$$\frac{\$800}{\$500} - 1 = 0.60$$



### **CREATIVE DESTRUCTION**

ECONOMIC DEVELOPMENTS THAT BOTH CREATE AND DESTROY JOBS: 20–21, 109, 217



### **CROWDING OUT**

THE IDEA THAT GOVERNMENT ACTIVITY NEGATIVELY AFFECTS BUSINESS: FOR EXAMPLE, THAT BUDGET DEFICITS MAKE IT HARDER FOR BUSINESSES TO BORROW MONEY: 83



### **CURRENCY**

THE MONEY USED IN A COUNTRY: 139–150  
CURRENCY MANIPULATION: 108–109  
STRONG AND WEAK CURRENCIES: 142–143

### **CURRENCY UNION**

THE USE OF THE SAME CURRENCY IN MULTIPLE COUNTRIES: 146–150

### **DEFICIT**

SEE **BUDGET DEFICIT**

### **DEFLATION**

A GENERAL DECREASE IN PRICES OVER TIME (THE OPPOSITE OF INFLATION): 55–56



### **DEPRESSION**

A VERY BAD RECESSION: 18, 154

### **EFFICIENCY WAGES**

THE THEORY THAT EMPLOYERS PAY HIGH WAGES IN ORDER TO AVOID TURNOVER AND MOTIVATE EMPLOYEES: 24

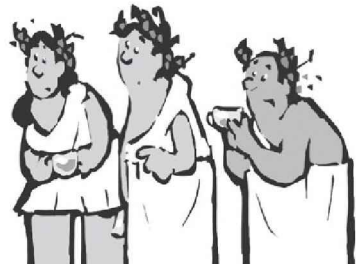
### **EXCHANGE RATE**

A WAY TO COMPARE THE VALUE OF DIFFERENT CURRENCIES: 140–150

MARKET EXCHANGE RATES ARE EITHER **FLOATING** (IF THEY'RE BASED ON SUPPLY AND DEMAND) OR **FIXED** (IF THEY'RE PEGGED AT A SET RATE BY ONE OR MORE GOVERNMENTS). BECAUSE SOME GOODS ARE NOT TRADED INTERNATIONALLY, COMPARISONS OF LIVING STANDARDS IN DIFFERENT COUNTRIES (AS ON PAGE 72) ARE USUALLY MADE USING **PURCHASING POWER PARITY (PPP)** EXCHANGE RATES, WHICH ARE BASED ON THE COST OF LIVING IN DIFFERENT COUNTRIES.

### **FEDERAL RESERVE ("THE FED")**

THE CENTRAL BANK OF THE UNITED STATES: 37  
AND GREAT DEPRESSION / GREAT RECESSION: 158–159





## FINANCIAL CRISIS

A BREAKDOWN IN THE BANKING SYSTEM: 163

## FISCAL POLICY

GOVERNMENT POLICIES RELATING TO TAXES AND SPENDING: 76–79  
AND GREAT DEPRESSION: 160–161  
CONTRAST WITH MONETARY POLICY: 76

## FREE-MARKET ECONOMICS

THE IDEA THAT ECONOMIC ACTIVITY SHOULD BE GUIDED BY THE  
“INVISIBLE HAND” WITHOUT GOVERNMENT INTERFERENCE: 11, 19, 164, 183

## GROSS DOMESTIC PRODUCT (GDP)

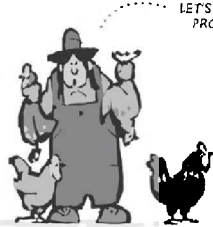
A MEASURE OF THE ECONOMIC POWER OF A COUNTRY OR  
OTHER REGION: 59–72  
AND THE SIZE OF GOVERNMENT: 77, 84, 196–199  
AND GOVERNMENT SPENDING ON FARMS AND FOREIGN AID: 138  
DECLINE IN REAL GDP IN GREAT DEPRESSION AND GREAT RECESSION: 157  
PER-CAPITA GDP AND CATCH-UP: 168–169  
AND CLIMATE CHANGE: 191

## GDP DEFLATOR

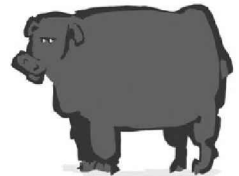
A WAY TO MEASURE INFLATION THAT MACROECONOMISTS GENERALLY  
USE INSTEAD OF THE CPI BECAUSE IT FOCUSES ON **PRODUCTION**  
RATHER THAN **CONSUMPTION**: 66

THE GDP DEFLATOR COMPARES PRICES IN YEARS X AND Y BY FIRST  
CALCULATING **NOMINAL GDP IN YEAR Y** (USING PRICES FROM YEAR Y),  
THEN CALCULATING **REAL GDP IN YEAR Y** (USING PRICES FROM YEAR X),  
AND THEN COMPARING THE TWO CALCULATIONS. HERE'S AN EXAMPLE:

LET'S IMAGINE AN ECONOMY THAT  
PRODUCES ONLY TWO GOODS,  
CHICKEN AND BEEF.



	PRICE OF CHICKEN	POUNDS OF CHICKEN PRODUCED	PRICE OF BEEF	POUNDS OF BEEF PRODUCED
YEAR X	\$1/POUND	200	\$3/POUND	100
YEAR Y	\$2/POUND	250	\$4/POUND	150



FIRST WE CALCULATE **NOMINAL GDP IN YEAR Y**:  
 $(\$2 \times 250) + (\$4 \times 150) = \$1100$

THEN WE CALCULATE **REAL GDP IN YEAR Y** USING **PRICES FROM YEAR X**:  
 $(\$1 \times 250) + (\$3 \times 150) = \$700$

FINALLY, WE CONCLUDE THAT INFLATION (AS MEASURED BY THE GDP  
DEFLATOR) WAS **57%** BETWEEN YEAR X AND YEAR Y BY COMPARING THE TWO:

$$\frac{\$1,100}{\$700} - 1 = 0.57$$





**GOLD STANDARD**

A MONETARY SYSTEM BASED ON THE VALUE OF GOLD: 215

**GREAT DEPRESSION**

THE CATASTROPHIC ECONOMIC SLUMP THAT STARTED IN 1929: 10, 18, 155-166  
AND "GREAT VACATION": 29  
AND DEFLATION: 55  
COMPARED TO "GREAT RECESSION" OF 2007-2009: 157



**"GREAT RECESSION" OF 2007-2009**

THE WORST ECONOMIC DOWNTOWN IN THE U. S. SINCE THE GREAT DEPRESSION: 18, 70, 155  
COMPARED TO GREAT DEPRESSION: 157  
MONETARY AND FISCAL POLICY RESPONSE: 159-161

**INFANT INDUSTRY**

THE ARGUMENT THAT TARIFFS OR OTHER TRADE BARRIERS SHOULD BE USED TO PROTECT SMALL DOMESTIC FIRMS FROM COMPETITION FROM BIG FOREIGN FIRMS: 113, 123

**INFLATION**

A GENERAL INCREASE IN PRICES OVER TIME, OFTEN MEASURED WITH THE CPI OR THE GDP DEFLATOR: 44-58  
ADJUSTMENTS IN SOCIAL SECURITY: 196  
AND MONETARY POLICY: 48, 135, 215  
AND REAL GDP: 65-68  
SIMILARITIES WITH EXCHANGE RATE FLUCTUATIONS: 143  
AND CURRENCY UNIONS: 146-147  
AND INTEREST RATES: 52-53

**INTEREST RATE**

THE RATE A BANK CHARGES YOU TO BORROW MONEY, OR THE RATE A BANK PAYS YOU TO SAVE MONEY: 41-44  
AND MICROFINANCE: 132  
AND ZERO LOWER BOUND: 159  
NOMINAL VERSUS REAL INTEREST RATES: 52-53

THE **RULE OF THUMB** RELATING THE NOMINAL INTEREST RATE ( $r_N$ ), THE REAL INTEREST RATE ( $r_R$ ), AND THE RATE OF INFLATION ( $i$ ) IS:

$$r_R = r_N - i$$

FOR EXAMPLE, IF THE NOMINAL INTEREST RATE IS 6% ( $r_N = 0.06$ ) AND THE RATE OF INFLATION IS 4% ( $i = 0.04$ ) THE REAL INTEREST RATE IS ABOUT 2% ( $r_R \approx 0.06 - 0.04 = 0.02$ ).

AS LONG AS INFLATION IS NOT TOO HIGH, THIS RULE OF THUMB IS A GOOD APPROXIMATION FOR THE **ACTUAL FORMULA**, WHICH IS:

$$r_R = \frac{1 + r_N}{1 + i} - 1$$

FOR  $r_N = 0.06$  AND  $i = 0.04$  WE GET  $r_R = (1.06)/(1.04) - 1 = 0.019$ .



### **INVISIBLE HAND**

ADAM SMITH'S METAPHOR FOR HOW INDIVIDUAL SELF-INTEREST CAN LEAD TO GOOD OUTCOMES FOR THE GROUP AS A WHOLE: 6, 8, 83  
AND UNEMPLOYMENT: 21, 22  
AND FOREIGN AID: 126  
AND ENVIRONMENTAL ISSUES: 183–187, 192

### **KEYNESIAN ECONOMICS**

NAMED AFTER 20TH-CENTURY ECONOMIST JOHN MAYNARD KEYNES, THIS SCHOOL OF THOUGHT VIEWS THE ECONOMY AS A DYSFUNCTIONAL FAMILY AND THEREFORE EMPHASIZES THE ROLE THAT GOVERNMENTS CAN PLAY IN TAMING THE BUSINESS CYCLE WITH FISCAL OR MONETARY POLICY: 11  
CONTRAST WITH CLASSICAL ECONOMICS: 12–13, 18–19, 22, 27  
AND THE LABOR MARKET: 18  
AND STICKY WAGES: 28–30  
AND MONEY NEUTRALITY: 36  
AND NEOCLASSICAL SYNTHESIS: 212



### **LABOR FORCE**

THE POOL OF POTENTIAL WORKERS, INCLUDING EMPLOYED WORKERS WHO HAVE PAYING JOBS AS WELL AS UNEMPLOYED WORKERS WHO ARE LOOKING FOR PAYING JOBS: 22  
CHANGES IN: 19

### **LUDDITES**

BRITISH TEXTILE WORKERS WHO DESTROYED MECHANICAL LOOMS IN THE 1800s, OR—MORE GENERALLY—PEOPLE WHO OPPOSE TECHNOLOGICAL PROGRESS: 94

### **MICROFINANCE**

THE EFFORT TO EXTEND ACCESS TO LOANS, SAVINGS ACCOUNTS, AND OTHER BANKING SERVICES TO THE POOR: 132

### **MONETARY POLICY**

CENTRAL BANK ACTIONS THAT INCREASE OR DECREASE THE MONEY SUPPLY IN ORDER TO PROMOTE SHORT-TERM STABILITY: 37  
CONTRAST WITH FISCAL POLICY: 76  
AND GREAT DEPRESSION: 158

### **MONEY**

ANYTHING THAT FACILITATES TRADE BY SERVING AS A MEDIUM OF EXCHANGE: 32–33

### **MONEY ILLUSION**

THE IDEA THAT PEOPLE RESPOND TO NOMINAL PRICES RATHER THAN REAL (INFLATION-ADJUSTED) PRICES: 49, 57



### **MORAL HAZARD**

A SITUATION IN WHICH INSURANCE OR BAILOUTS END UP ENCOURAGING RISKY BEHAVIOR: 165



### **NEOCLASSICAL SYNTHESIS**

THE IDEA THAT MACROECONOMIES ARE KEYNESIAN IN THE SHORT RUN BUT CLASSICAL IN THE LONG RUN: 212

### **NEUTRALITY OF MONEY**

THE IDEA THAT A CHANGE IN THE VALUE OF MONEY—FOR EXAMPLE, A ONE-TIME OCCURRENCE OF 10% INFLATION—WILL NOT AFFECT REAL VARIABLES SUCH AS UNEMPLOYMENT: 34–37  
AND WHY INFLATION MATTERS: 48–49

BECAUSE IT MAKES FOR FUN DRAWINGS, THIS BOOK ALSO USES (OR, MORE CORRECTLY, MISUSES) THE TERM **SUPER-NEUTRAL**, WHICH IS THE IDEA THAT CHANGES IN THE RATE OF GROWTH OF MONEY—FOR EXAMPLE, MOVING FROM 5% TO 10% INFLATION—WILL NOT AFFECT REAL VARIABLES.

### **NOMINAL VARIABLES**

WAGES, PRICES, INTEREST RATES, OR OTHER VARIABLES THAT—IN CONTRAST TO REAL VARIABLES—CAN BE DISTORTED BY INFLATION, USUALLY BECAUSE THEY ARE EXPRESSED IN DOLLAR TERMS: 49–53

### **OPEN-MARKET OPERATIONS**

PURCHASES OR SALES OF GOVERNMENT BONDS OR OTHER ASSETS BY CENTRAL BANKS IN ORDER TO CHANGE THE MONEY SUPPLY: 40–43

### **PARETO**

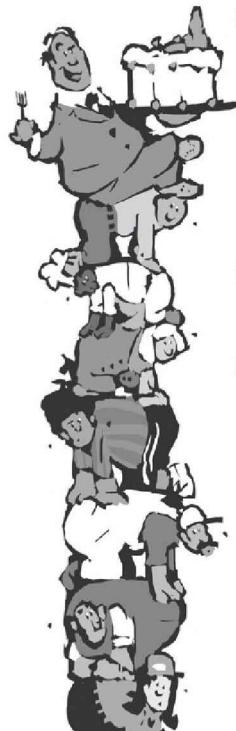
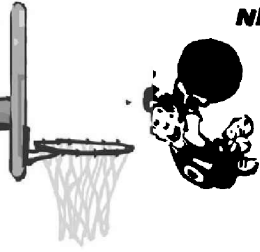
THREE TERMS NAMED AFTER ITALIAN ECONOMIST VILFREDO PARETO. ONE OUTCOME IS A **PARETO IMPROVEMENT** OVER ANOTHER IF SWITCHING MAKES AT LEAST ONE PERSON BETTER OFF AND MAKES NOBODY WORSE OFF. ANY PARTICULAR OUTCOME IS EITHER **PARETO INEFFICIENT** OR **PARETO EFFICIENT** DEPENDING ON WHETHER THERE IS OR IS NOT ANY PARETO IMPROVEMENT OVER IT, I. E., ON WHETHER THERE IS OR IS NOT ANOTHER OUTCOME THAT MAKES AT LEAST ONE PERSON BETTER OFF WITHOUT MAKING ANYBODY WORSE OFF: 81, 93, 95, 98, 114

### **PEAK COAL, PEAK OIL, ETC.**

CONCERNS ABOUT RUNNING OUT OF RESOURCES SUCH AS OIL AND COAL: 181–185

### **POVERTY TRAP**

A SELF-REINFORCING CYCLE (INSTABILITY, WAR, LOW INVESTMENT, ETC.) THAT KEEPS POOR COUNTRIES TRAPPED IN POVERTY: 172–173





### **PROPERTY RIGHTS**

LAWS ESTABLISHING OWNERSHIP AND CONTROL OVER PRIVATE PROPERTY; SECURE PROPERTY RIGHTS ARE CONSIDERED A KEY INGREDIENT FOR ECONOMIC GROWTH: 80, 173

### **PROTECTIONISM**

EFFORTS TO PROTECT DOMESTIC INDUSTRY FROM FOREIGN COMPETITION, FOR EXAMPLE, WITH A TARIFF ON IMPORTS OR A SUBSIDY FOR DOMESTIC INDUSTRY: 122–123  
AND AGRICULTURE: 136

### **PUBLIC CHOICE THEORY**

THE APPLICATION OF ECONOMIC ANALYSIS TO POLITICS: 82

### **PURCHASING POWER**

THE AMOUNT OF GOODS AND SERVICES THAT CAN BE PURCHASED WITH A CERTAIN AMOUNT OF MONEY: 35, 46, 52, 72

### **PURCHASING POWER PARITY (PPP)**

AN EXCHANGE RATE CALCULATED USING THE PURCHASING POWER OF DIFFERENT CURRENCIES: 72

### **REAL VARIABLES**

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DEFINED BY THE NATIONAL BUREAU OF ECONOMIC RESEARCH AS "A SIGNIFICANT DECLINE IN ECONOMIC ACTIVITY SPREAD ACROSS THE ECONOMY, LASTING MORE THAN A FEW MONTHS, NORMALLY VISIBLE IN REAL GDP, REAL INCOME, EMPLOYMENT, INDUSTRIAL PRODUCTION, AND WHOLESALE–RETAIL SALES": 154

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"PEOPLE DON'T USUALLY CHUCKLE OVER UNEMPLOYMENT, INFLATION, AND RECESSIONS, BUT THEY'LL GET PLENTY OF LAUGHS OUT OF THIS BOOK—AND A GOOD INTRODUCTION TO MACRO TOO."

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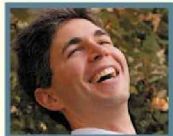


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