PED

Estimated PED of some common products:

Elastic: Books (Amazon) - -4.00

Inelastic: Cigarettes - -0.25

Price Ceiling

**Drug price control in India**

Until June 2018, Indian government has fixed the ceiling prices of 851 medicines.

[positive] saving of Rs 11,463 crore to the public after the implementation of the Drugs Prices Control Order 2013

[negative] a lifesaving drug for children which has almost disappeared from the market after its price was cut from Rs 100-110 to Rs 10 per pack, November 2017. a serious shortage has emerged.

it can’t provide “vast quantities” of the drug for less than its manufacturing cost

**Price ceiling on gasoline in the US**

The 1970s, Nixon imposed a price ceiling on both crude oil and gasoline during the oil crisis of 1973

-Dealers sold gas on a first-come-first-served basis, and drivers had to wait in long lines to buy gasoline

Harvard University economist Joseph Kalt:

-saved consumers between $5 billion and $12 billion a year in gas costs

-stifling domestic oil production

-an artificial shortage of as much as 1.4 million barrels a day

Let prices rise:

oil companies an incentive to produce more

consumers an incentive to conserve

Negative production externalities

Indirect taxes: an upward shift of the MPC curve

Indirect Tax

In May 2016, the Australian Government announced that it would implement annual increases in tobacco excise of 12.5% up to and including 2020, raising the cost of a pack of cigarettes to $A40.

Currently, Australia has one of the highest prices for tobacco, around $A22 per pack of cigarettes (this is equivalent to around US$17), and this is expected to rise to up to $A40 per pack by 2020. For a normal smoker in 2020 who smokes a pack of cigarettes a day, the extra cost per year will be 12.5 thousand $A per year. After the government place, the tax on cigarettes, the total revenue per year of cigarettes per year rises to 17 billion $A. However, the effect on reducing the consumption of cigarettes did not work well, the consumption of cigarettes only decreases about 0.7% from 2015-2018.

Reason:

Increases in the cost of tobacco have been strongly promoted by the Australian public health community in the context of the considerable and growing, evidence that demonstrates that increasing the cost of tobacco is an effective strategy for getting people to decrease their use or quit, and for preventing uptake among children and youth.

Consequences:

1. Potential impacts on individual and family income

These excise increases have been widely praised by public health experts who claim that the increased cost will lead to a decrease in use. However, not all people will quit or substantially reduce consumption in response to the tax and, for those who do not, the tobacco tax is regressive. This means that for less affluent smokers who do not quit, tobacco taxes can increase inequalities, potentially reducing the income available for spending on housing, heating, food, etc.

2. Potential impacts on illicit trade

Higher prices can play a role in stimulating demand for illicit products, particularly in poorer communities. This means that it will be essential to monitor illicit trade in Australia in the context of the increasing cost of legal tobacco products and it may make sense to spend some of the additional revenue on enforcement in this area.

3. Potential opportunities for tobacco industry lobbying

Two most popular arguments deployed by industry interests against tobacco tax increases as being that tax increases: (1) stimulate illicit trade and (2) have regressive impacts. Both arguments have helped tobacco interests gain non-traditional allies and the illicit trade arguments contributed to the success.

A tax per unit of pollutants creates incentives for the firm to switch to less polluting technologies. (e.g. Carbon tax)

Case without impact: **Canada Carbon Tax**

The federal carbon tax is increasing on April 1 despite the economic pain due to COVID.

That scheduled rise from $20 per tonne to $30 per tonne is in keeping with the plan to raise it by $10 per tonne each year until 2022. For consumers, that translates to roughly an extra 2.5 cents per liter of gasoline at the pumps.

“Our plan on pricing pollution puts more money upfront into people's pockets than they would pay with the new price on pollution. We're going to continue to focus on putting more money in people's pockets to support them right across the country.” (said the prime minister)

Positive case:

**Sweden Carbon Tax works**

Sweden's carbon tax has reduced its emissions by 26% in the past 27 years. During that same period, its economy grew 78%.

**Estimated Benefit Huge**

The Congressional Budget Office estimated that a carbon tax starting at $20 per ton and increasing to $34.40 per ton in 10 years could have raised $1.2 trillion. That's on par with the amount raised by all other excise taxes.

(source: <https://www.thebalance.com/carbon-tax-definition-how-it-works-4158043>)

Tradable permits: provide incentives to switch to less polluting resources

**EU emissions trading System (来自tyy的ppt)**

Set up in 2005, the EU ETS is the world's first international emissions trading system. It remains the biggest one, accounting for over three-quarters of international carbon trading.

The EU ETS has proved that putting a price on carbon and trading in it can work. Emissions from installations in the system are falling as intended – by slightly over 8% compared to the beginning of phase 3 (2013-2020). In 2020, emissions from sectors covered by the system will be 21% lower than in 2005. In 2030, under the revised system, they will be 43% lower.

Government Regulations

**China regulation results in Air quality improvement**

In the months before the premier’s speech, the country released a national air quality action plan that required all urban areas to reduce concentrations of fine particulate matter pollution by at least 10 percent, more in some cities. The Beijing area was required to reduce pollution by 25 percent, and the city set aside an astounding $120 billion for that purpose.

To reach these targets, China prohibited new coal-fired power plants in the country’s most polluted regions, including the Beijing area. Existing plants were told to reduce their emissions. If they didn’t, the coal was replaced with natural gas. Large cities, including Beijing, Shanghai, and Guangzhou, restricted the number of cars on the road. The country also reduced its iron- and steel-making capacity and shut down coal mines.

As a result, Beijing cut air pollution by 35 percent; Shijiazhuang, the Hebei Province’s capital city, cut pollution by 39 percent; and Baoding, China’s most polluted city as of 2015, cut pollution by 38 percent. If China sustains these reductions, Greenstone finds that residents would see their lifespans extended by 2.4 years on average. The roughly 20 million residents in Beijing would live 3.3 years longer, while those in Shijiazhuang and Baoding would add 5.3 years and 4.5 years onto their lives, respectively. These improvements in life expectancy would be experienced by people of all ages, not just the young and old.

(source: <https://epic.uchicago.edu/news/china-declared-a-war-on-pollution-and-four-years-later-its-winning/>)

Correcting negative consumption externalities

Market-based policies: the imposition of indirect (excise) taxes

After two tax increases in 2009 and 2015, Chinese tobacco tax revenue has reached 59% of the total sale price, but this is far below the world average of 75%.

People with low income will decrease consumption of cigarettes since according to Xinhua Website, about 17.3% of the annual income of the rural population in China is used for cigarette consumption and they cannot afford more expensive cigarettes with taxation.

Minimum price

If this stands for minimum support price, then the case is plausible to be presented.

The government set up Agriculture Price Commission in 1965, with the aim to advise the government on evolving a balanced and integrated price structure. In 1980, the framework of the policy was modified. This time the focus was on balancing the demand and supply of food grains. It was reflected in the revised terms of reference of APC (which was later renamed as Commission for Agricultural Costs and Prices) with a shift from maximizing the production to developing a production pattern consistent with the overall needs of the economy (Acharya, 1997) [1] . The Government announces Minimum Support Price for 28 commodities at present by the recommendation of Commission for Agricultural Costs and Prices (CACP). Same commodities are procured by the Government with wheat and rice having the lion’s share in the procurement. Reason being both commodities are distributed through Public Distribution System. In the budget of 2018 the government announced increase in Minimum Support Price and pay 1.5 times the cost of production.

If stands for minimum wage, then the case following is plausible to be presented.

One of the labor policies in China is the minimum wage regulations. The policy enacts the minimum payment to laborers if laborers work according to the labor contract. If the employer doesn’t pay the minimum wage, the employer will be legally forced to pay the wage, and the employer will face an extra penalty under certain circumstances. The minimum wage regulations are introduced to protect the legal rights and interests of laborers and guarantee the basic living standards of laborers and their family members. The policy is targeted at laborers in all incorporated businesses, unincorporated businesses, government agencies, and public institutions in China. The policy is enacted by the Ministry of Labor and Social Security, PRC on 03/01/2004. The specific standard of the minimum wage is determined by the local government considering local living expenses, the average wage, the economic development, and the unemployment rate. For example, the minimum wage in Shanghai in 2020 is 2480 yuan per month for full-time laborers and 22 yuan per hour for part-time laborers.

Government regulations: ban or limit consumer activities that impose costs on third parties

In 2017, Kenya outlawed single-use plastic bags, banning the use, manufacture, and importation of plastic carrier bags constructed with handles and with or without gussets and flat bags constructed without handles and with or without gussets meant for household and commercial packaging. Anyone violating this law could face a fine of $500 or even a prison sentence. The ban takes effect quickly and has been considered successful at present.

Local authorities in Scotland have an alcohol byelaw that prohibits the consumption of alcohol in designated public places. The Byelaws can significantly reduce the nuisance and disorder associated with public drinkings, such as overconsumption of alcohol and violence. The Scottish Government appears to be supportive of appropriate byelaw proposals.

In Hongkong, smoking is banned in all indoor areas of workplaces and public places, including restaurants and bars, as well as certain outdoor areas, including open areas of schools, leisure facilities, bathing beaches, and public transport facilities. Persons who smoke or carry a lighted cigarette, cigar, or pipe in statutory no-smoking areas or on public transport are liable to a fixed penalty of HK$1500 under the Fixed Penalty (Smoking Offences) Ordinance.

Advertising and campaigns: persuade consumers to buy fewer goods with negative externalities

**2012 Anti-smoking Campaign proved successful**

According to a report published in The Lancet Medical Journal in September 2013, the Centers for Disease Control and Prevention's (CDC) 2012 Tips From Former Smokers campaign motivated 1.6 million smokers to make a quit attempt. More than 100,000 U.S. smokers have quit for good as a result of the 2012 campaign.

(source: <https://tobaccofreeflorida.com/blog/powerfulads/>)

Correcting positive production externalities

direct government provision

subsidy: granting a subsidy equal to the external benefit

**Chinese subsidy for chips**

The Chinese subsidy for chips (芯片) might be an example of this.

Several provinces in China have subsidies for Multi-Project Wafer (MPW) chip development of private companies, with the yearly subsidy maximum value 1 million to more than 10 million yuan. (Shanghai, for example, has the maximum subsidy of 15,000,000 for a single company.)

(Source: <http://www.openpcba.com/web/contents/get?id=3663&tid=15>)

The benefit brought by chip development is unquantifiable, but it could be seen that the government pays great attention to it.

Correcting positive consumption externalities

legislation

Our 9-year Compulsory education program in China is the best example of this. (The coverage rate has achieved 99.3%, according to <https://www.un.org/chinese/millenniumgoals/china08/2_1.html>) (Emphasize that education is compulsory.)

advertising: to persuade consumers to buy more

Shown by the study of NATURE, advertisements on vaccines increase the likelihood of clicks and future searches by up to 116% in people who express an interest in the disease or the vaccine. (Source: <https://www.nature.com/articles/s41746-021-00395-7>)

direct government provision

Chinese 9-year Compulsory education program is the best example of this. (The coverage rate has achieved 99.3%, according to <https://www.un.org/chinese/millenniumgoals/china08/2_1.html>) (Emphasis on that education is free and provided by the Chinese government.)

subsidy

Farm1

<https://www.thebalance.com/farm-subsidies-4173885>

In 2017, the combined agriculture and food industry made up 5.4% of the U.S. economy.3 It employed 11% of workers. Farming itself contributed 1% of [gross domestic product](https://www.thebalance.com/what-is-gdp-definition-of-gross-domestic-product-3306038) and employed 1.3% of workers.

Corn is the nation's biggest crop.4 Over 15 billion bushels were grown in 2017, with 15% exported. The corn belt is Indiana, Illinois, Iowa, Missouri, Nebraska, and Kansas. A third of Iowa's economy depends on farming. There are 2.1 million U.S. farms, of which 97% are family-owned.5 There is a competitive advantage in understanding local soil conditions and weather patterns. Families pass this lore on from generation to generation.

Around 3% are large farms defined as having an income of $1 million or more. Most of U.S. vegetable and dairy sales come from these large farms. Most farms focus on one commodity. Almost one out of five were started in the last decade.

Pros

America's food supply must be protected from extreme weather like [droughts](https://www.thebalance.com/drought-definition-effects-examples-and-solutions-4157896), tornadoes, and hurricanes. The government has a role in ensuring food production during wars, recessions, and other economic crises. Food production is more important to the nation's welfare than other business products.

Farms are susceptible to [commodity](https://www.thebalance.com/what-are-commodities-3306236) price dips. Commodities traders determine the prices on an open exchange. They trade [futures contracts](https://www.thebalance.com/what-is-a-futures-contract-3305930) that promise to buy or sell at an agreed-upon price on a specific date. Farmers can take their chances on what the price will be when it's time to harvest. They can lock in a price with a futures contract.6 Either way, they are betting that their costs will be lower than their future revenue.

Crops and animals are vulnerable to pathogens, diseases, and weather. In 2012, [droughts](https://www.thebalance.com/drought-definition-effects-examples-and-solutions-4157896) forced farmers to slaughter cattle that had become too expensive to feed. In 2015, egg prices skyrocketed 17.8% due to avian influenza. In 2018, hurricanes caused temporary price spikes as the production of pecans, chickens, and hogs were impacted.7 8

Farmers rely on loans. They borrow in the spring to plant seeds and pay the debt in the fall when they sell their harvest. This makes farming feel like a gamble. An emergency expense or several years of low prices can be catastrophic.

Farms can't move. They can go out of business if a local processor cancels their contracts or goes bankrupt.

Cons

U.S. farms are in one of the world's most favorable geographic regions. It has rich soil, abundant rainfall, and access to rivers for irrigation when rainfall fails.

Today's farms also have all the advantages of modern businesses. They have highly trained labor, computerized equipment, and cutting-edge chemical research in fertilizers and seeds.

Between 1995 and 2019, the top 10% of recipients received 78% of the $223.5 billion doled out, according to EWG.9 The top 1% received 26% of the payments. That averages out to $1.7 million per company.

Fifty people on the Forbes 400 list of the wealthiest Americans received farm subsidies.10 On the other hand, 62% of U.S. farms did not receive any subsidies.

U.S. farm subsidies block global trade. The [Doha Round of trade talks](https://www.thebalance.com/what-is-the-doha-round-of-trade-talks-3306365) and the Transatlantic Trade and Investment Partnership failed partly because of U.S. and European farm subsidies.11 Doha would have eliminated tariffs between every country in the [World Trade Organization](https://www.thebalance.com/what-is-the-world-trade-organization-wto-3306366). The TTIP would have lowered trade barriers between the United States and the European Union.

Public data from 2009-2013 shows "211" and "985" universities have taken away 70% of Chinese government scientific research funds, of which "211" universities took away 19.3%, which was 51.06 billion yuan, and "985" universities took away 52.7%, which was 139.494 billion yuan.

How Farm Subsidies Affect the Economy

The federal crop insurance program may be encouraging farmers to plant crops that aren't drought resistant.25 The insurance program encourages them to plant the same crops year after year, regardless of crop yield. As a result, it keeps them from switching to drought-resistant crops. This worsens drought in the Midwest. Between 2006 and 2015, the Midwest was in an extended drought.

The drought is forcing farmers to drain the groundwater from the Ogallala Aquifer eight times faster than rain is putting it back.26 The Aquifer stretches from South Dakota to Texas. It supplies 30% of the nation's irrigation water. At the current rate of use, it will dry up within the century. Scientists say it would take 6,000 years for the rain to refill the aquifer.

Corn for cattle feed is the most significant culprit, fattening 40% of the nation's grain-fed beef. Other subsidies encourage farmers to grow corn for ethanol biofuel. The number of ethanol production facilities in the High Plains region has doubled. That drains an additional 120 billion gallons a year from the aquifer.

Subsidies for Texas cotton is $3 billion a year. It's shipped to China, where it's made into the cheap clothing sold in American stores.

Farm subsidies bills include food stamp funding. That ensures urban members of Congress will support the farm subsidy bills.

Farm2

The Farm Security and Rural Investment Act of 2002, also known as the 2002 U.S. Farm Bill directs approximately $16.5 billion of government funding toward agricultural subsidies each year. If the price of wheat in 2002 was $3.80, farmers would get an extra 58¢ per bushel (52¢ plus the 6¢ price difference).This funding has had a great effect on the production of grains, oilseeds, and upland cotton. The United States paid allegedly around $20 billion in 2005 to farmers in direct subsidies as "farm income stabilization"  via farm bills. Overall agricultural subsidies in 2010 were estimated at $172 billion by a European agricultural industry association; however, the majority of this estimate consists of food stamps and other consumer subsidies, so it is not comparable to the 2005 estimate.

Education

At least 4 in 5 of Hong Kong‘s 52 international schools received more than $23.22 million in government subsidies as part of the coronavirus relief package, a Post Analysis has found.

Reason:

The government’s HK$81 billion Employment Support Scheme is designed to save jobs during the Covid-19 pandemic, offering a monthly subsidy to cover up to 50 per cent of employees’ wages, capped at HK$9,000 per worker. The first round extended from June to August. Employers had to apply for the subsidy and pledge not to lay off any staff. The ESF received the money to help the school community as a whole, and this should be passed onto the parents, because parents have not stopped paying school fees.

Renewable resource

In the U.S. alone in 2016, $18.4 billion was spent on energy subsidies; $11 billion of that went to renewable energy and $3 billion to energy efficiency.

A study by the University of Texas projected that U.S. energy subsidies per megawatt hour in 2019 would be $0.5 for coal, $1- $2 for oil and natural gas, $15- $57 for wind and $43- $320 for solar. Many of the renewable energy subsidies come in the form of a Production Tax Credit (PTC) of 2.3 cents per kilowatt hour. Wholesale prices for electricity in 2017 were between approximately 2.9 cents to 5.6 cents per kilowatt hour. Therefore the wind production tax credit covers 30% to 60% of wholesale electricity prices.

What have those subsidies accomplished? One thing subsidies have done is help bring down the cost curve for wind and solar energy. Today we see dramatically lower costs for both wind and solar. Without subsidies going forward, Skelly believes costs for both wind and solar will be about 3.0 cents per kilowatt hour in the U.S.

But adoption varies across the states. The Texas model of wide-open energy markets since 1999 has led to an integrated marketplace where solar, especially, and natural gas seamlessly provide energy to all Texans. Costs for wind and solar are coming down, and they are competing with traditional