Legal and Policy Paths for Effective Sustainable Development

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This chapter begins by reviewing basic economic and legal principles that have been used effectively by governments in supporting the marketplace in regard to traditional economic resources such as land, labor and capital. Because information and knowledge can and often do replace the need for traditional resources in contemporary societies, the chapter focuses as well on policies and laws promoting the growth of information economies to support SDGs implementation.

8.1 Introduction

Many of the UN Sustainable Development Goals (SDGs) are likely to be achieved most efficiently and effectively under legal and policy frameworks possessing certain basic legal and policy principles and frameworks [6]. If not already in place, recommended long-term principles and frameworks may be pursued concurrently or in tandem with short-term policy and legal adaptations that may be needed to address more immediate and pressing short-term SDG needs. Among SDGs that are unlikely to be addressed successfully without stable and well-reasoned long-term legal and policy frameworks in place include:

- **Goal 8.** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- **Goal 10.** Reduce inequality within and among countries.
- **Goal 16.** Promote peaceful and inclusive societies for sustainable devel-

opment, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Most societies across the globe recognize the extreme importance of a vibrant marketplace as a prerequisite to sustainable development. They further recognize the strong role of government in creating appropriate legal bounds within which competitive markets in goods and services may thrive while concurrently providing safety-net services for the disadvantaged. That is, a nation with few natural resources but with a highly educated and innovative workforce may achieve a robust economy and sustainable development through primarily the development of information infrastructure and the provisioning of digital products and services. Yet, digital economies come as well with their own set of legal and policy challenges.

8.2 Fundamental Economic Policies Germane to Traditional Resources

Adam Smith, in his 1776 treatise on the Wealth of Nations, postulated that the ideal private good has the characteristics of *excludability*, *rivalry*, and *transparency*. Land, labor and capital exhibit these ideal marketplace characteristics but only fully through enforcement of appropriate laws.

In exploring these characteristics and the role of law in their support, we may use the illustrative and familiar example of land. *Excludability* in land is achieved by granting owners the ability to keep others from using or trespassing on their private property through action by government, typically through the judiciary and police enforcement. Land owners also have the legal right typically to exclude others using physical means, such as through the use of fences, buildings and other barriers.

Rivalry is the concept whereby my use of a resource deprives or affects your use of the same resource. If I use land to build a house on it, you can't build your house on it. Thus, land is far more rivalrous than a resource like digital information. Millions can benefit from an information resource without degrading or depriving anyone else's use of the same resource but this is not typical for land.

Transparency is achieved when a buyer has the ability to see the quality and prices of all competing goods in the marketplace. In land markets, our legal systems often support this characteristic by mandating that all land ownership records are publicly and readily accessible to all and an operational system is supported that guarantees or insures the validity of the title rights acquired.

Because land has the characteristics of a private good, the sale and trade of land parcels through the open marketplace has worked well and can con-

tinue to work well in creating wealth both for individuals and for national populations as a whole. The same holds true for other traditional economic resources possessing the classic characteristics of private goods. Information system goods and services, on the other hand, lack some of these characteristics and therefore must typically be transformed through action of law to exhibit the classic characteristics of private goods.

8.3 Role of Legal Controls

What then is the role of law in marketplace contexts? What should be the role of law in transitioning from least technologically developed cities and nations to smart cities and economically vibrant nations? Most western culture legal scholars, policy makers and economists argue that the priority of controls in society, in order, should be: (1) the marketplace, (2) private arrangements and (3) the law. Laws should be used only as a last resort in managing society's affairs. If the marketplace is truly free and open, the market itself is a far better means for setting prices and controlling quality than any state-imposed guesses enacted into law. If equally sophisticated private parties can work out pricing and quality issues for themselves through individualized contracts, that negotiation will give far more efficient results than conditions imposed by government through the law.

Thus, new laws are often NOT the best solution in addressing many societal challenges. When competitive markets exist, market forces are often a far better choice in establishing relations between parties than are detailed legal regulations. In Western culture, we often argue that the law should step in to regulate only where the free and open marketplace isn't working. In these instances, the primary role of the law should then be to:

- (a) correct the marketplace to return it to being open, free, and competitive, and/or
- (b) construct means to provide important goods and services desired by society that will not otherwise be produced by the marketplace.

In the latter case, lack of a marketplace to produce goods is due often to the inherent characteristics of the goods. That is, highly desirable goods such as street lighting or military defense are non-rivalrous and the benefits once supplied are difficult to exclude from others. It is inefficient for the marketplace to supply them. Thus, in these instances, governments often step in to produce the goods directly. Alternatively, government might convert a good by action of law such that the good then possesses rivalry and excludability. By example, copyright law, and its enforceable sanctions if violated, make creative works excludable. Copyright law provides an incentive to authors to

make their knowledge, ideas, discoveries, and creative works widely available to the benefit of all in society. With the production and dissemination of the works of millions of authors and artists available in the marketplace, science and the useful arts are advanced. Without protection making the works legally excludable, such works often would be readily and widely distributed to millions with no compensation to the creators. This creates a strong disincentive for the sharing and distribution of creative works by authors and would make their sale, licensing and distribution far more burdensome.

While government by itself or through its agents would be unable to create the variety and extent of valuable goods and services provided by the marketplace, governments serve a strong role in establishing conditions to allow the marketplace to thrive. Among areas in which the law has a likely justifiable role in supporting both established and emerging economies include settling disputes, protecting citizens against excessive or unfair private power, protecting citizens against excessive or unfair government power, ensuring people an opportunity to enjoy the minimum decencies of life, and maintaining order.

8.4 Policies and Laws Germane to Digital Economy Resources

When appropriately bounded by laws to control negative behavior within the marketplace by private and even government parties, the marketplace has been very efficient and effective in promoting economic growth. However, economies falter when laws preventing skewing of the market and protecting human rights fail to be enacted and enforced. Because information technology advances and the digital resources they create continue to advance rapidly, it is very difficult for governments to respond quickly and effectively through government executive actions, legislation, and constitutional amendments to dampen or eliminate their adverse effects. A burgeoning information economy and developing cyberinfrastructure inevitably raise conflicts and legal challenges related to:

- intellectual property rights such as those involving copyright, patent, trademark, trade secret, and sui generis data laws,
- privacy rights supporting the ability of individuals to control the collection, dissemination and use of information about themselves and to prevent overly intrusive behavior by others,
- security, encryption, and data management practices,
- hacking and other cybercrimes,
- citizen access to government data, records, and online services,

- control of private power such as through anti-trust and anti-competition law,
- licensing and contract self-help mechanisms,
- liability in the provisioning of data and online services, and
- jurisdiction over disputes.

In many countries, resolving new conflicts within the context of digital economies are being left largely to emerge through processes carried out primarily in the private marketplace by competing business, consumer, and public interests. Government intervenes with new laws often only when technology and changed societal conditions have advanced to the point where problems and inequities have become clearly evident through the process of litigation in the courts. In other nations, government is far more proactive. Regardless of the timing of government intervention, there exist numerous conflict areas in which government may be justified in stepping in to resolve digital economy disruption, particularly in regard to failure of the market to achieve equitable results or protect human rights. The following paragraphs provide examples of illustrative instances.

8.4.1 Settling Disputes

Digital Tracking: Numerous disputes have arisen in modern contexts in the tracking of objects, humans, transactions by individuals, and interactions among individuals and their surroundings. These conflicts are continuing to grow as digital tracking becomes more pervasive. Tracked data, if stored somewhere, is subject to misuse and hacking. Law is often the best means of determining who should bear the costs of harms in such instances. For example, a breaching party such as a hacker may be inaccessible or unable to pay. The law might step in to establish rules for placing the damage burden on either victims, system developers, private operators, or government, or settle the dispute by distributing the burden among some or all of them.

Technology Gone Wrong: Assume that software in an autonomous vehicle in an emergency situation opts to hit three adult pedestrians in a crosswalk rather than one child and two pets located to the side of the travel lane. Laws enacted by elected representative government and enforced by the courts may be the best means for weighing and balancing the reasonableness of software algorithmic implementations and artificial intelligence decision-making, forcing corrections of technologies, and distributing the costs of harms.

8.4.2 Protecting People Against Excessive or Unfair Private Power

Actual Monopolies: Many areas across the globe have only a single supplier of Internet services because a sufficient market fails to exist to support more

than one. Assume that the single digital service exists with non-negotiable conditions on a take-it or leave-it basis. The law might justifiably regulate such a service provider as a public utility to create a level playing field for all citizens within the jurisdiction. Alternatively, legislative action might be taken in appropriate cases to break up a monopolist into multiple smaller companies to create competitive choices for consumers.

Natural Monopolies: The information system with the greatest number of users often has the greatest utility which in turn attracts even more users. Assume that the corporate owner of a dominant information service offers the service on take-it or leave-it terms, such as giving up personal privacy or doing without the service. Because a competitive market fails to exist, the law may justifiably force a policy change or impose an alternative solution to restore an open, transparent, and competitive market. By example, it has been argued that Amazon dwarfs all private natural monopolies of the past and should be broken into at least two pieces through the action of anti-trust law. One company would operate its retail operation while a second separate company would operate its e-commerce operation which provides order and delivery services for thousands of companies [5].

Unfair Private Practices: Assume that consumers buy robots for answering questions and doing mobile chores around the home such as vacuuming floors. However, the company switches its privacy policy after capturing a large market share. That is, perhaps under the new policy the robot now records all voices all the time and photo documents all items in the home when no humans are present. A competitive market fails to exist due to sunk costs and thus the law is justified in stepping in to correct any unfair practices.

8.4.3 Protecting Citizens Against Excessive or Unfair Government Power

Controlling Government Collection: If government does not have access to certain aspects of your life, it can't control those aspects. Law is often used to ban data collection on citizens by government agencies in order to temper the power of the State. Thus, many governments have bans on domestic surveillance of citizens without first obtaining search warrants authorized by the courts under tightly controlled criteria and circumstances. However, if similar strong laws are not imposed on the commercial sector, technology has advanced to the point where personal data is able to be massively collected, retained, and exchanged by businesses and thereby also becomes much more accessible to the State.

Monopolistic Information: Because it can force the gathering of certain data by action of law, government often collects information to which only government has access and provides services that only government can provide. Open access and equal access laws are often enacted so that citizens can readily know what government is up to. In many democratic nations, citizens have a right to know what personal information about them is being

held in government records, the right to inspect the records, and the right to make corrections or add explanations to those records. Numerous narrowly drawn exceptions to accessing government records also typically exist. These provisions typically might enable government agents to decline requests for information and data relating to police investigations, the national defense, confidential employee records, and similar matters that, if exposed to the general public, might have strong negative consequences for citizen rights or national interests.

8.4.4 Ensuring People an Opportunity to Enjoy the Minimum Decencies of Life

The education of young children and ensuring that they have enough to eat are viewed almost universally by governments as minimum decencies of life that all governments are justified in supplying and morally mandated to supply when needed. Although many taxpayers don't have children of their own, they benefit as well when they help support such societal needs. The investment supports the creation of a citizenry that is better able to take care of themselves and their families, engage in the future in the workforce, contribute to the economic wellbeing of society, participate actively in the functioning of government, and contribute to the advancement of knowledge, science, and innovations in society. Government support of at least a minimum education also diminishes the need for welfare services and generally strengthens the social fabric of the nation. Thus, government is often justified in passing laws that promote minimum standards of living for all.

In the digital age, the use of information technologies and growth of digital economies has become so prolific throughout the globe that those without access to at least a minimal level for communications, learning, and transactions are at a distinct disadvantage compared to others that do have this access. Yet, an estimated 4 billion people around the globe currently lack access to the internet [8]. Similar to rural electrification programs of the past and present, programs to provide access to information infrastructure and digital devices is viewed by many governments as a justifiable goal in meeting the minimum decencies of life for all citizens. Thus, if the marketplace is not adequately supplying such services, the government justifiably has a strong role to play in either addressing the issue directly or incentivizing the market to provide minimal equitable access to all.

8.5 Maintaining Order

Another justifiable role for government in passing new laws is for maintaining order within a nation. Typically, one might think of government relying pri-

marily on the police and courts for maintaining order. In day-to-day dealing with cybercrimes or resolving digital economy conflicts among businesses, attorneys, police and the courts are indeed on the frontlines in processing and resolving such disruptions. In the case of a major cyberattack or persistent cyberattacks against a country, the defense and military branches of government likely also become involved. However, when the societal conditions of a nation are substantially disrupted such as by technological advancements or by radically changed global business models, legislative bodies may need to enact new laws in order to maintain order.

Across large sectors of the globe, spanning from very poor to very wealthy countries, economic inequality is growing. Large segments of the global population are being left behind by today's economies. Automation, robotics, and artificial intelligence supporting algorithmic decision-making are expanding and rapidly displacing many workers [3, 8]. Corporate business models have shifted radically by decentralizing many functions such that contractors at diverse locations compete with each other to supply parts, products, and services *just in time* using part-time employees that receive few benefits. These societal shifts are resulting in concentrated economic growth in each nation primarily where wealth is already concentrated. Discontent is growing among the poor and middle classes where job opportunities at reasonable pay are rapidly dwindling. The results to date of expanding digital economies are deepening dissatisfaction by large segments of populations in many countries. The inability of a nation's political and economic systems to address fundamental problems angers many, creates widespread mistrust in democratic institutions, and makes civil disobedience more likely. This is resulting in growing risks for democracies and challenges to the functioning of government.

A justifiable role of government in maintaining order under these circumstances, in addition to maintaining civil control through police and the courts, is to pass new laws creating more just and equitable distributions of the benefits arising from technological progress among the population. Such laws create a stronger societal and economic foundation for all and thereby advance the nation as a whole.

8.6 Open Access to Domestic Government Data

One policy area that has been particularly problematic for many nations has been with government agencies competing with private businesses in the marketplace. Laws are justified in preventing government agents from doing so. If a nation desires to grow a strong digital economy, it should not allow the government to claim intellectual property rights in domestic government data and then use those rights to compete with private businesses in providing goods and services to its population. Government should collect or create data, in-

formation, and records to meet its legislatively mandated purposes and then make these government works openly and freely available to all businesses and individuals as digital public goods. Government should not compete in data sales or services with the private sector. Rather, open access government data provides a public asset that all industries may mine and use in competing against each other in providing better services and products for citizens as well as increasing personal and corporate taxable income benefitting the nation.

Collective experience across the globe shows that the open use and sharing of scientific and technical data, stimulates economic growth, enhances accountability, and accelerates scientific discoveries [2]. Subject to a few narrowly drawn exceptions, such as those frequently set forth in national freedom of information acts, the recommendation to enact laws providing open access to government data applies to all domestic government data at all levels.

8.7 Correcting Unjust Laws and Policies Within Growing Information Economies

The wealthiest nations on Earth have begun creating an *information civilization* for the globe which is currently characterized by inestimable numbers of smart phones and personal digital devices, massively distributed sensors, rapid growth of automation in manufacturing and service industries, institutionalization of ubiquitous surveillance by the corporate and government sectors, pervasive data mining, machine learning, predictive analytics, algorithmic decision-making through artificial intelligence techniques, emerging deployment of autonomous vehicles, and burgeoning robot applications [10]. The spread of technological advancements and applications globally shows little sign of slowing down. This technological tsunami over the past few decades has resulted in untold benefits in increasing business and government efficiencies and delivering products and services at much lower costs to constituencies, clients, and consumers.

These information economy advancements have also caused massive problems within wealthy nations. In the United States, during a recent three-decade period of mind-boggling technological advancements, the average pre-tax income of the lower half of Americans when adjusted for inflation has remained virtually unchanged at just over \$16,000 annually. Meanwhile, the average pre-tax income of the top one percent of the population has more than tripled up to \$1.3 million in 2014 and increased more than sevenfold for the top .001 percent up to \$122 million per year in 2014 [4].

The disparities have only increased since. Job creation and wages favor the high and low ends of the pay scale with middle class opportunities continuing to wane. Startups of small businesses have precipitously declined, severely

narrowing long-standing paths to reach the middle class. While in the U.S. currently there may be sufficient numbers of jobs resulting in low unemployment, most of the emerging jobs are insufficient to provide a living wage, even for many college-educated citizens. "The system in America and around the world has been organized to siphon the gains from innovation upward such that the fortunes of the world's billionaires now grow at more than double the pace of everyone else's" [4]. The top ten percent of humanity now controls 90 percent of the planet's wealth [4].

A fundamental research question of our time is how information societies might correct or adapt to enable rich opportunities for all humans to more equitably share in the benefits of information technology advancements rather than funneling the benefits primarily upwards towards those individuals with greatest existing wealth [7]. Much of the problem appears to be with the inability of governments across the globe to effectively utilize the mechanisms described in the previous section.

A wide range of legislative actions have been proposed for addressing inequitable human and societal conditions brought about by technological advancements and digital economies. Many have already been tested in various forms, particularly in more affluent nations across the globe. Among the approaches for more equitable distribution of benefits have included universal health care, widespread implementation of paid family and parental leave, remunerating work of value to society that may not currently be credited in monetary terms such as for parenting, volunteering and mentoring, creating citizen accounts able to accrue the value of such contributions outside of jobs, as well as many additional similar approaches depending on national circumstances [8]. The list of suggested methods for paying for such programs, most of which would also need to be deployed through legislative action, is very long as well.

While numerous solutions have been proposed, their widespread implementation has been severely lacking to date. A combination of approaches for ensuring sustained worker income and benefits as well as government approaches for generating revenues to pay for them are likely to be enacted as societal disruption becomes more pronounced and governments are forced to respond.

The types of remedies just raised, however, will not be achieved or will fall far short in achieving objectives if foundational constitutional or other controlling governmental framework principles are misaligned with supporting core democratic principles. Foundational principles at the highest level may need to be adapted to current and emerging circumstances due to the vastly changed global landscape brought about by information technologies.

Many nations, including those that are wealthy, likely need to increase their focus on political reforms to strengthen democratic processes, provide equal voices for ordinary citizens, and reduce polarization in politics. Among foundational-shifting law-making actions suggested in higher wealth nations have included decreasing misalignments among population and representa-

tion in governmental bodies, instituting substantive campaign finance reform to lessen the effects of moneyed interests in elections, making the process of redrawing election districts less susceptible to political maneuvering, lessening political polarization through actions such as implementing widespread ranked-choice voting and requiring all citizens to vote such that even less politically fervent citizens vote, and strengthening, broadening and enforcing anti-trust law to protect citizens and businesses from the deleterious economic and political effects of historically large and national boundary crossing monopolies.

Leading legal scholars also have long argued that there is a fundamental need to strengthen the rights of individuals such that humans would have much stronger rights compared to the competing rights of corporations [9, 1]. Stronger human rights would enable humans to be much better able to control information exposure about themselves and potentially place them in a position to directly share in revenue streams partially based on use of their private personal data by businesses and other parties.

8.8 Conclusions

All nations struggle with selecting and constantly revising legal and policy paths that will allow the social, economic, and political well-being of their citizens to thrive and that will achieve long-term sustainability for the nation as a whole. Open competitive private markets within and among nations have key roles to play in generating wealth for each nation as well as for its' citizens. Governments have a major role to play in ensuring that markets provide a level playing field by passing and enforcing laws that keep them open, free, and competitive. Governments also have a role to play in providing important goods and service strongly desired or needed by society that that will not be produced otherwise by society. As a general proposition, particularly in response to continually emerging technological advancements, governments across the globe need to do a much better job of revising laws to enable more equitable spreading of economic benefits across far broader and much larger swaths of the population.

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