Chapter 3

The Omnipresence of Common Income in a Multi-Dimensional World

Section B. Patterns of Multi-Dimensional Heterogeneity

A quick glance at Annex 3.2 gives the sight of a multi-dimensional universe. It looks like a constellation of heterogeneous economic systems. These are 110 economic species defined as elementary systems that are unique, self-contained, non-overlapping, and indivisible by themselves, in the sense that they cannot exist after breakups. The 110 enumerated species are spread all over the map in the intersections of different rates of income redistribution and government restriction. They exhibit different principal property types emphasized by five colors. They contain different extents of internalization of positive externalities: The larger is the size of the bubble the higher is the rate of remuneration for production of ideas, invention, and technological innovation. In short, world economies are heterogeneous in four dimensions.

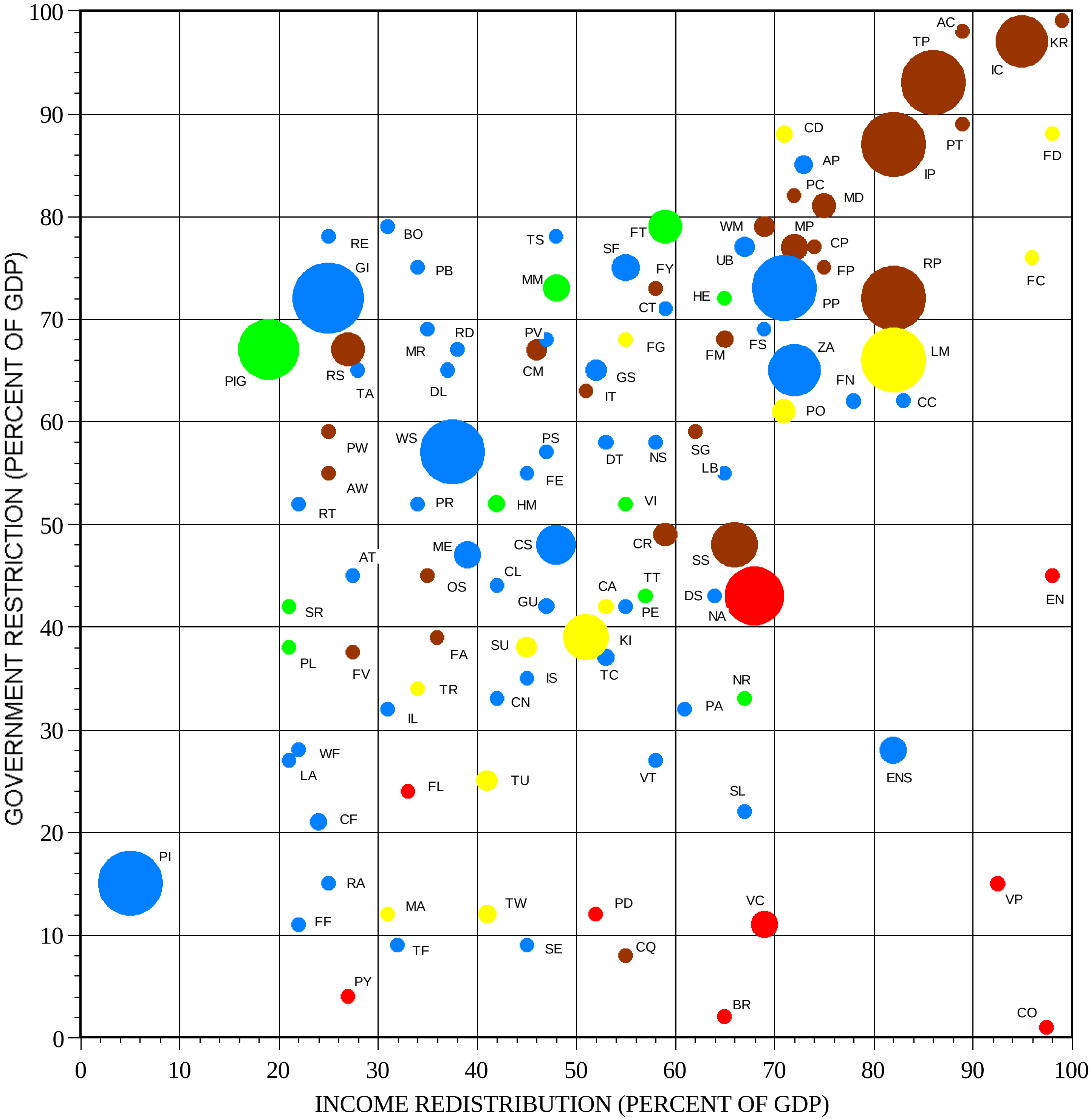
In the one-dimensional world in figure 3.2, world economies differ only by one measure. It is the degree of market distortions measured by the extent of government restriction. In the multi-dimensional universe in figure 3.3 and Annex 3.2, world economies differ in four dimensions, by the rates of income redistribution, government restriction, and compensation of spillovers, and by property types. Adam Smith was first to point out what we would now call a multi-dimensional heterogeneity of economic systems, particularly that free transactions, limited government, and private property may not reduce income redistribution and may even increase it.

The vision of Adam Smith

Adam Smith lays out a three-dimensional perspective succinctly. He observes that the burden of slavery (and, by implication, of redistribution of output and income) is positively related to liberal government and private property:

> As the profit and success of the cultivation which is carried on by means of cattle, depend very much upon the good management of those cattle; so the profit and success of that which is carried on by slaves, must depend equally upon the good management of those slaves; and in the good management of their slaves the French planters, I think it is generally allowed, are superior to English. The law, so far as it gives some weak protection to the slave against the violence of his master, is likely to be better executed in a colony where the government is in a great measure arbitrary, than in one where it is altogether free. In every country where the unfortunate law of slavery is established, the magistrate, when he protects the slave, intermeddles in some measure in the management of the private property of the master; and,

ANNEX 3.2
THE FOUR-DIMENSIONAL TABLE OF ECONOMIC SPECIES



Notes:

1. Codes are listed in the legend for the two-dimensional table of economic species
2. Colors designate property types which dominate a given economic species:

Private Cooperative Local government National state Common

3. The size of the bubble estimates the rate of remuneration for the production of ideas, invention, and technological innovation

> in a free country, where the master is perhaps either a member of the colony assembly, or an elector of such a member, he dare not do this but with the greater caution and circumspection. The respect which he is obliged to pay to the master, renders it more difficult for him to protect the slave. But in a country where the government is in a great measure arbitrary, where it is usual for the magistrate to intermeddle even in the management of the private property of individuals, and to send them, perhaps, a lettre de cachet if they do not manage it according to his liking, it is much easier for him to give some protection to the slave; and common humanity naturally disposes him to do so. The protection of the magistrate renders the slave less contemptible in the eyes of his master, who is thereby induced to consider him with more regard, and to treat him with more gentleness. Gentle usage renders the slave not only more faithful, but more intelligent, and therefore, upon a double account, more useful. He approaches more to the condition of a free servant, and may possess some degree of integrity and attachment to his master's interest, virtues which frequently belong to free servants, but which never can belong to a slave, who is treated as slaves commonly are in countries where the master is perfectly free and secure.
>
> That the condition of a slave is better under an arbitrary than under a free government, is, I believe, supported by the history of all ages and nations.[14]

Multi-dimensional slavery

Before the world saw Enterprise Network Socialism in Russia and the two-track economy in China, slavery alone was sufficient to abandon the paradigm of market vs. government. In the tough words of Milton Friedman, slavery comprised "a market in human beings."[15] Table 3.2 offers a short list of various species of slavery in three dimensions.

The definition of slavery is as cruel as slavery itself. According to the article "Slavery" in *Encyclopedia Britannica*, "A slave was considered by law as chattel." Historical practice confirms this legal formula. In all societies listed in table 3.2, slaves were sold and bought in primary or secondary markets.[16] Slaves were exported and imported, bequeathed and inherited, and exchanged for goods and

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[14] Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations* (Washington: Regnery Publishing, Inc., 1998), pp. 669-670.

[15] Milton Friedman, *A Theory of the Consumption Function* (Princeton: Princeton University Press, 1957), p. 16. Free markets in human beings also thrived in pre-industrial Russia, in the Ottoman Empire, etc.

[16] In the archaic Mediterranean, debtors were sold or self-sold into slavery which can be viewed as a debt/slave market. In classical Greece and Rome, slaves acquired in conquests were supplied by the government to mines in private concessions and plantations and then traded in secondary markets. In the Americas, slaves were imported from Africa (after the failed attempts to enslave American Indians, which was too costly to enforce) as a matter of private trade in primary markets and then were sold and bought in secondary markets. In pre-industrial Russia, Korea, and some Islamic states in Africa, slaves were a means of taxation by the centralized government. It assigned slaves together with land

Table 3.2
Three-Dimensional Slavery

Dimensions	Income	Government	Property
Private slavery: U.S. Antebellum South, Cuba, Brazil, 1600-1860	Common (socialism)	Non-restrictive	Private
Debt-based, local government-enforced private slavery: Mycenae, Sparta, pre-Solon Athens, pre-Republic Rome, and the ancient Near East	Common (socialism)	Restrictive	Private
Government-supplied private slavery: Ancient Greece and Rome	Common (socialism)	Restrictive	Private
Franchised slavery: Russia, 1497-1861, Korea, 1392-1725, the Kanem Bornu Empire, 1580-1846, the Oyo Empire, 1650-1800, the Fulani Empire, 1790-1897	Common (socialism)	Restrictive	Private
Centrally planned slave trade and forced production by slaves on state plantations: Dahomey, 1680-1892	Common (socialism)	Restrictive	State
Enslavement: Pre-colonial Africa, early medieval Germanic societies, the Vikings, 800-1050, Iran, 1501-1850, various historical Arab states, the Ottoman Empire, pre-colonial India (e.g., Malabar), Burma, Thailand, the Indian societies of the American Northwest coast (Kwakiutl and Yurok), spin-offs of piracy, and other world-wide episodes	Common (socialism)	Non-restrictive and restrictive	Common property and local government, national state, or private ownership

Notes and sources:
Footnotes 16-30 in Chapter 3

assets. Slaves were objects of titles and contracts since the ancient times.[17] Slaves were objects of property taxes, import tariffs, export duties, and trade regulations.[18] Free people turned family members or themselves into assets to redeem debt and were honored or seized as such assets. Slaves were used and accepted as collateral for trade credit and bank loans.[19] This list of functions is unambiguous: Slaves were assets on the balance sheet against which owners could redeem or accumulate liabilities. In short, "slavery entails ownership of one person by another,"[20] and by impersonal owners. Ownership of human beings as assets is the foundation of slavery.

In the spirit of the prior accounting discussion of property rights (ownership), we can offer the accounting definition of slavery. Slaves are human beings operated as tradeable assets whose disposable net value is under exclusive control of one or another owner. Accrual of returns on the labor of slaves is under exclusive control of slave owners regardless of the eventual distribution of returns between slaves, owners, and the third parties such as the government. On the economic plane, slavery moves human beings from labor markets to capital markets. In terms of the production function, slavery converts labor and

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to provincial and local officials for controlled production and tax collection and then slaves were traded in secondary markets. This was franchised serfdom affixed to franchised taxation (see below for details).

[17]Morris Silver, *Economic Structures of Antiquity* (Westport, CO, and London: Greenwood Press, 1995), pp. 132-135.

[18]"Other questions (...) concerned the frequent necessity of defining the words 'Goods and Commodities'. Was money, that is, gold and silver coin and bullion, a commodity? If so deemed by the economists of the day, it was not so interpreted in enforcing the acts of trade. Were negroes 'goods' within the meaning of the act? The decision was finally rendered in the affirmative. (...) The earliest decision was rendered in 1689, when "the judges certified their opinion that negroes were merchandise" (*Calendar State Papers, Colonial*, 1708-1709, ¶ 226). (...) The question not unnaturally arises whether the term 'dead commodities' in the Barbadian Act of 1663, establishing the four and a half [percent] duty, was not intentionally so expressed in order to exclude negroes from its operation." "The question was asked afterward, in 1720, whether Spanish ships, coming from Spanish possessions in America and laden with the products of those countries, could unload and sell their cargoes at an English plantation. (...) They brought negroes and English-manufactured goods and paid for them in silver coin and bullion. Such a trade was contrary to the navigation acts, which forbade the exportation from the English colonies of any goods or commodities in foreign vessels. (...) This trade raised two interesting questions: were negroes and money commodities under the navigation acts? If so the trade was clearly illegal. The English crown lawyers easily decided the first question in the affirmative; but the second, a very serious one from the point of view of the money supply of England and the colonies, seemed to be covered by clause XV of the act, "Provided that this act or anything herein contained extend not to bullion," and therefore never became an issue." Charles M. Andrews, *The Colonial Period of American History. England's Commercial and Colonial Policy IV* (New Haven and London: Yale University Press, 1964), pp. 83-84, 62. The offensive language is that of the documents of the time.

[19]In some cases, slaves served as the matching assets for government development subsidies. A Russian 19th century classic, *Dead Souls*, by Nikolay Gogol, relates the story of an entrepreneur who purchases at discount from slave owners the tax ledgers of their deceased slaves, which had not been registered yet as deceased in the tax rolls, in order to use these slaves as collateral and qualifying assets for a land development subsidy from the Ministry of Finance.

[20]Stanley L. Engerman, "Slavery," in *The New Palgrave: A Dictionary of Economics*, vol. 4 (London: The Macmillan Press, 1987), pp. 350-355.

human capital into physical capital as a factor of production. On the existential plane, slavery represents separation between human body as an ontological given and human capital, including human body itself. Slaves are human capital owned by others than those in whom individual human capital is embodied.[21] It is this existential separation that makes it possible that human beings become assets on the balance sheet of other owners.

This accounting definition of slavery makes a sharp distinction between slavery and serfdom. Slaves are tradeable assets, serfs are not. By this accounting definition, pre-industrial Russia in 1497-1861 did not have serfdom. It was slavery par excellence.[22] Numerous species of serfdom, indentured servitude, peonage, and forced labor are different systems. They lie beyond table 3.2.

This accounting definition identifies various species of slavery across economies. It singles out six major species of slavery in vastly different economies in table 3.2. Due to our fragmentary knowledge, the list may be incomplete.[23] This is a selection limited in enumeration of species (there may be more than six major species) and in location of enumerated species (there are more examples of each species and some cases may need relocation or exception). We submit table 3.2 not as a comprehensive analysis of slavery but only as a cross-section of trilateral heterogeneity exemplified by slavery. This is an exercise in three-dimensional accounting. All possible factual corrections reinforce the table if they verify three-dimensional heterogeneity and refute it otherwise.

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[21]This point originates in John Locke. "This freedom from absolute, arbitrary power, is so necessary to, and closely joyned with a man's preservation, that he cannot part with, but by what forfeits his preservation and life together. For a man, not having the power of his own life, cannot, by compact, or his own consent, enslave himself to any one, nor put himself under the absolute, arbitrary power of another, to take away his life, when he pleases. No body can give more power than he has himself; and he that cannot take away his own life, cannot give another power over it. (...) This is the perfect condition of slavery, which is nothing else, but the state of war continued, between a lawful conqueror, and a captive. For, if once compact enter between them, and make an agreement for a limited power on the one side, and obedience on the other, the state of war and slavery ceases, as long as the compact endures. For, as has been said, no man can, by agreement, pass over to another that which he hath not in himself, a power over his own life." John Locke, "The Second Treatise of Government. An Essay Concerning the True Original, Extent, and End of Civil Government," in John Locke, *Two Treatises of Government* (Cambridge: Cambridge University Press, 1988), pp. 284-285.

[22]This was fully understood by the contemporaries. Aleksandr Pushkin wrote in 1820: "Will I see, oh friends, the people non-oppressed and slavery fallen by the fiat of the Tsar?" Mikhail Lermontov wrote in 1837: "Farewell, unwashed Russia, the country of slaves, the country of masters (...) May it be that behind the mountain ridge of the Caucasus I will be hidden from your pashas,"—a rather prescient analogy with the Ottoman Empire.

[23]For extensive surveys see Seymour Drescher and Stanley L. Engerman, eds., *A Historical Guide to World Slavery* (New York: Oxford University Press, 1998); Paul Finkelman and Joseph C. Miller, eds., *Macmillan Encyclopedia of World Slavery*, v. 1-2 (New York: Simon & Schuster, 1998); Junius P. Ridriguez, *ed., The Historical Encyclopedia of World Slavery*, v. 1-2 (Santa Barbara: ABC-CLIO, 1997); Junius P. Rodriguez, *Chronology of World Slavery* (Santa Barbara: ABC-CLIO, 1999); Martin A. Klein, *Historical Dictionary of Slavery and Abolition* (Lanham, MD and London: The Scarecrow Press, 2002); Orlando Patterson, *Slavery and Social Death: A Comparative Study* (Cambridge: Harvard University Press, 1982),pp. 353-364 and *passim*; William D. Phillips, *Slavery from Roman Times to the Early Transatlantic Trade* (Minneapolis: University of Minnesota Press, 1985); and Richard Hellie, "Slavery," in *Encyclopedia Britannica*.

This selection of the six species of slavery is empirical but not ad hoc. The accounting definition of slavery identifies its species by their origin. There are six typical origins of slavery: (1) trade, (2) debt, (3) spoils of war, (4) taxation, (5) draft, and (6) capture. They correspond to the six species in table 3.2. The origin of each species corresponds to the interplay between government restriction, if any, and property types.

Species	Origin	Government	Property
Private slavery	Trade	Non-restrictive	Private
Debt-based slavery	Debt	Restrictive	Private
Government-supplied slavery	Spoils of war	Restrictive	Private
Franchised slavery	Taxation	Restrictive	Private
Centrally planned, state plantation slavery	Draft	Restrictive	State
Enslavement	Capture	Non-restrictive and restrictive	Common and local government or private

1. Private slavery in the U.S. Antebellum South, Cuba, Brazil, and other parts of the Americas ca. 1600-1860 originated in private Transatlantic trade. Slaves were worked on private plantations producing labor-intensive cash crops, such as sugar, cotton, rice, and tobacco.[24] Slaves were sold and bought in primary and secondary markets. Private trade at the point of origin, private secondary markets of slaves, and private property on land and slaves did not require government involvement beyond regular enforcement of contracts and property rights. The private trade origin of slavery fits the conjunction of non-restrictive government and private property.

2. In the archaic Mediterranean and Near-Eastern economies, debt-based private slavery was the earliest (and, in Greece and Rome, transient) species of slavery. It combined private contract between debtors, who would become slaves, and creditors, who would become owners, and enforcement of this contract by the local government, which might include the original act of state

[24] Robert W. Fogel and Stanley L. Engerman, *Time on the Cross*: *The Economics of American Negro Slavery*, vols. 1-2 (Boston: Little, Brown, 1974); Robert W. Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W.W. Norton, 1989); Gilberto Freyre, *The Masters and the Slaves: A Study in the Development of Brazilian Civilization* (New York: Alfred Knopf, 1946); Herbert S. Klein, *African Slavery in Latin America and the Caribbean* (New York: Oxford University Press, 1986); Hugh Thomas, *The Slave Trade. The History of the Atlantic Slave Trade: 1440-1870* (New York: Simon and Schuster, 1997); and Francisco Vidal Luna and Herbert S. Klein, *Slavery and the Economy of Sao Paulo, 1750-1850* (Stanford: Stanford University Press, 2003).

enslavement.[25] Private property interplayed with restrictive government.

3. The principal but largely overlooked feature of slavery in classical Greece and Rome is that it is government-supplied by conquests and distributed to private owners as the spoils of war. The government allocated to citizens (1) land and slaves to cultivate it and (2) private concessions in silver and other metal mining and slaves to mine them. Plantations (e.g., Roman latifundia) accumulated both through private trade in land and slaves and through government allocations.[26] This system matched restrictive government and private property.

4. Franchised slavery in Russia in 1497-1861, in Korea in 1392-1725, and in several African pre-colonial Islamic states originated in franchised taxation. The centralized government in many medieval and pre-modern economies in Asia and Africa and in Russia assigned simultaneously tax collection quotas and land allocations to provincial and local officials. They could collect tax revenues for their own upkeep from peasant communities on the land under their control only after and as a residual of the fixed revenue targets due to the central government.[27] We call this system franchised taxation.

   All non-remitted tax balances accrue to the franchisees' debt. In order to enforce remittance of tax revenues in full, the government at the next stage turned land into inheritable private property

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[25]Among the voluminous literature see William L. Westermann, *The Slave Systems of Greek and Roman Antiquity* (Philadelphia: American Philosophical Society, 1955); Moses I. Finley, *Early Greece: The Bronze and Archaic Ages* (London: Chatto & Windus, 1981); Moses I. Finley, *Economy and Society in Ancient Greece* (New York: Viking Press, 1982); Paul Cartledge, *Agesilaos and the Crisis of Sparta* (London: Duckworth, 1987); Paul Cartledge, *Sparta and Lakonia: A Regional History, 1300-362 B.C.* (London and New York: Routledge, 2002); Sandra R. Joshel, *Work, Indentity, and Legal Status at Rome: A Study of the Occupational Inscriptions* (Norman: University of Oklahoma Press, 1992); Morris Silver, *Economic Structures of Antiquity*, pp. 117-122; Orlando Patterson, *Slavery and Social Death*, pp. 124-126; and Gregory C. Chirichigno, *Debt Slavery in Israel and the Ancient Near East* (Sheffield: JSOT Press, 1993).

[26]The literature traditionally focused on slaves, masters, and free citizens but one can deduce the role of the government at the point of origin. See Moses I. Finley, *Economy and Society in Ancient Greece*; Moses I. Finley, *Ancient Slavery and Modern Ideology* (London: Chatto & Windus, 1980); Moses I. Finley, *Ancient History: Evidence and Models* (New York: Viking Press, 1986); Moses I. Finley, *The Ancient Economy* (Berkely: University of California Press, 1999); W.V. Harris, "Demography, Geography, and Sources of Roman Slaves," *Journal of Roman Studies*, vol. 89 (Annual 1999): 62-76; Yvon Garlan, *Slavery in Ancient Greece* (Ithaca: Cornell University Press, 1988); Nicolas R. E. Fisher, *Slavery in Classical Greece* (London: Bristol Classical, 1993); Arnold H.M. Jones, *The Later Roman Empire, 284-602: A Social, Economic, and Administrative Survey*, vols. 1-2 (Oxford: Basil Blackwell, 1964); Keith R. Bradley, *Slaves and Masters in the Roman Empire: A Study in Social Control* (New York: Oxford University Press, 1987); Moses I. Finley, ed., *Classical Slavery* (London: F. Cass, 1987); Keith R. Bradley, *Slavery and Society at Rome* (Cambridge and New York: Cambridge University Press, 1994); and Frederick H. Thompson, *The Archaeology of Greek and Roman Slavery* (London: Duckworth, 2003).

[27]This system is best described for India by Francois Bernier, *Travels in the Mogul Empire A.D. 1656-1688* (Westminster: Archibald Constable & Co., 1891), p. 224 and Angus Maddison, *Class Structure and Economic Growth: India and Pakistan since the Moghuls* (London: Gerge Allen & Unwin, 1971), pp. 17-34. For Russia, see Vasilii O. Kliuchevskii, *A History of Russia*, vol. 2 (London: J.M. Dent & Sons, Ltd. and New York: E.P. Dutton & Co., 1912).

of these officials, which made the tax collection duties and debts hereditary. Franchised taxation acquired an added feature in the countries with the open land and a high land/labor ratio where peasants could escape the tax levy. The government bonded peasants to land and to local land-owning tax officials in order to enforce tax collection. To make the tax debt of the franchisees (unpaid tax revenue balances) collectible, the government made their bonded peasants tradeable and inheritable assets. This is the specific origin of franchised slavery.[28] It combines restrictive government with private property.

5. Both the rise and the abolition of the Transatlantic slave trade engendered a unique species of slavery—centrally planned, state plantation slavery in Dahomey, ca. 1680-1892. The government amassed slaves for export to Brazil and the Caribbean and alternated between their work on state plantations and slave trade. Competitive slave trade under government control constituted private concessions and can be called franchised slave trade. When the Transatlantic slave trade was banned in the 19th century, the Dahomey government substituted domestic plantation labor in response to the growing European and Arab demand for plantation crops (palm oil, peanut oil, etc.).[29] Forced production on state plantations was a species of central planning combined with state slavery and franchised slave trade. One can mark near-total government and state ownership for this species of slavery.

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[28]There is no literature on Russia which directly corresponds to this interpretation but any economic and social history text on Russia from the 15th century to 1861 can provide ample evidence. See, e.g., Vasilii O. Kliuchevskii, *A History of Russia*; Richard Hellie, *Slavery in Russia, 1450-1725* (Chicago: University of Chicago Press, 1982); and Peter Kolchin, *Unfree Labor: American Slavery and Russian Serfdom* (Cambridge: Harvard University Press, 1987). On Korea, see James B. Palais, *Politics and Policy in Traditional Korea* (Cambridge: Harvard University Press, 1991); James B. Palais, *Confucian Statecraft and Korean Institutions* (Seattle: University of Washington Press, 1996); Mark A. Peterson, "Slaves and Owners, or Servants and Masters? A Preliminary Examination of Slavery in Traditional Korea," *Transactions of the Korea Branch of the Royal Asiatic Society* 60, no. 1 (1985): 31-41; Seung-ki Hong, "A Methodological Retrospective on Comparative Studies of the Koryo Nobi," Paper presented at the annual meeting of Association for Asian Studies, San Diego, March 2000; and Orlando Patterson, *Slavery and Social Death,* pp. 42, 183-184, 377, 468, and *passim*. On slavery in Islamic states in Africa, which exhibited franchised slavery, see, e.g., John R. Willis, ed., *Slaves and Slavery in Muslim Africa* (London: F. Cass, 1985); Orlando Patterson, *Slavery and Social Death,* pp. 354-357 and *passim*; Humphrey J. Fisher, *Slavery in the History of Muslim Black Africa* (New York: New York University Press, 2001). Orlando Patterson, *Slavery and Social Death,*pp. 122-123, provides examples of hierarchical transfers of thousands of slaves in the Bornu, Oyo, and Fulani Empires by local to provincial governors and by the latter to the central government to redeem their respective tax (tribute) debts. He notes a similar pattern in Korea and elsewhere (pp. 123-124). In Russia, tax-indebted franchisees (*dvoriane*, meaning courtier/estate owners, and *pomeshchiki*, meaning servicemen placed on land and estate) rather mortgaged their slaves and remitted cash.

[29]Karl Polanyi, *Dahomey and the Slave Trade: An Analysis of an Archaic Economy* (Seattle: University of Washington Press, 1968); Patrick Manning, *Slavery, Colonialism, and Economic Growth in Dahomey, 1640-1960* (Cambridge and New York: Cambridge University Press, 1982); Robin Law, "Slave-Raiders and Middlemen, Monopolists and Free-Traders: The Supply of Slaves for the Atlantic Trade in Dahomey c. 1715-1850," *Journal of African History* 30, no. 1 (January 1989): 45-69; Patience Essah, "Dahomey," in Junius R. Rodriguez, ed., *The Encyclopedia of World Slavery,* v. 1, p. 207; and Martin A. Klein, "West Africa," in Seymour Drescher and Stanley L. Engerman, eds., *A Historical Guide to World Slavery,* pp. 34-35.

6. Enslavement encapsulates hundreds of sub-species of slavery through history around the world. The best documented cases include pre-colonial Africa, early medieval Germanic societies, the Vikings ca. 800-1050, Iran in 1510-1850, various historical Arab states, the Ottoman Empire, pre-colonial India (e.g., Malabar and other provinces), Burma, Thailand, the Indian societies of the American Northwest coast (Kwakiutl and York), spin-offs of piracy, and numerous other world-wide incidences.[30] For each individual not born in slavery, enslavement precedes other species of slavery. It originates in capture and ends in what Orlando Patterson termed 'social death.'[31] In accounting terms, enslavement confiscates private body and human capital and converts them into common property between the individual and either private captors or the local government and national state which enslaved the individual for trade. Enslavement automatically starts with making property common and ends up in private, local government, or national state ownership in various empirical cases under either limited or restrictive government.

This grim journey around the world of slaves and masters unveils universal bilateral heterogeneity on the government and property dimensions. Any extent of government restriction, from limited in the Antebellum U.S. South to near-total in Dahomey, can coexist with any property type, from common property through enslavement to private and state ownership of human beings.

On the income dimension, slavery always entails common income. Remuneration of slaves, usually in kind, is always smaller than their economic contribution. Modern research has shown that the very raison d'etre of slavery is redistributive transfer of producer surpluses from slaves to slave owners:

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[30] In addition to encyclopedic overviews listed in footnote 23 and the literature surveyed by Orlando Patterson, *Slavery and Social Death*, pp. 105-131and 398-401, see miscellaneous cases in, e.g., Hugh Thomas, *The Slave Trade. The History of the Atlantic Slave Trade: 1440-1870*, pp. 33-286; Pierre Dockes, *Medieval Slavery and Liberation* (Chicago: University of Chicago Press, 1982); Michael McCormick, "New Light on the Dark Ages: How the Slave Trade Fuelled the Carolingian Economy," *Past & Present*, issue 177 (November 2002): 17-54; Carl I. Hammer, *A Large-Scale Slave Society of the Early Middle Ages: Slaves and their Families in Early-Medieval Bavaria* (Burlington: Ashgate, 2002); David A. Pelteret, *Slavery in Early Mediaeval England: From the Reign of Alfred until the Twelfth Century* (Woodbridge, U.K. and Rochester: Boydell Press, 1995); Ruth M. Karras, "Concubinage and Slavery in the Viking Age," *Scandinavian Studies* 62, no. 2 (Spring 1990): 141-162; Muray Gordon, *Slavery in the Arab World* (New York: New Amsterdam, 1989); Y. Hakan Erdem, *Slavery in the Ottoman Empire and its Demise, 1800-1909* (Houndmills, U.K.: Macmillan Press and New York: St. Martin's Press, 1996); Ehud R. Toledano, *Slavery and Abolition in the Ottoman Middle East* (Seattle: University of Washington Press, 1998); Leland Donald, "The Slave Trade on the Northwest Coast of North America," in Barry L. Isaac, ed., *Research in Economic Anthropology: A Research Annual*, vol. 6 (Greenwich: JAI Press, 1984), pp. 121-158; Leland Donald, *Aboriginal Slavery on the Northwest Coast of North America* (Berkeley: University of California Press, 1997); Robert H. Ruby and John A. Brown, *Indian Slavery in the Pacific Northwest* (Spokane: A.H. Clark Co., 1993); David Feeny, "The Decline of Property Rights in Man in Thailand, 1800-1913," *Journal of Economic History* 49, no. 2 (June 1989): 285-296; and Daniel J. Vitkus, ed, *Piracy, Slavery, and Redemption: Barbary Captivity Narratives from Early Modern England* (New York: Columbia University Press, 2001). And of course there is the story of that most famous of all captive slaves, Miguel de Cervantes.

[31] Orlando Patterson, *Slavery and Social Death*, pp. 105-131.

"The benefit of coerced labor to the slave owner involves a redistribution of that part of the income above subsistence that would go to a free worker."[32]

If this were not so, slave owners would have waged manumissions to discount transaction costs of maintenance and enforcement, and slavery would have been a minor and transient phenomenon. Alas, manumissions occurred only when the slave population grew disproportionally relative to available land and the marginal product of slaves rendered lower than maintenance and enforcement costs. The producer surplus for redistributive transfer from slaves to owners dissipated. At that point, it became efficient to select the most productive slaves and convert them into indentured tenants. Owners moved to assign fees and give a buyout option to those slaves who could pay high rent in cash and in kind, by labor and a share of output.[33] The best known massive case of manumission was agricultural servitude in the Roman Empire called coloni.[34] Its selective origin explains why slavery and coloni were complementary. Indentured servitude instead of contractual rent ensured a buyout fee. Still, this selective coloni was a milder species of coerced labor than universal serfdom which replaced it in Western Europe when labor shortages reemerged. But this is a story for another occasion. By and large, manumissions were rare.[35] In all major cases except Rome, slavery was abolished by government fiat. The secular persistence of slavery in each empirical case proves that it carries redistribution of output and/or income. Otherwise slavery would not exist by the voluntary choice of slave owners. They would abolish it through manumission.

All species of slavery make income common. Each species of slavery exhibits its own specific rate of redistribution of income and/or output and its own specific rate of government restriction. We tried to approximate them in Annexes 3.1 and 3.2. These estimates are as rough as can be expected when one lumps together numerous cases of each species in different countries and epochs. These are crudely estimated averages for many historical specimens of each species of slavery. Examination of each specific

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[32]Stanley L. Engerman, "Slavery," p. 350. For a definitive study based on growth accounting techniques (accounting for the contribution of labor, capital, land, and factor productivity) see Robert W. Fogel and Stanley L. Engerman, *Time on the Cross*: *The Economics of American Negro Slavery*, vol. 1-2. An additional econometric test is in Elizabeth B. Field, "The Relative Efficiency of Slavery Revisited: A Translog Production Function Approach," *American Economic Review* 78, no. 3 (June 1988): 543-549. For a similar reasoning on ancient classical slavery see Geoffrey de Ste. Croix, *The Class Struggle in the Ancient Greek World* (Ithaca: Cornell University Press, 1981).

[33]This selection by owners and self-selection by slaves solves the problem of asymmetric information in a way akin to sharecropping. On the latter, see a summary and the literature in Joseph E. Stiglitz, "Information and the Change in the Paradigm in Economics," *American Economic Review* 92, no. 3 (June 2002): 460-501.

[34]See Arnold H.M. Jones, *The Later Roman Empire;* Pierre Bonnassie, *From Slavery to Feudalism in South Western Europe* (Cambridge and New York: Cambridge University Press, 1991); and Jesper Carlsen, "Coloni,"in Junius P. Ridriguez*, ed., The Historical Encyclopedia of World Slavery,* v. 1, p. 173.

[35]Ronald Findlay, "Slavery, Incentives, and Manumission: A Theoretical Model," *Journal of Political Economy* 83, no. 5 (October 1975): 923-933; Frank McGlynn, ed., *Perspectives on Manumission*, special issue of *Slavery and Abolition* (December 1989); and Rosemary Brana-Shute, "Manumission," in Seymour Drescher and Stanley L. Engerman, eds., *A Historical Guide to World Slavery,* pp. 260-266.

case will not only refine measurements but increase the three-dimensional variation throughout the map. The purpose of this exercise is not an accurate evaluation of the rate of extraction of producer surpluses but a demonstration of three-dimensional heterogeneity. Table 3.2 offers its qualitative assessment. Annexes 3.1 and 3.2 locate all species of slavery in different cells which indicate different deciles of income redistribution and government restriction. Slavery can combine various but always high extent of income redistribution with any, low or high, extent of government restriction and with any type of property.

Most importantly, limited government and private property coexist with high extent of common income under private, trade-based slavery in the Antebellum U.S. South and the Americas. This represents a major case of non-state socialism. A legal point leads to the above economic inference:

> "In the legal sense, the slave has become the subject of a master rather than the subject of a state. The master takes over the rule-generating and enforcing functions of the state. (...) [This means] extrastatal jurisdiction (...) [and] the existence of an exempt sphere of private justice."[36]

The treatment of private slavery as non-state socialism may sound paradoxical but it rests on a simple identity. Socialism is redistribution of income and/or output. Private slavery is redistribution of income and/or output conducted extra-state. Private slavery joins Enterprise Network Socialism, brigandry, piracy, voluntary communes (e.g., the Plymouth Colony), and primordial common output (communism without government) in the southern strip in figure 3.3 and in the bottom rows in Annexes 3.1 and 3.2 as a species of non-state socialism.

More paradoxical and rather unsettling are implications of slavery for property rights.

1. The slave trade constitutes privatization of assets because it converts common property of enslavement into private property.

2. Abolition of private slavery constitutes infringement upon and abrogation of property rights of owners and confiscation of private assets by the government.[37] It is transitory nationalization of assets until human capital is vested in the emancipated human bodies.

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[36]John K. Thornton, "Africa," in Seymour Drescher and Stanley L. Engerman, eds., *A Historical Guide to World Slavery,* p. 28.

[37]This observation belongs to F. Scott Fitzgerald. Found in *The Short Stories of F. Scott Fitzgerald: A New Collection* (New York: Charles Scribner's Sons, 1989), p. 209. In another context it is made, in the title and in substance, by David Feeny, "The Decline of Property Rights in Man in Thailand, 1800-1913." This point can be viewed as the other side of the positive relationship between property rights with economic freedom and the burden of slavery quoted earlier from Adam Smith. Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations,* pp. 669-670.

Multi-dimensional heterogeneity: Central planning in Nazi Germany

In addition to post-Communist Russia and China and to private slavery, central planning in Nazi Germany makes sharp distinctions between the income dimension, the government dimension, and the property dimension. Central planning in Nazi Germany combined near-total government with universal redistribution of income but based both on private property. This secured better incentives than Communist central planning based on state ownership. Owners and managers in Nazi Germany had more incentives in meeting quotas of forced production and forced delivery than bureaucratic managers in Communist central plan economies. This is why Joseph Stalin shot managers to enforce central planning, while Hitler employed profit to the same end.

Specifically, the Nazi regime preferred family-owned firms as opposed to shareholding corporations because it is easier for the government to control production under concentrated rather than dispersed ownership.[38] Further concentration was achieved through forced cartelization of private industries under government planning.[39] Smaller private businesses were also integrated into vertical and horizontal guilds. The government forced private companies to make subsidized loans to a conglomerate of new industrial plants which was jointly owned by the government and private concerns (Herman Goering Werke). At the same time, the government subsidized plant expansion, research, and development among private firms across industries, financed construction, and provided relief to private farms and agricultural businesses.

All these subsidies accrued in exchange for meeting output quotas. This is the principal systemic feature of central planning familiar from the experience of Communist countries. It combines investment

[38]"I absolutely insist on protecting private property. It is natural and salutary that the individual should be inspired by the wish to devote a part of the income from his work to building up and expanding a family estate. Suppose the estate consists of a factory. I regard it as axiomatic, in the ordinary way, that this factory will be better run by one of the members of the family than it would be by a State functionary—providing, of course, that the family remains healthy. In this sense, we must encourage private initiative. On the other hand, I am distinctly opposed to property in the form of anonymous participation in societies of shareholders. This sort of shareholder produces no other effort but that of investing his money, and thus he becomes the chief beneficiary of other people's effort: the workers' zest for their job, the ideas of an engineer of genius, the skill of an experienced administrator. (...) Such gains belong by right to the nation, which alone can draw a legitimate profit from them. In this way, at least, those who create these profits—the engineers and workers—are entitled to be the beneficiaries. In my view, joint-stock companies should pass in their entirety under the control of the State." *Hitler's Table Talk 1941-1944: His Private Conversations* (New York: Enigma Books, 2000), pp. 362-363.

[39]This summary draws on Gerhard Mollin, *Montankonzerne und Drittes Reich: Der Gegensatz Zwischen Monopolindustrie und Befehlswirschaft in der Deutschen Rustung und Expansion, 1936-1944* (Gottingen: Vandenhoeck und Ruprecht, 1988), and, Klaus P. Fischer, *Nazi Germany: A New History* (New York: Continuum, 1995), pp. 374-383.

subsidies and the cash flow subsidies for paying off arrears (known as the soft budget constraint)[40]. In addition to output quotas of forced production, the Nazi government capped profits, managed investment, and imposed wage and price controls. Forced labor also resembled Communist countries even in minor details. Work books (Arbeitsbuch) restricted job change. All males had to participate in compulsory labor service; youth were also inducted into seasonal agricultural service. Like Communist central plan economies, Germany functioned as the nation-enterprise, but it consisted largely of privately owned firms.

Constraints to multiple combinations and multi-dimensional heterogeneity

Multi-dimensional slavery, Nazi Germany, and post-Communist Russia and China exemplify

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[40]As we mentioned in Chapter 1, the nation-wide soft budget constraints necessarily accompany forced production. Their sole raison d'etre is to enforce output delivery and production quotas. This enforcement mechanism is two-sided. Every producer enterprise is a buyer of inputs and a seller of output. Over the flow of payments, the seller-enterprises are creditors and the buyer-enterprises debtors. When payment arrears arise in trade credit, an automatic cash flow subsidy from the government to debtor-enterprises finances payment of arrears. This enables illiquid buyers to keep the centrally-planned supply chain in motion. Creditor-enterprises cannot divert inputs from government-designated buyers using arrears as an excuse. This keeps the centrally-planned supply chain intact. This, in turn, enforces output delivery from sellers to centrally-planned buyers across the supply chain. This makes a cash flow subsidy to debtors a forced subsidy to creditors. On the other side of the coin, arrears and negative cash flow balances among debtor-enterprises reveal their failure to fulfill production quotas or output delivery quotas (that is, diversion of output to internal consumption) and/or overuse of inputs. This is a violation of central planning. Managers are then punished and production quotas and delivery quotas enforced. This makes a cash flow subsidy to finance payment of arrears a forced subsidy to debtor-enterprises. See also Michael S. Bernstam and Alvin Rabushka, *Fixing Russia's Banks: A Proposal for Growth* (Stanford: Hoover Institution Press, 1998), pp. 23-25. In accounting terms, the soft budget constraints represent a special, *financing* subsidy to pay-off trade credit arrears. Operationally, it works as a regularly reactivated credit line from the monetary and banking system followed by the debt write-off. The term 'the soft budget constraints' developed as a notion of this subsidy under central planning. How this term sounds, it is too often misconstrued as a benevolent government subsidy to dependent enterprises. In reality, it is a forced subsidy to unwilling enterprises. It forces enterprises into the production line. Forced production needs these forced subsidies to close the system. This is why the soft budget constraints had evolved independently under different species of central planning in the USSR, Yugoslavia, and Nazi Germany. The notion of the soft budget constraints is often extended to include a more familiar phenomenon, occasional sectoral bailouts in the Western Welfare States and developing economies. These occasional sectoral bailouts constitute the cash flow subsidies financing payment of arrears. As such, they operationally qualify as the soft budget constraints. This dissection readily makes up a taxonomy. It distinguishes the two types of the soft budget constraints. One is the nation-wide, automatic forced subsidy under central planning. The second is the occasional sectoral bailouts in the Welfare States and developing economies. They are not forced by the government onto enterprises but are rather solicited from the government by firms. This systemic distinction is missing in the literature which views all subsidies as solicitations and does not consider the existence of forced subsidies. Another missing systemic distinction is more important. The principal feature of both types of the soft budget constraints is that they are government-given, not enterprise-taken. They are given *by* the government, not taken *from* the government. To use a sharp economic distinction, they are exogenous, not endogenous, to enterprises and firms. The self-enforceable tax subsidy under Enterprise Network Socialism is taken by enterprises from the government. It relates to the soft budget constraints the same way as counterfeiting and robbery from the Central Bank and the Treasury relate to government subsidies. The discussion in Chapter 1 submits that this is not a metaphor but a characterization. The difference is between governmental subsidies vs. non-governmental confiscations. These are the specimens of state socialism vs. non-state socialism..

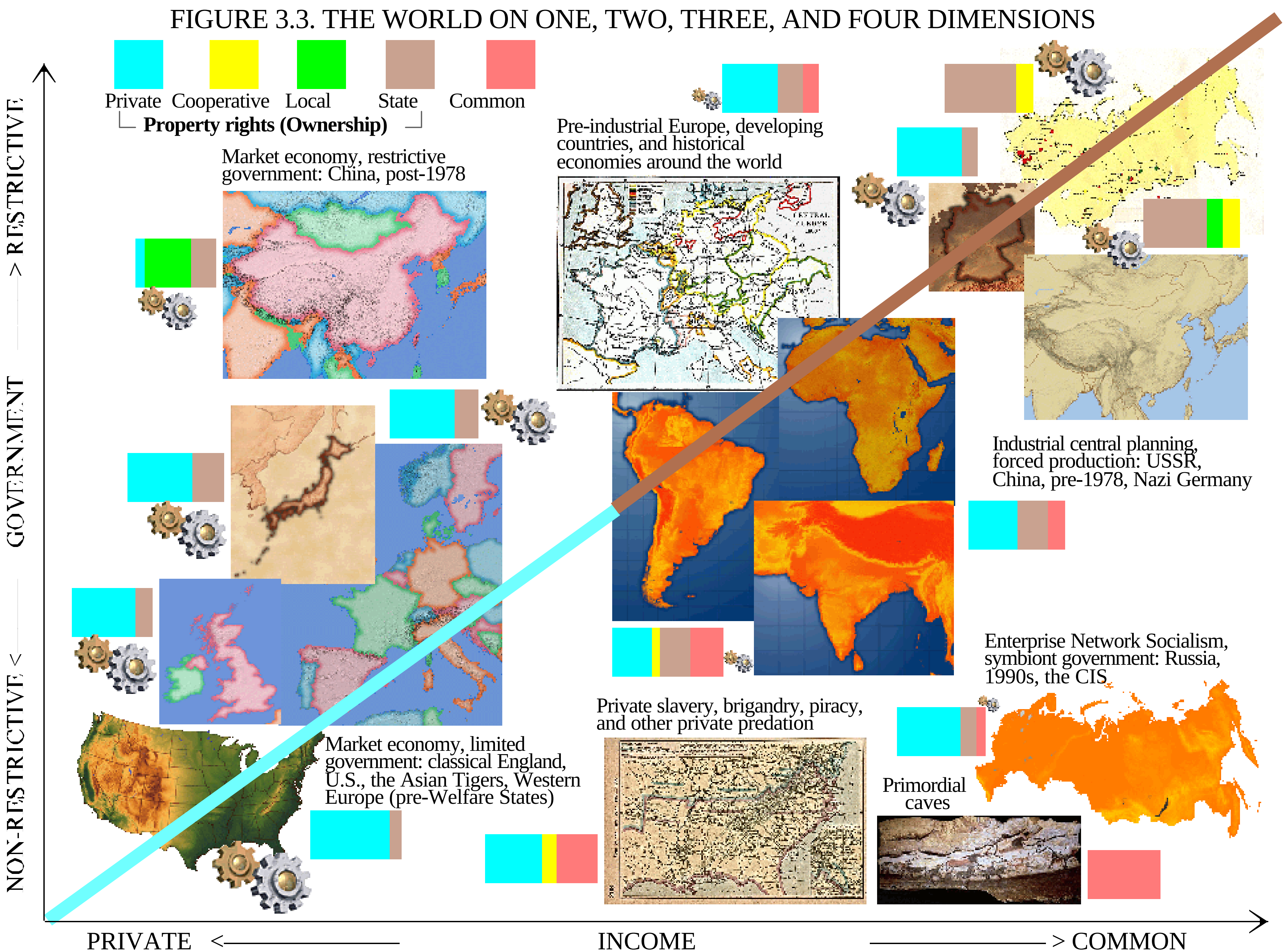


FIGURE 3.3. THE WORLD ON ONE, TWO, THREE, AND FOUR DIMENSIONS
Private
Cooperative
Local
State
Common
Property rights (Ownership)
Market economy, restrictive government: China, post-1978
Pre-industrial Europe, developing countries, and historical economies around the world
Industrial central planning, forced production: USSR, China, pre-1978, Nazi Germany
Enterprise Network Socialism, symbiont government: Russia, 1990s, the CIS
Private slavery, brigandry, piracy, and other private predation
Primordial caves
Market economy, limited government: classical England, U.S., the Asian Tigers, Western Europe (pre-Welfare States)
NON-RESTRICTIVE < GOVERNMENT > RESTRICTIVE
PRIVATE < INCOME > COMMON

FIGURE 3.4. PROPERTY TYPES ON THE INCOME AND GOVERNMENT DIMENSIONS

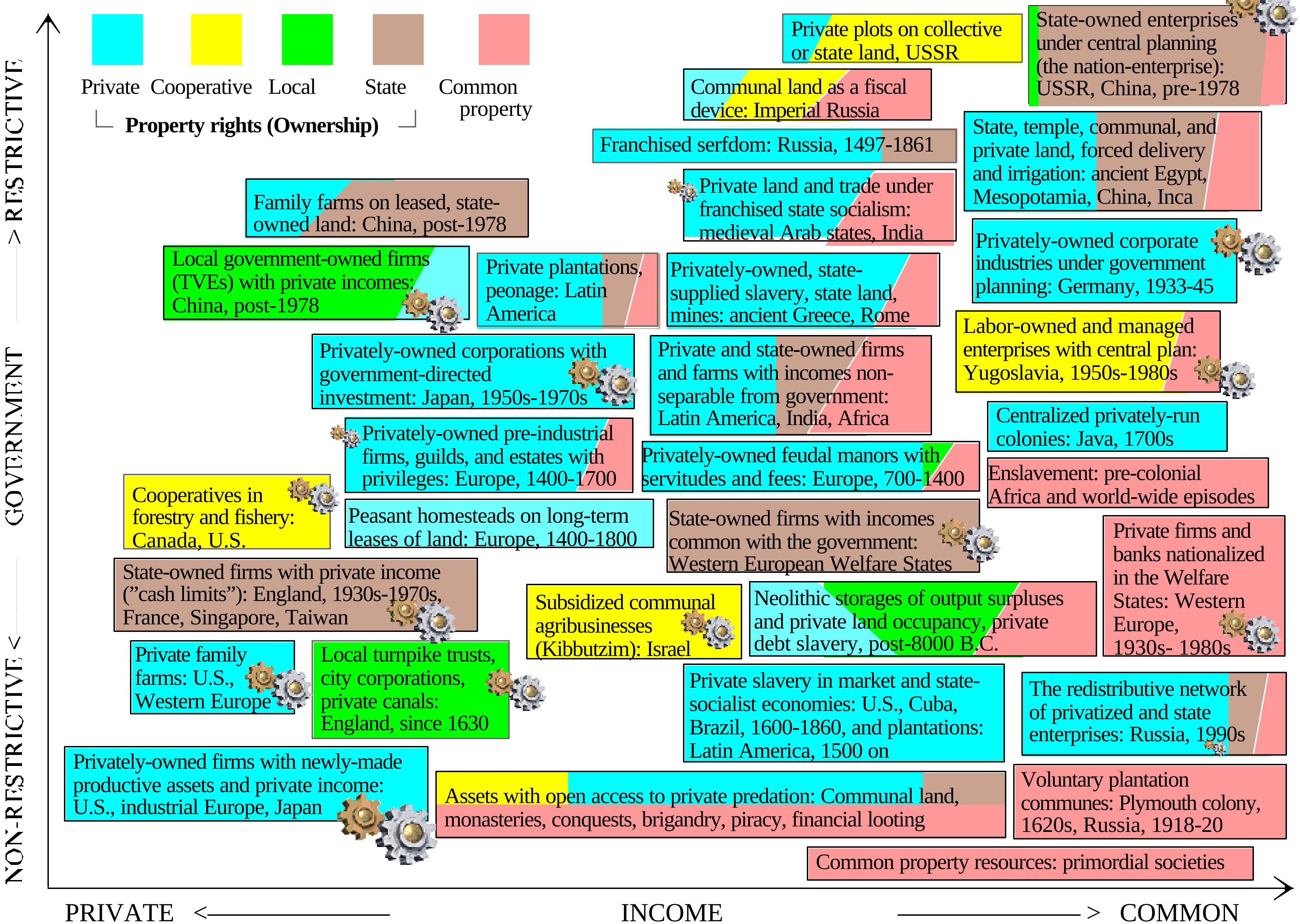
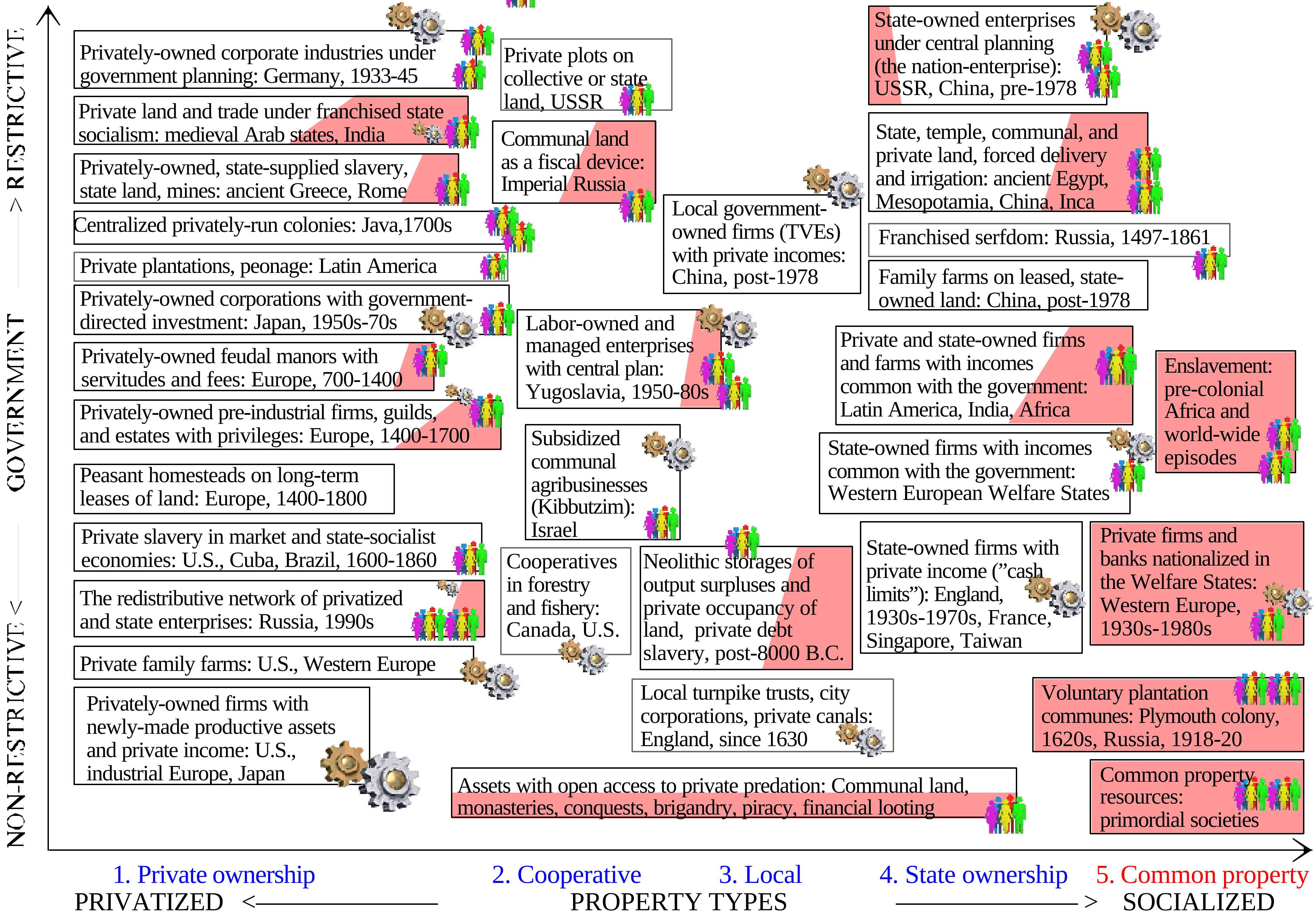


FIGURE 3.5. PROPERTY TYPES, INCOME TYPES, AND GOVERNMENT RESTRICTION: 33 EMPIRICAL EPISODES

(Common property is in red. The crowd symbolizes common income;double crowd near-total common income)



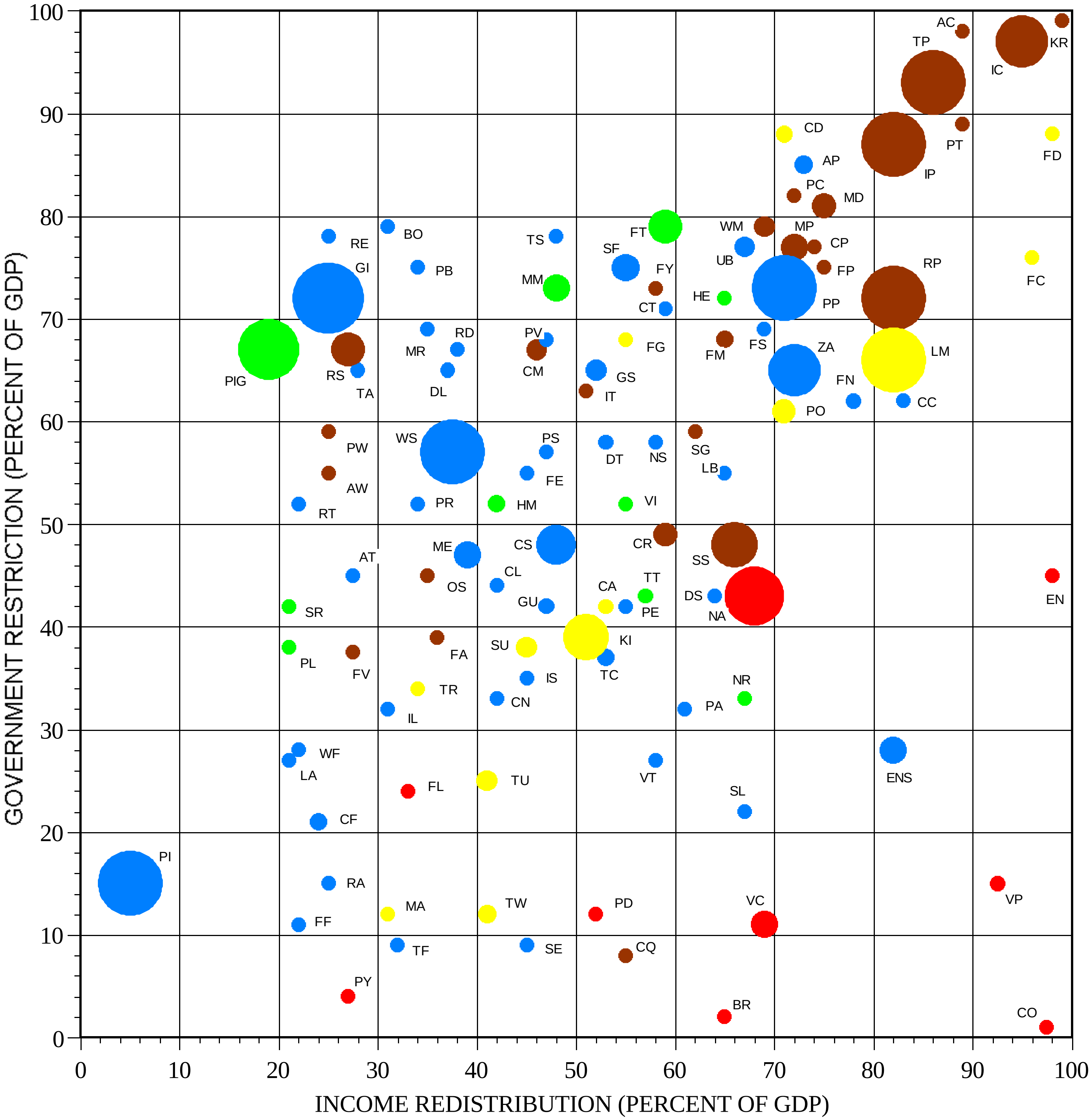
heterogeneity between income redistribution, government restriction, and property types. Other cases of multi-dimensional heterogeneity abound at all levels aggregation and disaggregation. A quick glance at national economies and supra-national regions in figure 3.3, at 33 property episodes in figures 3.4 to 3.6, and at 110 economic species in Annex 3.2 reveals the world dispersed throughout four dimensions.

Multi-dimensional heterogeneity of the world is vast but not universal. Multiple trilateral combinations are constrained. The next exercise is concerned with these constraints. On the low and high ends of income redistribution, government restriction, and property types, four bilateral combinations do not and cannot exist. Their dissection gives an unexpected insight into the nature of property rights and government.

The main exhibit for this expedition is Annexes 3.2 and 3.3 although figures 3.3 to 3.6 join in. Annex 3.3 makes the same constellation of economic species as Annex 3.2 but reverses the axes of the two-dimensional frame. The government dimension from absent to total government (from zero to 100 percent government restriction) becomes the horizontal axis. The income dimension from totally private to totally common income (from zero to 100 percent income redistribution) serves as the vertical axis. This reversal helps identify the ranges of bilateral impossibilities when they are determined by the absent and near-total government.

Annex 3.3 also adds the rings of the sub-species of private income economies (market economies) with limited and restrictive governments and the sub-species of enslavement. Annexes 3.1 and 3.2 over-simplified their measurements in crudely estimated averages and lumped many sub-species together in one circle. Central plan and similar economies with near-total common income and total and near-total government are sub-divided into 22 separate species in Annexes 3.1 and 3.2. For example, terror-enforced central planning in the USSR ca. 1940-53, in China ca. 1958-71, in Hungary ca. 1949-53, etc., makes up a different species from multi-industry central planning in the USSR, China, Hungary before and after these periods. Hungary ca. 1968-89 and Poland in the 1980s are treated as a separate species of reformed central planning with enterprise discretion, along with state-coordinated labor management in Communist Yugoslavia, which constitutes another species sui generis. Central planning over private corporations in Nazi Germany is another separate species. A defense for this apparent analytical discrimination in favor of a refined taxonomy of central planning against crude averaging and stacking of market economies and enslavement is rather lame. Enslavement is a complicated subject and only additional research, beyond the scope of this book, can tell whether government enslavement as opposed to tribal enslavement and, separately, to private enslavement qualify as separate species or as sub-species, and how to measure them in so many cases of enslavement. Market economies with restrictive government, such as the new-entrant market sector within the two-track economy in China, Vietnam, Cambodia, Myanmar, and elsewhere are new and evolving phenomena. It would require more research to even suggest whether or not to treat, say, the post-central plan Vietnamese economy as a sub-species along with China or a separate species. Western market economies with private income and limited government present an opposite but an even more daunting problem. Exactly because there is so much conflicting literature, it would constitute a separate subject in itself to adjudicate whether continental

ANNEX 3.2
THE FOUR-DIMENSIONAL TABLE OF ECONOMIC SPECIES



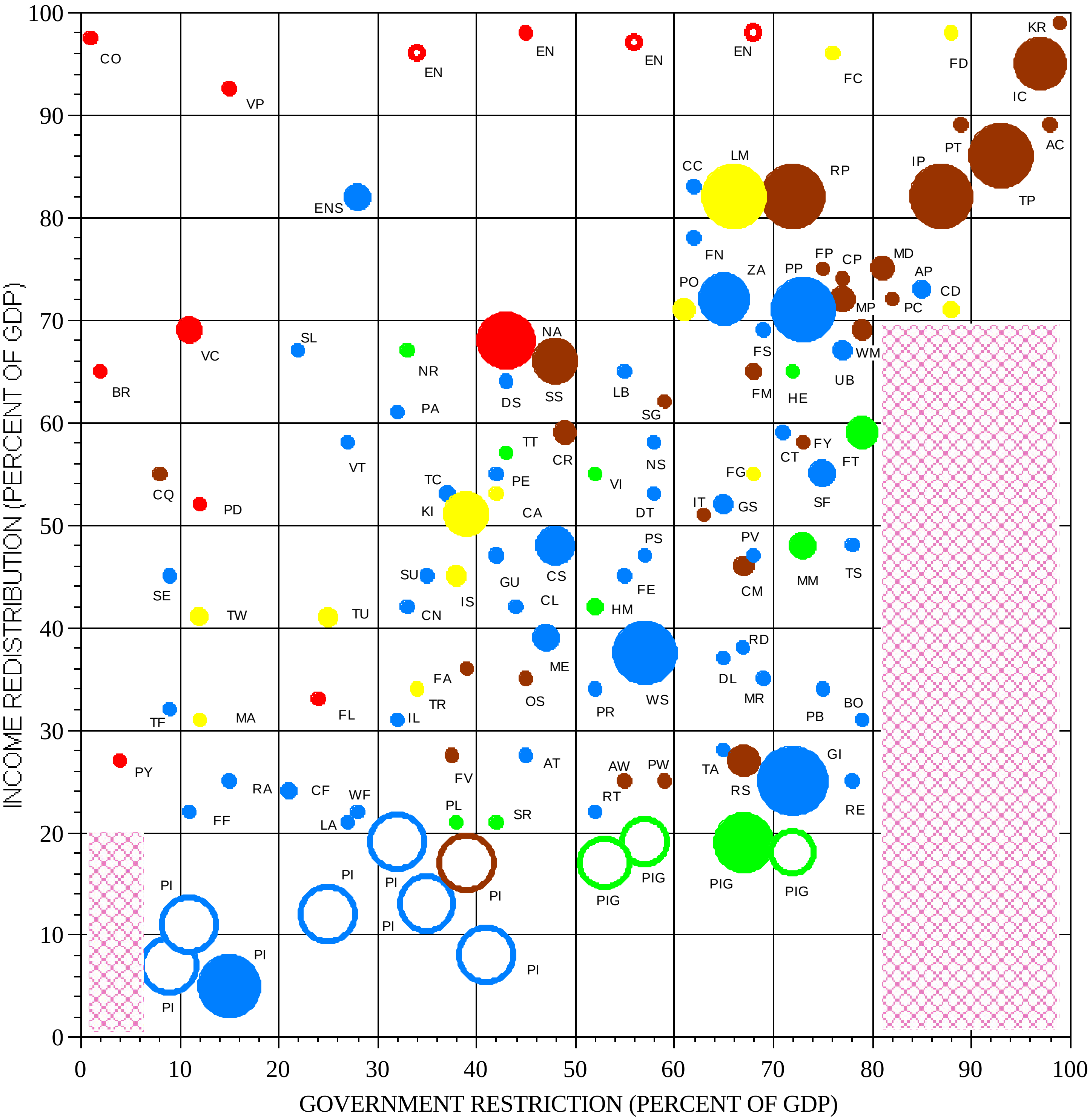
Notes:

1. Codes are listed in the legend for the two-dimensional table of economic species
2. Colors designate property types which dominate a given economic species:

Private — Cooperative — Local government — National state — Common

3. The size of the bubble estimates the rate of remuneration for the production of ideas, invention, and technological innovation

ANNEX 3.3
FOUR-DIMENSIONAL HETEROGENEITY OF ECONOMIC SPECIES



Notes:

1. Codes are listed in the legend for the two-dimensional table of economic species
2. Colors designate property types which dominate a given economic species:

Private Cooperative Local government National state Common

3. The size of the bubble estimates the rate of remuneration for the production of ideas, invention, and technological innovation

Western Europe is so much systemically different from England and the U.S. during various periods since the Industrial Revolution as to warrant one or more separate species. Measuring individual Western market economies or their groups, be they one or more species or sub-species, by the rates of income redistribution and government restriction and by some standard of property types is also a formidable technical project beyond the scope of our book. If this is not hard enough, there are the Asian Tigers. At this point, the lame defense rests.

As a palliative, Annex 3.3 adds the sub-species of enslavement as red rings (red because of common property). It adds the green rings for the sub-species of the new-entrant market sector with private income and restrictive government in a two-track economy (green because of the dominance of local government property in Township and Village Enterprises, TVEs). It adds the sub-species of Western market economies with private income and limited government as blue rings and one brown ring (blue stands for private property, brown marks state ownership). These rings of sub-species add to and extend along the income and government dimensions the average values estimated in the circles of their respective species. In the universe of 110 economic species, they bear the Tropic of Free Market, the Tropic of Restricted Market, and the Tropic of Enslavement.

Annex 3.3 along with other figures readily displays the four areas of bilateral determination.

1. *The red scatter*: Common property marked in red always coincides with common income. This can be best viewed in Annex 3.2 where the income dimension is the latitude, and also in figures 3.3, 3.4 and 3.5. Every property episode with full or partial common property in figures 3.4 and 3.5 coincides with common income. Every red circle of economic species with common property in Annex 3.2 and every red, common property stripe in the property types attachments on the map in figure 3.3 lie in the area of common income. This pattern applies equally to continuous common property in primordial societies and communes, to enslavement, and to sporadic confiscations of property by governments or private predators. They automatically make income common because returns on assets (land or capital) are or become common. Common property renders private income impossible.

2. *The no-government, no-ownership zone*: Absent or near-absent government rules out property rights (ownership) and carries common property by default. This is the zone of collective predation. The bottom strip in Annex 3.2, with government restriction less than five percent of GDP, and in figures 3.4 and 3.5 covers this zone. It encompasses primordial common output, brigandry, and piracy.

3. *The no-government, no-private income zone*: Zero or near-zero government cannot exclude takers from the income of makers. It carries common income by default. This is the same zone of collective predation—primordial common output, brigandry, and piracy. Natural men are collective predators and redistributors. In the absence of near-absence of government, most

people confiscate other men's assets, output, and income.[41] Private income is existentially impossible in the absence of government restriction of collective predation. Annex 3.3 marks this zone of existential impossibility. The no-government strip with income redistribution less than twenty percent of GDP is crossed out. It is vacant.

4. *The high end of near-total government, a no-private income zone*: Near-total government can be found only among the most restrictive species of central planning. All central plan economies practice forced delivery of output to the government and/or forced production. Income redistribution exceeds 70 percent of GDP which can be called near-total common income. All 22 species of central planning enumerated in Annexes 3.1 and 3.2 have restrictive government. In half of them, government control of economic activity can be estimated to exceed 80 percent of GDP, which one can call near-total government. Annexes 3.1 and 3.2 place these extreme species of forced delivery of output and/or forced production in the top six cells. They cover the ranges of government restriction above 80 percent of GDP and income redistribution above 70 percent of GDP. Examples of these extreme species of forced delivery to the government wholesale monopsony and monopoly include agricultural central planning in ancient Egypt, Mesopotamia, China, Japan, India, the Great Zimbabwe, and the Maya and Aztec Empires, the agricultural commune in the Inca Empire, delivery quotas and confiscation of output during War Communism in Russia in 1918-20 and the Reign of Terror in France in 1793-94, collectivized agriculture in Algeria in 1963-65, and similar cases. Among the extreme species of forced production are terror-enforced central planning in the USSR ca 1940-53, China ca. 1958-71, and parts of Eastern Europe ca. 1949-53, multi-industry central planning in the USSR, China, and eastern Europe before and after these respective periods, industrial commune in North Korea, agricultural central plan commune in Cambodia under Khmer Rouge in 1975-79, and centrally planned slave trade and forced production of slaves on state plantations in Dahomey ca 1680-1892. The species in this range are the creme of cremes or the extreme of the extremes, depending on one's values. Their lonely constellation is salient in the north-eastern corner in Annexes 3.1 and 3.3. Only central planning with its ensuing near-total common income can exist under near-total government. Private income is ruled out. Annex 3.3 marks this zone of existential impossibility. It crosses out private income and partial common income in the zone of near-total government and near-total common income. This zone is vacant.

[41]"Nature hath given all things to all men; insomuch, that *jus* and *utile*, right and profit, is the same thing. But that right of all men to all things, is in effect no better than if no man had right to any thing. For there is little use and benefit of the right a man hath, when another as strong, or stronger than himself, hath right to the same." Thomas Hobbes, *The Elements of Law Natural and Politic*, p. 80. Chapters 7 and 8 discuss how the invention of government was an evolutionary survival strategy which enabled primordial humans to store, protect, and ration output in order to smooth consumption. This strategy placed collective predation under control.

One can file a summary report of this empirical expedition.

	Ranges of determination	Ranges of impossibility
1	Common property creates common income	Common property with private income
2	Zero or near-zero government breeds common property	Zero or near-zero government with property rights
3	Zero or near-zero government begets common income	Zero or near-zero government with private income
4	Near-total government induces near-total common income	Near-total government with private income (or even with partial common income)

Beyond these ranges, *any* trilateral combination of income redistribution, government restriction, and property types is possible and empirically observable; any rate of income redistribution can combine with any extent of government restriction and any property type.[42]

Within these ranges, two variables out of three are locked in a given constrained combination but their interplay with the third variable may create multilateral heterogeneity.

- Common property can coexist only with common income but both can combine with any type and extent of government restriction, from zero to total. The red scatter of economic species in annex 3.2 and 3.3 (the latter includes the Tropic of Enslavement) and a more close look at property episodes in figures 3.4 and 3.5 illustrate this heterogeneity.[43]

- Near-total government can coexist with common income only, but both can combine with any

[42]The fourth, externalities dimension, adds to multiplicity of combinations and enhances multi-dimensional heterogeneity. The rate of internalization of externalities (especially, compensation of spillovers from production of ideas, invention, and technological innovation) is uncorrelated with income redistribution, government restriction, and property types in all observable empirical cases. We discussed major examples in Chapter 2. Compensation for or government support of science and technological advance started in medieval Islamic states and was most pronounced in such opposite systems as Western market economies, modern Welfare States, and central plan economies in Communist countries and Nazi Germany. Annex 3.2 depicts a vast dispersion of partially compensated spillovers by large-size bubbles. They represent a minority of empirical cases, or else historical and developing economies would have been much more productive and prosperous than in reality. But this minority of cases is scattered across the map.

[43]Annexes 3.2 and 3.3 display property types only when they are dominant in a given economic system, rather than multiple property types which populate each system in practice. This is why confiscations and nationalizations of assets (land, enterprises, banks, household deposits, etc.), which occur sporadically under near-total government and manifest common property, do not appear in Annexes 3.2 and 3.3. Figures 3.4 and 3.5 display multiple property types in each property episode and include common property under near-total government.

property type. Examples in Annex 3.2 and figures 3.4 and 3.5 include private property (e.g., under agricultural central planning),[44] cooperative (e.g., agricultural communes under War Communism in Russia), local government (e.g., a segment of municipal ownership in Communist China in 1971-78), state ownership (most Communist countries), and common property (sweeping confiscations and nationalizations).

Absent or near-absent government is the only determinant that excludes any multilateral heterogeneity. It always coincides with common property and common income. This is the zone of collective predation under primordial common output, brigandry, and piracy.

A filer can attach to this report a transparent scheme akin to an x-ray of figures 3.3 and 3.4 and Annex 3.2. Just a quick glance at the maps makes the same impression. Again, income redistribution from zero to 100 percent of GDP is the latitude and government restriction from zero to 100 percent of GDP the longitude.

[44]For facts and literature, see Michael Hudson and Baruch A. Levine, eds., *Privatization in the Ancient Near-East and Classical World* (Cambridge: Peabody Museum of Archaeology and Ethnology, Harvard University, 1996).

Vacant space:
Government restriction > 80% of GDP,
income redistribution < 70% of GDP

Constrained heterogeneity:
Government restriction > 80% of GDP, income redistribution > 70% of GDP, any property type

Unconstrained heterogeneity:
Government restriction from 5% to 80% of GDP,
income redistribution from 0% to 70% of GDP,
any property type (but common property always entails common income—see the red scatter)

Vacant space:
Government restriction <5% of GDP, income redistribution <20% of GDP

No heterogeneity:
Government restriction <5% of GDP,
income redistribution >20% of GDP,
common property

This empirical layout and the preceding discussion define not only the ranges of determination and possibilities. In reverse, they open up the ranges of possibilities and indeterminacy between the extent of government restriction, income redistribution and property types. These ranges of possibilities and indeterminacy go to the heart of interrelationships between property rights, government restriction, and income redistribution.

Property rights, government restriction, and income redistribution

One more tabular summary sets the stage. It condenses all figures of this chapter and the table of economic species. It puts together principal empirical findings from the previous discussion on the patterns of multi-dimensional heterogeneity. We use tinted cells to indicate the areas of bilateral determination. These areas only roughly correspond to the actual, quantitative ranges identified earlier. The purple color marks the range wherein common property creates common income. The pink color indicates the ranges where zero or near-zero government begets common property and common income and where near-total government induces near-total common income.

<table>
<tr><td>Government</td><td>Zero or near-zero</td><td colspan="5">More than near-zero, less than near-total
(non-restrictive or restrictive)</td><td colspan="2">Near-total</td></tr>
<tr><td>Property</td><td colspan="2">Common</td><td colspan="5">Property rights: private, cooperative, local, or state</td><td>Common</td></tr>
<tr><td>Income</td><td colspan="3">Common, all extent</td><td>Private</td><td>Common, partial</td><td colspan="3">Common, near-total</td></tr>
</table>

The implications reveal themselves when one looks at this table row by row, upward and downward, and checks specific combinations against empirical figures and the table of economic species in Annex 3.2. The next, accounting section demonstrates that the following implications have simple and sound accounting reasons (hint one: returns on assets make up only a fraction of returns in the economy, a fraction of national income; income redistribution can pervade other returns in the flow of funds; hint two: the government is not the only force in the economy that can redistribute income; everyone else seizes the opportunity to redistribute income throughout the flow of funds). At the moment, the implications derive from the empirical evidence summarized in figures 3.3 to 3.7, Annex 3.2, and the above layouts. These implications may be contentious or unsettling but they rely on readily verifiable and falsifiable observations.

First, common property always creates common income but the opposite pair does not hold. Property rights (ownership) of any type, including private property, do not create private income. All types of property rights can coincide with any extent of income redistribution, from partial common income in the modern Welfare States, in historical and developing economies, and under slavery (including private property) to near-total common income under Communist central planning (state ownership and other property types), in Nazi Germany (private property), and under Enterprise Network Socialism in Russia (private property). Annex 3.2 displays the scatter of all property types, including all types of ownership, throughout the common income area.

Whence follows the first implication: Property rights of one or another type are necessary but not sufficient for the existence of private income (the market economy).

Second, all types of property rights can combine with private income and underlie it. Examples include private property in all Western market economies, episodes of cooperative property on their margins, local government property of Township and Village Enterprises (TVEs) in post-central plan China, and substantial state ownership in Singapore, Taiwan, and, to a lesser extent, Japan.. What is necessary, but may not be sufficient for the existence of private income, is that national state ownership is limited so that it does not monopolize sectors and specific industries. Private property and/or local government ownership in a critical mass, that is, a multiple ownership structure in the presence of state-owned firms, are necessary for the existence of competitive markets with private income. State-owned firms can have private income only if their flow of funds is separate from the government and no explicit or implicit subsidies ensue.[45] Private property is not unique in relation to private income. Like any other type of property rights, private property can combine with private income and can also undermine private income and underlie common income.

> **Whence follows the second implication: Private property is neither sufficient nor necessary as the dominant property type for the existence of private income.**

From the two of the above, it follows that property rights of any type are ambiguous. They can equally undergird private income and common income, the market economy and socialism. As no exception, private property is ambiguous. It can promote socialism (e.g., Nazi Germany, private slavery, guilds and other mercantilism, Enterprise Network Socialism in post-Communist countries, and other historical and world-wide examples in table 3.1, in figures 3.3 through 3.5 and the blue bubbles in Annex 3.2). Alternatively, property rights and private property in particular can support competition, investment, technological innovation, and private income in the market economy.[46]

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[45]England established (but not followed) the tradition of private income for nationalized firms. Herbert Morrison (ironically, a Socialist Cabinet member), who presided over nationalization of the London Underground in 1931, formulated the best case against state subsidies and guarantees to *all* actors throughout the flow of funds, including the firm, labor, and consumers: Subsidies and guarantees "might well have encouraged a spirit of slackness, or even recklessness, on the part of the board in matters of management, on the part of the traveling public in demanding lower fares and uneconomic facilities and on the part of the work people in asking for big concessions as to conditions of labour." (Cit. in Tony Jackson, "It's a Monopoly, Stupid," *Financial Times*, July 10, 2001). The principle of separate flows of funds became known in England and its colonies as "cash limits". See David Begg and Richard Portes, "Enterprise Debt and Economic Transformation: Financial Restructuring of the State Sector in Central and Eastern Europe," in Colin mayer and Xavier Vives, eds., *Capital Market and Financial Intermediation* (Cambridge: Cambridge University Press, 1993), pp. 230-261. Singapore adopted this system for its state-owned enterprises and it informed other Asian Tigers.

[46]Adam Smith enlightened the ambiguity of government and the ambiguity of property rights in his comparison of slavery in English and French colonies quoted above. Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, pp. 669-670. For a historical overview of the ambiguity of property rights, see Douglass C. North and Robert P. Thomas, *The Rise of the Western World: A New Economic History* (Cambridge: Cambridge University Press, 1973), pp. 4-7 and *passim*. They are first in the modern literature to explicitly point this ambiguity of private property rights in the cases of monopoly rights, guilds, plantations, and similar examples.

Third, absent or near-absent government and near-total government restriction always create common income but the opposite pair does not hold. Limited and restrictive government in-between (restriction more than zero and less than near-total) do not always create private income. Any extent of government restriction, from zero to total, and any limited and restrictive government in between, can coincide with one or another extent of income redistribution. The entire government dimension in figures 3.3 to 3.5 and in Annex 3.2 is lined up or rather scattered with dozens of cases of common income, from primordial common output and Enterprise Network Socialism to Communist central planning. Annex 3.3 shows that every decile of the government dimension in the common income area is filled up, often with more than one economic species.

> **Whence follows the third implication: The government being more than near-absent and less than near-total is necessary but not sufficient for the existence of private income (the market economy).**

Fourth, any extent of government restriction in the range of more than near-absent and less than near-total can combine with private income. This can be observed from limited government in Western market economies to restrictive government in post-central plan China and throughout the Tropic of Free Market and the Tropic of Restricted Market in Annex 3.3. One can surmise that, eventually, all market economies converge to the south-west corner of free market economies. But this historical or rather teleological supposition is immaterial for the observable cross-sectional, multi-dimensional heterogeneity. Limited government, just like restrictive government, can support private income and can equally undermine private income and promote income redistribution, even near-total common income in the case of Enterprise Network Socialism. Free socialism with private property in post-central plan Russia is not a paradox or an anomaly but only one of species in these multi-dimensional ranges, along with private slavery and lesser lights.

> **Whence follows the fourth implication: Limited government is neither sufficient nor necessary for the existence of private income (the market economy).**

From the two preceding implications, it follows that the government is non-linear and ambivalent with respect to the market economy and socialism. It is non-linear because zero or near-zero government enables income redistribution everywhere, limited and restrictive government may restrain income redistribution in many cases, and near-total government raises income redistribution to the near-total extent.[47] It is ambivalent because both limited and restrictive government (more than near-absent, less than

[47] A pioneering empirical analysis of the determinants of the level of productivity across 133 contemporary nations by Robert E. Hall and Charles I. Jones explicitly suggests and statistically supports the non-linearity of government controls with respect to economic performance. Robert E. Hall and Charles I. Jones, "The Productivity of Nations," National Bureau of Economic Research, *Working Paper 5812* (Cambridge, MA: NBER, November 1996). An abridged version is in Robert E. Hall and Charles I. Jones, "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 104, no. 1 (February 1999): 83-116.

near-total) can enable, impose, or promote both private income and common income, the market economy and socialism. Both limited and restrictive government can enable and conduct income redistribution or they can curtail and eradicate it, break up common income and phase-in private income.

It further follows for policy that no extent of liberalization and property privatization can by themselves lead to the market economy and prosperity without the breakup of common income and phase-in of private income.

The most unsettling finding is the omnipresence of common income. It follows from all the above implications and from empirical evidence submitted in this chapter at various levels of aggregation and disaggregation. Socialism has occupied the bulk of human existence across historical and contemporary economies with both restrictive and limited government and with all property types. It is universal. Private income has phased in gradually and intermittently. Only in the last three centuries has it started to dominate a bloc of economies, first England and its outstretches, then Western market economies at large, including more recently the Asian Tigers and a few others, and, lately, post-central plan China. But most of the map of the world apart from the Tropic of Free Market and the Tropic of Restricted Market is the universe of socialism.

The omnipresence of common income has the underlying accounting reasons whereupon we now turn the page.