



Market Failures, Taxes, and Subsidies: Crash Course Economics #21

Crash Course: Economics

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Jacob: I'm Jacob Clifford Adriene: and I'm Adriene Hill and welcome to Crash Course Economics. Jacob: In the last few videos we've said a lot of nice things about how competitive markets allocate resources. You know, they do a pretty good job. Adriene: But nobody's perfect. Sometimes markets get it wrong. Sometimes they fail. Sometimes the byproducts of production make people sick. Today we are going to talk about those market failures, and how economists address them. [Theme Music] In 2105, a story made the rounds online about a University of Maryland professor and an extra credit question: "Select whether you want 2 points or 6 points added onto your final paper grade. But there's a small catch...if more than 10% of the class selects 6 points, then no one gets any points." So, what would you do? The question alludes to one of the biggest problems with free markets: sometimes people have a personal incentive to do something that is against the collective interests of the group. Obviously, everyone wants at least some extra credit, but there is also an incentive to get even more points. In this situation, the professor reported that too many people chose 6 points and no one got extra credit. Let's say that your local government sent a similar proposition to every household in your city, "Select whether you want to pay \$20 or \$100 to fund the local fire department, but there's a small catch: if more than 50% of citizens choose \$20 there's not going to be enough money to have a fire department." This is the free rider problem. Free riders are people who benefit without paying. They are not necessarily evil, let's face it, you probably know someone that's illegally downloaded Game of Thrones, but they're responding to incentives -- why pay more, if I can get it for less? If too many people think like this, then we're all worse off and we're going to end up not getting the things we want like fire protection or a satisfying ending to Game of Thrones. So how do most cities get around the problem that some people will benefit even if they don't pay. The city doesn't ask for money, they demand money in the form of taxes. The reasoning is that fire protection is so essential that people shouldn't be allowed to opt out. Jacob: So things that are for our collective well being, like fire protection, schools, and national defense are often funded by the government. When markets alone fail to provide enough of these things, that's called market failures. These are often called public goods, but the technical definition of a public good is anything that has two characteristics: non-exclusion and non-rivalry. Non-exclusion is the idea that you can't exclude people that don't pay. For example, it's impossible to limit the benefits of national defense to only people that pay their taxes. People who pay no federal taxes still get the benefit of protection from bombs, and people who pay a lot of federal taxes don't get extra protection. Non-rivalry is the idea that one person's consumption of the good doesn't ruin it for other people. So, public parks are a great example. You can use it today, I can use it tomorrow; it can be shared. Ideally. If a good or service meets these two criteria it's unlikely that private firms will produce it, no matter how essential it is. Street lights and organizations that track and prevent the spread of diseases are pretty important, and if the government doesn't step in, we probably won't get them. Adriene: The incentive to do what's best for you, rather than what's best for everyone is the root cause of something economists call the Tragedy of the Commons. This is the idea that common goods that everyone has access to are often misused and exploited. It explains the cause of most of our environmental problems like air pollution, deforestation, the killing of endangered species, and overfishing. In many places in the world, there are more fish being pulled out of rivers, lakes, and oceans than are being born. This is not just bad for the fish; it's bad for the people doing the fishing. As these resources are depleted, fishermen find themselves without a job. So why aren't they conserving? Allowing fish to reproduce and generate more resources in the future? Well, look at the incentives. If a few environmentally conscious fishermen decide to give the fish time to spawn, then some other fisherman will harvest them instead. If you can't prevent other people from exploiting the resource, then you have an incentive to exploit it yourself and take

as much as you can, as quickly as you can. But, with everyone following that logic, the finite resource gets pillaged. The tragedy of the commons explains why fish stocks get depleted, the rainforest get cut down, and why endangered species get hunted for their hides or horns. There is an entire subfield of economics focused on address and solving these issues, it is called environmental economics. Jacob: The problem here is that unregulated markets sometimes don't produce the outcome that society wants. Remember, sometimes markets misallocate resources because they don't have the right price signals. There is no better example of this than what economists call externalities. Externalities are situations when there's an external costs or external benefits that accrue to other people or society as a whole. When other people are made worse off that's called a negative externality. When other people are made better off that is called a positive externality. Let's go to the Thought Bubble. Let's look at a TV factory that pollutes a river with toxic chemicals. This is definitely a negative externality. The factory has internal costs: it has to pay its workers, buy raw materials, pay for energy; and it uses those costs to determine how many TVs to produce. But there are also external costs associated with polluting the waterways, like dead fish, contaminated drinking water, and people getting sick. Those external costs are paid by people downstream, and they are likely to be ignored by the factory owner. The free market assumes that all the costs associated with producing TVs are accounted for within the price of those TVs, but, in this case, the market is wrong. The end result is a market failure because the factory is producing too many TVs. As for positive externalities. Think about education. More education is great for you. You'll likely generate more income and it makes you more interesting to talk to at parties. But there are also external benefits of your education. Everyone is actually better off. With more education you're more likely be a positive and productive member of society. And if you earn a higher income, that means more tax revenue. Now in both cases, negative and positive externalities, economists often look to the government to step in and solve the problem. For example, the government could tax the TV factory or subsidize education. In fact, externalities are the justification for almost everything the government does. When politicians, tax cigarettes, fund education, subsidize fuel efficient cars, or regulate financial markets, it's because they are convinced that free markets alone are not adjusting for externalities. Adriene: Thanks Thought Bubble. We've tried to explain the problem of externalities, now let's talk about the solutions. When the government tries to fix externalities they can use regulatory policies or market-based policies. Regulatory policies are simply rules established by government decree. Some people complain about regulation. They say, "the government can't tell me what to do." But let's be honest, it can. The government also spends a ton of time and money telling you what you can't do. Don't drive too fast. Don't build a house in Yellowstone. Don't kill anybody. It seems like the government probably should regulate some stuff. The question is, "how much should they regulate?" Even people who adamantly oppose government regulation probably agree that nuclear weapons and nerve gas shouldn't be on the shelves at Target. Let's go back to the TV factory example. To help solve the pollution externality, the government could ban the use of certain types of chemicals or set a production quota to limit the production of TVs or regulate what can be dumped in the river. In the US, the Environmental Protection Agency (EPA) has pushed for laws to control pollution, and these regulations have worked. Regulation can also create positive externalities. In some cases, the external benefits are perceived to be so high that the government essentially takes over the market. Consider education. Most countries have compulsory education which requires citizens to be educated up to a specific age and the government pays for schools through taxes. If the government didn't get involved, all education would be provided by private schools that would charge tuition; there might not be enough affordable schools to educate young people. The government funds education because they think that the external benefits, like literate,



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well-informed, erudite citizens, are so high it's worth forcing everyone to pay. Jacob: Another way that governments try to solve externalities is with market-based policies. These are policies designed to manipulate markets, prices, and incentives to correct for market failures. The best examples are taxes and subsidies. A tax on the production of TVs or on the chemicals the factory is using will decrease production and limit pollution. Federal grants that help subsidize college education will increase the amount of education people buy. In general, economists tend to prefer market-based policies. Take cigarettes. Cigarettes generate high external costs on society. There's second hand smoke and there's higher healthcare costs for everyone, due to smoking related illnesses. The government could force cigarettes companies to produce less, or just shut them down entirely, but instead they tax cigarettes. The tax drives up the price, consumers buy fewer cigarettes, and this addresses the negative externality. Now, this market-based approach has one key advantage over the regulatory approach. Instead of spending money on enforcing regulations, the government is earning tax revenue that can be used for purposes. In real life, though, governments often use both policies. In the US, the government taxes cigarette producers and regulates where people can smoke. It also restricts how tobacco companies can advertise, and supports anti-smoking campaigns designed to convince people to quit smoking. Seriously, you should stop smoking. Market-based approaches to reduce negative externalities are also used to fight climate change. Many economists argue that taxes on carbon-based fuels like coal, oil, and gas are a more effective way to deal with air pollution. Adriene: One oft-discussed market-based policy is emissions trading or "cap and trade." The government issues pollution permits and if your factory doesn't hold one of those permits, it can't pollute. But companies can buy or sell those permits. This sets up incentives to go green: if you can produce without pollution, you can make money by selling your permits. But if you operate a dirty plant, you have to pay for those extra permits. As controversial as cap and trade can be among American politicians, it's interesting to note that it's already been used successfully in the US. A cap and trade program to reduce acid rain pollution -- it worked! It cut sulfur dioxide emissions. According to a 2003 report from the Office of Management and Budget, "the Acid Rain Program accounted for the largest quantified human health benefits of any major federal regulatory program implemented in the last 10 years, with benefits exceeding costs by more than 40:1." Remember that extra credit question? What if the world's largest economies were given a similar proposition: "Select whether you want to decrease your pollution by 5% or 30%, with a small catch; if more than 50% of countries choose only 5% then climate change will make Earth unlivable." That simplifies the issue, but it does illustrate why it's so hard to address climate change. Individual countries might work to reduce carbon dioxide emissions, but they can't prevent other countries from polluting. It's the Tragedy of the Commons. In an unregulated global economy, where producers want to make products as cheaply as possible, there's an incentive to ignore international environment to get ahead. Global issues like climate change, human rights abuses, and nuclear proliferation can't be effectively addressed if countries don't work together. But that requires a lot of trust and a lot of commitment. Jacob: So markets aren't perfect. There are many cases when the government should get involved, and there's even some situations when the government should just take control. Adriene: The question isn't "which is better: free markets or government?" The question is "how can they work together to make our lives better?" Thanks for watching, we'll see you next week. Crash Course Economics is made with the help of all these fine people. You can support Crash Course at Patreon, a voluntary subscription service where your support helps keep Crash Course free for everyone, forever. And you get great rewards. Thanks for watching, and DFTBA!