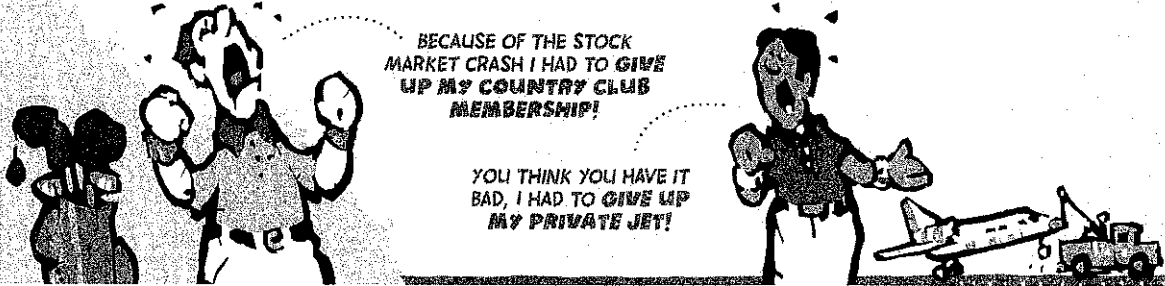


ELASTICITY MEASURES HOW CHANGES IN ONE VARIABLE AFFECT A DIFFERENT VARIABLE.

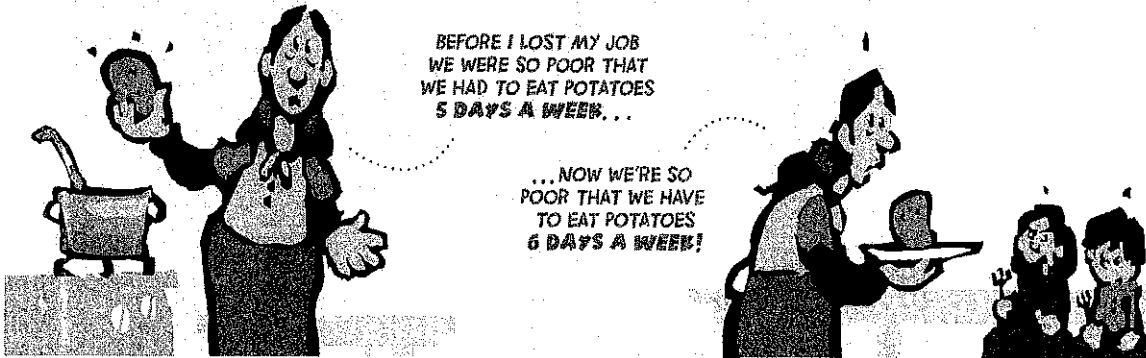
THERE ARE MANY TYPES OF ELASTICITIES, LIKE THE **WEALTH ELASTICITY OF CONSUMPTION**...

... WHICH MEASURES HOW A CHANGE IN **WEALTH AFFECTS CONSUMPTION.**



AND THE **INCOME ELASTICITY OF DEMAND**...

... WHICH MEASURES HOW A CHANGE IN **INCOME AFFECTS DEMAND FOR SOME PRODUCT.**



AND **CROSS-PRICE ELASTICITY**...

... WHICH MEASURES HOW A CHANGE IN THE **PRICE OF ONE PRODUCT AFFECTS DEMAND FOR A DIFFERENT PRODUCT.**



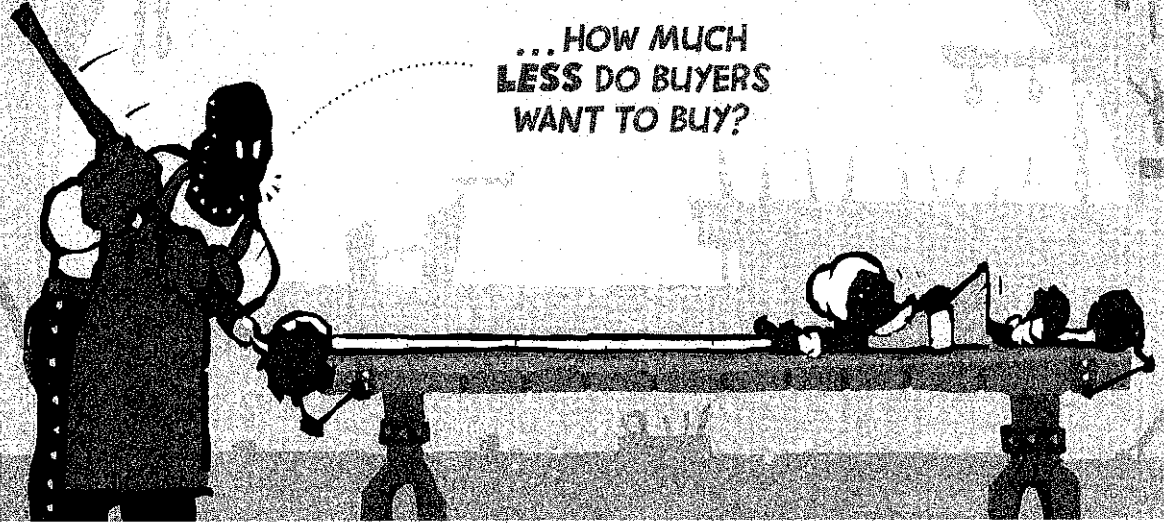
BUT WE'RE GOING TO FOCUS ON TWO OTHERS:

**THE PRICE ELASTICITY
OF DEMAND...**

... WHICH MEASURES HOW A CHANGE
IN THE **PRICE** OF SOME PRODUCT AFFECTS
DEMAND FOR THAT SAME PRODUCT.

IF THE MARKET
PRICE GOES UP...

... HOW MUCH
LESS DO BUYERS
WANT TO BUY?

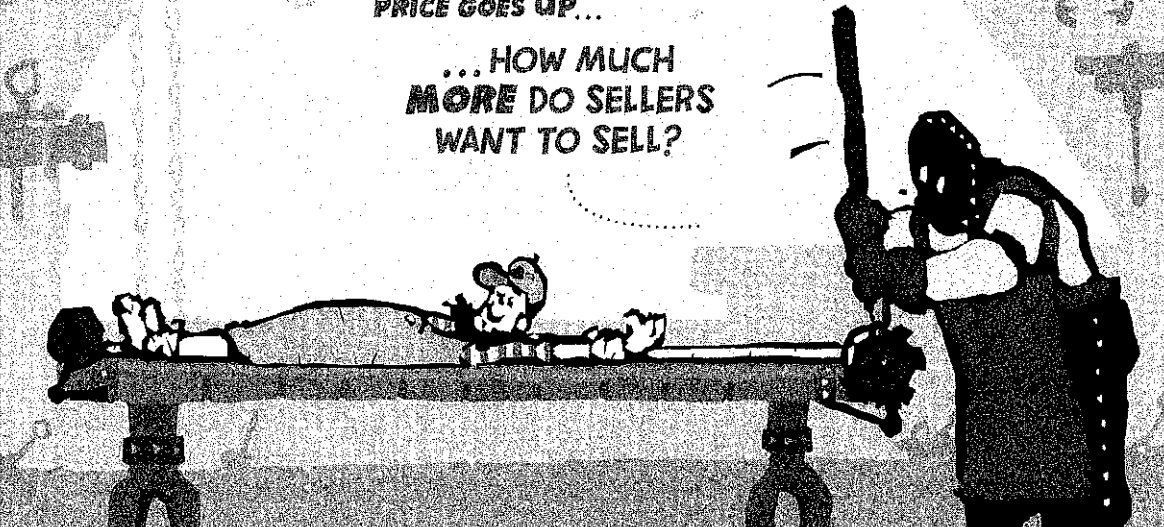


**AND THE PRICE ELASTICITY
OF SUPPLY...**

... WHICH MEASURES HOW A CHANGE
IN THE **PRICE** OF SOME PRODUCT AFFECTS
SUPPLY FOR THAT SAME PRODUCT.

IF THE MARKET
PRICE GOES UP...

... HOW MUCH
MORE DO SELLERS
WANT TO SELL?



ONE REASON PRICE ELASTICITIES ARE IMPORTANT IS THAT THEY HELP EXPLAIN HOW PRICES CHANGE AS A RESULT OF TAXES.

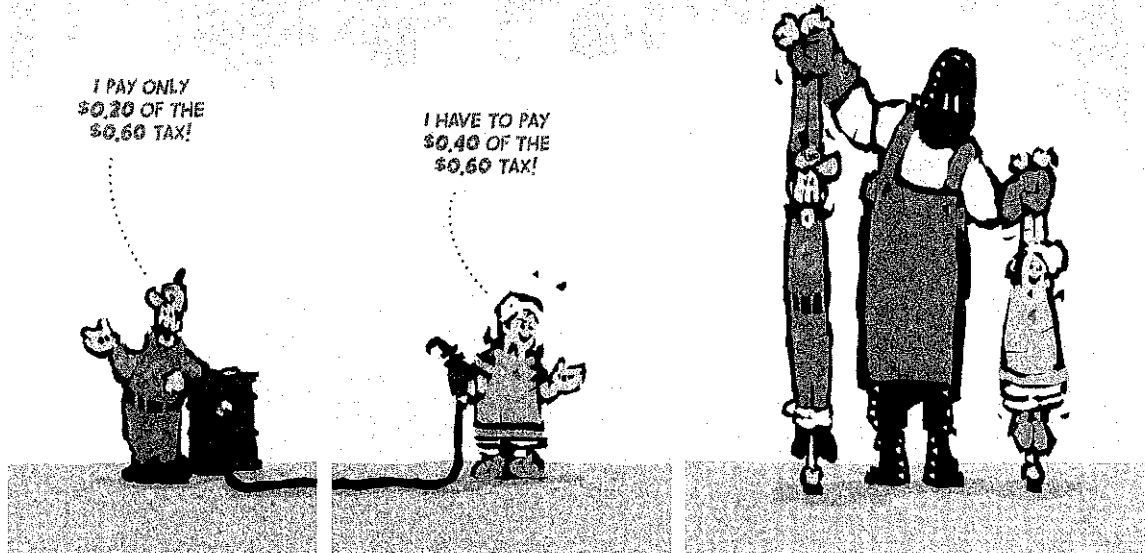
REMEMBER ON PAGE 153, WHEN SELLERS HAD TO PAY LESS OF THE TAX...

... WHILE BUYERS HAD TO PAY MORE OF IT?

THAT'S BECAUSE SELLERS WERE MORE ELASTIC THAN BUYERS.

I PAY ONLY \$0.20 OF THE \$0.60 TAX!

I HAVE TO PAY \$0.40 OF THE \$0.60 TAX!

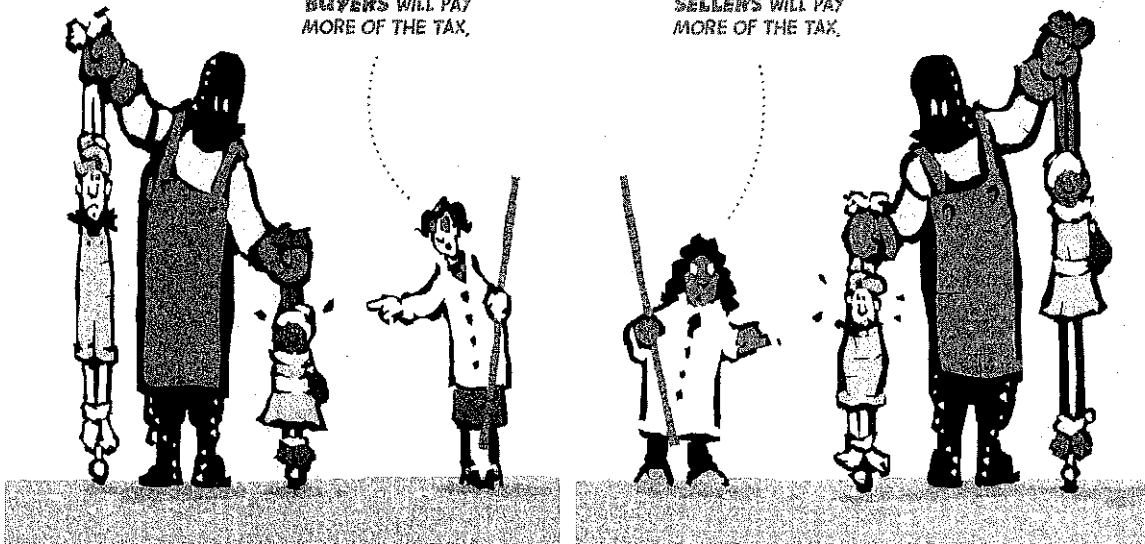


IF SUPPLY IS MORE ELASTIC THAN DEMAND, THEN SELLERS ARE MORE RESPONSIVE TO PRICE CHANGES THAN BUYERS...

... BUT IF DEMAND IS MORE ELASTIC THAN SUPPLY, THEN BUYERS ARE MORE RESPONSIVE TO PRICE CHANGES THAN SELLERS.

IN THIS CASE, BUYERS WILL PAY MORE OF THE TAX.

IN THIS CASE, SELLERS WILL PAY MORE OF THE TAX.



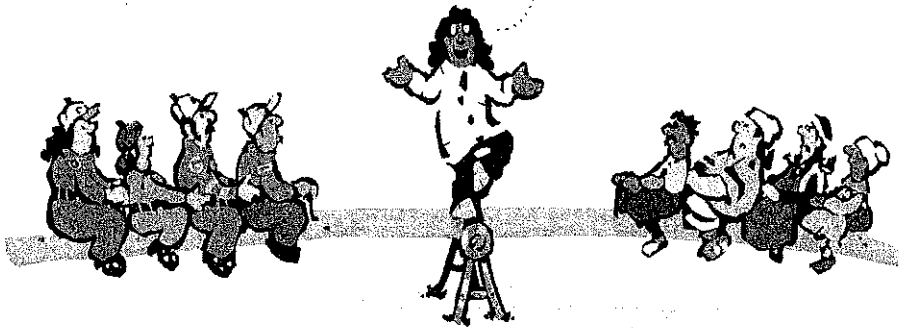
BY THIS POINT YOU SHOULD KNOW WHY ALL THIS IS TRUE: SUPPLY AND DEMAND!

RECALL THAT THE MARKET EQUILIBRIUM PRICE IS DETERMINED BY A BALANCE BETWEEN SUPPLY AND DEMAND.

THE AMOUNT THAT SELLERS WANT TO SELL AT THAT PRICE...

... ALWAYS EQUALS ...

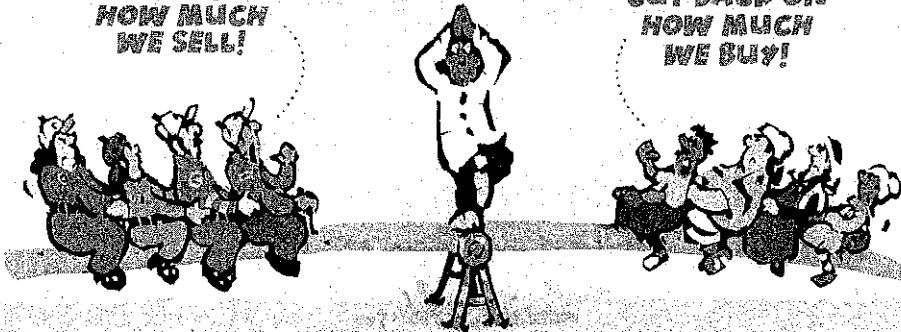
... THE AMOUNT THAT BUYERS WANT TO BUY AT THAT PRICE!



SO THE TAX BURDENS HAVE TO BE CAREFULLY BALANCED BETWEEN BUYERS AND SELLERS...

IF YOU PUT THE TAX BURDEN ON US WE'LL CUT BACK ON HOW MUCH WE SELL!

IF YOU PUT THE TAX BURDEN ON US WE'LL CUT BACK ON HOW MUCH WE BUY!



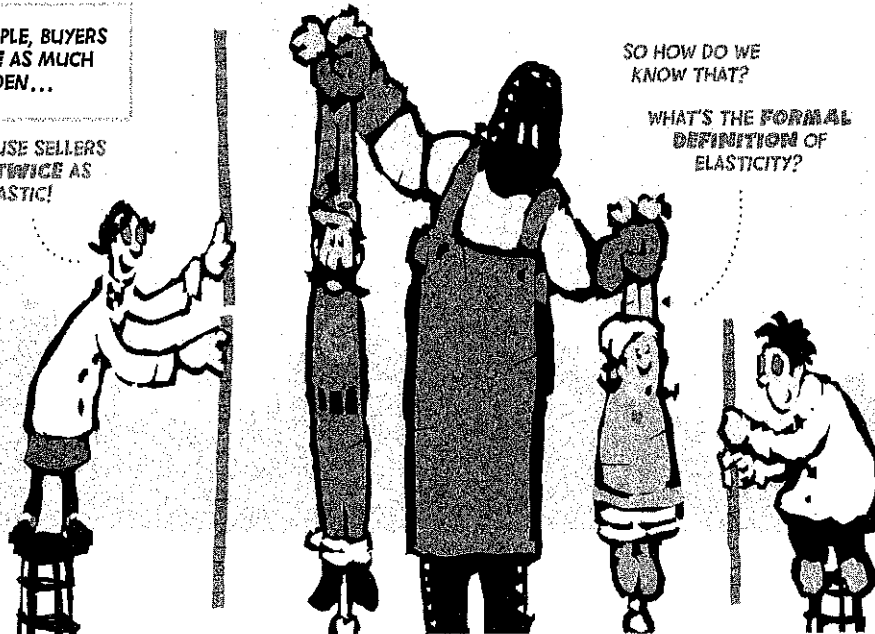
... AND IN ORDER TO MAINTAIN THAT BALANCE, THE LESS ELASTIC SIDE BEARS MORE OF THE TAX BURDEN!

IN OUR GAS TAX EXAMPLE, BUYERS HAD TO BEAR TWICE AS MUCH OF THE TAX BURDEN...

... BECAUSE SELLERS WERE TWICE AS ELASTIC!

SO HOW DO WE KNOW THAT?

WHAT'S THE FORMAL DEFINITION OF ELASTICITY?



**THE PRICE ELASTICITY OF DEMAND
MEASURES THE PERCENTAGE CHANGE IN DEMAND
PRODUCED BY A 1% INCREASE IN PRICE.**

**HOW MUCH
LESS WILL
YOU BUY?**

**DEMAND ELASTICITIES
ARE ALWAYS NEGATIVE
BECAUSE HIGHER PRICES
MAKE BUYERS WANT TO
BUY LESS.**

if demand decreases by
more than 1%, we say that
DEMAND IS ELASTIC.

if demand decreases
between 0 and 1%, we say that
DEMAND IS INELASTIC.

**FOR EXAMPLE, AT CURRENT PRICES THE DEMAND
FOR FRESH TOMATOES IS *ELASTIC*, ABOUT **-4**.**

**IF THE PRICE OF FRESH TOMATOES GOES
UP 1%, BUYERS WILL BUY 4% LESS!**

**WE CAN ALWAYS USE
CANNED TOMATOES, OR
JUST DO WITHOUT.**

**IN CONTRAST, AT CURRENT PRICES THE DEMAND
FOR COFFEE IS *INELASTIC*, ABOUT **-0.25**.**

**IF THE PRICE OF COFFEE GOES UP 1%,
BUYERS WILL BUY ONLY 0.25% LESS.**

**WE DON'T REALLY CARE
ABOUT TOMATOES,
BUT WE NEED
OUR COFFEE!**

**THE PRICE ELASTICITY OF SUPPLY
MEASURES THE PERCENTAGE CHANGE IN SUPPLY
PRODUCED BY A 1% INCREASE IN PRICE.**

SUPPLY ELASTICITIES
ARE ALWAYS POSITIVE
BECAUSE HIGHER PRICES MAKE
SELLERS WANT TO
SELL MORE.

HOW MUCH
MORE WILL
YOU SELL?

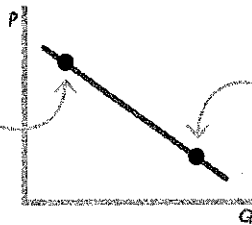


If supply increases
between 0 and 1%, we say that
SUPPLY IS INELASTIC.

If supply increases by
more than 1%, we say that
SUPPLY IS ELASTIC.

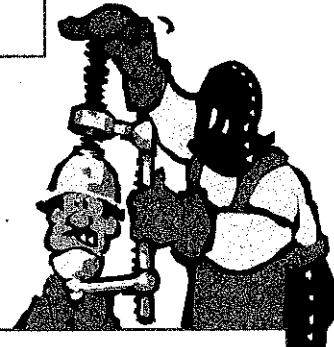
**IT'S IMPORTANT TO NOTE THAT ELASTICITIES ARE
ALWAYS MEASURED AT A PARTICULAR POINT...**

Such as this
point...



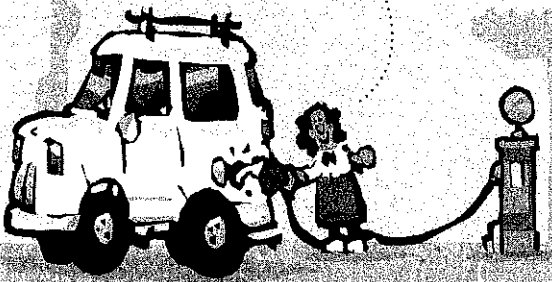
...or this point.

SEE THE GLOSSARY OR
CARTOONECONOMICS.COM
FOR THE MATH FORMULAS.



... BECAUSE ELASTICITIES CAN BE DIFFERENT AT DIFFERENT PRICES!

MY PRICE SENSITIVITY IS
A LOT LESS AT A MARKET
PRICE OF \$2 PER GALLON...



... THAN AT A
MARKET PRICE OF
\$5 PER GALLON.



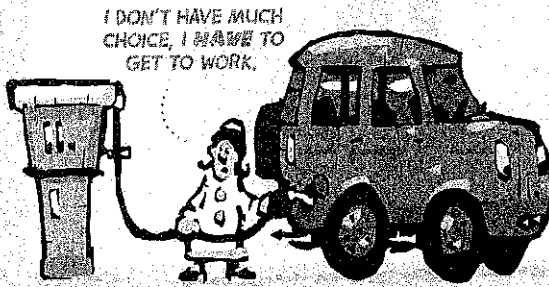
ELASTICITIES ARE ALSO DIFFERENT OVER TIME.



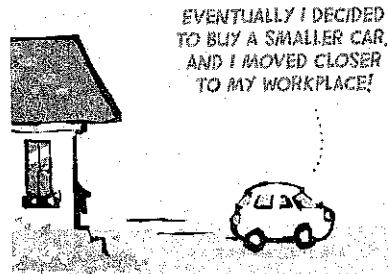
HAVING MORE TIME GIVES BUYERS AND SELLERS MORE WAYS TO BE FLEXIBLE!

SUPPLY AND DEMAND ARE ALWAYS MORE ELASTIC IN THE LONG RUN THAN IN THE SHORT RUN.

FOR EXAMPLE, AT A PRICE OF \$4 PER GALLON, DEMAND FOR GASOLINE IS **INELASTIC IN THE SHORT RUN...**



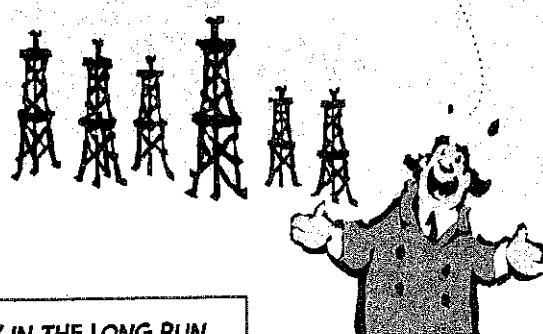
... BUT MORE ELASTIC IN THE LONG RUN.



SIMILARLY, THE **SUPPLY OF GASOLINE IS RELATIVELY INELASTIC IN THE SHORT RUN...**

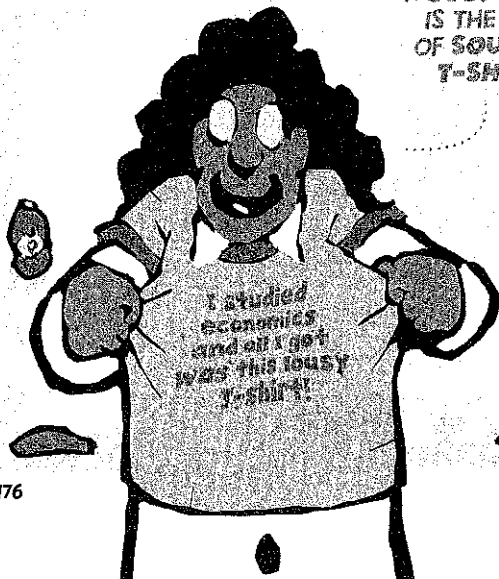


... BUT MORE ELASTIC IN THE LONG RUN.

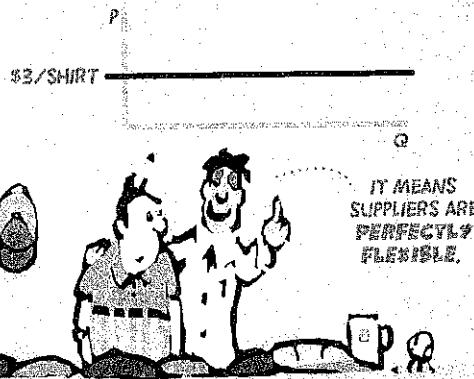


IN FACT, FOR MANY PRODUCTS, SUPPLY IN THE LONG RUN IS PERFECTLY ELASTIC!

A GOOD EXAMPLE IS THE SUPPLY OF **SOUVENIR T-SHIRTS!**



A PERFECTLY ELASTIC LONG-RUN SUPPLY CURVE IS **PERFECTLY FLAT.**



THE EASIEST WAY TO UNDERSTAND PERFECTLY ELASTIC LONG-RUN SUPPLY CURVES IS BY **THINKING AT THE MARGIN**.

THE PRODUCERS' COST IS **THE SAME** FOR THE 100TH SHIRT...

...OR THE 1,000,000TH SHIRT!



SO THE MARKET MARGINAL COST CURVE IS **FLAT!**

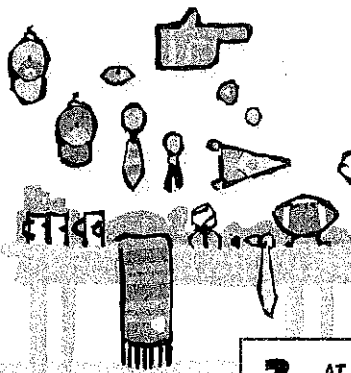


BUT YOU CAN ALSO THINK ABOUT **MARKET SUPPLY CURVES**, IN WHICH CASE PERFECT ELASTICITY MEANS THREE THINGS:

1. AT ANY MARKET PRICE **BELOW \$3**, SUPPLY WOULD **PLUMMET** TO ZERO.

IN THE LONG RUN, **NOBODY** WANTS TO SELL T-SHIRTS IF THE PRICE IS BELOW \$3.

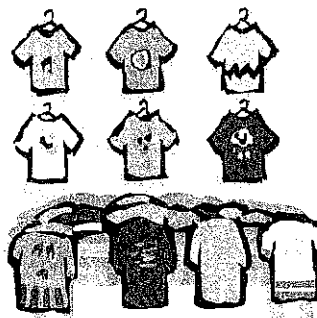
YOU CAN MAKE MORE MONEY SELLING **OTHER** STUFF, LIKE HATS OR MUGS OR CAMERAS!



2. AT ANY MARKET PRICE **ABOVE \$3**, SUPPLY WOULD **SHOOT UP** TOWARD INFINITY.

IN THE LONG RUN, **EVERYBODY** WANTS TO SELL T-SHIRTS IF THE PRICE IS ABOVE \$3.

YOU CAN MAKE **MORE MONEY** SELLING T-SHIRTS THAN YOU CAN SELLING ANYTHING ELSE!



3. AT A MARKET PRICE OF **PRECISELY \$3**, SELLERS ARE WILLING TO SELL ANY NUMBER OF T-SHIRTS, FROM 100 TO 1,000,000.



I'M HAPPY SELLING T-SHIRTS, BUT I'D BE **EQUALLY** HAPPY SELLING HATS OR CAMERAS OR MUGS OR CANDLES OR...

MANY GOODS AND SERVICES HAVE PERFECTLY ELASTIC LONG-RUN SUPPLY...

LIKE FLOUR AND GLASS BOTTLES AND HAMMERS...

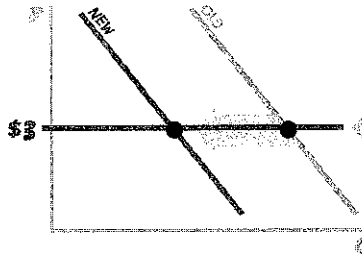
... AND BUZZ CUTS...

... AND ANY OTHER GOOD OR SERVICE WHERE THE 100TH UNIT IS NO MORE AND NO LESS COSTLY TO PRODUCE THAN THE 1,000,000TH UNIT!



... SO IT'S IMPORTANT TO CONSIDER HOW **TAXES** AFFECT MARKETS WITH PERFECTLY ELASTIC LONG-RUN SUPPLY,

FOR AN EXAMPLE, LET'S SEE WHAT HAPPENS IF THERE'S A \$1 TAX ON THE **BUYERS** OF T-SHIRTS,



WE LEARNED ON PAGE 150 THAT IF THE TAX IS ON THE **BUYERS**, DEMAND WILL DECREASE,

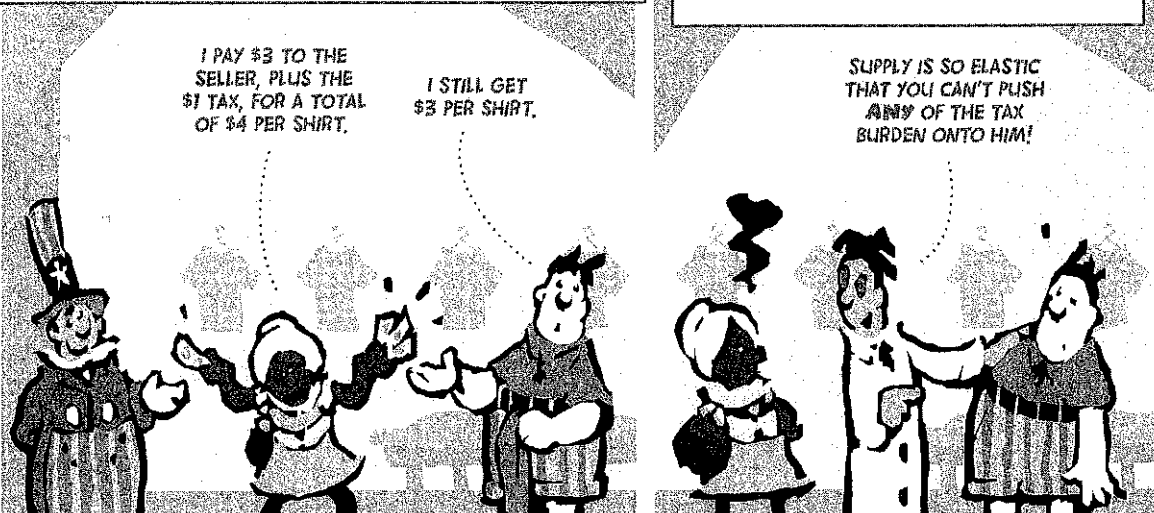
AS THE GRAPH SHOWS, A TAX ON THE **BUYERS** **DOESN'T CHANGE THE MARKET EQUILIBRIUM PRICE...**

... WHICH MEANS THAT **BUYERS BEAR THE ENTIRE TAX BURDEN!**

I PAY \$3 TO THE SELLER, PLUS THE \$1 TAX, FOR A TOTAL OF \$4 PER SHIRT.

I STILL GET \$3 PER SHIRT.

SUPPLY IS SO ELASTIC THAT YOU CAN'T PUSH ANY OF THE TAX BURDEN ONTO HIM!

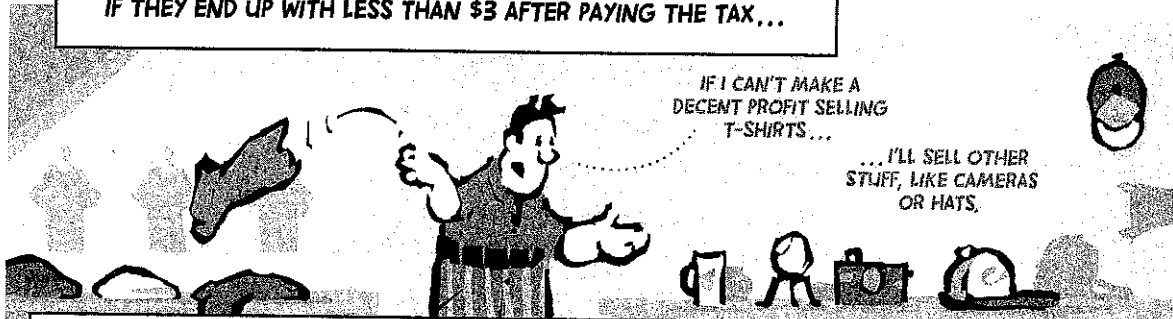


WE KNOW FROM TAX EQUIVALENCE THAT THE END RESULT WILL BE THE SAME IF THE TAX IS PLACED ON THE SELLERS.

BUT IT'S EASY TO SEE THIS BY JUST LOOKING AT THINGS FROM THE SELLERS' PERSPECTIVE IF THERE'S A \$1 TAX ON THE SELLERS OF T-SHIRTS.



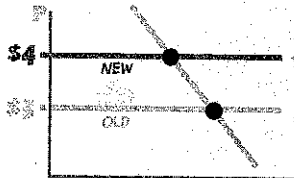
IN THE LONG RUN, SELLERS WILL STOP SELLING T-SHIRTS IF THEY END UP WITH LESS THAN \$3 AFTER PAYING THE TAX...



IF I CAN'T MAKE A DECENT PROFIT SELLING T-SHIRTS...

...I'LL SELL OTHER STUFF, LIKE CAMERAS OR HATS.

... SO IN THE LONG RUN IT'S IMPOSSIBLE FOR THE SELLERS TO BEAR ANY OF THE TAX BURDEN!



THE \$1 TAX ON THE SELLERS RAISES THE MARKET MARGINAL COST CURVE BY \$1, SO THE NEW MARKET PRICE IS \$4.

WHICH MEANS I PAY \$4 PER T-SHIRT...

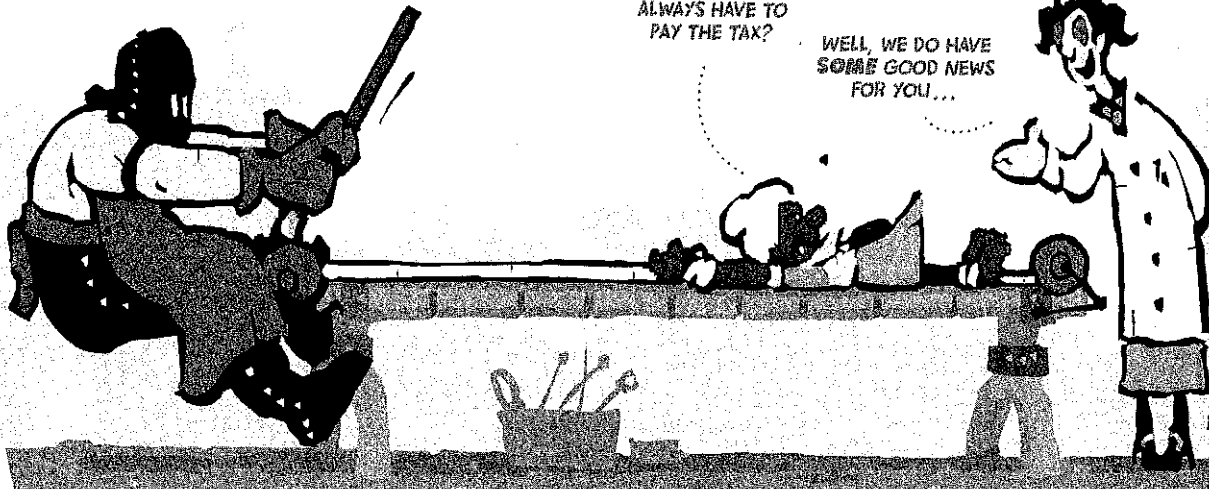
... AND I TAKE HOME \$3 AFTER PAYING THE TAX.



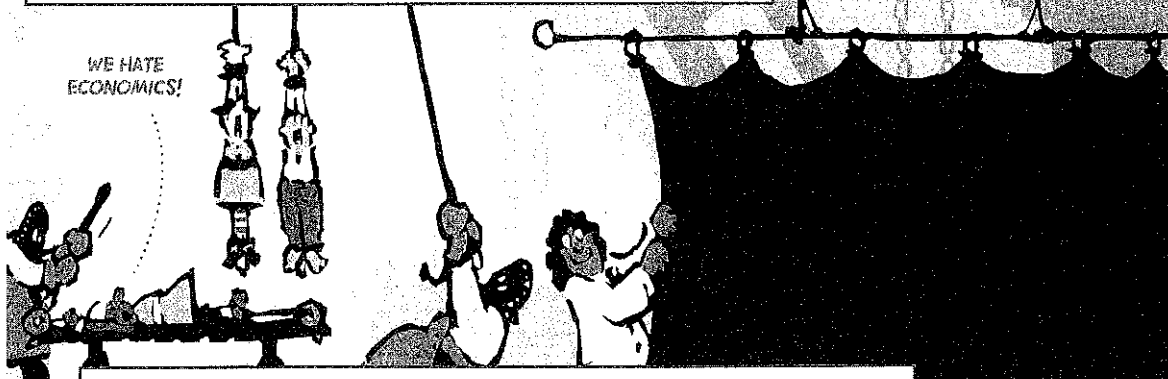
IN SUMMARY: WITH A PERFECTLY ELASTIC LONG-RUN SUPPLY CURVE, THE BUYERS BEAR THE ENTIRE TAX BURDEN!

THAT'S NOT FAIR, WHY DO WE ALWAYS HAVE TO PAY THE TAX?

WELL, WE DO HAVE SOME GOOD NEWS FOR YOU...

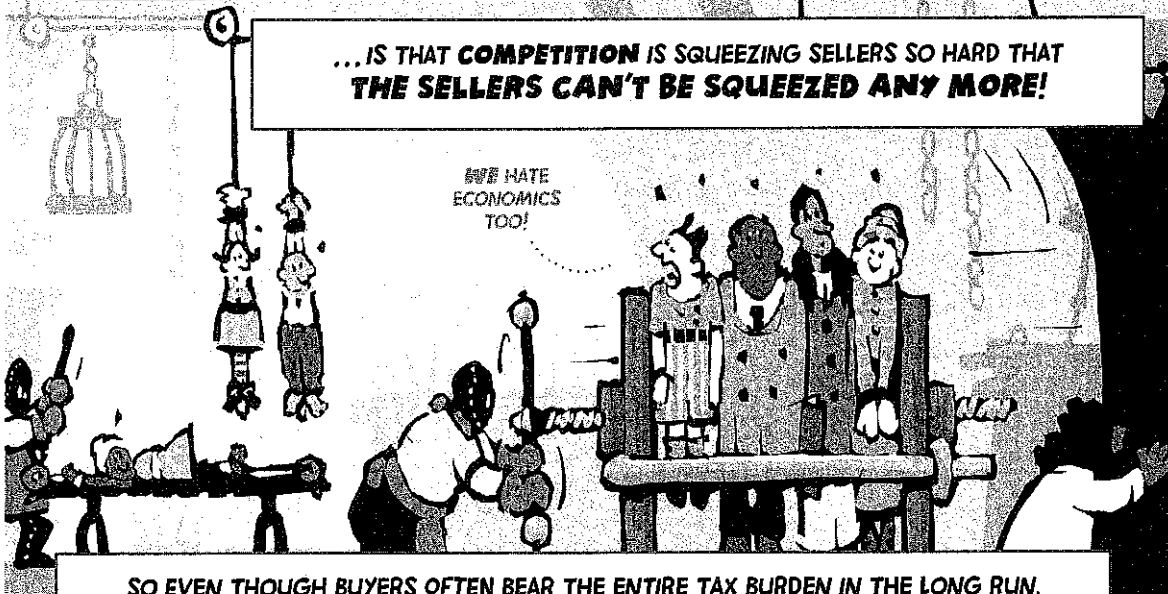


IT MAY NOT SEEM FAIR THAT **BUYERS** BEAR THE ENTIRE BURDEN OF TAXES FOR MANY PRODUCTS.



BUT THE **REASON** BUYERS HAVE TO BEAR THE ENTIRE TAX BURDEN...

... IS THAT **COMPETITION** IS SQUEEZING SELLERS SO HARD THAT **THE SELLERS CAN'T BE SQUEEZED ANY MORE!**



SO EVEN THOUGH BUYERS OFTEN BEAR THE ENTIRE TAX BURDEN IN THE LONG RUN, THEY'RE STILL **GETTING A GREAT DEAL IN COMPETITIVE MARKETS!**

SERIOUSLY, \$3 PLUS TAX FOR THAT SHIRT IS AN AMAZING BARGAIN.

IF YOU DON'T AGREE, YOU SHOULD TRY MAKING A LIVING SELLING SOUVENIR T-SHIRTS!

OOF, ALL THIS COMPETITION IS KILLING ME!

