

Chapter 8 | Public Goods, Shared Resources, and the Role of Government

Markets organize the exchange of many goods and services, but not all goods behave in the same way. A meal, a fishing ground, a flood-control system, and a streaming subscription involve different rules of access and use. These differences affect whether private markets can provide them efficiently, whether users have incentives to conserve them, and when government or collective action may be necessary.

Economists classify goods according to two properties: excludability and rivalry. These concepts help explain why markets work well for some goods, why other goods tend to be underprovided or overused, and why public policy takes different forms across sectors.

The classification is not only a technical exercise. It helps answer practical questions. Who should pay for flood protection? Why do fisheries need closed seasons? When can a toll road be privately operated? Why do communities sometimes manage forests or irrigation systems better than distant agencies? The answers depend on the nature of the good, the institutions governing it, and the distribution of costs and benefits.

A. Excludability and Rivalry

A good is excludable when access can be limited to people who pay, hold a permit, possess a membership, or receive authorization. A cinema can deny entry to someone without a ticket. A streaming platform can block users without a subscription.

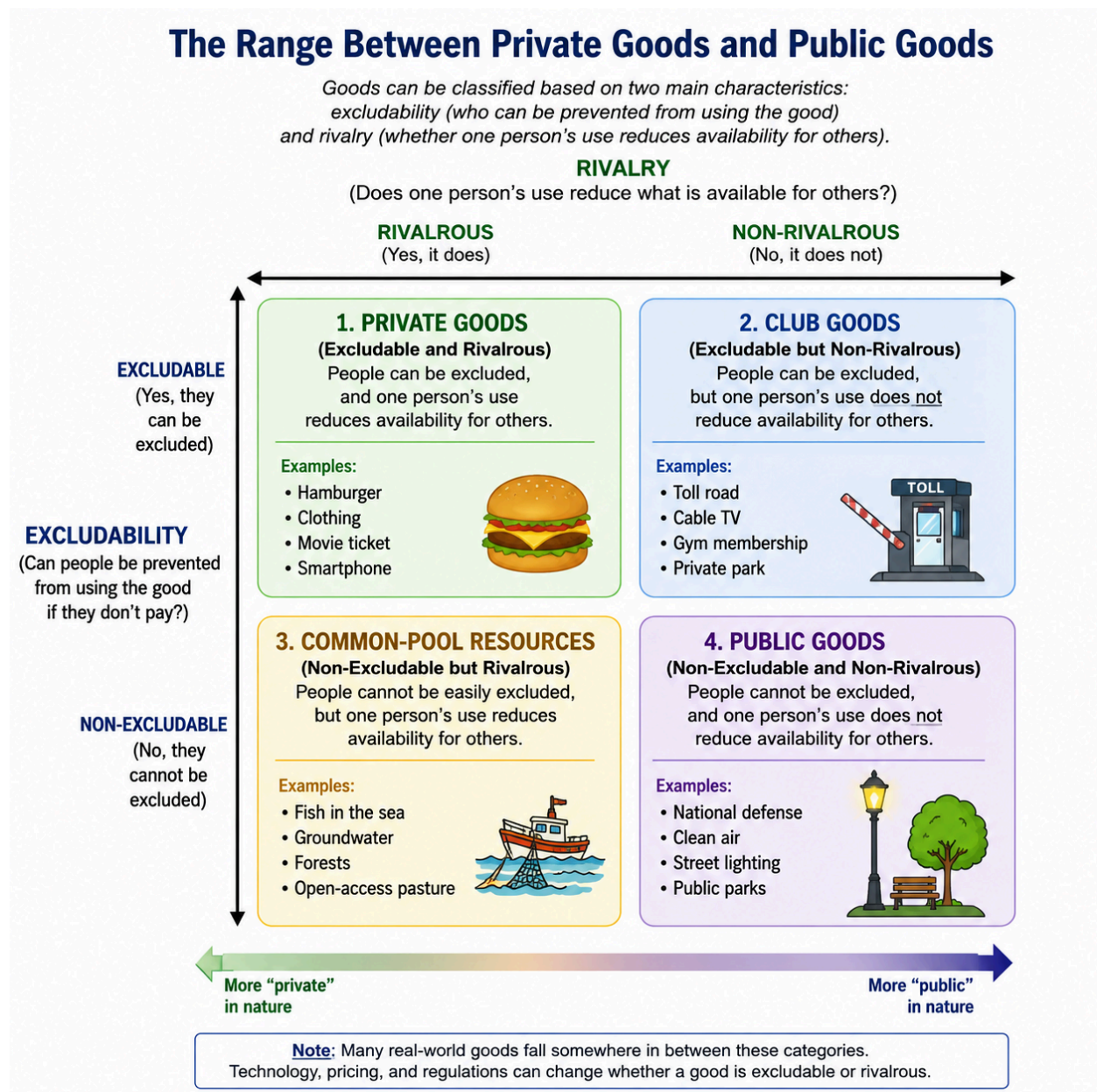
A good is non-excludable when preventing access is difficult, expensive, or undesirable. Once a street is illuminated, people passing through generally benefit whether or not they personally contributed to the cost.

A good is rivalrous when one person's use reduces what remains available to others. A jeepney seat is rivalrous because once it is occupied, another passenger cannot use the same seat. Fish in a fishing ground are also rivalrous because fish caught by one vessel are no longer available to others.

A good is non-rivalrous when one person can benefit without significantly reducing the benefit available to someone else. A weather warning can be received by many people at the same time. One household's use of the information does not reduce its usefulness to another.

Excludability and rivalry are not always permanent features. Technology, congestion, law, and institutional design can change them. A road may be largely non-rivalrous when traffic is light but highly rivalrous during rush hour. Digital content is technically non-rivalrous, but subscription systems make it excludable.

B. Four Types of Goods



Private Goods

Private goods are both excludable and rivalrous. Food, clothing, appliances, and furniture are common examples. Sellers can normally prevent access until payment is made, and one unit consumed by one person is no longer available to another.

Markets are generally well suited to private goods because firms can charge users directly. Competition can guide resources toward products consumers are willing and able to buy. However, private transactions may still create costs or benefits for other people. A cigarette is a private good, but secondhand smoke affects bystanders. A private vehicle is a private good, but its use can contribute to congestion and air pollution.

Public Goods

Public goods are non-excludable and non-rivalrous. National defense, street lighting, epidemic surveillance, and some forms of flood protection are examples.

The central problem is financing. Once the good is provided, people can benefit even if they did not pay. This creates the free-rider problem. If many people wait for others to contribute, private provision may be too small even when the community values the good.

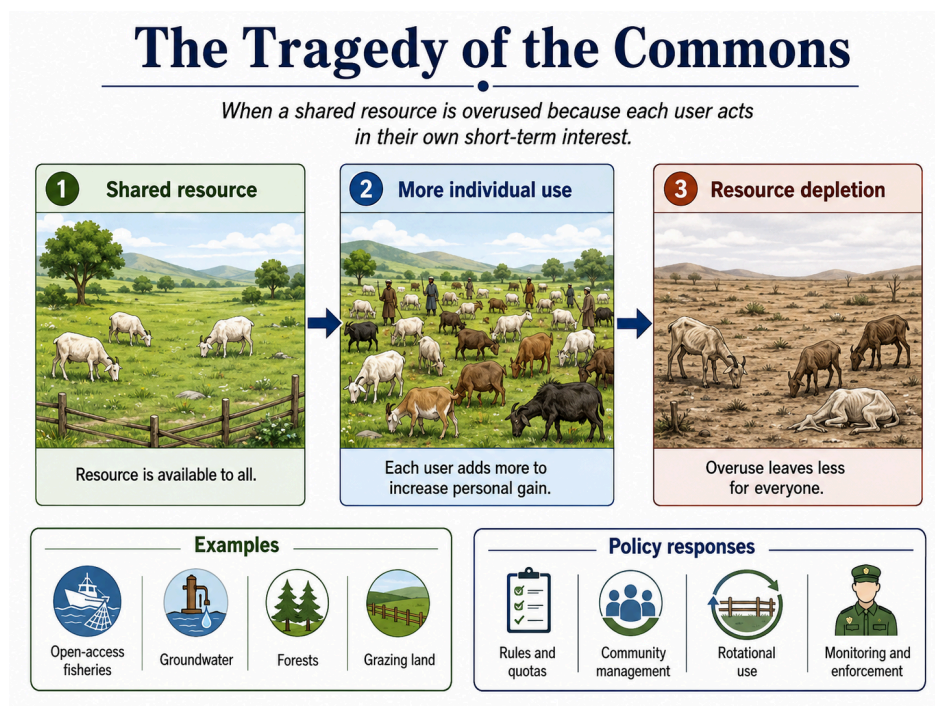
Free riding exists when other individuals benefit from another person's consumption of a good, losing the incentive for that individual to actually pay and internalize the cost of the provision of good. This is a common problem when excluding individuals from consuming the good is challenging.

Government often finances public goods through taxation because compulsory contributions overcome the free-rider problem. Direct public provision is not the only option. Government may also contract private firms to build or maintain the service while keeping financing and access public.

Common-Pool Resources

Common-pool resources make it difficult to exclude people from using, but they are rivalrous. Fisheries, forests, groundwater basins, irrigation water, and grazing lands often have these characteristics.

Because each user receives the benefit of additional extraction while the cost of depletion is shared by many, users may take more than the resource can replace. This is the problem often called the tragedy of the commons.



The phrase should not be interpreted to mean that every shared resource is destined for destruction. Outcomes depend on rules, monitoring, trust, enforcement, ecological conditions, and the power of different users. Shared resources can be degraded, privatized, regulated by government, or successfully governed by communities.

Club Goods

Club goods are excludable but largely non-rivalrous until congestion occurs. Subscription streaming, private parks, toll roads with light traffic, and membership facilities are examples.

Firms can charge users because access can be controlled. However, a club good may become rivalrous when too many people use it at the same time. A toll expressway can accommodate additional vehicles with little effect when traffic is light, but congestion reduces the quality of the service for everyone.

Policy questions arise when club goods are supplied by a monopoly, use public land, or provide an essential service. Government may regulate prices, service standards, access conditions, and contract terms.

C. Problems and Policy Approaches by Type of Good

Private Goods and Externalities

Private markets may exchange a good efficiently between buyer and seller while imposing costs on third parties. These spillover effects are called externalities. Pollution, secondhand smoke, noise, and traffic congestion are negative externalities. Vaccination, education, and research can create positive externalities because their benefits extend beyond the person directly paying.

Government may address negative externalities through taxes, charges, standards, liability rules, zoning, or restrictions on use. Positive externalities may be encouraged through subsidies, public financing, or direct provision.

Case Study: Smoking, Tobacco Taxes, and Smoke-Free Rules

Cigarettes are **private goods**. A person can be prevented from obtaining them without payment, and a cigarette consumed by one person cannot be consumed by someone else. In economic terms, cigarettes are both **excludable** and **rival**. However, smoking also creates **negative externalities**. The smoker considers the price of the cigarette and the personal effects of smoking, but part of the cost falls on other people. Family members, co-workers, restaurant employees, commuters, and children may be exposed to secondhand smoke. The health system may also bear part of the cost of treating tobacco-related diseases, especially when treatment is publicly financed.

The World Health Organization states that there is no safe level of exposure to secondhand smoke. Exposure can cause serious cardiovascular and respiratory diseases, cancer, and other health problems among people who do not smoke (WHO).

This creates a gap between **private cost** and **social cost**:

Social cost of smoking = cost to the smoker + costs imposed on other people and society

Because smokers do not pay all these external costs when they purchase cigarettes, an unregulated market may produce more smoking than is socially desirable.

Why Government Uses Several Policies

The Philippine government uses multiple policies to reduce tobacco harm. It has combined taxes, health information, advertising restrictions, smoke-free rules, and health programs. Each policy addresses a different part of the problem.

1. Excise Taxes Raise the Price of Smoking

An **excise tax** is a tax imposed on a specific product. Republic Act No. 10351, known as the Sin Tax Reform Law of 2012, restructured the excise taxes on tobacco and alcohol products. It simplified the tobacco-tax structure, increased rates, and directed part of the additional revenue toward health-related spending ("Republic Act No. 10351," 2012).

Later legislation increased tobacco taxes further. Republic Act No. 11346, enacted in 2019, raised excise taxes on cigarettes and imposed taxes on heated tobacco and vapor products. It also earmarked a portion of collections from tobacco and other products to help finance Universal Health Care ("Republic Act No. 11346," 2019).

The economic purpose of a tobacco tax is not only to collect revenue. The tax raises the retail price of cigarettes, making smoking more expensive. A higher price can discourage people from starting, encourage smokers to quit, and reduce the number of cigarettes consumed by those who continue smoking.

For taxation to change behavior, however, the price increase must be **large enough to reduce affordability**. A very small tax increase may have little effect if incomes and cigarette prices are also rising or if manufacturers absorb part of the tax. WHO guidance emphasizes that tobacco-tax policy should raise prices sufficiently to reduce smoking prevalence and consumption. WHO has also recommended taxes amounting to at least 70 percent of the final retail price as a benchmark for strong tobacco taxation (WHO, 2014, 2018).

This matters because demand for cigarettes can be relatively inelastic among people who are already addicted. A modest price increase may not cause a large immediate decline in consumption. Larger and repeated tax increases are more likely to affect behavior, particularly among young people and low-income consumers, who are generally more price-sensitive.

Key idea: A tobacco tax discourages smoking only when it raises the price enough to make cigarettes significantly less affordable. Tax rates should also be adjusted regularly. When taxes remain fixed while incomes and general prices rise, cigarettes can become more affordable again. Tax policy must therefore consider inflation, income growth, cheaper brands, and the possibility that consumers will switch to lower-priced tobacco products.

2. Taxes Help Make Smokers Face More of the Social Cost

A tobacco excise tax can also be understood as a way of making the market price reflect more of smoking's social cost. Without the tax, the cigarette price mainly reflects production, distribution, marketing, and business profit. It does not fully include the harm imposed on non-smokers or the treatment costs borne by the health system.

The tax does not calculate every external cost exactly. Instead, it raises the private cost of smoking and reduces consumption while generating public revenue. When part of the revenue finances health services, the policy also helps pay for some of the social costs created by tobacco use.

This does not mean that tobacco taxes completely solve the problem. Some smokers may continue despite higher prices. Illicit trade, tax avoidance, and switching to cheaper products can weaken the policy. Enforcement and a well-designed tax structure remain important.

3. Graphic Health Warnings Improve Information

Consumers may underestimate the long-term risks of smoking, particularly when addiction begins at a young age. Tobacco companies may also use branding, packaging, and advertising to associate smoking with confidence, independence, success, or social acceptance. Republic Act No. 10643 requires graphic health warnings on tobacco packaging. These warnings combine images and text to communicate the health consequences of tobacco use ("Republic Act No. 10643," 2014).

Graphic warnings address an **information problem**. They make health risks more visible at the point of purchase and reduce the ability of packaging to function only as advertising.

Information alone may not be sufficient because nicotine is addictive. A smoker may understand the risks but still find it difficult to quit. Health warnings are therefore more effective when combined with taxation, cessation support, restrictions on advertising, and smoke-free rules.

4. Advertising Restrictions Reduce Promotion and Youth Exposure

The Tobacco Regulation Act of 2003, Republic Act No. 9211, established rules on tobacco advertising, sponsorship, sales, labeling, and smoking in specified public places ("Republic Act No. 9211," 2003). Advertising restrictions respond to the concern that tobacco promotion can influence preferences, normalize smoking, and encourage young people to begin using an addictive product before they fully understand its long-term consequences.

From an economic perspective, consumer preferences are not always formed independently. Businesses invest in advertising to shape how products are perceived. Regulation limits the use of persuasive marketing when the product creates large health costs and addiction.

5. Smoke-Free Rules Protect Other People

Taxes and health warnings mainly influence the smoker's decision. Smoke-free rules directly protect people who may be exposed without choosing to smoke. Executive Order No. 26, issued in 2017, established smoke-free environments in public and enclosed places. It prohibits smoking in covered public places, public vehicles, and other enclosed areas, subject to the rules governing designated smoking areas ("Executive Order No. 26," 2017).

Smoke-free regulation addresses the externality directly. A person may decide to smoke, but that choice does not create a right to expose other people to tobacco smoke in shared spaces. These rules are especially important for workers. A restaurant employee, security guard, driver, or service worker may not be able to avoid exposure without giving up income. Describing exposure as a matter of individual choice ignores differences in bargaining power and control over the workplace.

Smoke-free rules therefore establish a minimum public-health standard rather than leaving protection to voluntary agreements between smokers and bystanders.

Why the Policies Work Better Together

Each policy addresses a different market problem:

	Main economic problem addressed
Policy	

Tobacco excise tax	Cigarettes are too affordable and their price does not reflect the full social cost
Graphic health warnings	Consumers may lack clear or usable information about risks
Advertising restrictions	Marketing may shape preferences and encourage initiation
Smoke-free rules	Smoking imposes health costs on non-smokers
Health programs and cessation support	Addiction makes it difficult for smokers to respond to information and prices alone
Enforcement against illicit trade	Untaxed and illegal products weaken tax and health policies

A tax can reduce consumption, but it cannot fully protect someone seated beside a smoker. A smoke-free rule protects bystanders, but it may not discourage smoking at home. A warning label provides information, but addiction can limit its effect. This is why tobacco control usually combines **price incentives, information, regulation, enforcement, and health services**.

Equity and the Burden on Poor Households

Tobacco taxes are sometimes criticized because low-income smokers spend a larger share of their income on cigarettes. That concern is important, but it does not capture the full effect. Poor households are also more vulnerable to the financial consequences of smoking. Money spent on cigarettes cannot be used for food, education, transport, housing, or medicine. Tobacco-related illness can reduce income and create medical expenses that the household is poorly equipped to absorb.

When higher taxes lead smokers to quit or reduce consumption, low-income households may gain both health and disposable income. These benefits are more likely when tax increases are accompanied by accessible cessation services and when part of the revenue supports public health programs.

The policy objective should therefore be to help people stop smoking, not merely to collect more money from those who continue.

Economic Insight

The smoking case shows why the classification of a good does not by itself determine whether government should intervene. Cigarettes are private goods, but their consumption creates costs that extend beyond the buyer and seller.

Government responds by:

- raising the price through excise taxes;
- informing consumers through health warnings;
- limiting advertising and promotion;
- protecting non-smokers through smoke-free rules;
- and using part of the revenue to support health programs.

Private consumption may require public regulation when individual choices impose significant costs on other people.

The case also shows why policy design matters. Tobacco taxes must raise prices enough to discourage consumption. Smoke-free rules must be enforced. Health warnings must be clear and visible. Support for quitting must be available. No single instrument can address every dimension of tobacco harm.

Guide Questions

1. Why are cigarettes classified as private goods even though smoking affects other people?
2. What external costs are created by smoking?
3. Why must tobacco taxes raise cigarette prices substantially to reduce smoking?
4. How do graphic warnings and advertising restrictions address information and behavioral problems?
5. Why are smoke-free rules necessary even when smokers already pay tobacco taxes?
6. How can tobacco-tax revenue be used to reduce the health and economic burden of smoking?
7. Why is a combination of taxes, information, regulation, and health services more effective than relying on only one policy?

Public Goods and the Free-Rider Problem

A neighborhood may value street lighting, drainage, or mosquito control but fail to provide enough through voluntary contributions. Each household has an incentive to wait for others to pay because the benefit cannot easily be withheld.

Taxes are one response, but public financing does not guarantee good results. Government must still choose the right projects, procure them honestly, maintain them, and evaluate whether they reduce the intended risk.

Flood-control spending also illustrates government failure. Poor planning, fragmented projects, weak maintenance, cost overruns, and corruption can leave communities exposed despite large public budgets. Public goods require public financing, but they also require accountability and competent administration.

Club Goods, Congestion, and Regulation

Club goods can often be provided by private firms because non-payers can be excluded. Toll roads, subscription networks, and gated facilities use fees to finance construction and maintenance.

Congestion changes the economics. When road capacity becomes scarce, one additional vehicle slows other users. The road becomes rivalrous during peak periods. Policy responses may include congestion pricing, peak and off-peak tolls, investment in public transport, service standards, and limits on monopoly pricing.

The appropriate policy depends on the objective. Building more road capacity may temporarily reduce congestion but can also encourage additional driving. Pricing can manage demand, but it may burden lower-income users unless affordable transport alternatives exist.

Case Study: Should Drivers Pay to Use EDSA During Rush Hour?

EDSA is one of Metro Manila's most important roads. It connects residential areas, business districts, shopping centers, transport terminals, and major highways. Every day, private cars, motorcycles, buses, delivery vehicles, taxis, and other vehicles compete for limited road space.

When too many vehicles enter the road at the same time, traffic slows for everyone. Each driver considers the personal benefit of using EDSA, but may not fully consider the additional delay imposed on thousands of other road users. Congestion is therefore a **negative externality**.

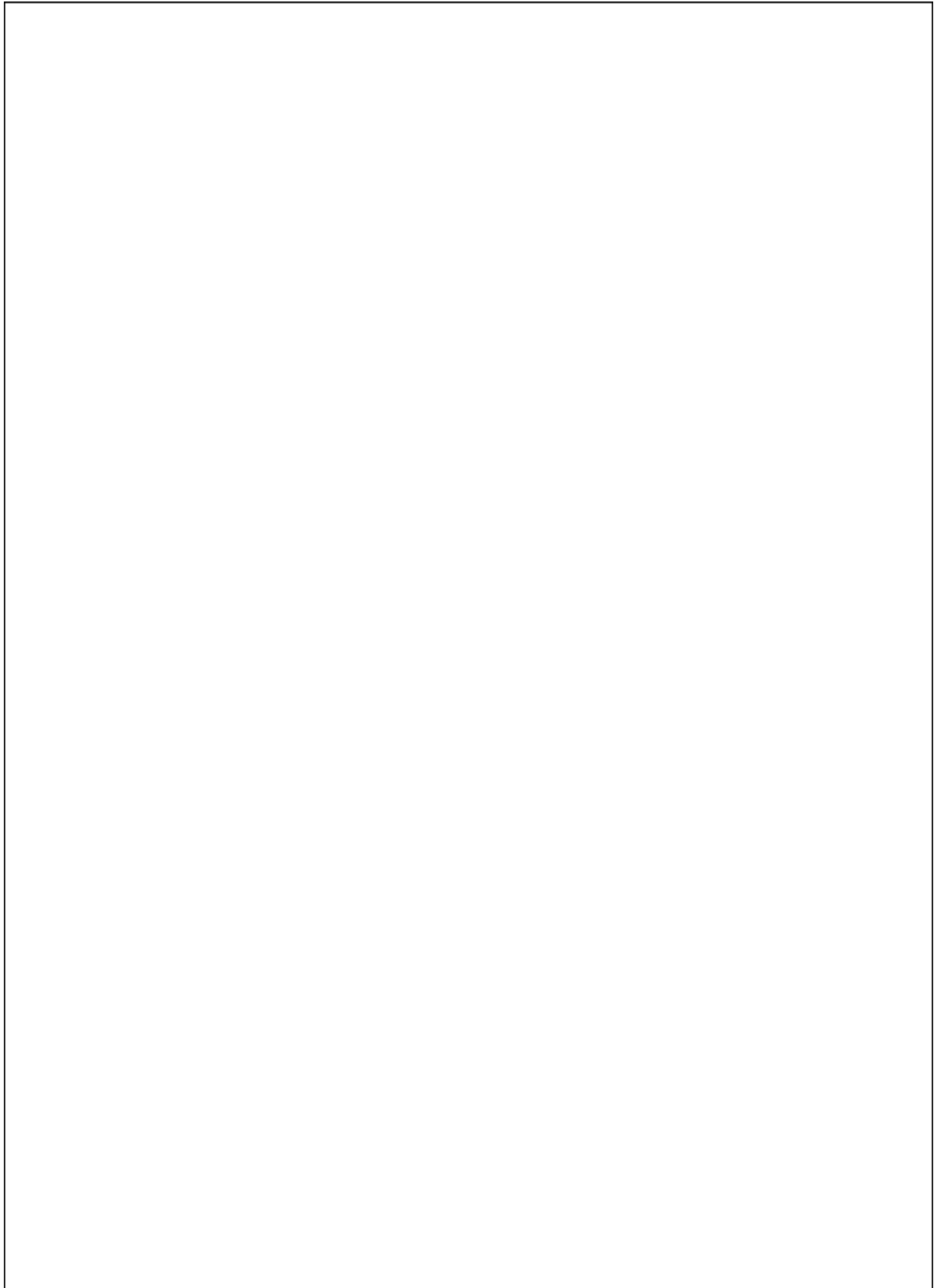
A driver entering a crowded road adds only one vehicle. However, when many people make the same decision, the combined result is longer travel time, wasted fuel, unreliable deliveries, air pollution, stress, and lost productive time.

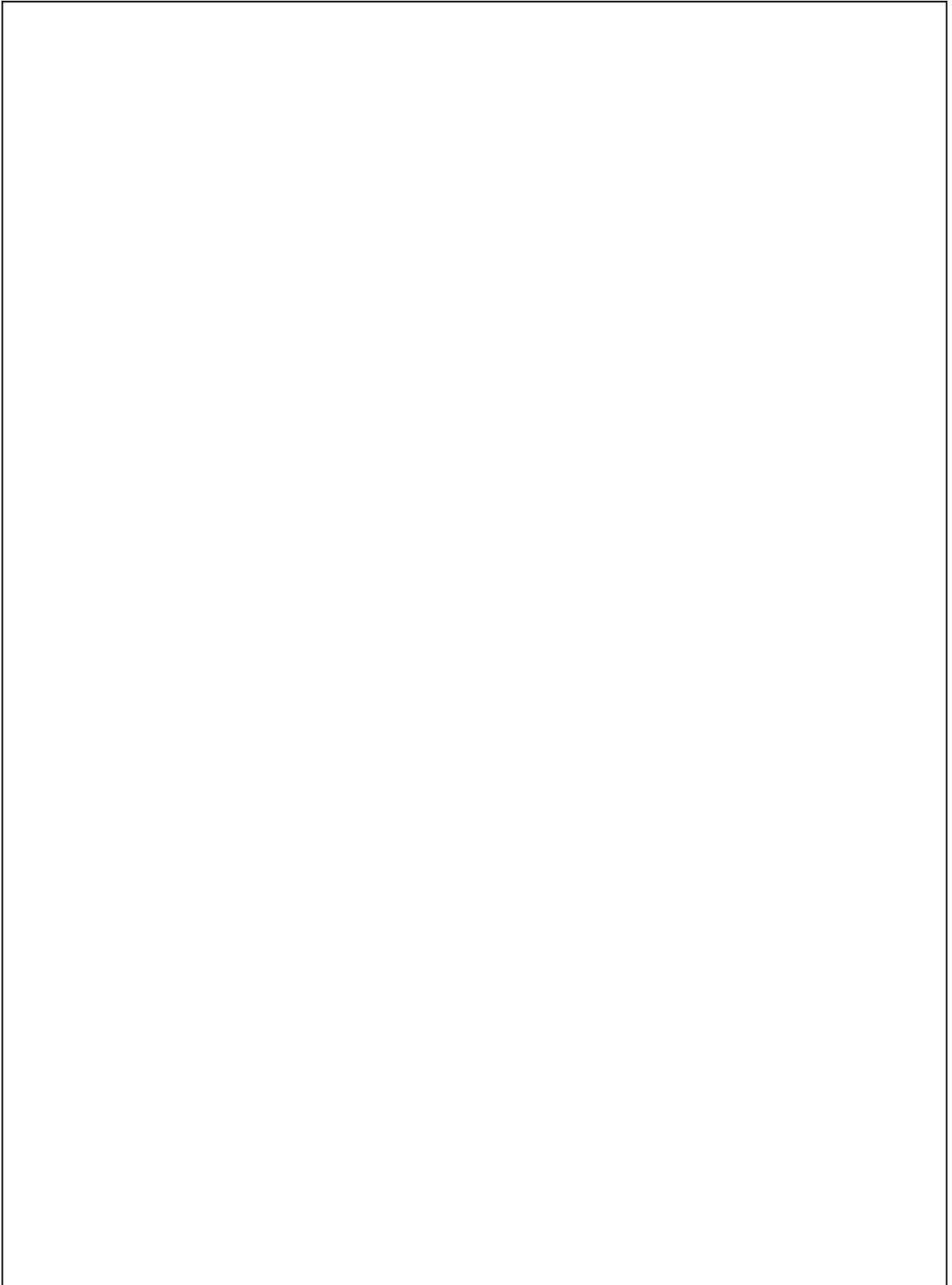
What Is Congestion Pricing?

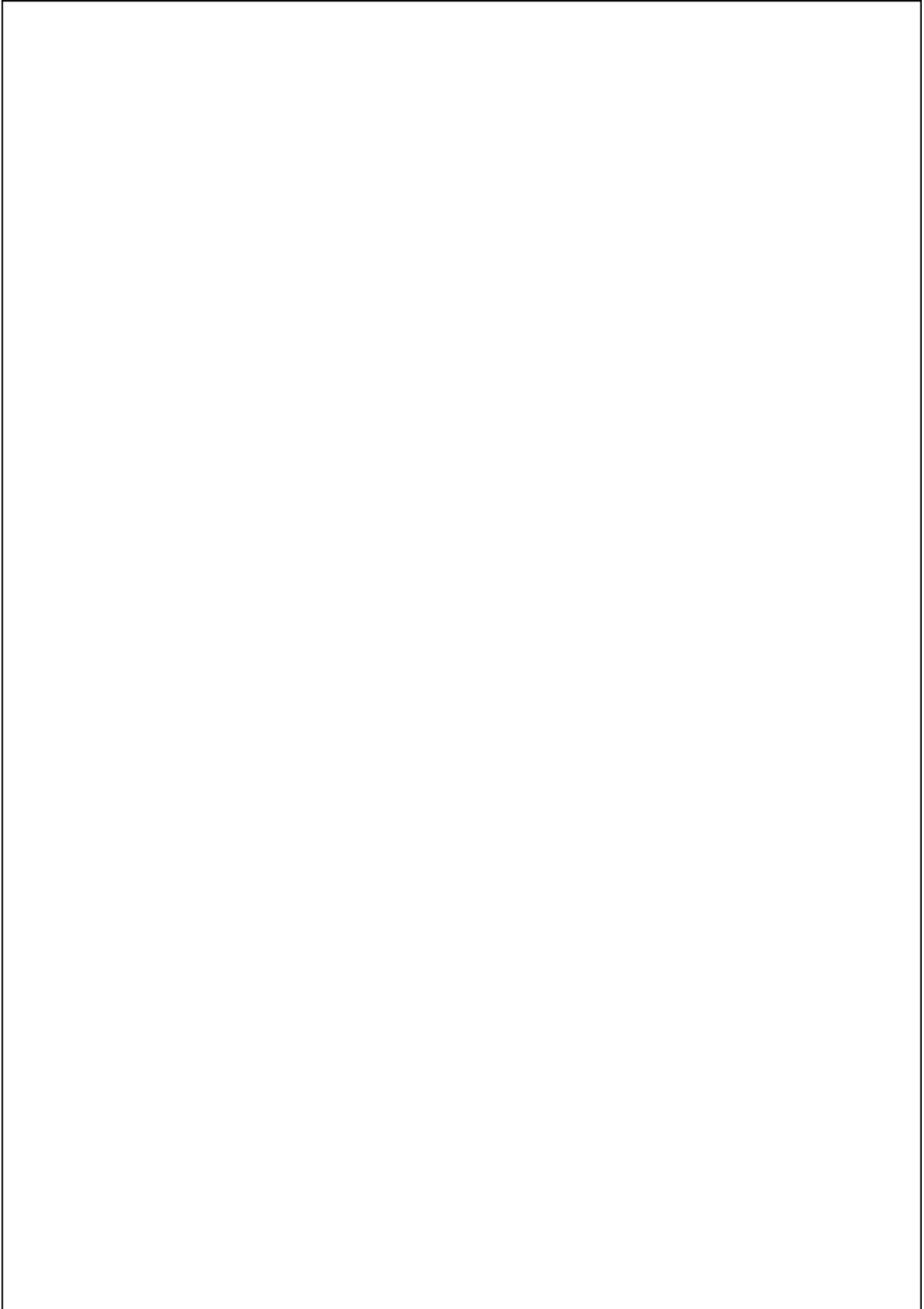
Congestion pricing charges vehicles for using a crowded road or entering a congested area during peak periods. The charge may vary according to the time of day, location, vehicle type, or level of traffic.

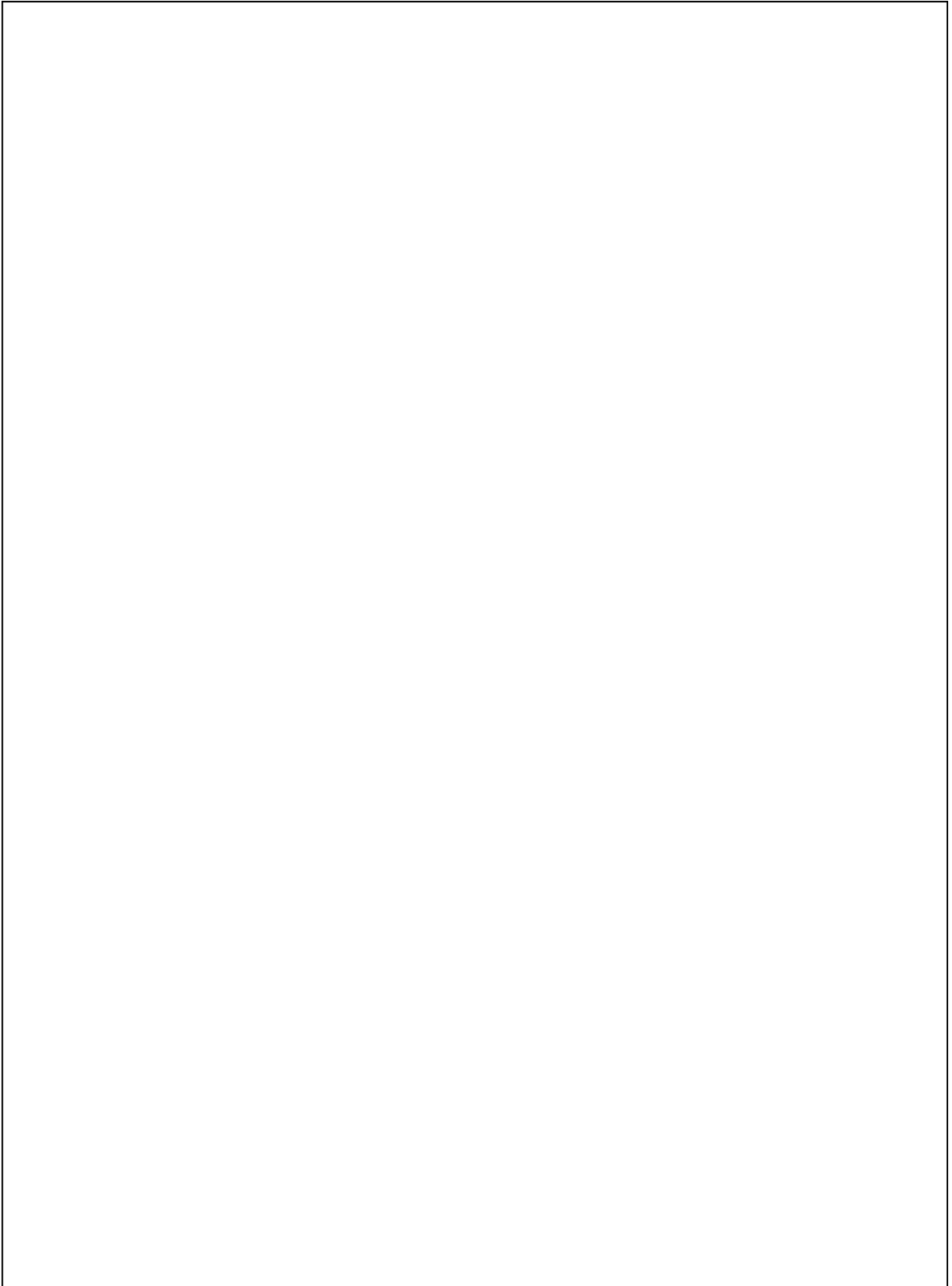
The purpose is not simply to collect revenue. It changes the price of traveling at the busiest time and place. Some drivers may respond by:

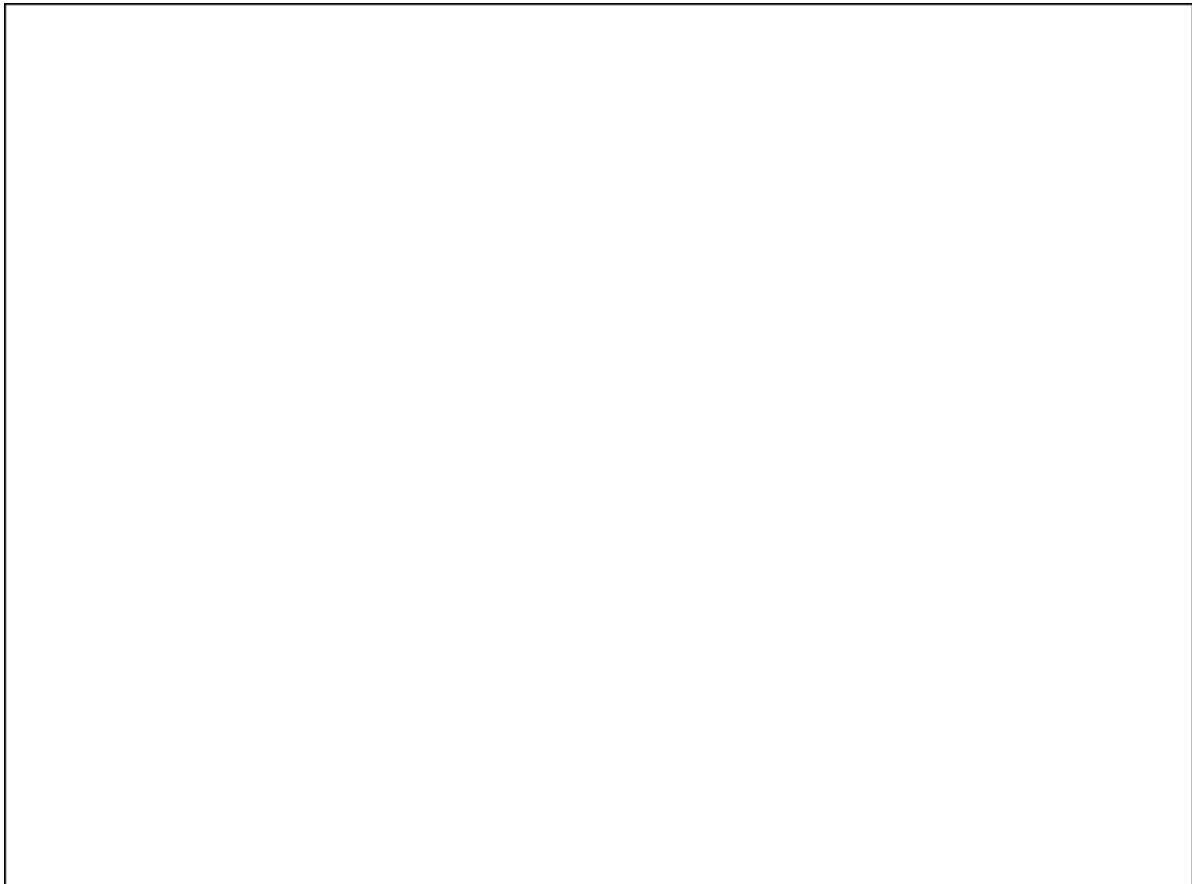
- traveling earlier or later;
- using public transportation;
- choosing a ride-











Common-Pool Resources and the Risk of Overuse

Common-pool resources require institutions that control access, extraction, and conflict. Without effective rules, each user may have an incentive to catch more fish, pump more groundwater, harvest more timber, or graze more animals before others do.

One response is centralized government regulation. Authorities may impose permits, quotas, seasonal closures, gear restrictions, protected areas, or penalties. Another response is to assign clearer private or community rights. A third is to involve resource users directly in rule-making, monitoring, and enforcement.

Case Study: The Sardine Closed Season in the Zamboanga Peninsula
The Bureau of Fisheries and Aquatic Resources implements a three-month closed fishing season in parts of the East Sulu Sea, Basilan Strait, and Sibuguey Bay. The closure protects sardines during spawning and growth periods and is intended to sustain the stock and the industry over time. The policy illustrates government regulation of a common-pool resource through a time-based access rule. It also creates short-term livelihood costs for fishers and processing workers, showing why conservation measures may need social protection, alternative employment, and consultation with affected communities (BFAR, 2023; BFAR Region IX, 2025)

D. Beyond the Tragedy of the Commons: Elinor Ostrom

For many years, discussions of common resources often presented two main solutions: government control or private ownership. Elinor Ostrom's research showed that this choice is too narrow. Communities in many countries have created durable institutions for managing irrigation systems, forests, fisheries, pastures, and other shared resources.

Ostrom did not argue that community management always succeeds. She showed that users are capable of building rules when certain conditions support cooperation. Her work shifted attention from ownership alone to the institutions governing access, monitoring, sanctions, participation, and conflict resolution. She received the 2009 Nobel Memorial Prize in Economic Sciences for her analysis of economic governance, especially the commons (Nobel Prize, 2009).

Approaches to Managing Common-Pool Resources

There is no single model that works for every resource. Four broad approaches are commonly used.

Under open access, there are few effective limits on use. This is the condition most vulnerable to depletion because users have little assurance that conserving today will leave benefits for them tomorrow.

Under government management, public agencies establish and enforce rules such as permits, quotas, closed seasons, protected areas, and extraction limits. This can work when government has reliable information and enforcement capacity. It can fail when rules do not fit local conditions, enforcement is weak, or powerful users influence the regulator.

Under private or clearly assigned rights, individuals, firms, or groups receive defined rights to use or manage the resource. Clear rights can create incentives for conservation, but privatization may exclude traditional users, concentrate control, or divide resources that function as connected ecological systems.

Under community-based management, users participate in designing and enforcing rules. Co-management combines community institutions with government authority, scientific support, and enforcement against outsiders. Many real systems use a mixture of these approaches rather than a pure form.

Ostrom's Design Principles

Ostrom identified recurring features of long-lasting common-resource institutions. These are better understood as design principles than as a rigid checklist.

- The boundaries of the resource and the people entitled to use it are reasonably clear.
- Rules on use reflect local ecological conditions and the costs and benefits faced by users.
- Most people affected by the rules can participate in changing them.

- Monitors are accountable to the users or are themselves part of the user community.
- Penalties are graduated, beginning with moderate sanctions and becoming stronger for repeated violations.
- Users have access to low-cost ways of resolving disputes.
- Government recognizes the right of users to organize.
- Large systems are governed through connected layers or nested institutions.

These principles explain why rules imposed from outside may fail even when they appear technically sound. Users are more likely to comply when they understand the resource, regard the rules as legitimate, and believe that others will also be monitored.

Philippine Case: The Zanjeras of Northern Luzon

The Philippines appears in the literature on common-pool resource governance through the Zanjeras of Northern Luzon. A zanjera is a farmer-managed irrigation association. Members cooperate to build and maintain canals, divert water, allocate irrigation turns, repair damage, and settle disputes.

Irrigation water is a common-pool resource. Water used upstream is no longer available downstream, and excluding users can be difficult without accepted rules and physical controls. The system therefore faces potential conflict, unequal access, and free riding.

Zanjera institutions connect rights with responsibilities. Members who receive access to water are expected to contribute labor and participate in maintaining the system. Water allocation follows locally understood arrangements, while monitoring and dispute settlement occur close to the resource.

Ostrom drew on Robert Siy's study of Philippine zanjeras in developing the broader argument that self-governing irrigation systems can work. The case does not imply that government is unnecessary. Public authority may still recognize the association, protect it from outside interference, provide technical support, and coordinate across larger watersheds. The lesson is that government can strengthen local governance rather than automatically replace it (Ostrom, 1990; Ostrom & Gardner, 1993; Siy, 1982).

Polycentric Governance

Ostrom used the idea of polycentric governance to describe systems with several centers of decision-making. A local association may manage day-to-day water allocation. A municipality may settle land-use disputes. A national agency may regulate the river basin, provide scientific data, or finance major infrastructure.

Multiple centers can improve governance when responsibilities are clear and institutions learn from one another. They can also create confusion when agencies overlap or avoid accountability. The policy challenge is not simply to centralize or decentralize, but to assign functions to the level capable of performing them effectively. The tragedy of the commons is not caused by sharing alone. It is caused by weak or inappropriate institutions. Successful management may

combine local rules, government recognition, scientific information, enforcement, and clearly defined rights.

E. The Broader Economic Role of Government

Providing and Financing Public Goods

Government collects taxes and uses them to finance goods that voluntary markets are likely to underprovide. National defense, disaster warning systems, disease surveillance, and some forms of infrastructure fall into this category.

Government does not have to produce every service itself. It may finance a public good and contract a private organization to deliver part of it. The economic issue is whether access, accountability, and public value are protected.

Correcting Externalities

Government may regulate or change prices when private activity affects third parties. Pollution standards, tobacco taxes, congestion charges, vaccination programs, and environmental liability rules are different ways of changing incentives.

The choice of instrument matters. A standard directly limits behavior. A tax allows firms or consumers to decide how to respond. A subsidy encourages beneficial activity but requires public funds. Information campaigns can help but may be too weak when risks are large or choices are heavily shaped by market power.

Managing Common Resources

Government can set limits, assign rights, support community institutions, coordinate across jurisdictions, and enforce rules against powerful outsiders. Effective policy often combines national law with local knowledge.

Management must also consider distribution. A fishing closure may improve stocks but reduce income during the closed period. A protected area may conserve forests but restrict traditional users. Conservation policies are more legitimate and durable when affected groups participate and receive fair transition support.

Regulating Market Power and Club Goods

Government regulates monopolies and concessionaires when consumers have few alternatives. Rate regulation, performance standards, contract review, and competition policy can prevent firms from using control over essential infrastructure to charge excessive prices or provide poor service.

Regulation should also avoid protecting inefficient incumbents. Poorly designed licensing or exclusive contracts can become barriers to entry rather than protections for the public.

Redistributing Income and Expanding Access

Not every government program is a public good in the technical sense. Public education, healthcare, housing assistance, and cash transfers often have identifiable individual beneficiaries. Government supports them because they produce wider social benefits or because market outcomes leave many households unable to afford essential services.

The Pantawid Pamilyang Pilipino Program is an example of redistribution rather than a pure public good. It transfers resources to eligible households and links assistance to investments in children's education and health. The economic justification includes equity, human-capital development, and the reduction of long-term poverty.

Merit Goods and Demerit Goods

The classification of goods according to rivalry and excludability does not fully explain why governments support some privately consumed goods. Education, vaccination, preventive healthcare, and basic nutrition are usually excludable and at least partly rivalrous. They are not pure public goods. Economists often describe them as merit goods because society may benefit when people consume more of them than an unassisted market would provide.

Merit goods may be underconsumed for several reasons. Households may lack income, underestimate long-term benefits, face incomplete information, or give greater weight to immediate costs than to future gains. Their consumption may also create positive externalities. Education can raise productivity and civic participation, while vaccination reduces the spread of disease to other people.

Government may respond through direct public provision, subsidies, vouchers, insurance, information campaigns, quality standards, or requirements such as compulsory basic education. The choice of policy affects who receives the benefit, whether private providers can participate, and how quality is monitored.

A demerit good is a good that government may seek to discourage because consumers may underestimate its private or social costs. Tobacco, harmful drugs, and products with high health risks are common examples. Policy approaches include excise taxes, age restrictions, warning labels, advertising limits, and restrictions on where the product may be used.

The concept of merit goods raises a difficult policy question. Government may have good reasons to expand access or discourage harm, but officials can also make mistakes or impose their own preferences. Policies should therefore be based on evidence, preserve reasonable choice, and pay attention to unequal access and unequal burdens (Musgrave, 1959).

Case Example: Vaccination as a Merit Good

Vaccination provides a direct benefit to the person receiving it and can therefore be treated as a privately consumed health service. It also produces wider benefits by lowering the probability that disease will spread. Because households may face cost, access, and information barriers,

relying only on private purchase may result in vaccination levels below what is socially desirable.

Government can finance vaccines, organize public immunization, regulate quality, provide information, and reach communities that private providers may not serve. The case shows why a good does not need to be a pure public good to justify public support. The policy rationale may come from positive externalities, equity, and the long-term value of prevention.

F. Government Failure and Institutional Choice

Market failure creates a reason to consider intervention, but it does not guarantee that any government response will improve the outcome. Government may act with limited information, weak administrative capacity, political pressure, corruption, or conflicting mandates.

A flood-control project may be poorly located. A fishing rule may ignore small fishers while large operators evade enforcement. A subsidy may be captured by firms that do not need it. A toll-road contract may guarantee private returns without adequate service standards.

The relevant comparison is not between an imperfect market and an ideal government. It is between realistic alternatives. Policymakers should ask which institution has the information, incentives, legitimacy, and capacity needed to manage the problem.

Choosing an Institutional Approach
A good policy diagnosis asks: What type of good is involved? What specific failure is occurring? Who bears the costs? Which level of government or community has useful information? How will rules be monitored? Can users participate? What safeguards are needed against capture, corruption, and exclusion?

G. Environmental Accounting and Better Public Decisions

Traditional economic accounts measure the value of goods and services produced in the economy. However, they do not always record the depletion of forests, fisheries, minerals, water, and other natural resources. They may also fail to capture the loss of services provided by ecosystems, such as flood protection, carbon storage, clean water, soil fertility, and air filtration.

This creates a problem for public policy. When environmental losses are not measured, they may be treated as if they have little or no economic value. A project can then appear beneficial even when it damages ecosystems, increases pollution, or transfers significant costs to communities and future generations.

Why cost-benefit analysis can become misleading

A government may evaluate a mining project by comparing investment, employment, taxes, and export earnings with the financial cost of constructing and operating the mine. If the analysis does not adequately include forest loss, water contamination, health effects, reduced agricultural

productivity, disaster risks, rehabilitation costs, and the loss of local livelihoods, the calculated benefits may appear much larger than the true social benefits.

The same problem can occur when evaluating reclamation, dams, highways, plantations, industrial facilities, or large data centers. Environmental damage may not have an observable market price, but this does not mean that its value is zero.

A more complete cost-benefit analysis should therefore include:

- the depletion of natural resources;
- pollution and its effects on health and livelihoods;
- changes in ecosystem services;
- the cost of restoration or replacement;
- disaster and climate risks;
- effects on different communities; and
- impacts that occur many years after the project is completed.

Environmental accounting helps provide the physical and monetary information needed for this analysis.

What is environmental-economic accounting?

Environmental-economic accounting organizes information about the economy and the environment within a common statistical framework. It records stocks of natural assets, such as forests, minerals, land, water, and fisheries, as well as changes caused by extraction, depletion, pollution, and restoration.

The United Nations System of Environmental-Economic Accounting, or **SEEA**, is the internationally accepted framework for connecting environmental information with conventional economic accounts. It can measure the resources used by economic activities, the waste and emissions they generate, changes in environmental condition, and the services ecosystems provide to households and production (UNSD, 2017).

Ecosystem accounting expands this framework by recognizing services that are often absent from ordinary market transactions, including carbon storage, water regulation, flood protection, and air filtration. These accounts can support cost-benefit analysis, environmental regulation, land-use planning, and the development of environmentally adjusted economic indicators (UNSD, 2017; World Bank, 2012).

Environmental accounting does not eliminate judgment

Placing a monetary value on an ecosystem can help make environmental benefits and losses visible, but not every environmental value can be measured precisely.

Some benefits have no direct market price. Estimating them may require assumptions about future conditions, replacement costs, household preferences, or the amount people would be willing to pay. Cultural, spiritual, ecological, and intergenerational values may also be difficult to express in money.

Environmental accounts should therefore inform policy rather than automatically determine it. Physical measures—such as hectares of mangroves lost, fish stocks depleted, tons of carbon released, or households exposed to flooding—should be considered alongside monetary estimates.

The Philippine policy framework

The Philippine Statistics Authority already compiles environmental accounts using the SEEA framework, including accounts for land, water, energy, minerals, material flows, and other environmental assets (PSA).

Republic Act No. 11995 established the **Philippine Ecosystem and Natural Capital Accounting System**, or PENCAS. Its implementing rules were promulgated in 2025, moving the institutionalization of natural-capital and ecosystem accounts into its operational phase. The system is intended to provide government with standardized information for planning, budgeting, investment appraisal, resource management, and policy evaluation.

This matters because ordinary measures such as gross domestic product can rise even while forests, mineral reserves, fisheries, and water resources are being depleted. GDP records the value created through extraction but does not by itself show whether the country's underlying natural wealth is declining.

How environmental accounts can improve regulation

Environmental accounts can help government identify which industries use the most water, energy, land, and raw materials. They can also show which activities generate pollution and where ecosystems are deteriorating.

This information can support:

- environmental impact assessment;
- the design of pollution taxes and user charges;
- water and extraction permits;
- mining royalties and rehabilitation bonds;
- land-use and coastal-zone planning;
- protected-area management;
- disaster-risk reduction;
- climate adaptation; and

- the evaluation of infrastructure projects.

Environmental accounting can also improve distributional analysis. A project may generate national income while imposing pollution, displacement, or flood risks on a particular community. Natural-capital accounts can help government examine not only the total benefits and costs, but also **who receives the benefits and who bears the environmental losses (World Bank, 2012).**

Example: Mangroves and coastal development

Suppose a coastal area is proposed for conversion into commercial property. A conventional analysis may count the value of the land, construction activity, jobs, and future business income.

A more complete analysis would also consider the mangrove's role in reducing storm damage, supporting fisheries, storing carbon, filtering water, and providing livelihoods. If these services are omitted, conversion may appear more beneficial than it actually is.

Environmental accounting does not necessarily mean that development must be rejected. It means that the decision should compare the project with the full economic value of the natural asset being altered or lost.

Key Idea: When nature is not counted, it is often treated as if it has no value. Environmental accounting makes resource depletion, pollution, and ecosystem services visible so that government decisions reflect more of their true social costs and benefits. Further, better accounting does not automatically lead to better policy. Government must still use the information honestly, make assumptions transparent, involve affected communities, and avoid treating uncertain monetary estimates as exact measures of nature's total value.

Let's Review

- Excludability concerns whether access can be restricted. Rivalry concerns whether one person's use reduces what remains for others.
- Private goods are excludable and rivalrous. Public goods are non-excludable and non-rivalrous. Common-pool resources are non-excludable and rivalrous. Club goods are excludable and largely non-rivalrous until congestion occurs.
- Public goods face a free-rider problem, while common-pool resources face a risk of overuse.
- Private goods may still create externalities, which can justify taxes, regulation, liability rules, or subsidies.
- Common-pool resources can be managed through government regulation, assigned rights, community institutions, or co-management.
- Ostrom's work shows that communities can govern shared resources when boundaries, rules, participation, monitoring, sanctions, conflict resolution, and recognition are well designed.
- Government can finance public goods, correct externalities, manage common resources, regulate market power, and redistribute resources.

- Government intervention can also fail. Policy should compare realistic institutional alternatives rather than assume that either markets or government always perform best.

Key Takeaway

The characteristics of a good shape the institutions needed to provide or manage it. Markets are effective for many private goods, but public goods, common-pool resources, externalities, congestion, and unequal access often require collective rules. The choice is not simply between markets and government. Effective governance may involve firms, communities, cooperatives, local governments, national agencies, and several institutions working together.

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