DOES IT MATTER HOW MUCH MONEY IS IN OUR ECONOMY? SURE DOES!

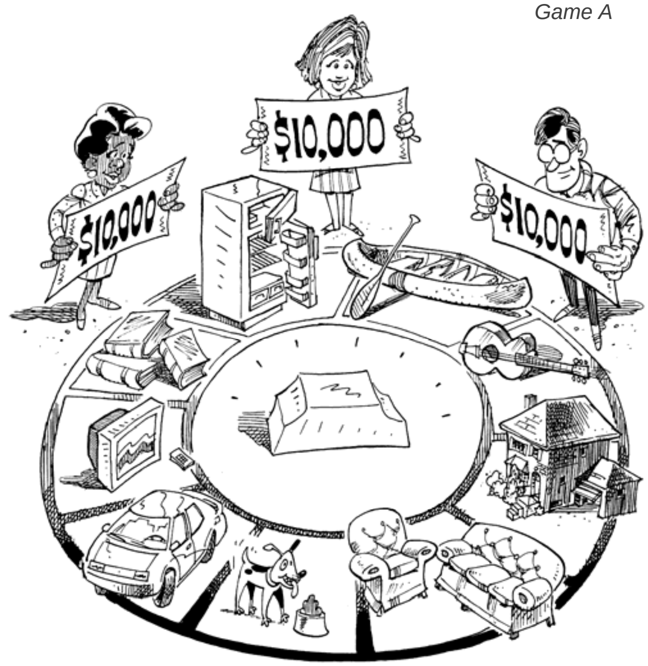
Excerpt from "Money and Monetary Policy in Canada" - a collaboration between CFEE and the Bank of Canada. (August 2020)

To help understand the relationship between money and the economy, let's create a game—a game we'll call "Auction Block."

Auction Block

The aim is for each player to accumulate as much wealth as possible. We will look at a number of versions of our game, but let's suppose the basic game is played as follows.

Game A



Each player is given some money at the start of the game. Players roll dice and move around a game board made up of a series of squares with pictures of items for sale. When a player lands on an item, a card with a picture of that item is placed on the auction block. Players then bid for the item, and the item (and the card) goes to the highest bidder.

There are also squares on the board titled "News and Information." A player landing on one of these squares is given some piece of news or information that may ultimately affect the price of a particular item on the game board. As each player accumulates more knowledge, the bidding activity of the players will be affected. At the end of the game, the current market price of each item is revealed, and players calculate the dollar value of the wealth they have accumulated.

When actual numbers are revealed, a player may discover that he or she paid more for an item than it is ultimately worth. Or, a player may be pleased to find that the price paid was actually less than the item's final value. Everything will depend on the bidding activity, players' access to and interpretations of information, and the effects of market events on prices.

As mentioned, however, we are going to look at a number of variations in our game—five variations, in fact. Let's assume that five simultaneous games of Auction Block are being played by five different groups of players. We get to look in on all of them, see what's going on and hopefully learn a little from what we see.

What If We Double the Amount of Money in the Game?

In Game A, each player gets $10,000.

In Game B, we will make one change. We will double the amount of money that each player receives at the outset of the game, to $20,000.

Let's pause for a moment to consider the impact of doubling the quantity of money in Game B. Can more items be purchased from the auction block with more money available for spending? No, because there is no increase in the number of items available for purchase.

As a result, players have more money to spend in Game B—but nothing more to buy. As we watch the game unfold, we see players in Game B spending more money, but only because prices are being bid up and are higher. With twice as much money, but the same number of items to purchase, it is likely that prices will double.

Here is the important question. Are the players in Game B, with twice as much money, any better off than the players in Game A? No. The same items are acquired by the players in both games. The players in Game B acquire their items by paying higher prices, but they are no better off in real terms with twice the amount of money.

Game B

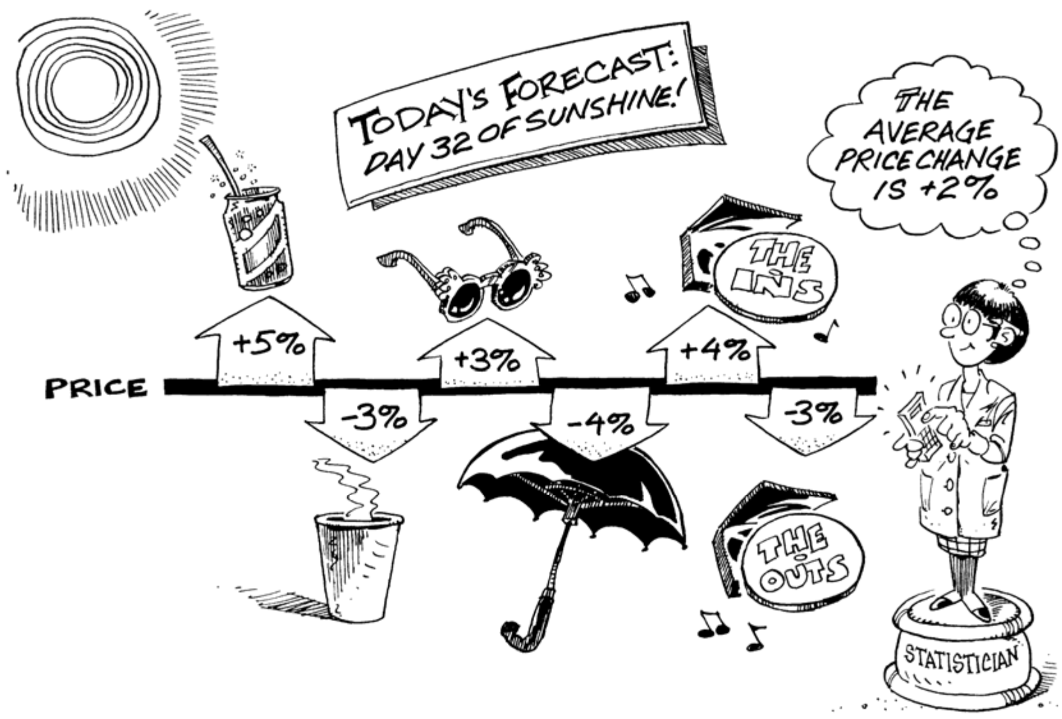
__Facts and Figures:__ The "average price level" is an important concept for the economy

Changes to the Average Level of Prices—Inflation

What did the additional money achieve in Game B? It raised the average price level as the prices paid for the items in Game B increased. This concept of average price level is very important to an economy, and we will take some time to understand what it means.

There are many prices for the many goods and services produced, bought and sold in our economy. Over time, some prices rise while others fall or stay the same. Of keen interest to economists and policy-makers is whether there is a change in the *general average level of prices*. That is, are prices, on average, rising or falling? The price of a smartphone may increase by 5% from one year to the next, for any number of reasons. But that is a change in the price of a single item. That change doesn't tell us what is happening to prices in general throughout the economy. However, if we can measure the change in average prices, we may find that things are much different.

If you were in a position to make decisions about policies that can affect our overall economy, you would want to have an idea of what's going on in the economy overall—not just in the price of one item. By getting information on the prices of lots of items and doing some calculations , we can get a sense of what's happening to prices in general, or on average. This brings us to one of the most important concepts in economics and for the economy—inflation.



Statisticians monitor increases and decreases in the prices of a wide range of goods and services to monitor the change in the average price level.

Inflation occurs when there is an increase in the average level of prices in the economy. The tool used to calculate whether average prices are rising or not is the CPI—the consumer price index. We'll talk more about the CPI later. Just be aware that this index doesn't include the changes occurring for all prices in the economy. That would be a monumental job. Instead, a wide selection of goods and services is made—a basket, if you like—and their prices are tracked to calculate the CPI.

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In our Auction Block game, doubling the quantity of money in Game B would likely double the prices of the items being bid on in Game A. The average price level increases and causes inflation in Game B. At the same time, it is important to note that the players are no better off in real terms than those in Game A. There is simply nothing else to buy with the money available.

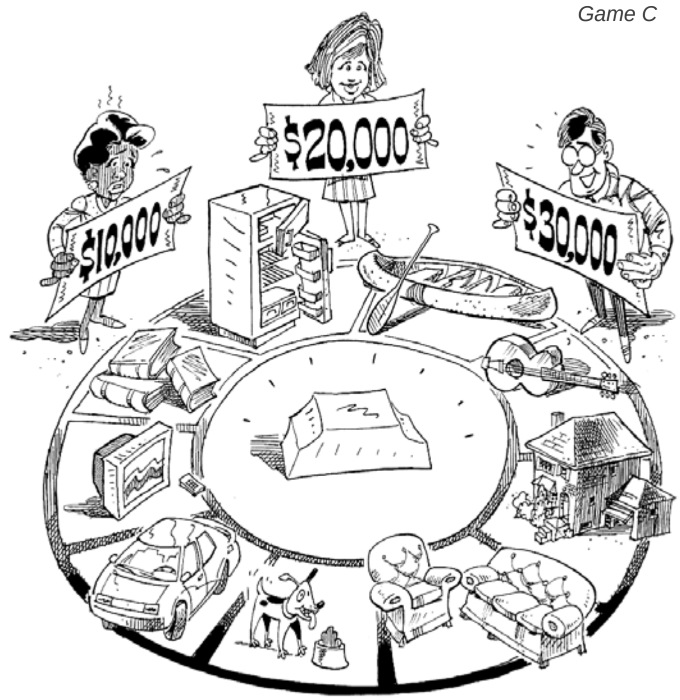
__Economic Insight:__ We could print and circulate twice as much money and not make people, on average, better off

Most Canadians would be surprised to hear that it would be possible to print and circulate twice as much money in our economy but that this action, on average, would result in people being no better off. But from looking at Games A and B, you can see how that's possible. Remember, money is a tool we use in our economy to acquire goods and services.

When we compare things in terms of money, the term *nominal* is often used. For example, the players in Game B are nominally wealthier than players in Game A. That is, they have more money. But they are no better off in *real* terms. There are no other real goods that they can acquire.

Game C—the Distribution of Income

Let's move on to see what's happening in Game C. Suppose that in Game C we adjust the quantity of money, as we did in Game B. But this time, we won't double raise the players' money equally. Suppose there are three players. We give one player $20,000, one player $10,000, and one player $30,000. The quantity of money in the game has doubled from our original Game A (from $30,000 to $60,000), but each player has a different amount of money to start.



Game C

As Game C begins, the amount that players are willing to bid will likely rise above the prices bid in Game A—as was the case for Game B. That is because two players in Game C have considerably more money to spend. Keep in mind that, as in Game B, there are no additional items available to buy.

With nothing additional to buy, the higher amounts of money lead to higher bids and, as a result, higher prices. In Game C, though, we see a difference from

Game B. The player with $30,000 will likely end up better off than if he or she were playing in Game A or B, because this player's income has more than doubled. This player will find it easier to bid and pay the higher prices and will likely acquire more than the other two players in Game C.

The player with $20,000 in Game C may actually end up with acquisitions similar to those of players in Game A. Why? Because prices may end up doubling those in Game A, but that player's income has also doubled. Therefore, that player will likely be no better or worse off than those playing Game A.

But what about the Game C player with $10,000? That player will be in a very different position. As prices rise in Game C, that player will have a hard time bidding and paying, and therefore will likely end up acquiring less than the bidders in Games C or A.

Inflation Affects Different People Differently

Economic Insight: *Inflation can hurt some people more than others*

Game C helps show how inflation can hurt some people more than others. If prices rise but a person's income can't keep pace, that person end up worse off as a result. That's one good reason to try to keep prices in our economy stable and under control. Fewer people will feel the impact of rising prices. Many retired Canadians, for example, have trouble keeping up with inflation. Many live on fixed incomes—that is, incomes that do not rise over time. If they continue to have the same income but prices in general rise, they will become worse off.

In Game C, we see that rising prices and inflation can affect people differently. If prices rise by 2% and your income rises by 5%, you will likely become better off. If prices rise 2% and your income rises 2%, you will likely remain no better— or worse—off. But, if prices rise by 2% and your income doesn't rise at all, you can become worse off.

Those are our lessons from looking at the differences in Games A, B and C. Let's see the situation in Game D.

Game D—Halving the Amount of Money in the Game

In Game D, instead of doubling the amount of money players receive in Game A, we will cut the amount in half. What impact does this have? Are the players in Game D, who have less money, less well off as a group than those playing Game A? The likelihood is that players will bid and pay lower prices for the items on the auction block. Each player in Game D may be as well off as those in Game A or Game B in real terms. Lower prices and a lower average price level make this possible with less money. However, if we compare total spending in Game A with that in Game D, we will see that the total level of spending in Game D is lower. We can say that nominal spending is lower in Game D.

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***Economic Insight:** Most economists fear deflation more than inflation*

The Problem with Deflation in an Economy

In an economy, if the general level of prices—that is, the average price level—falls, this is referred to as deflation.

Now, you may think that the idea of deflation sounds great—falling prices always sounds good. But be careful what you wish for. Many, if not most, policy-makers and economists fear deflation more than inflation. Why? Think of what can happen when people think prices are going to fall. They would likely postpone buying things—smartphones, clothes, cars, homes and so on—hoping their prices will fall.

If that happens and people stop spending, the economy can tip into a downward spiral. As people stop spending, prices fall. As prices fall, people think they may fall farther and don't spend—and on it goes. As spending falls, sales and production fall, producers cut back, jobs are lost, incomes are lost and spending can fall further. As we said above, deflation is usually something economists and policy-makers want to avoid. If deflationary expectations set in, the economy can experience a significant period of decline.

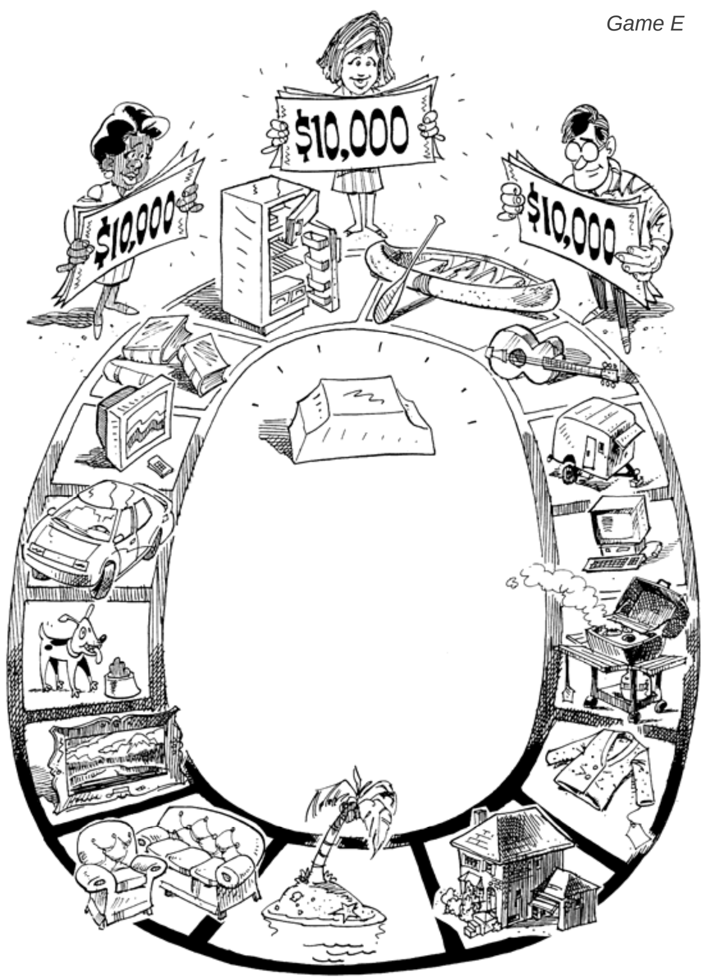
More Money Plus More Spending Does Not Mean People Will Be Better Off

Economic Insight: *"Real" information is important to consider in making policy decisions.*

The point should be clear by now. More money and more spending in an economy don't necessarily mean more goods and services are purchased or that people are better off. The level of spending has to be considered together with available output and the changes in prices. That is why it is important to focus on real, rather than nominal, information in our economy. The level of total spending on goods and services in Canada may rise from one year to the next. But how much of that added spending is simply a result of people having to pay higher prices? Did the economy grow from one year to the next because total spending increased? You won't know until you exclude the impact of higher prices and compare real information rather than nominal.

Game E—the Impact of Adding More Items to the Game

Now, let's move on to our last game—Game E. Suppose the change we make here is to add some new items to our game board, so that players in Game E are playing with a different board than the players in all the other games. In addition, we will add more money to this game, over and above the amount given to those in Game A. For the moment, we won't state just how much new money that will be. What is the impact of the additional items and the additional money?



Game E

If we were talking about our economy, the additional items would represent new production and more output. At least some of the additional money added to Game E can be used to buy these new items. The players can now become better off in real terms because there are new items to buy. Whether prices in this game rise will depend on how the rise in spending compares with the increase in the number of items there are to buy—and the prices at which they will now be sold. In our economy, to keep inflation at a low and stable level, it is important to keep any increase in the amount of money in line with increases in the production of goods and services and not let the amount of money grow too quickly.

Insights from the Auction Block Game

These different versions of our Auction Block game help us understand the relationship between money and our economy.

In Games B and C, more money was added, but there was nothing more to buy. The additional money in Games B and C only served to push up prices. In Game B, players couldn't become better off in real terms because there was nothing new to buy. In Game C, some players could become better off because they had access to more money, but, overall, the real economy didn't increase. The only way one player could benefit was at the expense of another player. If we measured the real economy in Game C, we would see that it hasn't grown. What has happened is that real wealth in the game is distributed in a more unequal manner.

Economic Insight: *For people, on average, to become better off, the economy has to create more wealth.*

In Game E, additional items were added to a larger game board, so players could become better off in *real* terms because there were more things to buy. More money can be used in Game E for more spending without necessarily raising prices.

In summary, the Auction Block game shows us that simply increasing the level of spending in an economy, in nominal terms, won't necessarily make people better off. For people to be better off, the economy will have to produce more for people to be able to acquire. If the economy produces more output, then spending levels can rise to purchase the new output without necessarily causing inflation. This can make people better off. Our economy will, in fact, *need* more money if it grows, since more money will be needed to purchase the new output.

If new money is not made available to enable more spending in a growing economy, the economy will go through a period of adjustment:

(a) In the short run, output will decline because the level of spending is not buying up the new production. Producers will see their inventories build up and will cut back on production.
(b) In the long run, the average price level will eventually fall to enable people to purchase the new production. However, as we mentioned, it can be a painful adjustment for an economy to go through a period of deflation and a reduction in the average price level. So, overseeing the level of spending, and the impact of that spending on prices in our economy, is very important.