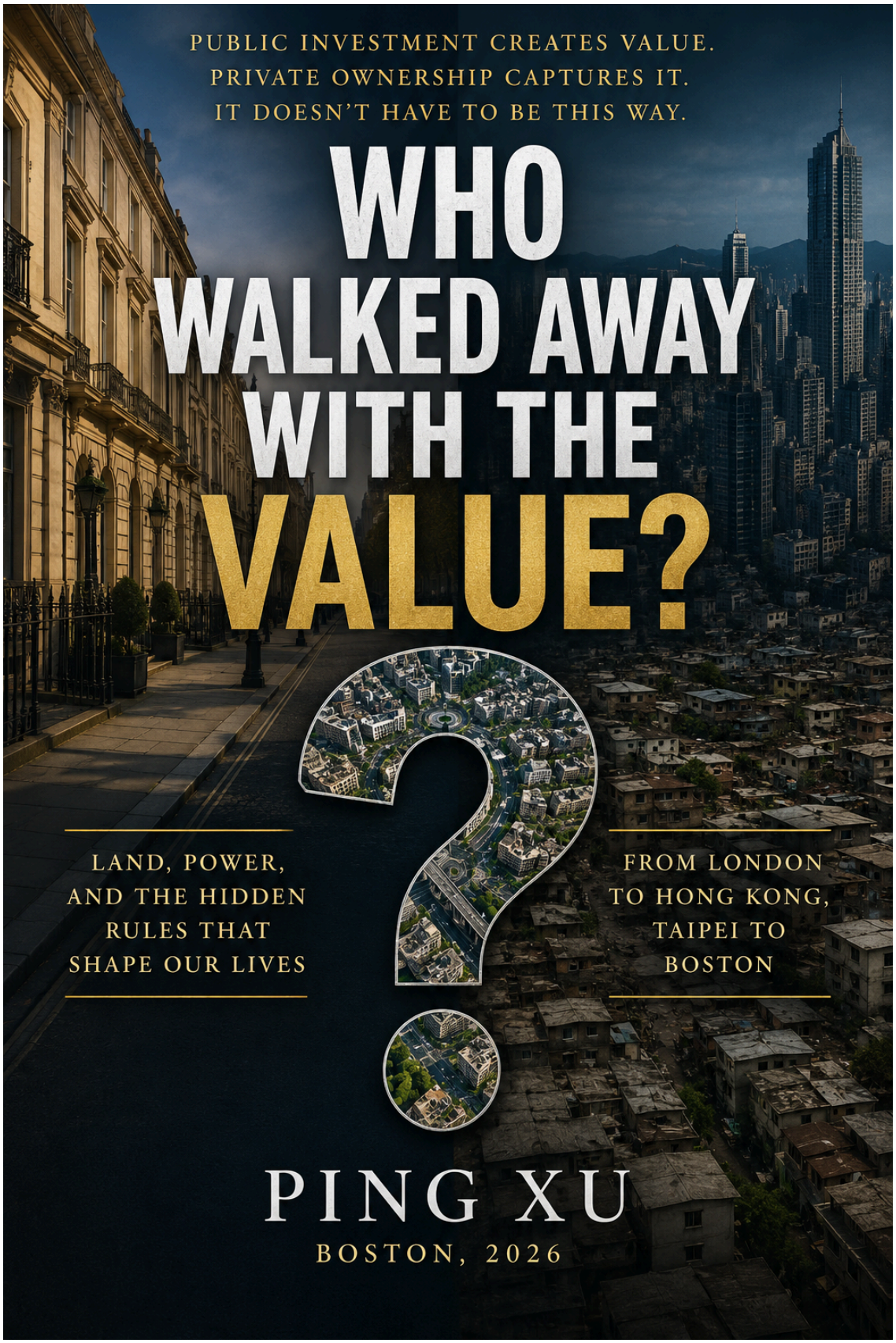
PUBLIC INVESTMENT CREATES VALUE.
PRIVATE OWNERSHIP CAPTURES IT.
IT DOESN'T HAVE TO BE THIS WAY.
WHO WALKED AWAY WITH THE VALUE?
LAND, POWER, AND THE HIDDEN RULES THAT SHAPE OUR LIVES
FROM LONDON TO HONG KONG, TAIPEI TO BOSTON
PING XU
BOSTON, 2026

Who Walked Away with the Value?

Ping Xu

Boston, 2026

Preface

This book is not an academic treatise. I hold no relevant degree. I am affiliated with no research institution. I am not seeking tenure or promotion. My training is in piano performance. A pianist writing about land systems — this itself deserves the question: on what grounds?

I will answer directly.

What piano training gave me is not music. It is a way of seeing the world. A fugue is not a sequence of notes. It is multiple voices moving simultaneously. You must hear all of them at once, track each line as it moves, and make judgments in fractions of a second. Policy systems, administrative processes, land institutions — they are the same thing. They are complex systems with multiple lines moving at once. The notes are just replaced by legal texts, power relations, and cost-shifting pathways. The ability to read a score and the ability to read an institution are the same ability.

The real complexity of piano training is not well understood by most people. In front of you is a score. On it are notes, rhythms, dynamics, pedal markings, fingerings, harmonic markers — six or more kinds of information packed into the same five lines of the staff. Your eyes must decode all of them in a fraction of a second. Your brain must simultaneously process pitch, duration, intensity, touch, pedal depth, finger position. Then your two hands and two feet must execute completely different actions — one

rhythm in the left hand, another in the right, the right foot controlling the sustain pedal. These actions must be precise to within hundredths of a second. At the same time, your ears listen to the sound you are producing, compare it to the ideal sound in your mind, and adjust touch and speed in real time. This is not showing off. It is a statement of fact. Anyone who has completed a full piano training does these things.

I did not write this book because I know too much. I wrote it because I have done one thing: lifelong, complete learning. I spent decades completing piano training. Then I applied the same learning method to other things. Reading policy documents. Reading legal texts. Reading land systems. Reading fiscal structures. A person who has learned a complex skill has no reason to fail at learning a simpler one. Fiscal policy and political economy are much simpler than piano. Not because they are less important. Because they do not require physical engagement. You only need your brain, and you do not need real-time response. You can sit and think slowly. Read once and not understand, read twice. Think for one day and not understand, think for a week.

So the question reverses. It is not "why does a pianist understand fiscal policy and political economy?" It is "why would a person trained in piano not understand fiscal policy and political economy?" If a pianist can handle four simultaneous voices in a fugue, there is no reason they cannot understand the rate structure of a land value increment tax. If a pianist can track melody, harmony, rhythm, and pedal simultaneously, there is no reason they cannot track the causal chain from public investment to land value increase to private capture. This is not because the pianist is special. It is because piano training provides a particular capability, and that capability transfers directly to institutional analysis.

The central question of this book is simple. When public investment creates value, who captures that value? From Mayfair in London to East Taipei, from Central Hong Kong to Quincy, Boston — the question is the same. Only the answers vary by institution.

I have observed a phenomenon. Within the academic system, land problems have been chopped into too many fragments. Economists look at efficiency. Lawyers look at legality. Political scientists look at power. Sociologists look at inequality. Urban planners look at space. Each guards their own fragment, arguing in their own terminology. Few put the fragments back together. The result is that no one asks the most fundamental question. I have not been chopped up. So I see what they do not see. Not because I am smarter. Because I have never been put through the chopping machine.

This book is not written for experts. It is written for those who are worn down by this system. For the hotel desk manager in Quincy who paid three months' deposit and had to download a smart lock app just to get through his own front door. For those who ask themselves in the middle of the night: why am I working so hard and still so exhausted? You are not a failure. You are working hard to stay alive inside a system designed to wear you down.

If you read this book and begin to ask those questions — who paid for the subway? Why do land prices keep rising? Where did my rent money go? Whose land am I helping to appreciate with my taxes? — then this book has achieved its purpose.

Who Walked Away with the Value? The question mark is not decoration. It is an invitation.

Xu Ping

Boston, 2026

Chapter 1: Why Has Progress Not Eliminated Poverty?

I

Mayfair is one of the most expensive neighborhoods in London. A Georgian townhouse there lists for twenty-eight million pounds. The land beneath it has been owned by the same family — the Grosvenors — for more than three centuries. Three hundred years ago, this was farmland and marsh on the western edge of London. Today, it is one of the most valuable pieces of real estate on the planet.

The Grosvenors did not dig the subway. They did not lay the sewers. They did not build the schools, hospitals, or police stations. The value of their land increased because London grew — population increased, commerce expanded, infrastructure was built, jobs clustered. The cost of that growth was paid by countless people: taxpayers, workers, engineers, immigrants. The increased value flowed to the Grosvenors.

This is not an anomaly. It is the logic of land value capture — or rather, the failure of land value capture — built into the institutional design of many countries.

II

In 1879, Henry George published *Progress and Poverty*. The United States was in an era of rapid railroad expansion, rising industrial output, and surging immigration. By every conventional economic measure, the nation was becoming wealthier. Yet poverty had not disappeared. In some rapidly growing cities, it had become more acute. Wages rose, but rents rose faster. Economic growth did not translate into affordable housing.

George identified the mechanism that mainstream economics had overlooked. The core benefit of economic growth — the increase in land value — was being captured by a small minority. If that collectively created value were recovered by society, poverty might be addressed. But if it continued to flow to private landowners, then even as the economy grew, poverty would persist.

This is not a historical observation. It is a question for every country today. When a government invests in a subway, a high-speed rail line, a highway, a port, or an airport, the surrounding land increases in value. That value is collectively created — it is the result of public investment and broader economic activity, not the effort of the landowner. Who captures that value?

III

The answer varies by institutional design.

In the United Kingdom, land value is captured by aristocrats and large landowners. England's land is among the most concentrated in the developed world. Half of England is owned by less than one percent of the population. When a planning permission converts farmland into developable land, its value can increase fifty-five times overnight — from £23,000 per hectare to £1.27 million. This increase has nothing to do with any productive activity by the landowner. It is the result of a public policy decision. Yet the profit flows to the landowner.

In the United States, land value is captured by developers and financial capital. The interstate highway system — one of the largest public investments in history — created enormous value along its corridors. That value was not recovered by the public. It was captured by those who purchased land before the highways were announced. The

subsequent financialization of real estate through REITs turned land into a tradable asset, further concentrating the captured value.

In Japan, housing has depreciated to nearly zero in rural areas — over eight million empty homes, some offered for free — while land in Tokyo continues to appreciate. This extreme case reveals the fundamental distinction: buildings depreciate; land does not. The value of land comes entirely from its location, and location is a function of public infrastructure, commercial activity, and population density. Not one of these is created by the landowner.

In Hong Kong, the British leasehold system was retained after the 1997 handover. The government is the sole supplier of land. Land sales account for over twenty percent of government revenue. The MTR Corporation's "rail plus property" model is widely cited as a successful land value capture mechanism — the MTR receives development rights along new lines, captures the increase in land value, and reinvests it in rail construction. But this mechanism applies only to land along new rail lines. The broader land market remains dominated by four large developers, and housing prices remain the least affordable in the world.

In Taiwan, the constitutional principle of "increased land value returning to the public" was established a century ago. A land value tax was implemented with a top rate of one hundred percent. But over decades, exemptions and reductions were introduced — for owner-occupied housing, for long-term holding, for land readjustment zones — and the effective tax rate fell to around five percent. The constitutional principle remains. The reality is that ninety-five percent of the increased value stays in private hands.

In China, land is publicly owned — urban land by the state, rural land by collectives. When the government builds a subway, the surrounding land appreciates. The

government sells usage rights to developers, captures the increase, and reinvests it in the next infrastructure project. This is a closed loop of value capture and reinvestment. It explains how China built two-thirds of the world's high-speed rail in twenty years. But it comes with costs: local government debt, high housing prices, and the risk that the loop breaks when population growth slows and land prices stop rising.

IV

Across these six institutional designs, one structural fact is constant. The cost of public investment and economic growth is borne broadly. The increase in land value is captured narrowly. Who captures it varies — aristocrats in the UK, developers in the US, large landowners in Japan, the government and developers in Hong Kong, private landowners and investors in Taiwan, the state in China. But in every case, the people who pay the cost are not the people who capture the value.

This is the core problem. It is not a problem of individual malfeasance or market failure alone. It is a problem of institutional design. Institutions are not neutral. They reflect who was at the table when they were designed and who was not. In the UK, aristocrats were at the table. In the US, capital was at the table. In Hong Kong, the colonial government and later developers were at the table. In Taiwan, landowners and investors were at the table. In China, the state was at the table. Not at the table — in every case — were the renters, the mortgage payers, the down-payment savers, the people whose labor and taxes created the value that others walked away with.

V

This book is not an academic treatise. It is a diagnostic tool. Its purpose is to provide a framework — the GLFramework — for measuring administrative friction: the costs that GDP records but does not account for. Waiting. Repetition. Collapse. Information asymmetry. Psychological cost. Opportunity cost. These costs are real. They are paid every day. But they do not appear in any national ledger.

The central question of this book is simple. When a government invests one dollar in infrastructure — a road, a subway, a high-speed rail line, a port, an airport — who ultimately walks away with the increased value? The answer is not the same everywhere. But the question applies everywhere.

If you are a public administrator or a policy researcher, you already know that land value capture is a technical issue. It appears in planning documents, tax codes, and public finance models. But the technical issue rests on a political one. The institutions that determine who captures value were designed by someone, at some time, for some purpose. They can be redesigned. But redesign requires first seeing the structure as it is.

This book is an attempt to show that structure. Not to prescribe a single solution — there is none — but to provide a common set of questions that can be asked in any country, under any institutional arrangement.

Who pays the cost? Who walks away with the value?

Chapter 2: The Conqueror's Legacy

I

In the autumn of 1066, an army from Normandy landed on the south coast of England. Its leader, William, later known as William the Conqueror, defeated the English king Harold Godwinson at the Battle of Hastings. William became king of England. This event is usually summarized in a few sentences in history textbooks. But its effect on English land law continues to this day.

William faced a practical problem. He had hundreds of Norman nobles who had fought with him and needed to be rewarded. The reward was not cash or stock options. It was land. William redistributed nearly all of England's land to about two hundred Norman nobles. The previous English landowners were almost entirely dispossessed.

But William did something more important. He declared that all land ultimately belonged to the crown. The nobles did not own the land. They held it "of the king" — a legal relationship called tenure. The king could grant land, and under certain circumstances, the king could take it back. This became the core principle of English land law: every piece of land ultimately derives from a royal grant. No land is absolutely privately owned.

This principle has persisted for nearly a thousand years. If you trace the legal title of any piece of land in central London back far enough, you end at one name: the Crown.

II

Of course, theoretical ownership and practical control are different things. The Crown has never actually taken all the land back. The descendants of the Norman nobles have bought, sold, inherited, and transferred land through various legal mechanisms for centuries. But one structural fact has never changed: English land has been highly concentrated from the very beginning.

In 1086, William ordered a survey of England. Every piece of land was recorded — its owner, its area, its value, its population, its livestock. The results were compiled into two volumes called the Domesday Book. The name was not chosen lightly. The survey was so thorough that it reminded Englishmen of the biblical Last Judgment. Every account was final.

The Domesday Book shows that William and the crown directly controlled about seventeen percent of England's land. The Norman nobles controlled about fifty-four percent. The church controlled about twenty-six percent. The previous English landowners were reduced to nearly zero. In a very short time, England's land was concentrated in the hands of less than two percent of the population. This level of concentration was unique in Europe at the time.

Nine hundred years later, in 2025, the UK Parliament published a report on land ownership. One number stood out: half of England is owned by less than one percent of the population. Approximately twenty-five thousand landowners control half of England's land area. Most of them are aristocrats and the royal family. The aristocracy and gentry hold about thirty percent of England's land. Some families have held their land since the Norman Conquest — nearly a thousand years. The Crown, through the Duchy of Lancaster and the Duchy of Cornwall, holds over 180,000 acres. Meanwhile, all owner-occupied households together hold just five percent of England's land.

Nine hundred years later. The structure William imposed has barely been touched.

III

One might ask: given everything that has happened in England over nine centuries — civil war, revolution, the Industrial Revolution, two world wars, the collapse of an empire

— how has land concentration survived? The answer is simple. Every time a reform was possible, the political power of landowners was strong enough to keep it out.

In 1649, the English Civil War ended. King Charles I was beheaded. Oliver Cromwell came to power. This was one of the few moments in English history when comprehensive land reform was genuinely possible. Cromwell did confiscate the lands of the crown and the royalist aristocracy and put them up for auction. But the buyers were largely the same aristocracy and a new class of commercial capitalists. Land moved from one set of hands to another. The level of concentration did not change.

In the 1880s, Henry George's ideas reached England. They resonated strongly among working-class organizations and intellectuals. Workers in East London formed land reform movements, demanding a tax on land value increases and even land nationalization. The Liberal government, feeling the pressure, introduced the People's Budget of 1909, which included a land value tax. The budget passed the House of Commons but was vetoed by the House of Lords. At the time, the House of Lords was composed largely of hereditary aristocrats — the largest landowners in Britain. They did not accept having their land value increases taxed.

In 1945, the Labour Party won a landslide victory and launched a massive nationalization program. Coal, railways, steel, electricity, gas, even hospitals — all were nationalized. But Labour did not touch land. Not because they did not want to. Because they did not dare. In 1947, Chancellor Hugh Dalton introduced a land value tax bill to capture increases in land value at the time of development. The bill provoked fierce opposition from landowners. They mobilized through the House of Lords and the media. The bill was gutted in implementation and repealed in 1953.

Every attempt to recover land value for the public was blocked by the political power of landowners. Not because the votes were lost. Because the rules were written in their favor from the start.

IV

English land law has a critical feature called "planning permission." Farmland is worth little. But if that farmland is designated as developable — land on which housing can be built — its price immediately increases by tens or hundreds of times. This increase is not created by the farmer. It is not created by the landowner. It is created by a public planning decision.

The UK Parliament's 2025 report stated this explicitly: "This land value increase has nothing to do with any productive activity by the landowner or developer. It is purely the result of public policy decisions. Yet the vast majority of the profit flows to landowners and developers."

The report gave a specific example. Agricultural land without planning permission in England was worth approximately £23,000 per hectare. Once it received residential planning permission, its value rose to £1.27 million per hectare. A fifty-five-fold increase. No building was constructed. No road was paved. No utility line was laid. A government official stamped a piece of paper. And the landowner collected the increase.

The same logic applied to the HS2 high-speed rail line built in the 2010s. After the route was announced, land prices along the route began to rise. Public investment created enormous value. Most of it flowed into the pockets of landowners along the route. Some sold at the peak and retired to the countryside. That money could have paid for

the construction. It could have subsidized fares. It could have paid for noise barriers along the route. Instead, it became windfall profits for landowners.

V

England's land problem has a geometric dimension that is easy to overlook. England is an island. Its land area is fixed. It has not increased by a single square kilometer since Roman times. When a country has a fixed supply of land, and its population and economic activity continue to increase, land prices will rise over the long term. Whoever acquired land when it was cheap will capture the value created by the subsequent growth of society. This is not investment skill. It is luck. Not ability. Timing.

The Grosvenors acquired Mayfair three hundred years ago, when it was still farmland. They had no special foresight. They did not know London would expand westward. They were simply there. And they did not sell. Three hundred years later, London's population has grown from under one million to nearly nine million. Greater London accounts for nearly a quarter of the UK's economic output. Mayfair has transformed from farmland into a global financial center. The Grosvenors did nothing. Their wealth grew as London grew.

This is the core contradiction of the English land system. Society creates value. Society cannot recover it. Taxpayers pay for infrastructure. The increase flows into private pockets. Young people work hard. A large portion of their income becomes rent and mortgage payments that flow to people who were standing on that land long before they were born.

VI

Some argue that the English system is unfair. Others argue that it is the normal outcome of a market economy. Still others argue that private property rights must be respected. These debates have continued for more than a century without resolution. But one fact is not changed by debate. The UK has one of the lowest homeownership rates in Europe. London has one of the highest price-to-income ratios of any major city. And half of England's land remains in the hands of less than one percent of the population.

This is not an accident. This is a system that has been operating since 1066. For nearly a thousand years, it has reinforced itself. Every threat has been defused. Every crisis has been shifted. Shifted to whom? To those without land. To those born later. To renters. To those who hand over their paychecks to their landlords each month and convince themselves that this is normal.

VII

The UK has a well-documented problem with social mobility. Social mobility measures whether a child born into a poor family has a chance to become middle-class or wealthy. The UK's social mobility ranks near the bottom among developed countries. Many explanations have been offered — education, class culture, trade unions. But land is rarely mentioned. In fact, the most fundamental driver of low social mobility in the UK is the land system.

Consider a country where the most important productive asset — land — is half-owned by less than one percent of the population. These people have not only wealth. They have political influence, legal resources, and intergenerational knowledge and networks. Their children start far ahead of everyone else. Not because they are smarter or work

harder. Because their families acquired land centuries ago, and the growth of society has continuously increased its value.

Meanwhile, those without land, no matter how hard they work, face a wall. They can attend Oxford or Cambridge. They can become doctors or lawyers or senior financial executives. They still cannot afford a home in central London. A large portion of their income becomes rent and mortgage interest that flows to landowners. Their children are born and raised in London, but they will not inherit millions of pounds of assets like the Grosvenor children. Not because their parents did not work hard. Because their parents entered the game nine hundred years too late.

This is the mechanism of class reproduction in the UK. It requires no explicit discrimination. No legally unequal provisions. No secret conspiracy. It requires only one thing: land concentrated in a few hands, with land values rising as society develops. Those who acquired land earliest do nothing and watch their wealth grow. Those who arrived later, no matter how hard they work, compete only for what remains.

Many people think the UK's class problem is cultural — a matter of manners, accents, and etiquette. Those things exist. But they are on the surface. What operates underneath is land. The ownership structure that has not changed since 1066. The value capture mechanisms that have blocked every reform. The rule that "location" determines everything — while location itself is collectively created.

The UK is a democracy. Everyone has the right to vote. The law treats everyone equally. All of this is true. But if you cannot afford a home, if more than half of your monthly income goes to someone who acquired land centuries ago, what does your vote change? What does legal equality change? Your taxes built the subway. The subway

increased land values. The increase raised your rent. You paid. He collected. This is the UK's social contract.

Now we turn across the Atlantic. The United States has no Norman Conquest. No hereditary aristocracy. No thousand-year history of concentrated land ownership. When the United States was founded, land was treated as an almost infinite resource — used to reward soldiers, attract immigrants, and encourage settlement. But that path did not lead to equality. It led to a different kind of concentration. That is the subject of Chapter 3.

Chapter 3: From the Homestead Act to Land Financialization

I

If you had traveled to the American Midwest in 1862, you would have seen something that was impossible in Europe. The federal government was giving away land. Not selling it. Giving it. Any adult citizen willing to move onto a piece of land, live on it, and farm it for five years could claim 160 acres of public land — about sixty-four hectares. The law was called the Homestead Act. It was one of the most aggressive land distribution policies in history.

Why did the United States do this? Not because Americans were unusually generous. Because the United States had something Europe did not: seemingly infinite land. Europe is an island. Its land area is fixed. Its population is dense. Every piece of land was already claimed. The United States was a continent — from the Atlantic to the Pacific, with millions of square kilometers of what European settlers called "empty" land. The original inhabitants of this continent were Native Americans, but the US

government did not recognize their land rights. Through war, treaty, and forced removal, the federal government took nearly the entire western half of the continent and treated it as an infinite resource to be distributed.

The political goal of the Homestead Act was clear: put land in the hands of ordinary people and create a republic of small farmers. The founders of the United States widely believed that land ownership was the foundation of civic independence. A person who owned his own land did not depend on a landlord. He did not have to defer to an aristocrat. He could vote according to his own judgment. This ideal was achievable at the time because there was so much land.

II

Between 1862 and 1934, the Homestead Act distributed about 270 million acres of land — roughly ten percent of the land area of the United States. Hundreds of thousands of families received free land and settled in the Midwest and the Great Plains. Many were immigrants from Ireland, Germany, and Sweden — people who could never have owned land in their home countries. In America, they became landowners.

This was the fundamental difference between the American and English land systems. The English system concentrated land in a few hands from the Norman Conquest onward and never truly dispersed it. The American system began with dispersion, putting large amounts of land in the hands of ordinary people. Well into the twentieth century, the United States had the highest proportion of small landowners of any country — far higher than Britain or continental Europe.

But there was a problem with this dispersion, and no one noticed it at the time. The land was dispersed, but the mechanism of land value increase did not change. When

farmland becomes a city — when it goes from having no roads to having highways, from having no rail connections to having a high-speed rail station — its value skyrockets. Who captures that increase? Whoever held the land before the increase. And the most critical increases occur not at the moment of initial distribution, but at the moment of urban expansion, infrastructure investment, and industrial agglomeration. In other words, the first person to receive the land is not necessarily the one who captures the largest increase. The one who holds the land at the inflection point — when rural becomes urban — captures the largest increase.

III

The real turning point in American land policy was not the Homestead Act. It was the interstate highway system of the mid-twentieth century.

In 1956, President Eisenhower signed the Federal Aid Highway Act, authorizing the construction of about 68,000 kilometers of interstate highways. It was one of the largest public works in human history. The total cost exceeded $500 billion. Construction took thirty-five years. The interstate system transformed the geography of the United States. Previously dispersed towns were now linked by highways. Suburbs expanded massively. Residents moved out of city centers. Commercial activity followed the highways.

Land values along the highways exploded. Farmland or forest near an interchange became a prime location overnight. Where did this increase go? As in Britain, most of it flowed into the pockets of landowners. The government paid for the highways. The government created the value. But the government did not recover the value. Those who captured it were the people who bought land along the proposed routes before the

highways were announced — farmers, speculators, developers. Private actors, not the public.

This is identical in structure to the British planning permission mechanism. One creates value through a zoning decision. The other creates value through a public works project. Both involve public decisions creating value that is then captured privately. The United States had no hereditary aristocracy, but it acquired a new class of value capturers: developers and land speculators.

IV

In Britain, the aristocracy captured land value. In the United States, capitalists captured it. This difference does not reflect American virtue or British greed. It reflects different institutional paths. British land was monopolized by aristocrats from the start, so the value flowed to aristocrats. American land was dispersed from the start, but over time, through urbanization and infrastructure investment, it reconcentrated in the hands of those with capital. Not through inheritance. Through the market.

The market logic is simple. If you know that land near a highway interchange will skyrocket in value, what do you do? You buy that land before the highway is announced. But ordinary people do not know where the interchanges will be. Those with inside information, political connections, or enough capital to bet across many locations are the real beneficiaries. By the late twentieth century, the American land market was no longer dominated by individual farmers and small speculators. Large developers, real estate investment trusts (REITs), pension funds, and Wall Street financial institutions had entered the game.

The critical turning point was the REIT. In 1960, the US Congress passed legislation allowing the creation of REITs. A REIT operates like a mutual fund, but instead of holding stocks or bonds, it holds real estate and land. Small investors could now buy shares in a REIT and indirectly invest in real estate, sharing in land value increases. The stated purpose was to allow small investors to participate in large-scale real estate investment. The actual effect was to accelerate the financialization of land.

Before REITs, land was primarily treated as a factor of production or a place to live. After REITs, land increasingly became a financial asset. You buy a REIT not to live on the land, not to farm it, but to earn capital gains from price increases and rental income. Land shifted from use value to exchange value. In the twenty-first century, this process reached its extreme. Land became a ticker symbol, an index, a financial instrument that could be packaged, sliced, and sold to investors around the world.

V

Consider the example of Jamaica Plain, Boston. In the 1980s, Jamaica Plain was a typical Boston neighborhood. Victorian wood-frame houses lined the streets. Some were well-maintained. Others were already tilting. The residents were Irish-American police officers, Italian-American firefighters, Polish-American nurses, and recent college graduates who had found jobs in the financial district. Prices were not cheap, but an ordinary worker could save for a few years and barely afford a two-bedroom apartment.

Forty years later, the same neighborhood, the same wood-frame houses — but completely different prices. A Victorian house built in 1890, with wood rotting and foundation settling, lists for $1.5 million. Not because the house is in better condition. Because it is a ten-minute walk from the Orange Line subway. Because jobs in the city

center have increased. Because the school district ratings have slowly improved over four decades. The buyer paying $1.5 million is not buying the crumbling wood-frame house. He is buying the land. The house will be torn down. A new one will be built.

This is the American version of the East Taipei story. The house is dilapidated. The land is expensive. Not because the building has any value. Because the location of that land has been given value by the development of society. Who captured the increase? The person who bought that house in the 1980s. If he sold in 2020, his gain was not from any improvement he made to the property or any contribution he made to the community. It was purely from the value created by the growth of Boston over four decades. He did nothing. He just bought before others did.

VI

Some will say that this is simply market economics. Those with good judgment, who take risks and enter early, make money. There is nothing wrong with that. This argument works for the stock market, barely. It does not work for land. Stock value comes from company earnings. Company earnings come from products and services. Where does land value increase come from? From subways, schools, parks, hospitals, industrial clusters, the development of society as a whole. None of these are created by the landowner.

When land is treated as a stock, what happens? The price of land detaches from its use value. A wood-frame house physically depreciates every year. The wood rots. The paint peels. The foundation settles. According to normal accounting principles, the value of this house should decline each year. But if the land beneath it appreciates faster than the house depreciates, the market price of the dilapidated house still rises. This

increase has nothing to do with the quality of the house or your quality of life. It has everything to do with the land beneath your feet.

This was the trap the United States fell into in the early 2000s. Before the 2008 financial crisis, the US real estate market went through a period of frenzied appreciation. Banks loosened lending standards. They lent money to people who could not repay it. These people bought homes, believing they were building assets. In fact, they were buying at the peak. When prices fell, the market value of their homes fell below their mortgage balances. They stopped paying. Banks failed. Taxpayers bailed them out. Who captured the value during this cycle? Those who sold during the rise. Who bore the loss? Those who bought at the peak — and the taxpayers who came after.

VII

Many people interpret the 2008 financial crisis as a story of banker greed or regulatory failure. But the deeper problem was the financialization of land itself. When land is treated as a financial asset, when its price reflects speculation rather than use value, when the wealth of an entire society is tied to something with a fixed supply, then bubbles and crashes are the cyclical result. It is not a question of banker morality. It is a question of institutional design.

The United States and the United Kingdom share a common feature: public investment creates value, and private actors capture it. They differ only in who captures it. In the UK, aristocrats. In the US, capitalists. In the UK, aristocrats inherit their position. In the US, capitalists compete for it through the market. But the outcome is the same: those who bear the cost and those who capture the value are different groups of people.

The United States has been luckier than the United Kingdom. It has more land. Lower population density. The scarcity pressure is not as extreme. But this luck is running out. US metropolitan areas are concentrating. Developable land is shrinking. Housing prices have risen rapidly over the past two decades. A younger generation is now facing the same predicament that British young people have faced for decades: cannot buy, cannot afford rent, cannot move away. The United States has no hereditary aristocracy. But it has developed a new form of inheritance: whether your parents own a home. If your parents bought before prices exploded, they can help you with a down payment. You can get on the train. If your parents do not own a home, you continue paying rent, continuing to help someone else's land appreciate. The American dream has become a simple math problem. You do not need to be especially smart or especially hardworking. You just need, at the moment of your birth, for your parents to have been standing on the right side.

Next, we cross the Pacific to Japan. Japan provides the most extreme example of the fundamental distinction between land and buildings. Japan has millions of vacant homes — some offered for free — while land in Tokyo remains extraordinarily expensive. This contrast will help us see clearly how much of what we call "housing prices" is actually the price of land. That is the subject of Chapter 4.

Chapter 4: Empty Houses and the Separation of Land from Buildings

I

If you search online for Japan's "empty house banks" — *akiyabank* — you will find something that exists in almost no other developed country. Local governments list vacant homes on their websites. Some are free. Others cost a few tens of thousands of yen — a few hundred dollars. You do not need to be Japanese. You do not need special qualifications. If you are willing to move in and maintain a house that may have been empty for a decade, it can be yours.

This is not an internet rumor. It is a real institution. Japan has more than eight million vacant homes — fourteen percent of all housing stock. In some rural villages, one-third of the houses are empty. Local governments would rather give them away than watch them collapse, become safety hazards, and lower the quality of the surrounding environment.

If you saw this in Europe or the United States, you would assume that housing prices in Japan must be very cheap. Eight million empty homes. Supply far exceeding demand. Prices should have collapsed. But housing prices in Japan have not collapsed. Prices in Tokyo have risen steadily over the past decade. A decent new apartment costs upwards of one hundred million yen. An ordinary worker would need to save for more than a decade without spending anything to afford it. On one hand, eight million empty homes that no one wants. On the other hand, Tokyo housing prices so high that young people are desperate. These two phenomena exist simultaneously, and they are not contradictory.

Understanding why they are not contradictory is the key to understanding the global real estate problem.

II

Why does no one want the empty houses? The reason is very simple. The vast majority of empty houses are not in Tokyo, not in Osaka, not in Nagoya. They are in remote rural areas — villages losing population, with no jobs, no public transportation, no supermarkets, no hospitals. Even if you are given one of these houses for free, you do not want to live there. Not because the house itself is defective. Because the land under the house has no value. That land will not appreciate. It will depreciate. The population keeps declining. Shops keep closing. Schools keep consolidating. Land prices keep falling. If you take that free house, you will not make money. You will pay annual property taxes. You will pay for maintenance. Eventually, you will pay to have the collapsed structure demolished. That is not an asset. It is a liability.

Why are Tokyo houses expensive? For the same reason. Not because Tokyo's houses are particularly well built. Tokyo apartments are reinforced concrete, just like apartments in Osaka, Nagoya, and Fukuoka. They are not architecturally different. Tokyo houses are expensive because Tokyo land is expensive. Tokyo has 37 million people. It is the largest metropolitan area in the world. That many people are crowded onto a flat plain of limited area. Land supply is completely insufficient. Demand exceeds supply. Land prices rise. As land prices rise, the houses sitting on that land become expensive.

If you put Japan's empty house problem and its housing price problem side by side, you get a very clean conclusion. Houses depreciate. Wood rots. Steel rusts. Concrete deteriorates. After a house is built, its physical value only goes down. Land is different. Land does not depreciate. Land does not rot. The value of land depends entirely on its location. Land in a good location appreciates. Land in a bad location depreciates. What is called "housing price" in real estate markets is mostly land price. The building portion trends to zero over time. The land portion fluctuates with the development of society.

III

Japan reveals this truth particularly clearly because Japan is experiencing two things simultaneously. First, an aging population, a shrinking population, and the hollowing out of rural areas — all of which drive the physical value of many houses to zero. Second, hyper-concentration in Tokyo — which drives Tokyo land values continuously upward. These two phenomena are happening in the same country at the same time, like a controlled experiment, with the variables isolated. The control group is the rural empty houses. The experimental group is the Tokyo apartment. The only difference is location.

The conclusion of this experiment is harsh. If you inherit a house in rural Japan, unless that land has future development potential, you have not inherited an asset. You have inherited a liability. You will pay taxes every year. You will pay for maintenance. Eventually, you will pay hundreds of thousands of yen to have it demolished. If you buy an apartment in Tokyo, you think you are buying a home. In fact, you are buying the future appreciation of the land beneath it. The apartment itself will have zero value in thirty years. But the land may double in price. What you are capturing is not the value of the building. It is the capitalized ground rent created by the development of society.

This is not a uniquely Japanese phenomenon. It is the underlying logic of all market economies. Japan has simply taken it to the extreme. In other countries, population is still growing. Urbanization is still proceeding. This logic is masked by the smoke of economic growth. In Japan, population has already begun to decline. Economic growth has stagnated for a long time. The curtain has been pulled back. What is exposed underneath is the bare logic of land. Buildings are not valuable. Land is valuable. Land is valuable not because of any special property of the soil. It is valuable because society has decided to concentrate in that place.

IV

Japan once had a chance to take a different path. During the postwar occupation, the Supreme Command of the Allied Powers considered introducing a land system similar to that of the United States — confiscating the land of large prewar landowners and distributing it to tenant farmers. This policy was actually implemented. The land reform successfully broke the prewar landlord system. Farmers received land. But urban land was not reformed. The land in Tokyo, Osaka, Nagoya, and other large cities remained in the hands of a small number of large landowners. Many of these were prewar nobility, *zaibatsu* families, and people connected to the imperial household. They lost their agricultural land. They kept their urban land. And that urban land multiplied in value hundreds of times over the decades of the Japanese postwar economic miracle.

The story of the Japanese economic miracle, as told in textbooks, is as follows. Japan rose from postwar rubble. Through the hard work of its laborers, the efficiency of its corporations, and the intelligence of its industrial policies, it became the world's second-largest economy in a single generation. This story is not wrong. But it leaves out an important supporting actor. Land. Corporations needed land to build factories. Workers needed land to build houses. The government needed land to build roads and public facilities. All economic activity has to happen somewhere. As the economy grew, the value of those places rose. Who captured that increase? A large portion went to those who were already standing on that land before the war.

Japan did not have a hereditary aristocracy like Britain. But the prewar landlord class reconstituted itself during the Japanese economic miracle. They did not need to open factories. They did not need to do research and development. They did not need to manage workers. They only needed to hold onto the land their ancestors had left them

and wait for the city to expand to their doorstep. While Mitsubishi, Toyota, and Sony were creating GDP, the landlords were collecting rent. While the salaryman worked his entire life to pay off his mortgage, the children of the landlords inherited wealth they had never participated in creating.

V

Young Japanese call this phenomenon *oya no senaka*. The literal meaning is "parents' backs." But it carries a deeper reference. Whether a young Japanese person can buy a home in Tokyo depends almost entirely on whether their parents can help with the down payment. If your parents own a home in Tokyo, or bought a home in Tokyo before you were born, your life difficulty is much lower. You can buy a home in your twenties and begin accumulating assets. If your parents do not own a home, you spend every month paying rent — helping your landlord's land appreciate — while the speed at which you save for a down payment never catches up with the speed at which prices rise. You work hard. You save. You do everything right. You still cannot get on the train. Not because you did something wrong. Because your parents were not in the right place at the right time.

This is the Japanese version of class reproduction. On the surface, it is a competition of individual effort. Beneath the surface, it is the intergenerational transfer of household assets. And the core of household assets is almost always land. Japanese land prices have gone through several cycles. From the 1960s to the 1980s, the economy grew rapidly and land prices soared. The early 1990s bubble burst cut land prices in half — and then in half again. Many who bought at the peak went bankrupt. But over the long run, Tokyo land prices in the second half of the twentieth century rose far faster than wages. Those who held land before the takeoff saw their wealth lifted by the

development of society. Those who entered at the peak were badly burned. Those who never entered spent their lives paying someone else's rent.

Japanese society has long been considered egalitarian — *ichioku so churyu*, "one hundred million middle class." Everyone was roughly the same. But this image is cracking. The gap between young people is widening. Not because the gap in ability has widened. Because the gap in parental homeownership has widened. A child raised in Tokyo's Setagaya ward and a child raised in rural Akita prefecture start from completely different asset positions at the moment of birth. They did not decide this. Their grandparents and parents decided it. And what the grandparents and parents owned depends largely on where their ancestors were standing one hundred years ago, or fifty years ago.

VI

Japan's example makes a particularly important contribution to this book. It completely separates land from buildings. In Britain and the United States, land and buildings are usually transacted together. The buyer has difficulty distinguishing how much of the price is for the building and how much is for the land. In Japan, eight million empty houses have driven the value of the building portion nearly to zero, while Tokyo land prices remain extremely high — creating an extreme control group. You can see clearly that the physical value of a building depreciates, while the locational value of land fluctuates. The real object of real estate investment is not the building. It is the land. The building is just a wrapper attached to it — a wrapper that slowly deteriorates.

Once you understand this, many common claims become questionable. For example, "buying a home is forced saving." This claim assumes that the house will hold its value,

or at least not fall to zero. Japan's empty houses prove that if a house is built in the wrong location, it will not hold value. It will become a liability. For example, "buying a home is a hedge against inflation." This claim assumes that land prices will rise as currency depreciates. This is often true in first-tier cities. But in places with population loss, it is completely false. When inflation comes, rural empty house prices do not rise. Because no one wants them. It is not a hedge against inflation. It is a hedge against population concentration.

Japan puts the central fact of the global real estate market in plain sight. Land value does not come from the land itself. It comes from human agglomeration. Wherever humans decide to cluster, value rises. This rise has nothing to do with the effort of the landowner. It has everything to do with government policy, industrial development, and population movement. The landowner does none of these things. But the landowner captures all of the increase. This is not only true in Japan. It is true everywhere. Japan's empty houses have simply magnified the absurdity to the point where it can no longer be ignored.

Next, we move south to Hong Kong. Hong Kong has a land system inherited from 150 years of British colonial rule, combined with Chinese sovereignty after 1997 — a unique hybrid. Hong Kong has long had the least affordable housing prices in the world. Yet Hong Kong's government also operates one of the most successful land value capture mechanisms anywhere: the MTR Corporation's "rail plus property" model. Why does housing remain so expensive despite a successful value capture mechanism? That is the subject of Chapter 5.

Chapter 5: British Institutions, Chinese Sovereignty — Who Walked Away with the Value?

I

If you stand in Hong Kong's Statue Square in Central and look around, you are looking at some of the most expensive real estate on the planet. The glass tower of Two International Finance Centre cost more than five billion Hong Kong dollars to build. A standard room at the adjoining Four Seasons Hotel costs five thousand dollars a night. Up in the hills, villas on the Peak sell for one to two billion dollars each. To the west, luxury apartments in West Kowloon routinely exceed one million dollars per ping — a ping is about thirty-six square feet. Hong Kong has been ranked the least affordable housing market in the world for many consecutive years. An ordinary worker would need to save for more than twenty years without spending anything to afford an ordinary home.

If you walk from Statue Square into the subway station and take the Island Line east a few stops, you enter a different world. In Chai Wan and Siu Sai Wan — areas farther from the center — homes are still expensive, but at least some people can afford them. As you tap your Octopus card to exit, you may not think about a particular question. But that question determines everything about Hong Kong. Whose land are you standing on? Who paid for the subway you just rode? When the subway opened and land prices along the line exploded, who captured that increase?

In Hong Kong, the answers to these questions are unlike those in almost any other city.

II

Hong Kong's land system was inherited from the British. In 1841, immediately after arriving in Hong Kong, the British did not build houses or construct a port. They issued a proclamation. Its content was simple: all land on Hong Kong Island and the Kowloon Peninsula belongs to the British Crown. Private parties cannot own land. They can only hold leases — for terms ranging from seventy-five to nine hundred ninety-nine years. This was the origin of the leasehold system.

Why did the British introduce a land system in Hong Kong that they did not use in Britain? The reason was practical. Hong Kong Island is tiny — less than eighty square kilometers. It has no farmland, no mineral deposits, no natural resources in any traditional sense. For the British to make this colony viable, the only way was to control the land and sell it. Land sale revenue became the colonial government's most important source of income. From 1841 onward, Hong Kong survived by selling land. Not because the people of Hong Kong wanted it this way. Because the British designed the system and left it behind.

This system operated for more than 150 years. It was modified several times. But the core principle never changed. The government is the sole supplier of land. Private parties can only hold usage rights, not ownership. Usage rights have a term. When the term expires, the government can take the land back, re-lease it, or allow the lessee to renew. The government sells usage rights through public auction or tender. The highest bidder gets the land. Developers bid up the price. The government collects the revenue. Developers get the land and build housing to sell to the public.

The outcome of this mechanism is simple. The government monopolizes land supply. It artificially controls the quantity of land available. Land prices are artificially inflated. Developers pass the high cost of land acquisition on to homebuyers. The public pays.

The government receives enormous land sale revenue — used to build infrastructure, maintain public services, and pay civil servant salaries. Hong Kong has long had no income tax, no sales tax, no value-added tax. The government has survived primarily by selling land. Land sale revenue has often exceeded twenty percent of government revenue. In some years, it exceeded thirty-five percent. Without land sale revenue, the Hong Kong government would go bankrupt immediately.

III

In 1997, Hong Kong was returned to China. The Chinese government faced a choice: should it change the land system inherited from the British? In theory, it could. Mainland China operates a system of public land ownership — urban land owned by the state, rural land owned by collectives. The government captures value through land concession fees. This system, though different in detail, has the same core logic as Hong Kong's leasehold system: public ownership, government land sales, private usage rights. China could have used the handover as an opportunity to integrate Hong Kong's land system into the mainland framework.

But China did not do this. Article 7 of the Hong Kong Basic Law states clearly: "The land and natural resources within the Hong Kong Special Administrative Region shall be owned by the state... The government of the Hong Kong Special Administrative Region shall be responsible for the management, use, development, lease, or grant of such land and natural resources to individuals, legal persons, or organizations for use." The practical effect of this language was to continue the British leasehold system almost unchanged. The government remained the sole supplier of land. Land sale revenue remained the pillar of government finance. Ninety-nine-year leases remained the norm.

The only thing that changed was the sovereign from whom land was held — from the British Crown to the People's Republic of China.

Hong Kong thus became a unique hybrid: a British institutional framework, overlaid with Chinese sovereignty. This hybrid has its benefits and its costs. The benefit is that the government has a stable source of revenue and can invest heavily in infrastructure. The cost is that housing prices are artificially inflated by the government's monopoly over land supply. The cost of living is the highest in the world. The younger generation sees no hope of ever buying a home.

IV

Among all of Hong Kong's infrastructure, one project is cited by urban planners around the world as a model. The MTR Corporation — the Mass Transit Railway — is one of the few profitable subway companies in the world. The MTR does not make money from fares. No subway fare in the world covers operating costs. The MTR is no exception. Where the MTR makes money is through its "rail plus property" model.

The model works simply. When the government plans a new rail line, it simultaneously grants the MTR development rights over the land around the stations. The MTR uses the development value to pay for construction. After the line opens, land values along the route increase. The MTR captures the increase and uses it to build the next line. The government does not need to contribute capital. The MTR does not need to borrow from banks. Passengers do not need to pay premium fares. The cost of rail construction is absorbed by land value increases.

From the perspective of land value capture, the MTR model is one of the most successful mechanisms in the world. In Britain, the value created by high-speed rail

flowed to landowners along the route. In the United States, the value created by interstate highways flowed to developers. In Hong Kong, at least some of the value returns to the public. The Hong Kong government holds about seventy-five percent of MTR shares. A portion of MTR profits therefore returns to government revenue and can be used to improve public services. This is a significant improvement over the British and American systems. Hong Kong has demonstrated that land value increases created by public investment can be captured and reinvested in public infrastructure, creating a positive feedback loop.

But the MTR model has a critical limitation. It applies only to land along new rail lines. It does not apply to all land in Hong Kong. What about land that is not along new rail lines? What about land that appreciates because of overall economic growth, population increases, or commercial development? That value still flows primarily to two destinations: government land sale revenue and developer profits.

V

Hong Kong has four major real estate developers. Cheung Kong, Sun Hung Kai, Henderson Land, and New World Development. These four companies have long dominated Hong Kong's real estate market — from land auctions to residential sales to commercial leasing to office building management. Hong Kong's real estate market is not a competitive market. It is an oligopoly. The government controls the quantity of land supply. The four major developers control the bidding for land. The cost is passed on to homebuyers.

Hong Kong media frequently report on a phenomenon called "nano flats." Because housing prices are so high, ordinary people cannot afford normal-sized homes.

Developers have responded by building increasingly smaller units. One hundred square feet. Eighty square feet. Fifty square feet. Even "coffin flats" of less than thirty square feet. An adult living in a space the size of a bed, kitchen and bathroom crammed together, a window opening onto the wall of the next building. This living condition has almost disappeared from major cities in developed countries. In Hong Kong, it is normal. Not because Hong Kong lacks land. Because land supply is artificially controlled, bid up by oligopolists, and financialized to the point where ordinary people's purchasing power can only buy this much space.

The reality facing young people in Hong Kong is cruel. A university graduate's starting salary is about fifteen to twenty thousand Hong Kong dollars per month. A basic apartment outside the city center costs at least ten thousand dollars per month in rent. After rent, utilities, transportation, and food, the amount that can be saved is very limited. Saving enough for a down payment by age thirty is almost impossible. Not because they are not working hard. Because they entered this game too late. Before they were born, Hong Kong's land system had already been designed. The government monopolizes land supply. Developers monopolize development. Ordinary people inside this structure can only be renters or mortgage slaves.

VI

Since the 1997 handover, the people of Hong Kong have often asked a question. Why does the Chinese government not change Hong Kong's land system? Mainland China's land system is not perfect, but it at least forms a value capture loop. The government provides land for a subway. The subway drives up land prices. The government sells land and captures the increase. It uses the proceeds to build the next subway. Hong

Kong's MTR model is just a part of this loop — it only operates along rail lines. At the larger scale, most of Hong Kong's land value still flows to developer profits.

The Chinese government has the power to change Hong Kong's land system. The Basic Law was enacted by China. China has the authority to amend it. Hong Kong's land ownership has already been transferred from the British Crown to the People's Republic of China. The Chinese government has the authority to redesign the leasehold system. But change carries political costs. Hong Kong's developers have enormous influence in Hong Kong society. They control media. They permeate politics. They mobilize public opinion. Any attempt to change the land system will be framed as "interference in the free market," "destruction of Hong Kong's prosperity and stability," or "violation of one country, two systems." No one wants to bear that political cost. So no one has changed it.

Hong Kong's structure has been frozen. The British designed the system. The Chinese continued it. No one changed it. The beneficiaries of this system are clear. The government receives land sale revenue and solves its fiscal problem. Developers receive enormous profits and expand their commercial empires. A small number of early homebuyers enjoyed decades of asset appreciation. Who bears the cost? Those who entered the game later. Those who rent. Those who live in nano flats and subdivided units. The young people who graduate from university, work hard, save carefully, turn thirty, and find that the down payment has moved further away than ever.

VII

There is an important difference between Hong Kong and mainland China that deserves attention. Mainland China's land value capture mechanism, though imperfect, has the

right direction. The government invests. Land appreciates. The government captures the increase. The government reinvests. It is a loop. Hong Kong's MTR model achieves this loop along rail lines, but the overall land system does not. The government sells land. Developers buy land. Developers build housing and sell it to the public. The government receives a one-time concession fee. Developers earn ongoing profits. The value is not recirculated. It is consumed in profit distribution and mortgage interest payments.

Hong Kong demonstrates two things. First, land value can be captured. The MTR model is proof. Second, even with a successful capture mechanism in specific areas, the housing problem will not be solved unless the overall distribution of land is changed. The value along rail lines is captured. The value everywhere else is still taken by developers. The government receives a one-time fee. The public takes on thirty years of mortgage debt. Banks earn interest. Developers earn profits. The earliest landowners earn the increase. The person still paying the mortgage is the last one to enter the game.

Next, we move north to Taiwan. Taiwan's constitution contains the principle of "increased land value returning to the public" — one of the most advanced land policy concepts in the world. The concept was written into the constitution. But it was not written into reality. Why does a place with such an advanced concept still have a generation that cannot afford homes? That is the subject of Chapter 6.

Chapter 6: "Increased Value Returns to the Public" — Written into the Constitution, Not into Reality

I

If you stand at Taipei Main Station and walk west for a few minutes, you will reach a wide boulevard called Zhongxiao West Road. There is nothing particularly special about it — a typical busy road in central Taipei, crowded with cars, with scooters parked under the arcades, the air a mix of exhaust fumes and the smell of street food. But if you know a little about the history of land policy in Taiwan, you will know that the sidewalks of this road were once the site of an experiment with one of the most advanced land policy ideas in the world.

In the 1950s, the Nationalist government had just retreated to Taiwan. It faced a severe problem. There was no money. The postwar economy was in ruins. Infrastructure needed to be rebuilt. Civil servants needed to be paid. The military needed to be supported. The treasury was empty. What did the government have? Land. Taiwan had complete land records from the Japanese colonial period. After taking over, the Nationalist government put Japanese-owned land and other public land up for sale to generate revenue. This was the starting point of Taiwan's land system. Not housing justice. Not social welfare. Survival.

But among the intellectuals who had come from mainland China, there was a group with a very different view of land policy. Their central figure was Xiao Zheng, founder of the Chinese Association of Land Economics and a longtime follower of Sun Yat-sen's principle of "equalization of land rights." When Sun Yat-sen proposed equalization of land rights a century ago, he was not primarily concerned with housing prices. He was concerned with something else. Why should the value created by the public be captured by private individuals? A road opens. A railway is built. A port is completed. The land around it increases in value. This increase is not the achievement of the landowner. It is

created by society as a whole. Sun Yat-sen therefore proposed that "increased land value should return to the public." This principle was later written into Article 143 of the Constitution of the Republic of China — one of the most advanced land policy concepts in the world.

Proposing a concept is easy. Implementing it is hard. Xiao Zheng and his colleagues tried to turn this principle into reality in Taiwan. They designed a land value increment tax. When land is sold, the government taxes the increase in value, recovering at least a portion of the value created by the public. This system was very advanced at the time of its design — more advanced than many European and American countries in recognizing the land value capture problem. But between design and implementation lies a long road.

II

Article 143 of the Constitution of the Republic of China states: "Any increase in land value not created by the application of labor or capital shall be subject to land value increment tax, the proceeds of which shall be used for public purposes by the state." This is very clear. Value that you did not create should not belong to you. It should be taken by the state and used for the public. This is a constitutional principle — not an ordinary law, not an administrative regulation. It is the highest level of legal norm in the country.

From this principle, Taiwan developed a land tax system that is unique in the world. The land value increment tax rate once reached one hundred percent. That is, if you sold land, the entire increase was taxed away. You kept nothing. This rate sounds like a fantasy today, but it really existed. In 1977, when the Equalization of Land Rights Act

was enacted, the top land value increment tax rate was one hundred percent. The government's meaning was clear: all publicly created value returns to the public. This was Sun Yat-sen's principle in its purest form.

Of course, no one liked a one hundred percent tax rate. Landowners did not like it because they could not profit. Developers did not like it because their costs were too high. Speculators did not like it because they had no room to speculate. Politicians did not like it because these people would get angry, and angry people do not vote. So the rate began to come down. From one hundred percent to sixty percent. From sixty percent to forty percent. From forty percent to twenty percent. Each reduction had a plausible justification. Promote economic development. Encourage land circulation. Reduce the tax burden on owner-occupied housing. Harmonize with international norms. Each justification sounded reasonable. But their collective effect was only one: the share of increased value returning to the public fell lower and lower, and the share staying in private hands rose higher and higher.

In addition to rate reductions, Taiwan's land value increment tax also accumulated various exemptions and preferences. Owner-occupied housing preference — once in a lifetime, ten percent rate. Long-term holding preference — held for more than twenty years, eighty percent reduction. Agricultural land transfer — tax exempt. Land readjustment zone land — forty percent reduction. Inherited land — cost basis valued at the time of inheritance, all prior appreciation tax exempt. Each preference was added at a certain time, for a certain interest group, through a certain legislator's proposal. Each preference individually has its logic. But together, their effect is that the actual collection rate of the land value increment tax has fallen lower and lower, and the government's ability to capture value has become weaker and weaker.

III

If you want to know how much of the increased land value Taiwan actually recovers, there is a simple way. Look at the Ministry of Finance statistics. In 2022, the net land value increment tax collected was about one hundred billion New Taiwan Dollars. That sounds like a lot. But compared to the total value of land transactions in the same year, it is tiny. Taiwan's annual land transaction value is roughly estimated at over two trillion New Taiwan Dollars. The effective tax rate is about five percent. The constitution says increased value returns to the public. The reality is that ninety-five percent of the increase stays in private hands.

This is the core contradiction of Taiwan's land system. The law is still there. The principle is still there. Article 143 has not been repealed. But the implementation has been drilled full of holes — preferences, exemptions, rate reductions, loopholes. The government still verbally supports the principle of increased value returning to the public. The market practices increased value staying in private hands every day. No one sees anything wrong with this, because everyone is looking for their own advantage within the holes. Owner-occupiers want to pay less tax when they sell. Investors want to keep more profit when they make money. Developers want more preferences to lower their costs. Everyone is acting correctly. Everyone is acting in their own self-interest. The collective result is that the constitutional principle has been hollowed out.

This is not a uniquely Taiwanese phenomenon. Every democracy has the same problem. Good ideas are written into law. Then interest groups strip them away layer by layer until only an empty shell remains. Britain's land value tax was vetoed by the House of Lords. America's land value increase has never been seriously recovered. Hong Kong's land sale revenue goes to the government and developers. Taiwan's increased value

returning to the public has been flooded with preference provisions. Every system has its loopholes. They are just in different places.

IV

If you want to see the failure of "increased value returns to the public" in Taiwan firsthand, the easiest way is to take the subway. The first line of the Taipei MRT, the Brown Line, opened in 1996. Since then, the Taipei MRT network has gradually expanded to more than one hundred stations, covering most of Taipei City, New Taipei City, and Taoyuan City. The impact of the MRT on Taipei cannot be overstated. Before the MRT, Taipei's transportation relied mainly on buses and private cars. During rush hour, the entire city was a parking lot. After the MRT, commuting times shrank dramatically. The city's reach expanded. Places that were never visited before became accessible in a few tens of minutes by subway.

The value created by the MRT is enormous. It takes two forms. The first is time saved. A trip from Tamsui to Taipei Main Station used to take more than an hour by bus. After the MRT opened, the same trip took forty minutes. The saved twenty minutes, multiplied by hundreds of thousands of passengers per day, accumulates to an astronomical number over a year. The second form is land value increase. Land around MRT stations begins to rise when the route is announced. Another rise when construction begins. Another rise when the line opens. At each stage, the landowner does nothing. The land value doubles automatically.

There is a basic question here. Who paid for the MRT? The construction cost came from the government budget — from taxpayers. Taxpayers paid. Taxpayers endured the traffic disruption during construction. Taxpayers put up with years of noise and dust. But the

land value increase created by the MRT? Taxpayers do not get it. Landowners get it. They may be speculators who bought the land cheaply thirty years ago. They may be local families who inherited the land. They may be lucky individuals who happened to buy just before the route was announced. Regardless of who they are, they all did the same thing: nothing. And they made a lot of money.

V

Taiwan's high-speed rail provides an even more extreme example. The high-speed rail stations are not located in city centers the way MRT stations are. Taipei, Banqiao, Taichung, and Kaohsiung stations were already in urban areas, already surrounded by activity. But several other stations — Taoyuan, Hsinchu, Chiayi, Tainan — were placed in what was then farmland. When the stations were selected, the surrounding area was endless fields. After the high-speed rail was announced, those fields began to be rezoned for development. Their prices began to explode.

The most extreme case was the Taoyuan station. The Taoyuan HSR station is located in the Qingpu area of Zhongli District. When the station was announced in 2000, agricultural land in Qingpu was worth less than twenty thousand NT dollars per ping. After the HSR opened, Qingpu became the gateway to Taoyuan. Development projects followed — the Gloria Outlets, the Taoyuan baseball stadium, the Taoyuan convention center. By 2020, residential land in Qingpu was priced at six hundred thousand to eight hundred thousand NT dollars per ping. A thirty- to forty-fold increase in twenty years. Who created this increase? Not the farmers. The farmers kept farming. A hectare of farmland did not generate much income per year. The increase was created by government planning, high-speed rail construction, and subsequent public investment. But the people who captured the increase were the landowners and speculators who

bought the farmland before the announcement. They did nothing. Their wealth multiplied.

The government has not sat idle. Taiwan's land tax system includes a tool called the "announced current value," which serves as the base for the land value increment tax. In theory, the government can adjust the announced current value each year to reflect the true market value of land, then recover a portion through the tax when land is sold. In practice, the announced current value always lags behind the market. By the time Qingpu land prices had risen from twenty thousand to six hundred thousand, the announced current value might have only adjusted to three hundred thousand. When the land sold, the landowner received the market price but paid tax on the announced current value. The three hundred thousand NT dollar difference — tax-free — went into the landowner's pocket. This is not a policy mistake. It is institutional design. If the announced current value were adjusted too quickly, landowners would protest. Landowners have many votes. Landowners make many political contributions. Landowners have many lawyers. No one wants to bear the political cost of offending landowners. So the announced current value always lags.

VI

Taiwan has a phenomenon that is rare in other countries: land readjustment zones. The concept is simple. For farmland to be converted to development land, a procedure is required. The government designates a large area of farmland. It plans roads, sewers, parks, schools, and other public facilities within the area. It then redistributes the remaining land to the original landowners. The landowners receive smaller plots, but because the land has been rezoned from agricultural to developable, the unit price rises dramatically. The total value is usually higher than before. The cost of public facilities is

paid from a portion of the land value increase. The government does not need to pay. The landowners do not need to pay. Everyone wins.

In theory, this system is perfect. The land value increase is used to pay for public facilities. The remaining increase goes to the landowners. The government has no fiscal burden. The landowners have no loss. In practice, land readjustment zones have become enormous wealth redistribution machines. Whoever knows in advance which farmland will be designated can buy in cheap before the announcement and sell high after the readjustment. Inside information is worth tens of millions. Taiwan's land readjustment zones have been plagued by scandals. Someone bought land early. Someone positioned themselves in advance. Someone used their position to influence the planning. Someone manipulated the redistribution. The root of all these scandals is the same. Land value increase is so tempting that it makes people abandon their principles.

The Hsinchu Science Park is another example. From a GDP perspective, the Hsinchu Science Park has been extremely successful. The semiconductor industry has risen. Exports have increased. Wages have risen. A technology cluster has formed. Taiwan's economic growth over the past thirty years has relied almost entirely on the Hsinchu Science Park. But a second ledger has also been written. Housing prices around the park have soared since 2010. Hsinchu City's price-to-income ratio jumped from under seven to over fifteen in just ten years. Engineers working at the park — earning one to two million NT dollars per year — should be comfortable. But housing prices have risen so fast that their purchasing power has been diluted. For people not working in the park — nurses, teachers, food service workers — the situation is even worse. Housing prices have risen far faster than their wages. They have been forced to move further and

further away. Their commutes have grown longer and longer. Their quality of life has deteriorated.

GDP has increased. Housing prices have increased. Wages have risen, but rents have risen faster. The economy has grown, but buying a home has become harder. This is the two-ledger phenomenon mentioned in earlier chapters. Ledger one, GDP sees growth. Ledger two, GhostGDP sees the shifted costs.

VII

The predicament of Taiwan's younger generation can be summarized in one sentence: the down payment comes from parents. The previous generation needed to work hard, save, and accumulate a down payment over several years. Today, many young people need two things to buy a home: hard work, and financial help from parents. When a society begins to see down payments dependent on parents, gifts dependent on parents, inheritance dependent on parents, it means that land value increase has begun to change the distribution of opportunity. Success no longer depends entirely on your ability. It depends on whether you are already standing on the appreciating side.

Taiwan's housing problem is often attributed to speculators, developers, or the China factor. All of these play a role. But they are not the most fundamental cause. The most fundamental cause was stated in Chapter 1. Land value is collectively created by society, but privately captured. Taiwan recognized this problem earlier than Britain and the United States. It even wrote the solution into its constitution. But a century later, the principle of increased value returning to the public remains, while the reality is that increased value stays in private hands. Not because Taiwanese people are stupider. Not because Taiwanese politics is more corrupt. Because any system that attempts to

recover value will encounter resistance from landowners. Landowner resistance does not come in the form of guns. It comes in the form of legislators, media, votes, and all the perfectly normal democratic procedures that drill holes in the system until it can no longer hold anything.

Taiwan's ledger can be summarized in one sentence. The public bears the cost. Private parties capture most of the increase. The principle of "increased value returns to the public" was written into the constitution. It was not written into reality. Compared to the UK, Taiwan has no hereditary aristocracy. Compared to the US, Taiwan's land supply is more limited. Compared to Hong Kong, the Taiwan government's control over land is weaker. Compared to China, Taiwan's ability to capture value is weaker. Taiwan thus represents a fifth model. The public bears the cost. Private parties capture most of the increase. And the younger generation bears the rising cost of entry.

Next, we turn to the most central chapter of this book. China. China's land system is completely different from the previous five cases. It starts not from private ownership, but from the premise that land is not privately owned. This premise changes the entire flow of value. But this flow is not without its costs and risks. That is the subject of Chapter 7.

Chapter 7: The Land Fiscal Loop and Its Limits

I

If you board a Harmony high-speed train at Beijing North Station and travel south for about an hour, you will cross the North China Plain. The view from the window is

monotonous — cornfields, wheat fields, the occasional village, the occasional factory. Flat. Unremarkable. But if you know what has happened beneath this land, you will see something entirely different.

The track is laid on a specially treated roadbed. Beneath the roadbed is several feet of crushed stone and concrete. Beneath that was the original farmland. Ten years ago, an acre of this farmland was worth very little. A year of growing grain yielded a few thousand renminbi. After the high-speed rail station location was announced, the surrounding land was requisitioned, planned, and released. Farmland became roads, station plazas, commercial districts, residential districts. The price of an acre rose from a few tens of thousands of renminbi to millions. This increase was not created by the farmers. It was not created by landowners. It was created by a public decision to build a high-speed rail station. The question is: where did this increase go?

In Britain, the answer was landowners. In the United States, developers. In Hong Kong, the government and developers. In Taiwan, private landowners and speculators. In China, the answer is different. The land value increase created by the high-speed rail went primarily to the government. The government released the land to developers, received land concession fees, and used that money to build the next high-speed rail line. This is the fundamental difference between China and the previous five cases.

II

China's land system starts from a very simple premise, written into the constitution. Urban land is owned by the state. Rural land is owned by collectives. Private individuals and enterprises can obtain usage rights, not ownership. This difference looks like mere legal wording. But it fundamentally changes the flow of value.

Suppose a Chinese city wants to build a new subway. The city government establishes a subway company, borrows from banks, and begins construction. Land values along the planned route begin to rise. The city government sells usage rights to the land through public auction, receiving a land concession fee. This money is used to repay the subway construction loan. What remains is used to build the next subway line. No landowner intercepts the increase. No aristocrats. No hereditary Grosvenor family. The government is simultaneously the investor, the value capturer, and the reinvestor. This is a loop.

The existence of this loop answers a frequently asked question. Why has China been able to build so much infrastructure? Over the past two decades, two-thirds of the world's high-speed rail has been built in China. The world's largest subway networks are in Beijing and Shanghai. Thousands of bridges. Tens of thousands of kilometers of highways. Hundreds of airports. Built from scratch, at astonishing speed. Many people see the result. They do not see the source of funding. The core of the funding is land. Land concession fees, land mortgage financing, local government financing vehicles, urban development revenues — all of these are essentially the early monetization of future value increase. The government is not spending taxpayers' money. It is spending land's money. More precisely, it is spending the collectively created, government-captured value increase.

From the perspective of value capture, China is the closest to a "closed loop" among the six cases analyzed in this book. Not because the Chinese government is smarter. Not because Chinese officials are more honest. Because the institutional premise is different. Under public land ownership, the government does not need to negotiate with landowners. It does not need to pay massive compensation for expropriation. It does not need to go through lengthy legal proceedings. The government is already the legal owner of the land. It only needs to sell usage rights and invest the proceeds. The

efficiency of this mechanism far exceeds that of Britain, the United States, Hong Kong, and Taiwan.

III

Of course, high efficiency does not mean no problems. China's land fiscal loop has its costs, and they are not small.

The first cost is local government debt. Land concession fees are the most important revenue source for local governments. In some cities, land concession revenue accounts for more than fifty percent of local government revenue. When the real estate market is strong, land prices keep rising, government revenue keeps increasing, and infrastructure keeps expanding. When the real estate market weakens, developers stop buying land, auctions fail, government revenue dries up, but the money borrowed earlier still must be repaid. This is the root of China's local government debt problem. Not because local governments spend wastefully. Because their fiscal structure is built on a volatile foundation. When land prices rise, everything is good. When land prices fall, the holes appear.

The second cost is housing prices. The government needs high land prices to maintain fiscal revenue. Developers need high housing prices to maintain profits. Banks need mortgages to maintain business. The government, developers, and banks — the interests of these three actors intertwine, forming a structure that pushes housing prices upward. For those who already own homes, price increases mean asset appreciation. For those who do not yet own homes, the entry barrier keeps rising. The price-to-income ratio in China's first-tier cities has exceeded forty. An ordinary worker would need to save for forty years without spending anything to afford an ordinary

apartment in Shenzhen. This is not market failure. It is a byproduct of institutional design.

The third cost is structural risk. The land fiscal loop can operate only if land prices rise over the long term, population continues to flow in, and the economy continues to grow. All three conditions held for the past two decades. But none of them hold forever. China's population has begun to age. The working-age population peaked in 2011 and has been declining. The urbanization rate has exceeded sixty-five percent. The movement of population from rural to urban areas has slowed. The economic growth rate has fallen from above ten percent to around five percent. When population stops growing and the economy stops growing at high speed, will land prices continue to rise? If land prices stop rising — or fall — land concession revenue will shrink, local governments' ability to repay debt will be impaired, and the banking system will be exposed to risk. This is not alarmism. It is arithmetic.

IV

The Chinese government is not unaware of these risks. Over the past several years, a phrase has appeared repeatedly in policy documents: "housing is for living, not for speculation." The implication is that the old institutional design turned housing into an investment vehicle, and now the government wants to turn it back into a place to live. But this is not something that can be accomplished by slogan. When local government fiscal revenue depends heavily on land concession fees, when bank loan collateral is largely land and real estate, when a large portion of household wealth is locked up in real estate, no one dares to face the consequences of a price decline. It is not that reform is unwanted. It is that the political and economic costs of reform are too high.

Another frequently discussed risk is the debt of local government financing vehicles. Local governments cannot borrow directly from banks. But they can borrow indirectly through LGFVs. An LGFV uses land as collateral, borrows from a bank, and builds infrastructure. After the infrastructure is built, surrounding land appreciates. The government sells land and repays the loan. This model has worked smoothly for two decades. But it has a fatal weakness. Infrastructure has a long payback period. A bridge can last fifty years. A subway can last one hundred years. But bank loans typically mature in five to ten years. Short-term debt must be repaid from long-term assets. The resulting liquidity gap must be filled with new borrowing. Borrow new to repay old. Keep borrowing until one day the new borrowing stops. Then the chain breaks.

This is the greatest risk of the Chinese model. The problem is not the loop itself. It is the temporal mismatch. Investment is long-term. Debt is short-term. Value is future. Spending is present. The government spends future money on present projects. It is betting that the future value will materialize. In an environment of rapid economic growth, continuing population inflow, and long-term land price appreciation, this bet has a high chance of winning. But when these conditions begin to change, the bet becomes different.

V

The fundamental difference between China and the United Kingdom is not the land system itself. It is the flow of value. In the UK, value flows to aristocrats. In the United States, to capitalists. In Hong Kong, to the government and developers. In Taiwan, to private landowners and speculators. In China, value flows to the government, and the government reinvests it in the next round of construction. From the perspective of cost shifting, the UK shifts costs to renters and the landless. The United States shifts costs

to late entrants and young people without parental help. Hong Kong shifts costs to renters and mortgage payers. Taiwan shifts costs to the younger generation. China shifts costs to local governments, future taxpayers, and those who entered the real estate market at the peak.

No system is perfect. No allocation is fair. China's loop captures value, but at the cost of local debt and high housing prices. Britain's private property rights protect landowners, but at the cost of social immobility. America's market competition creates efficiency, but at the cost of periodic crashes from land financialization. Hong Kong's leasehold system provides stable fiscal revenue, but at the cost of the world's least affordable housing and nano flats. Taiwan's constitutional principle is advanced, but implementation has been hollowed out by preference provisions, and the younger generation cannot afford homes.

The question is not which system is best. The question is that every system shifts costs. To whom? To those who had no seat at the table when the system was designed. In the UK, renters. In the United States, young people without parental help. In Hong Kong, those living in subdivided flats. In Taiwan, the generation whose down payment depends on parents. In China, those carrying mortgages and indirectly paying for local debt.

VI

China's land fiscal loop has another cost that is often overlooked: the transformation of administrative friction. As noted in earlier chapters, the Chinese approach in many areas is that if a process creates friction, remove the process. Mobile payments, digital ID, e-government, facial recognition, one-stop service — the spread of these technologies

has dramatically reduced waiting times, the number of visits, and the need to fill out the same forms repeatedly. From an efficiency perspective, this is enormous progress.

But the cost of efficiency is increased control. When the government knows all of your transaction records, all of your location data, all of your social connections, it has accumulated power that no previous government had. This power can be used to provide better public services. It can also be used for other things. This is not to say that the Chinese government will definitely abuse this power. It is to say that when a single system simultaneously controls value capture and personal data, it has concentrated too much. Economic power and information power in the same system is itself a risk.

The core insight of the GLFramework is that administrative friction is a tax. It is not a tax collected by the Ministry of Finance. It is a tax imposed on the people by institutional design. The forms it takes are time, energy, psychological cost, and opportunity cost. China has reduced some frictions while creating new ones. Previously, you complained about long lines. Now, you complain that facial recognition won't read your face. Previously, you complained about too many forms. Now, you complain that your data is locked into one system and you have to start over when you move to another city. The form of friction has changed. Friction has not disappeared.

VII

China's ledger can be summarized in one sentence. The public bears the cost. The public captures the value. The public reinvests in the next round of construction. But long-term risk accumulates in local government finances and future generations. This summary is neither praise nor criticism. It is a description. China has done things that no other country has done. It has also taken risks that no other country has taken.

This book is not telling you that the Chinese model is best, or that the British model is worst. It is telling you that every system creates value, and every system shifts costs. Who captures the value and who bears the cost depend on institutional design. And institutional design is never neutral. It reflects who was at the table and who was not. In the UK, aristocrats were at the table. In the United States, capital was at the table. In Hong Kong, the government and developers were at the table. In Taiwan, landowners and speculators were at the table. In China, the state was at the table. Not at the table — in every case — were those who pay rent, those who pay mortgages, those who save for down payments, those whose labor and taxes help someone else's land appreciate.

Next, we expand the scale to the entire planet. Land that belongs to no country. The high seas, Antarctica, outer space. The law says these belong to "all humanity." But all humanity has no voice, no organization, no ledger. When a resource is defined as belonging to everyone, it often means belonging to no one. The first to arrive capture the value. Those with the capability capture the value. That is the subject of Chapter 8.

Chapter 8: Land That Belongs to No One — Who Takes the Value?

I

If you stand on Easter Island in Chile and look west, you will see the endless Pacific Ocean. Water and sky. No land in sight. This ocean covers nearly half of the Earth's surface. But it belongs to no country. Under international law, the high seas are the "common heritage of all humanity." No state can claim sovereignty. No individual can

claim ownership. You can sail freely on the high seas. You can fish. You can lay underwater cables. You can do many things. But you cannot say that this water is yours.

The same principle applies to the deep seabed, Antarctica, and outer space. The Outer Space Treaty of 1967 states that outer space, including the Moon and other celestial bodies, is not subject to national appropriation and is the "common heritage of all humanity." The Antarctic Treaty of 1959 froze all territorial claims and dedicated Antarctica to peaceful purposes and scientific research. When these treaties were signed, they were hailed as major advances for human civilization. Wars between states are often fought over land and resources. If land and resources could be designated as belonging to no one, perhaps future conflicts could be avoided.

This idea is beautiful. But it overlooks one problem. "All humanity" is a concept. It is not an entity that can act. All humanity will not mine deep-sea minerals. All humanity will not establish research stations in Antarctica. All humanity will not launch spacecraft to land on asteroids. States will do these things. Corporations will do these things. Wealthy individuals will do these things. People with the capability to get there will do these things. When a resource is defined as belonging to everyone, the actual result is often that those who arrive first take it. Those with the greatest capability take it. Those who occupy advantageous positions in the design of institutions take it. This is not greed. It is physics. The resource is there. If you do not take it, someone else will.

II

Antarctica is the classic case. Antarctica covers about 14 million square kilometers — larger than Europe. It holds rich mineral deposits, fresh water, fisheries, and oil and gas that may lie beneath the ice. The Antarctic Treaty of 1959 froze all territorial claims.

Seven states with claims agreed to set them aside. Antarctica became a scientific preserve. The system has worked for more than sixty years. It has been reasonably successful. No war. No conflict. Scientists cooperate on climate change research, glaciology, and biology.

But the system has one unresolved question. Who owns the resources? The treaty says Antarctica's resources are the "common heritage of all humanity." But it does not say who has the right to exploit them. The treaty includes an environmental protocol that prohibits mining. The protocol is in force until 2048. Whether it will be extended, and whether mining will be permitted, will be decided by the parties to the treaty. Who are the parties? The states that originally signed the treaty, and states that have established research stations in Antarctica. The number of states capable of maintaining research stations in Antarctica is fewer than thirty. States without the capability to reach Antarctica have no seat at the negotiating table. The common heritage of all humanity is effectively managed by a small number of states with the capability to be there.

The same problem appears on the deep seabed. The International Seabed Authority manages exploration and mining permits. Its headquarters are in Jamaica. Legally, the mineral resources of the deep seabed belong to all humanity. Any mining operation must be licensed by the Authority. The revenues must be shared with all humanity. In practice, nearly all exploration permits have been issued to corporations and research institutions from developed countries. China, Japan, Germany, Russia, France, the United Kingdom, the United States — these states have the capital, the technology, and the ships to explore the seabed thousands of meters deep. Developing countries watch from the sidelines. Not because the law prohibits them from participating. Because they lack the capability.

This is exactly the same logic discussed in previous chapters. Land itself is not wealth. The ability to develop land is wealth. The value of land does not come from the land itself. It comes from the human activities that take place on it. On Earth, human agglomeration creates land value. In Antarctica and the deep seabed, the scale of human activity is still small, but the logic is the same. Whoever has the capability to get there first can occupy the advantageous positions. Whoever has the capability to mine first can extract the resources. The common heritage of all humanity becomes a free buffet for those with capability.

III

Outer space is the final version of this problem. The Moon, Mars, the asteroid belt — these places have a combined area far exceeding that of Earth. They contain mineral resources that do not exist on Earth. Some asteroids in the belt have platinum content so high that a single five-hundred-meter asteroid could contain more platinum than has been mined in all of human history. The Outer Space Treaty says that outer space is the common heritage of all humanity and that no state may claim sovereignty. But it does not prohibit private corporations from mining. This opens a huge legal loophole. A state cannot own the Moon. But SpaceX can. A state cannot own an asteroid. But Planetary Resources can.

In 2015, the United States passed the Space Resource Exploration and Utilization Act, explicitly allowing US citizens and corporations to mine outer space resources and to own the materials they extract. Luxembourg followed in 2017 with similar legislation. The legal position underlying these laws is that you cannot own the asteroid, but you can own what you dig out of it. This is like saying you cannot own the ocean, but you can own the fish you catch from it. The legal position is contested. But in practice, no

one can stop it. If SpaceX lands on Mars and begins mining water ice and minerals, who has the capability to go and remove them? The United Nations has no space force. The International Court of Justice has no enforcement mechanism. In the real world, capability determines everything.

This is not fundamentally different from what William the Conqueror did in 1066. William said that the land of England was his because he won the battle. Today, the United States says that outer space resources can be mined because it has rockets. Law follows power. Power does not follow law. This is a basic fact of human civilization. Signing treaties has not changed it.

IV

The global commons problem pushes the central question of this book to a more fundamental level. On Earth, the land problem is that collectively created value is captured privately. In the global commons, the problem is even sharper. The very concept of "the public" is vague. Who is the public? All humanity? How does all humanity make decisions? How does all humanity distribute resources? How does all humanity stop a small number of people from taking the benefits?

Britain's land value increase was captured by the Grosvenors. America's by developers. Hong Kong's by the government and developers. Taiwan's by landowners and speculators. China's by the state. In the global commons, Antarctica's value is captured by a small number of capable states. Deep seabed minerals are captured by corporations with technology. Outer space resources will be captured by those who arrive first. This is not a conspiracy. It is physics. The resources are there. Those with

capability take them. Those without capability watch. The concept of fairness only has meaning when there is capability to enforce it.

Henry George asked a question in 1879. Why has progress not eliminated poverty? His answer was land. Land value increase was being captured privately. A hundred and forty years later, the same question is reappearing in outer space. If humanity begins large-scale extraction of space resources, who will capture the value? The state that plants its flag first? The corporation that establishes the first base? Or all humanity? Under the existing legal framework, the answer is likely to be those who arrive first. William the Conqueror proved this rule in 1066. SpaceX is proving it again in the twenty-first century.

V

The global commons ledger can be summarized in one sentence. The public bears the cost. But "the public" is an abstract concept with no capacity to act. The value is captured by those who arrive first, those with the most capability, those who occupy the advantageous positions in the design of institutions. This is not a new logic. It is the cost-shifting logic described in Chapter 1, happening at a larger scale.

This book began in Mayfair, London. It moved through the US interstate highways, Japan's empty houses, Hong Kong's leasehold system, Taiwan's constitutional principle, China's land fiscal loop, and finally to Antarctica and outer space. Every case has answered the same question. When public investment creates value, who captures that value? To whom are the costs shifted? The answers vary by institution. But the pattern is strikingly consistent. Those who bear the cost are usually not those who capture the value. In the UK, renters and the landless. In the US, late entrants and young people

without parental help. In Japan, those whose parents do not own homes. In Hong Kong, those living in subdivided flats. In Taiwan, the generation whose down payment depends on parents. In China, those carrying mortgages and indirectly bearing local government debt. In the global commons, all humanity bears the cost of exploration, but the value will be captured by those who arrive first.

Next, we turn to the final chapter of this book. It does not analyze another case. It pulls all the threads together. It clarifies the GLFramework and GhostGDP. And it returns to the original question. Why is your home so expensive? Where did your rent money go? Whose value did your taxes help create? That is the subject of Chapter 9.

Chapter 9: GhostGDP — The Ledger That Cannot Be Seen

I

If you remember the first chapter, this book began with a simple observation. GDP records completed transactions. It does not record waiting. It does not record filling out the same form multiple times. It does not record the moment a person gives up. It does not record psychological costs. Those costs do not disappear. They are shifted. They are just not on the ledger.

Suppose a city decides to build a new subway line. The budget is fifty billion dollars. Years later, the subway opens. Land prices around the stations rise. On GDP's ledger, this is a success story. During construction, jobs were created and output was generated. After opening, transportation efficiency improved. Real estate transactions

around the line generated additional tax revenue. GDP grew. The government is pleased. The media reports the success.

But what does GDP not tell you? How many residents along the line were forced to move because their rents increased? How many small shops closed because they could no longer afford the new rent? How many commuters spent an extra hour each day stuck in traffic during construction — where did that hour of their lives go? Of the increase in land value, how much returned to the government and how much was captured privately?

These are not side effects. They are the real costs of the subway. They are just not recorded in any official ledger. This is the phrase that has appeared repeatedly in this book: the ledger that cannot be seen. In Chapter 1, we called it the two ledgers. In subsequent chapters, we have seen the aristocratic ledger of Britain, the capitalist ledger of the United States, the generational ledger of Japan, the oligarchic ledger of Hong Kong, the preference-riddled ledger of Taiwan, the closed-loop ledger of China, and the capability-ledger of the global commons. Each ledger records the same thing: who captured the value, who bore the cost.

Now it is time to pull these threads together and give the unseen ledger a name. GhostGDP.

II

GhostGDP is not a precise economic statistic. It is a way of seeing. Its core is six types of cost that GDP ignores: waiting cost, repetition cost, collapse cost, information asymmetry cost, psychological cost, opportunity cost. These six costs do not appear in

any national statistical yearbook. But they are real. They are paid every day. The person paying them is not the person who created them.

Waiting cost is the easiest to overlook. Waiting in line is a cost. Waiting for a permit to be approved is a cost. Waiting for a bank loan to be approved is a cost. Waiting for a landlord to reply about whether you can renew your lease is a cost. If the time spent waiting could have been used for something else, it would have produced value. Instead, it is wasted — wasted in the gaps of the system. GDP does not see this wasted time because no monetary transaction occurred. The five minutes you stand on the subway platform waiting for the train — no one pays you. No one charges anyone. Those five minutes pass. They are deleted from your life. No trace.

Repetition cost is a little more visible, but still not recorded. You fill out the same form three times, re-entering the same data each time. You go to three different government agencies to apply for three documents, attaching the same household registration certificate to each one. You look for an apartment and are asked to provide the same financial documents to five different real estate agents. These repetitions are not necessary. They happen because systems are not connected. Everyone does wasted work. Everyone pays repetition costs. But GDP only sees the final completed transaction.

Collapse cost is the cruelest. A person applies for some benefit. The process is too complicated. The documents are too many. They make three trips and are told each time that something is missing. Finally, they say: forget it, I'm not applying. That "forget it" is a collapse. They did not save the government money. They were just screened out by the system. GDP does not record that this person ever had a need. It does not record how much time and energy they spent on the application process. It does not record the

exhaustion and helplessness they felt when they gave up. It only records one thing: no transaction occurred.

III

Information asymmetry cost is what real estate markets excel at producing. The person buying a house does not know its true age. Does it have contaminated soil? Does it have radiation? Does the neighbor upstairs fight in the middle of the night? Will the subway actually open next year? The seller knows many things but is not obligated to tell you everything. The agent knows even more, but their commission comes from the sale price, not from your satisfaction. Between buyer and seller is a vast information gap. That gap is a cost. You are not transacting with the market. You are transacting with people who know much more than you do. How much do you overpay? No one knows. GDP does not record it.

Psychological cost may be the hardest to quantify. The anxiety of paying the mortgage every month. The despair of watching housing prices rise while you can never catch up. The helplessness when your landlord tells you that your rent will increase next month but you have no idea where you would move. The shame of being rejected for a loan and not knowing how to tell your family. These emotions are real. They affect sleep. They affect job performance. They affect relationships. They affect whether a person asks themselves in the middle of the night: why am I working so hard and still so exhausted? What does GDP see? GDP sees your monthly mortgage interest. Your rent payment. The bank's service fee. The moving company's revenue. GDP records the money you pay to solve problems. It does not record the pain you suffer from having the problems.

Opportunity cost is the easiest to second-guess. You choose to rent rather than buy. Five years later, housing prices have doubled. You have lost the capital gain you could have earned. You choose to buy in District A rather than District B. Ten years later, District B has appreciated fifty percent more than District A. You have lost that fifty percent. You sell your house in 2020 rather than waiting until 2025. You have lost five years of appreciation. These losses were not taken by anyone. They just did not happen. But to you, they are real opportunity costs. Every choice you make excludes other choices. Those excluded choices might have contained better outcomes. GDP does not record what you did not do. It only records what you did.

IV

Looking at these six costs together reveals a common pattern. They are all created by institutions, borne by individuals, but never collectively recorded. The designers of the institutions do not pay these costs. The beneficiaries of the institutions do not pay these costs. Those who pay are the ones who have no voice in the institution.

Britain's land system creates waiting costs. You want to buy a house. The legal document review can take months. Every transaction requires lawyers. Every step can be delayed by the previous landowner or developer. These waits are not necessary. But they are part of the system. Who pays these waiting costs? Buyers and sellers. Who benefits? Lawyers, agents, and the large landowners who are not in a hurry to sell.

America's land system creates repetition costs. You apply for a mortgage. You need to provide income verification, tax returns, credit reports, employment verification, asset statements. Each document may require multiple submissions. Each submission cuts

another piece from your time. Who pays these repetition costs? Borrowers. Who benefits? Banks, credit rating agencies, document certification services.

Taiwan's land system creates collapse costs. You want to apply for government rental assistance. You need a household registration certificate, a lease contract, your landlord's tax ID number, income verification, asset statements. Your landlord does not want to give you the tax ID number because they fear a tax audit. You go to the district office. You wait two hours. You are told that your documents are incomplete. You go again. You are told that one of your documents has expired. Finally, you give up. Who pays this collapse cost? You. Who benefits? No one. The government simply saved a subsidy that it should have paid you.

Hong Kong's land system creates information asymmetry costs. You stand in front of a real estate agency window in Central, looking at the beautifully printed brochures. "Open view." "Luxury finishes." "Convenient transportation." You do not know the building's leak history. You do not know how noisy the mall below is when it loads deliveries at night. You do not know whether the walls contain sea sand. The agent knows. The agent will not tell you. Who pays the information asymmetry cost? Buyers and renters. Who benefits? Sellers, agents, and the large insiders who have access to information that you do not.

Japan's and China's land systems create psychological and opportunity costs. Young Japanese watch their parents' homes in Tokyo appreciate while they cannot afford to buy. Young Chinese watch first-tier city housing prices rise from twenty thousand to one hundred thousand renminbi per square meter. They start saving when they graduate from university. Ten years later, the down payment they need has gone from one million

to three million. They have done nothing wrong. They were just born a few years later. This frustration is not the fault of any individual. It is the result of institutional design.

V

GhostGDP is not a formula you can calculate. It is a reminder. A reminder that GDP is not everything. A reminder that the invisible costs are what really affect your life. Your time, your energy, your mental health, the choices you make in life — these things are not in any statistical yearbook. But they are more real than the numbers in the statistical yearbooks.

Capitalism is very good at optimizing what it can measure. GDP growth, corporate profits, stock market indices — these can be measured. Land value increases, real estate transaction volumes, mortgage balances — these can also be measured. Capital moves toward measurable targets. Efficiency increases. Speed increases. But capital cannot optimize what it cannot see. It cannot see your waiting. It cannot see your repetitive labor. It cannot see your collapse. It cannot see your information disadvantage. It cannot see your anxiety. It cannot see the possibilities you gave up. So these things are not optimized. They are only ignored — until they accumulate to a certain point and erupt in a different form.

That form may be mental illness. A person under chronic rent pressure has an anxiety rate several times higher than average. That form may be suicide. A person crushed by their mortgage shifts all their pain at once — to their family, their friends, their community. That form may be falling fertility rates. A person who cannot afford a home does not dare to marry, does not dare to have children. That form may be political

instability. A person who feels abandoned by the system is easily drawn to extreme slogans. GDP does not record these things. But society pays these costs every day.

VI

This book has been asking one question since Chapter 1. When public investment creates value, who captures that value? Now a second question can be added. To whom are the costs shifted? These two questions are two sides of the same coin. Whoever captures the value shifts the cost to someone else. In the UK, aristocrats capture the value. The cost is shifted to renters and the landless. In the US, capitalists capture the value. The cost is shifted to late entrants and young people without parental help. In Japan, early landowners and their descendants capture the value. The cost is shifted to those who did not inherit land. In Hong Kong, the government and developers capture the value. The cost is shifted to renters and mortgage payers. In Taiwan, landowners and speculators capture the value. The cost is shifted to the younger generation. In China, the state captures the value. The cost is shifted to local governments, future taxpayers, and those who entered the market at the peak. In the global commons, the value will be captured by those who arrive first. The cost will be borne by all humanity.

No system allows those who bear the cost to capture the value. Not because the designers of these systems are especially evil. Because the designers of these systems are usually sitting on the value-capturing side. They do not voluntarily give up the value. Just as the Grosvenors do not voluntarily give away Mayfair to the city of London. This is not a moral problem. It is a problem of interests.

VII

Let us return to the hotel desk manager. He rents an apartment in Quincy, Massachusetts. He paid three months of deposit. He had to download a smart lock app just to get through his own front door. His job is to stand behind the hotel desk all day, receiving guests from around the world, checking them in and out. Each month, after taxes, rent, car payment, insurance, and living expenses, almost nothing is left. He is not lazy. He works nine hours a day, plus weekend shifts. He is not unintelligent. He can handle five guest requests at the same time without making mistakes. He is not bad with money. He has cut expenses to the bone — no Starbucks, no new clothes, no travel.

But he cannot afford a home. Not because he is worthless. Because he entered this game too late. Before he was born, the most valuable land in Boston had already been taken by families like the Grosvenors. Before he saved enough for a down payment, Quincy housing prices had already been pushed up by buyers spilling over from Boston. Before he figured out what was happening, his mind had already been cleaned. He thinks he cannot afford a home because he does not work hard enough. He thinks paying a high deposit is just supply and demand. He thinks downloading a smart lock app is just technological progress. He does not ask those questions. Who paid for the subway? Why do land prices keep rising? Where does my rent money actually go?

This book is not here to give him answers. It is here to give him questions. Not to make him start a revolution. To make him start asking. Not to make him hate anyone. To make him see clearly what kind of system he is living in.

The moment he starts asking these questions, he is no longer under the system's control.

Now, the final chapter. Not a tenth case study. A conclusion to all chapters. A final set of questions for every reader. Wherever you live. Whether you rent or pay a mortgage.

Whether you own a home or not. The questions this book leaves you with are the same. The land beneath your feet — who captured its value? The costs you bear — to whom have they been shifted?

Chapter 10: Who Walked Away with the Value?

I

This book began in Mayfair, London. A twenty-minute walk from Buckingham Palace. Three hundred years ago, this was farmland and marsh. Today, it is one of the most expensive pieces of real estate on the planet. The Grosvenor family did nothing. They just stood there for three hundred years and watched London grow.

We traveled through the United States. No hereditary aristocracy. No thousand-year history of concentrated land ownership. But the value created by the interstate highway system flowed into the pockets of developers and capitalists. Land financialization shifted the cost of the 2008 crash to taxpayers.

We went to Japan. Eight million empty homes proved that the physical value of buildings falls to zero. But land in Tokyo remains extraordinarily expensive. The value of land comes from human agglomeration. It has nothing to do with the effort of the landowner. But the landowner captures the increase.

We examined Hong Kong. The British leasehold system gave the government a monopoly over land supply. Four large developers monopolized development. The MTR

model proved that value can be captured. But the overall structure has not changed. No one has changed it.

We studied Taiwan. The principle of "increased value returns to the public" was written into the constitution. The land value increment tax rate once reached one hundred percent. But decades of preferences and exemptions drilled holes in the system. The principle remains. The reality is that increased value stays in private hands.

We analyzed China. Public land ownership allows the government to capture value and form a closed loop. Future land value is used to build today's high-speed rail. But the costs are local debt, high housing prices, and risk for future generations.

Finally, we went to Antarctica and outer space. The common heritage of all humanity belongs to no one in law. In reality, it belongs to those who arrive first and those with the greatest capability. The rule that William the Conqueror proved in 1066 still applies in the space race of the twenty-first century.

II

Six institutional designs. Six patterns of value capture. One common structure.

Every system creates value. Every system shifts costs. Who captures the value depends on who was at the table. Who bears the cost depends on who was not at the table.

In the United Kingdom, aristocrats were at the table. In the United States, capitalists were at the table. In Japan, early landowners and their descendants were at the table. In Hong Kong, the government and developers were at the table. In Taiwan, landowners and speculators were at the table. In China, the state was at the table. Not at the table —

in every case — were those who pay rent, those who pay mortgages, those who save for down payments, those whose labor and taxes help someone else's land appreciate.

This is not an accident. It is the nature of institutions. Institutions are not neutral. They reflect the power structure at the time they were designed. When the power structure changes, institutions can change. When the power structure does not change, institutions reinforce themselves. Britain's aristocracy lost its veto power in the House of Lords in 1911. But the land they acquired centuries ago was not taken from them. America's capitalists were regulated for decades after the Great Depression of 1929. But they returned in the 1980s. Taiwan's "increased value returns to the public" was hollowed out by preference provisions. Not because the law was repealed. Because the political power of landowners was greater than the political power of reformers.

The question is not which system is best. The question is: in the system you live in, who captures the value, and to whom are the costs shifted?

III

This book has not offered a single answer. It has not said that land should be completely private or completely public. It has not said that the government should capture all value or that the market should capture all value. It has not said that the British system is worst or that the Chinese system is best.

Because there is no single answer. Every system has its historical path, its political reality, its costs and risks. Britain's private property rights protect landowners. But they also make it impossible for the younger generation to afford homes. China's value capture loop has funded the largest infrastructure buildup in history. But it has also accumulated local debt and high housing prices. Hong Kong's MTR model proves that

value can be captured. But overall housing prices remain the highest in the world. Taiwan's constitutional principle is the most advanced. But its implementation has the most loopholes.

What this book can give you is not answers. It is questions.

When you see a new subway line open, ask yourself: who captured the value? When you see housing prices rise again, ask yourself: who created this increase? When you pay your rent, ask yourself: where did this money go? When you pay your taxes, ask yourself: whose land is my tax money helping to appreciate? When you hear that the economy has grown, that GDP has increased, ask yourself: who walked away with the fruit of that growth? Who bore the costs that cannot be seen?

These questions have no single answer. But they will change how you see the world.

IV

There is one thing this book has not said, but it has been operating in the background.

If you are the hotel desk manager in Quincy — the one who paid three months deposit, who had to download the smart lock app just to get through his own front door — reading this might make you tired. You are already tired. You stand for nine hours a day. After work, you deal with documents that never seem to be complete. On weekends, you worry about next month's rent. You do not need this book to tell you the system is unfair. You already know that. What you need from this book is to be told: it is not your fault.

It is not that you do not work hard enough. It is not that you cannot manage money. It is not that you chose the wrong profession. It is not that you should not have rented. It is not that you should have started saving earlier. It is not that you should have listened to

your parents and become a civil servant. It is not your fault. You are working hard to stay alive inside a system designed to wear you down. The fact that you are still here is remarkable.

This is not consolation. It is a fact. The Grosvenors did not have to work to capture value. Not because they are superior. Because they have been standing there for nine hundred years. You work nine hours a day in Quincy and cannot save a few thousand dollars a month. Not because you are inferior. Because you entered the game too late. The system was not designed for you. You are not responsible for the outcome of the system.

But you can do one thing. Starting now, stop treating the outcomes of the system as your personal failure. Stop treating rising housing prices as natural law. Stop treating high deposits as market logic. Stop treating yourself as the one who did not try hard enough. You are not a failure. You are a person playing by the rules inside an unfair game. You did not write the rules. You do not need to apologize for their consequences.

V

Finally, return to the question Henry George asked 140 years ago. Why has progress not eliminated poverty?

His answer was land. Collectively created value was being captured privately.

A hundred and forty years later, our answer is more complicated. Because institutions have become more complicated. Land is no longer the only source of value. Intellectual property, data, network effects, financial instruments — all of these are creating new forms of value, and all of them are shifting new forms of cost. But the core structure

has not changed. Those who create value and those who capture value are different groups of people. Those who bear costs and those who enjoy benefits are different groups of people.

This book has done only one thing. It has tried to make the invisible visible.

The wealthy who shop in Mayfair — where did their wealth come from? From the centuries of development that London has accumulated. The developers who own entire buildings in Central Hong Kong — where did their profits come from? From the scarcity created by the government's monopoly over land supply. The landlords who collect rent in East Taipei — where does their passive income come from? From the subway, from the schools, from the parks, from the collective investment of society as a whole. The hotel desk manager in Quincy — where does his exhaustion come from? From a system he had no part in designing.

This is not to make you hate those who captured the value. It is to help you see the structure. Once you see it, you can decide what you want to do. Continue following the rules. Or begin to question them. Continue believing in trickle-down. Or begin to ask where the value went. Continue treating rising housing prices as natural law. Or begin to ask how that land became so expensive in the first place.

VI

The title of this book is a question. Who Walked Away with the Value? The question mark is not decoration. It is an invitation. An invitation to answer with your own experience. The book does not give you the answer. You answer it with your own life.

If you live in the United Kingdom, you already know the answer. The aristocracy captured the value. The cost was borne by renters and the landless.

If you live in the United States, capitalists captured the value. The cost was borne by late entrants and young people without parental help.

If you live in Japan, early landowners and their descendants captured the value. The cost was borne by those who did not inherit land.

If you live in Hong Kong, the government and developers captured the value. The cost was borne by renters and mortgage payers.

If you live in Taiwan, landowners and speculators captured the value. The cost was borne by the younger generation.

If you live in China, the state captured the value and reinvested it. The cost was borne by local governments, future taxpayers, and those who entered the market at the peak.

No matter where you live. Whether you rent or pay a mortgage. Whether you own a home or not. You can ask the same question.

The land beneath my feet — who captured its value?

The costs I bear — to whom have they been shifted?

If you begin to ask these questions, this book has achieved its purpose.

Appendix: GLFramework Technical Note

I. What Is the GLFramework?

The GLFramework is an analytical tool for measuring administrative friction. Administrative friction refers to the costs that individuals incur in their interactions with institutions — costs that are not recorded in GDP. These costs include time, energy, psychological burden, and foregone opportunities.

The GLFramework is not a closed-form formula that takes inputs and produces answers. It is a way of seeing. A framework for asking the question: to whom are costs shifted?

II. The Eight Parameters

The GLFramework breaks administrative friction into eight parameters. Each parameter can be observed separately or analyzed in combination.

1. Waiting Cost

Time that institutions require individuals to wait. Waiting in line. Waiting for permit approval. Waiting for loan approval. Waiting for a landlord to respond about lease renewal. The time spent waiting has value that is consumed without producing anything. GDP does not record waiting. It only records the transactions that occur after the waiting ends.

2. Repetition Cost

The number of times individuals are required to provide the same information. Submitting the same household registration certificate to three different agencies. Providing the same financial documents to five different real estate agents. The same identity verification repeated across different systems. Each repetition consumes time and energy. GDP only sees the final successful transaction.

3. Collapse Cost

The point at which individuals give up on an institutional process. Applying for a benefit that is too complicated. Making three trips and being told each time that something is missing. Finally saying "forget it." A complaint channel that is too lengthy. Writing two letters and receiving no response. Finally saying "forget it." Looking for an apartment, being rejected too many times. Finally saying "forget it." Each "forget it" is a collapse. GDP does not record collapses. It only records the transactions completed by those who did not give up.

4. Information Asymmetry Cost

Losses resulting from unequal information between transacting parties. The homebuyer does not know the true age of the building or its defects. The renter does not know the landlord's true costs and bottom line. The loan applicant does not know the bank's underwriting standards and internal评分. The party with less information is forced to pay a higher price or accept worse terms. GDP records the transaction price. It does not record what the price would have been if information were equal.

5. Psychological Cost

The emotional toll of interacting with institutions — anxiety, stress, helplessness, shame. The anxiety of paying the mortgage each month. The despair of watching prices

rise while you can never catch up. The helplessness of being told your rent will increase but not knowing where you would go. The shame of being rejected for a loan and not knowing how to tell your family. These emotions are real. They affect sleep, job performance, relationships, and whether a person continues living. GDP does not record psychological costs. It records subsequent medical expenses and antidepressant prescriptions.

6. Opportunity Cost

The value of the options you give up when you make a choice. Choosing to rent rather than buy. Five years later, prices have doubled. The capital gain you could have earned is your opportunity cost. Choosing to buy in District A rather than District B. Ten years later, District B has appreciated fifty percent more. The difference is your opportunity cost. Opportunity costs appear on no one's ledger because they are things that did not happen. But they affect the real path of wealth accumulation.

7. Shift Pathway

The mechanism by which costs are transferred from those who create them to those who bear them. In the UK, land value is captured by aristocrats. Costs are shifted to renters and the landless. In the US, costs are shifted to late entrants and young people without parental help. In Hong Kong, costs are shifted to renters and mortgage payers. In Taiwan, costs are shifted to the younger generation. In China, costs are shifted to local governments, future taxpayers, and those who entered the market at the peak. The shift pathway is the core tracking object of the GLFramework.

8. Loop Closure

The completeness of value capture. A system that captures the value created by public investment and reinvests it in public infrastructure has a high degree of loop closure. China's land fiscal system has the highest degree of loop closure among the cases analyzed in this book. The United Kingdom has the lowest — value flows almost entirely to private parties. Loop closure is not a moral judgment. It is an efficiency judgment. High closure is not necessarily good. Low closure is not necessarily bad. But the degree of closure determines the direction and scale of cost shifting.

III. GhostGDP Estimation Logic

GhostGDP is not a number that can be precisely calculated. It is a conceptual tool. A reminder that there are costs beyond GDP.

The GhostGDP estimation logic is as follows:

GhostGDP = Waiting Cost + Repetition Cost + Collapse Cost + Information Asymmetry Cost + Psychological Cost + Opportunity Cost

This formula is not meant to be summed to a single number. It is meant to be a checklist of items that should be asked about but are not recorded. For any institution or policy, each of these six costs can be examined: Do they exist? Who bears them? To whom are they shifted?

Example: construction of a new subway line.

GDP records: construction spending, employment and output generated during construction, transportation efficiency gains after opening, real estate transaction taxes from surrounding areas.

GhostGDP asks: The commuters who spent an extra hour each day stuck in traffic during construction — who bore that waiting cost? The residents along the route who were forced to move because their rents increased — who bore that repetition cost? The small shops that closed because they could no longer afford the new rent — who bore that collapse cost? The buyers who paid inflated prices for "future subway homes" under information asymmetry — who bore that information cost? The residents under chronic rent pressure — who bore that psychological cost? The people who decided not to have children because they could not afford a home — who bore that opportunity cost?

None of these costs appear on the GDP ledger. But they are all real. The function of GhostGDP is to make them visible.

IV. Limitations

The GLFramework is not a mechanical tool. It does not provide weights. It does not give single answers. It does not replace empirical research. Its value lies in asking questions. When you face an institution, a policy, a public investment, use these eight parameters to ask: Who is waiting? Who is repeating? Who collapsed? Whose information disadvantage was exploited? Who is bearing psychological costs? Whose opportunities were taken? To whom were costs shifted? Who captured the value?

When you have asked these questions, you may not have numbers. But you will have direction. And direction is more valuable than false precision.

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This book is dedicated to Henry George. He asked the right question in 1879. He waited a hundred and forty years for a pianist to pick it up.

But more than that, this book is dedicated to you, Mark. Without you, it was just an idea that no one wrote down.

Xu Ping

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