Scholastic Economics, Classical, and Modern

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To Linda Diane Mallon (1953-2023)

Contents

Introduction: Executive Summary and Innovations in this Thesis

This thesis seeks to restore economic theory, in an updated version, to its place of origin, within the scholastic natural law. This chapter summarizes the innovations in the thesis. The Thesis follows the outline of the scholastic understanding of human nature, which combines insights from Aristotle Augustine, as combined by Thomas Aquinas. According to this view, derived from scholastic moral philosophy, man is at once a 'personal' (meaning both 'rational' and 'religious'), 'domestic' (comprising 'conjugal,' 'money-using' and 'social') and 'political animal.' Each of the three chapters considers one element in this integrated view. The Conclusion instantiates the integrated scholastic view of human nature in a new Human Flourishing Index (HFI).

At the initial defense of my thesis in January 2022, I received thoughtful and helpful comments from Dr. Sarolta Laura Baritz, O.P., and Dr. Sándor Kerekes DSc., as well as probing and thoughtful questions questions from Dr. Karoly Mike. Since that defense, I modified my thesis in response to the comments, in ways which I think make the thesis more defensible, as summarized below

Chapter 1: Man as 'Personal Animal' (Meaning 'Rational' and 'Religious')

The first chapter presents a brief overview of the four main economic theories in the history of economic theory, and the three branches of today's neoclassical economic theory (summarized in Table 1-1). Then the four basic equations which describe the economic behavior of an individual according to the updated 'Neo-scholastic' economic theory are presented, and compared with the three basic equations of the prevailing neoclassical economic theory, as well as the oversimplified two equations of Adam Smith's classical economics and Aristotle's slightly more complicated, but still mathematically 'under-determined' system. Three of the four equations are presented in Cobb-Douglas form, greatly simplifying the notation. In his *History of Economic Analysis*, Joseph Schumpeter noted (though without explaining) what he

called 'The Great Gap'—the absence of any development of economic theory between Aristotle in the 4th century BC and Thomas Aquinas in the mid-13th century A.D.—even though, Schumpeter remarked, administering the Roman Empire "might have fully employed a legion of economists" (Schumpeter, 63). I suggest a reason for this lack of development: a system with fewer equations than unknown variables is "underdetermined," and therefore has no unique solution. Hence the logical and mathematical incompleteness of Aristotle's system prevented its fruitful development.

Chapter 2: Man as 'Domestic Animal' (per Aristotle 'Conjugal,' 'Money-Using' and 'Social')

This chapter begins with Aristotle's description of marriage, then applies it to a simple example of a business firm, modeled on a children's lemonade stand, proceeds to apply this analysis to the reproduction of the children themselves, then shows how everyone's lifetime incpme is determined by marital status—and finally, shows how the stylized description is confirmed by census data and recent research on the national transfer accounts.

Then I outline the principles of a business firm, beginning with the simplest possible example—a children's lemonade stand—and show how the National Income and Product Accounts may be constructed by applying the same principles. Though nearly all economists regard economic transactions as limited to market exchanges, in this chapter as elsewhere I examine the substantial but overlooked role of transfer payments, which include both personal gifts (or their opposite, crimes) and their social analogue, distributive justice.

I begins with an overview of religious affiliation over the past 4,000 years, including Pew Forum projections to the year 2100. Then I show that religious practice is even more important in explaining a range of behavior, including fertility and charitable giving.

Then I develop and apply the analysis of the French economist Jacques Rueff (1896-1978) to illustrate the principles of Distributive Justice and Justice in Exchange, by examining the two

largest macroeconomic policy problems, by developing and applying Rueff's Law of Unemployment and Rueff's Law of Inflation. The two biggest innovation in this chapter are, first, showing that the civilian unemployment rate is a function of net unit labor costs (that is, labor compensation after subtracting taxes on workers and adding social benefits received by workers and their dependents) as a share of national income; second, I develop and apply Rueff's insight that inflation (or more rarely deflation) is a function not of the domestic money supply (as conventional monetarist analysis maintains) but of total foreign and domestic official monetary liabilities: the world supply of base money in each nation's currency.

Conclusion: The Human Flourishing Index' (HFI)

The HFI is based on the combination of three separate databases: the Maddison Project Database which estimates national population and GDP per capita back to AD 1; the Barro-Lee database of educational attainment, back to 1820 and projected forward to 2040; and the data and demographic projections of the United Nations Population Division back to 1950 and projected forward to 2100.

At my first thesis defense in January 2022, Dr. Baritz called me to task for including the term "money-making," which like Aristotle she describes as "accumulating wealth for its own sake." She suggested not using "Money making animal", but rather "Economising animal" in the title

of Chapter 2 ,thereby describing the "*oikonomia"* art of economics and finance, and pointing at the unnatural features of *chrematistics or crematicos.'*

I responded, "I'm afraid that "'economizing' doesn't work as an adjective modifying 'economy'"—paralleling the terms personal, domestic and political economy—since the phrase 'economizing economy' would be redundant "

I suggested that a different reformulation--"money-*using* animal"-- satisfies what is valid in Dr. Baritz's objection, but without dropping the monetary indicator, which I have found extremely valuable.

As Augustine noted, money is used in two different kinds of transactions—"sale or gift".[1] But only the sale–-exchange---results in "money-making"; gifts represent a redistribution rather than an acquisition of wealth, and if population is stable, total lifetime gifts ultimately match and are financed by money-making. If the miser donated part of his money, he would no longer ber a miser or entirely selfish. Money-m*aking per se* is not morally objectionable, but by itself it *is* morally one-sided, whereas money-*using* is morally two-sided. Hence my reformulation satisfies De. Baritz's initial objection.

Dr. Baritz also objected to my saying ting that "There is no significant difference on economic theory between Catholics and Protestants after the Reformation." I responded that I am far from the first to note "the effect of the AAAs on Protestant economic theory." In addition to the many "Protestant Scholastics" listed by Joseph Schumpeter[2], historian of economics Odd

[1] Augustine, *On Free Will*, in *Augustine: Earlier Writings* [AD 396–97], edited by John H. S. Burleigh (Philadelphia: Westminster Press, 1953), 131.

[2] Hugo Grotius (1583-1645), Samuel Pufendorf (1632-98), John Locke (1632-1704), and Christian Thomasius (1655-1728),

[3] Joseph Schumpeter, *History of Economic Analysis*, edited from manuscript by Elizabeth Boody Schumpeter (New York: Oxford University Press, 1954).

Langholm added Philip Melanchthon (1497–1560), and actually called Johannes Crell (1590-1633) “a Thomist of the German Protestant branch.” Though Dr. Baritz implied that all economic Thomists must have been Roman Catholics, I think the historical evidence to the contrary seems quite clear.

Dr. Kerekes raised a different set of concerns and objections. He asked how I got from Aristotle to the Cobb-Douglas function. I conceded that the number of references to Cobb-Douglas equations may have seemed like overkill on my part. I view the Cobb-Douglas formula essentially as an economical notation which permits me to express three of the four elements of scholastic economic theory with a single kind of equation, rather than several, as in my earlier book, *Redeeming Economics*. Dr. Kerekes’s concern may be addressed merely by omitting one or more of the superfluous notes in my earlier book, and any related text. Both approaches seem to work empirically, but the equations in this thesis are simpler, and perhapa even more elegant.

Dr. Kerekes raised a different set of concerns and objections. He asked how I got from Aristotle to the Cobb-Douglas function. I conceded that the number of references to Cobb-Douglas equations may have been overkill on my part. I view it essentially as an economical notation which permitted me to express three of the four elements of scholastic economic theory in a single equation, rather than several, as in my earlier book, *Redeeming Economics*. It seems that this concern may be addressed merely by omitting one or more of the superfluous notes and any related text.

Dr. Kerekes’ second set of concerns was inspired, he said, by the writings of the Austrian economist Friedrich von Hayek. ‘For example, it is not certain that Hayek, Amartya Sen, Stiglitz or the representatives of environmental economics and ecological economics fit into the Neoclassical. And he expressed skepticism about my claim that by combining the share of

population with tertiary education from the Barro-Lee database with the Net Reproduction Rate from the UN data, the HFI can be used to project real GDP about two to three decades ahead."'

In response I offered two observations. First, the projections in question are not unreasonable, because they are conditional: *If t*he long-term population projections of the UN Population Division are correct, *and* the shares of the population with tertiary education projected by the Barro-Lee database are correct, *then* potential real GDP will approximate its long-term relationship to these two variables. For illustration I offered slides for Brazil, Hungary and the United States which I used at the November 2021 doctoral conference. The quality of the fitted values differs by country, with the best projections for the United States, Hungary the worst and Brazil in between. But the projections in all three cases seem plausible and useful.

Second, one great advantage of my approach is to identify the Scholastic, Classical, Neoclassical and Neoscholastic theories objectively, by their logical and mathematical structures. On this basis, Hayek's Austrian School is decidedly Neoclassical, because it contains utility and production functions and an equation expressing the equilibrium conditions, but no distribution function, which is common to both the Scholastic and Neoscholastic economic theories.

Finally, there were several formal shortcomings in the initial thesis proposal which were noted by Drs. Baritz and Kerekes. Many of these resulted from the fact that my copy of the Microsoft Word program was corrupt, which played havoc especially with chapter headings and pagination and consumed time I had hoped to devote to correcting the manuscript. Dr. Kerekes helpfully summarized the necessary changes.[3] He also recommended transforming all endnotes

[3] "These include the need for proper references to the literature, without which it is not clear what the candidate has thought and what he has taken from the literature. Endnotes should be converted into footnotes. Missing items should be added to the bibliography. It would be advisable to rewrite chapter 0. It would be useful to formulate the research questions and the main hypotheses of the applicant in the introduction . A summary of the candidate's

to footnotes. Like him, I find footnotes more friendly to the reader. I was overruled on this point by the publisher of *Redeeming Economics*. But I have converted all endnotes in my final thesis to footnote . Also, I followed Dr. Kerekes's recommendationsof summarizing my empirical findings.

Karoly Mike asked what my most distinctive contribution is. I responded that it is restoring the "final distribution function" to its place at the center of an updated Scholastic economic theory. The subtitle of my first book is "Restoring the Missing Element." "The Missing Element "is the Scholastic Final Distribution Function," which describes the personal and collective gifts which we make to each other (or conversely the crimes we inflict by depriving others of what is theirs).

Prof. Dr. Szerenyi asked why I chose those particular countries for inclusion in the HFI. Prof. Dr. Zoltan Szanto and I wrote a joint article in *World Futures* which compared the Social Futuring Index (SFI) and the Human Flourishing Index (HFI). Essentially, I wanted to the HFI to be applicable to the broadest possible range of countries.

The SFI has complete data series for all 36 member countries of the OECD, which comprise about one-sixth of the world's population and produce about one-half of the world's GDP. The HFI has been calculated for 8 of the world's 10 most populous countries plus 31 of the 36-member OECD. (Since two of the largest 10 are OECD members, this leaves a net total of 44 countries. But five smaller OECD countries--Austria, Belgium, Denmark, Luxembourg, and the United Kingdom, comprising just over 1% of the world's population--must be omitted from the HFI calculations due to missing data series. Besides 31 of 36 OECD countries, the HFI is also calculated for eight of the world's 10 most populous countries, which comprise just over

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own scientific results should be included at the end of the thesis, which would greatly facilitate the work of the referees and the defence committee in the public defence."

half of the world's population. As a result, the HFI covers 39 countries, which comprise about 67% of the world's population and produce about 80% of the world's GDP.

I am grateful to Drs. Baritz, Kerekes. Mike and Szerenyi for their valuable comments and their confidence that, suitably modified, my final PhD thesis ultimately will be satisfactory.

References

Allais, Maurice. [1980], « Les facteurs déterminants du chômage français, 1952-1978 », Rapport d'Activité Scientifique 1978-1980 (CNRS), Centre d'Analyse Économique,

Aquinas, Thomas. (1225–74) *The Division and Methods of the Sciences*, translated by Armand Maurer, fourth revised edition, Pontifical Institute of Medieval Studies, Toronto, 1986 [1255-59];

_____ *Commentary on Aristotle's Nicomachean Ethics,* translated by C. I. Litzinger, Foreword by Ralph McInerny, Dumb Ox Books, Notre Dame, IN, 1993 [1271-72; 1964 Henry Regnery Company]

_____, *Commentary on Aristotle's* Politics (2007 [1271–72]), trans. R. J. Regan,

_____, T*he Catechetical Instructions of St. Thomas Aquinas* (New York: Joseph F. Wagner, Inc., 1939); reprinted by Sinag-Tala, Manila (no date)..

_____. *Summa Contra Gentiles*, University of Notre Dame Press, 1975.

St. Thomas Aquinas, *The Summa Theologica [Theologiae]*, translated by the Fathers of the English Dominican Province (New York: Benziger Brothers, 1948 [1268–73]).

Aristotle (384–322 b.c.) *The Nicomachean Ethics of Aristotle*, translated and introduced by Sir David Ross (Oxford: Oxford University Press, 1954) [c. 350 b.c.],

_____, *The Politics*, [c. 350 b.c.]. Trans. T. A. Sinclair (Baltimore: Penguin Books, 1962).

_____*The Rhetoric of Aristotle* [335–22 b.c.], translated by Lane Cooper (New York: Appleton-Century-Crofts, 1932),

Augustine,of Hippo (Aurelius Augustins, a.d. 354–430) *On Free Will*, in *Augustine: Earlier Writings* [AD 396–97], edited by John H. S. Burleigh (Philadelphia: Westminster Press, 1953), 131.

_____, *On Christian Doctrine*, I retrieved on 27 January 2010 from http://www.ccel.org/ccel/augustine/doctrine.xxviii.html.

St. Thomas Aquinas, *The Summa Theologica [Theologiae]*, translated by the Fathers of the English Dominican Province (New York: Benziger Brothers, 1948 [1268–73])

Ball, Lawrence and N. Gregory Mankiw, (2002). The NAIRU in Theory and Practice. Journal of Economic Perspectives. Volume 16, Number 4 (Fall). 115–136

Barro, Robert J. and Herschel I. Grossman (1939-2004) (1971). A General Disequilibrium Model of Income and Employment, The American Economic Review, Vol. 61, No. 1 (Mar., 1971), pp. 82-93 Benjamin, Daniel K. and Levis A. Kochin (1979), Searching for an Explanation of

Unemployment in Interwar Britain, Journal of Political Economy, Vol. 87, No. 3 (Jun., 1979), pp. 441-478

(Eds.) Biddle, Jeff E. and Ross B Emmett. (2013). Mueller's Redeeming Economics, Research in the History of Economic Thought. Research Annual, Vol. 31-A,(Bingley, U.K.), 109-186.

Blaug, Mark (1962) Economic Theory in Retrospect. 4th ed. (Homewood, Ill.: Richard D. Irwin.) DOI : 10.1017/CBO9780511805639

Dempsey, Bernard, W., S.J.(1903-1960)((1948) Interest and Usury. , D. Dobson.

Denuc, Jean. (1930). Les Fluctuations Comparées du Chômage et .des Salaires dans Quelques Pays de 1919 à 1929 [Comparative Fluctuations in Unemployment and Salaries in Several Countries from 1919 to 1929], *Bulletin de la Statistique Générale de la France* (Fr.).

Fisher, Irving. (1867-1947) (1926). A statistical relation between unemployment and price changes. International Labor Review, 13, 785–92. (Reprinted as Fisher, I. [1973]. I discovered the Phillips curve. Journal of Political Economy, 81, 496–502.)

Friedman, Milton, and Anna J. Schwartz (1963). *A Monetary History of the United States*, *1867–1960*. (Princeton, N.J.: Princeton University Press for the National Bureau of Economic Research.)

Friedman, Milton. (1912-2006) (2010) Trade-offs in Monetary Policy. In Robert Leeson (ed.), David Laidler's Contributions to Economics (New York, NY: Palgrave Macmillan), 114-118.

Gordon, Robert. (2011). The History of the Phillips Curve: Consensus and Bifurcation. Economica. 78, 10–50 doi:10.1111/j.1468-0335.2009.00815.x

Gregg, Samuel. (2018). Jacques Rueff: Statesman of Finance and "l'anti-Keynes." Journal of Law and Liberty. https://www.lawliberty.org/2018/01/25/jacques-rueff-statesman-of-finance-and-lanti-keynes/

Hicks, J. R. (1904-1989) (1937) Mr Keynes and the Classics. A Suggested Interpretation », *Econometrica. 5 (2): 147–159. doi:10.2307/1907242. JSTOR 1907242.*

Howard, David H. (1976) The Disequilibrium Model in a Controlled Economy: An Empirical Test of the Barro-Grossman Model, The American Economic Review, Vol. 66, No. 5 (Dec.), pp. 871-879

Hu, L. and Toussaint-Comeau, M. (2010) "Do labor market activities help predict inflation?" Economic Perspectives, Federal Reserve Bank of Chicago, 52-63 (2Q).

Keynes, John Maynard. (1883-1946) (1913). Indian Currency and Find Emmet, Ednance. London: Macmillan.

_____, (1936). The General Theory of Employment, Interest, and Money. London: Macmillan.

Jevons, William Stanley, *The Theory of Political Economy* (London: Macmillan, 1871

Langholm, Odd, (1979) *Price and Value in the Aristotelian Tradition*: *A study in scholastic economic sources* (Bergen: Universitetsforlaget).

_____(1983) *Wealth and Money in the Aristotelian Tradition: A Study in Scholastic Economic Sources* (Bergen: Universitetsforlaget

_____(1984) *The Aristotelian Analysis of Usury* (Bergen: Universitetsforlaget

_____(1986) *Scholastic Economics* , section in: S. Todd Lowry (ed): *Pre-Classical Economic Thought* , Kluwer Academic Publishers, Boston

_____(1992) *Economics in the Medieval Schools: Wealth, Exchange, Value, Money and Usury According to the Paris Theological Tradition, 1200–1350* (Bergen: Universitetsforlaget

_____(2003) *The Merchant in the Confessional: Trade and Price in the Pre-Reformation Panitential Handbooks* (Leiden-Boston: Brill)

Lehrman, Lewis E. (2014). The Federal Reserve and the Dollar. *Cato Journal*, Vol. 34, No. 2 (Spring

Lipsey, Richard G. (2016). The Phillips Curve and an Assumed Unique Macroeconomic Equilibrium in Historical Context. Journal of the History of Economic Thought, Volume 38, Number 4 (December).

Maritain, Jacques, (1882-1973) *The Degrees of Knowledge*, University of Notre Dame Press, 1995 [1932

Menger, Carl,(1840-1941) *Principles of Economics(* [*Grundsätze der Volkswirtschaftslehre*] (1871);

Mill, John Stewart, (1806-1873) Some Unsettled Questions in Political upon Production" https://www.marxists.org/reference/archive/mill-john-stuart/1844/unsettled.htm#ESSAY_II

Mueller, John D. (2002) The End of Economics, or, Is Utilitarianism Finished?" April 15, 2002, available at http://www.eppc.org/docLib/20050216_mueller_apr02.pdf (retrieved 16 May 2006

_____ (2006) How Does Fiscal Policy Affect the American Worker? Published in *The Notre Dame Journal of Law Ethics and Public Policy* (Vol. 20, No. 2, Spring 2006, pp. 563-619) _____, (2011) Finn's "Nine Libertarian Heresies" and Mueller's First Lemma:

Economists Complain Exactly Insofar as they Are Unable to Explain Published in *Journal of Markets and Morality* 14, no. 2 (2011)

_____, (2013 Why "AAA Economics" Has Legs" in Biddle and Emmet, eds. _"Mueller's redeeming economics", *A Research Annual* (*Research in the History of Economic*

_____ (2014) Redeeming Economics: Rediscovering the Missing Element. ISI Books. Wilmington DE.

_____ (2015) The 'Missing Element' in Modern Economics. Published in *Quarterly Journal of Austrian Economics* 18, no. 2 (Summer 2015)

_____, (2018a) http://eppc.org/wp-content/uploads/2018/10/Making-America-Great-Britain.png.

_____ (2018b The Scholastic Origins of the Social Sciences.. Fellowship of Catholic Scholars Quarterly. Vol. 41 No. 1. Spring.

_____(2022) The Human Flourishing Index. Afterword to the Brazilin Edition of Redeeming Economics..

Mueller John D. and Zoltan O. Szanto, (2023) Social Futuring, Modern and Ancient (PDF) *World Futures: The Journal Of New Paradigm Research*

Mundell, Robert A. (1968). International Economics. (Macmillan. New York & London)

Mundell, Robert A. (1971). Monetary Theory: Inflation, Interest and Growth of the World Economy. (Goodyear Publishing Co. Pacific Palisades CA)

Patinkin, Donald (1922-1995) (1948). ''Price Flexibility and Full Employment.'' American Economic Review 38, no. 4: 543–64.

Phillips, A.W .(1914-1975) (1958). The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957. Economica. 283-299. (November).

Piketty, Tomas (2013) Capital in the 21st century (Harvard University Press)

_____ (2020),Capital and Ideology (Belknap Press of Harvard University Press)

Prat, Georges (2016) Rueff, Allais, et le chômage d'équilibre. Revue d'économie politique, Vol. 126, No. 6 (novembre–décembre), pp. 1105- 1147, Editions Dalloz. Stable URL: https://www.jstor.org/stable/44686167

Roberts, John M. (2006). Monetary Policy and Inflation Dynamics. International Journal of Central Banking September), 193-230. http://www.ijcb.org/journal/ijcb06q3a6.pdf

Rueff, Jacques (1896-1978) (1925). The Variations of Unemployment in England. Revue Politique et Parlementaire. December 10, 425-436.

_____, (1931). Unemployment insurance, the cause of permanent unemployment. Revue d'économie politique , No. 45, March-April.

_____, (1947). ‘‘The Fallacies of Lord Keynes’ General Theory.’’ Quarterly Journal of Economics 61, no. 3: 343–67.

_____, (1949). « Sur la théorie quantitative et le phénomène de régulation monétaire », *Econometrica*, vol 17, July, p. 295 – 306

_____ (1977). *De l’Aube au Crépuscule: Autobiograhie* (Paris: Plon).

Samuelson, Paul A. (1915-2009) and Robert M. Solow (1924-2023) (1960). Analytical Aspects of Anti-Inflation Policy. American Economic Review. May, 50, pp. 177–94.

Sapori, Armando (1892-1976) (1970) *The Italian Merchant in the Middle Ages*, translated by Patricia Ann Kennen (New York: W. W. Norton & Co., 1970),

Schumpeter, Joseph Alois (18831950) *History of Economic Analysis*, edited from manuscript by Elizabeth Boody Schumpeter (New York: Oxford University Press, 1954).

Smith, Adam, (1723-1790) [1759] ,*The Theory of Moral Sentiments*, ed. D. D. Raphael and A. L. Macfie, vol. I of the Glasgow Edition of the Works and Correspondence of Adam Smith

(Indianapolis: Liberty und, 1982 [1759]), 3. Accessed from http://oll.libertyfund.org/title/192/200027/3301044 on 21 August 2009.

_____, (1985 [1762]). *Lectures on Rhetoric and Belles Lettres* ed. J. C. Bryce, vol. 4 of the Glasgow Edition of the Works and Correspondence of Adam Smith

_____, (1982 [1795]), *Essays on Philosophical Subjects*. (accessed on 19 August 2009 at http://oll.libertyfund.org/title/201/56020/916315.,

_____, (1896 [1763] *Lectures on Justice, Police, Revenue and Arms delivered in the University of Glasgow by Adam Smith, reported by a student in 1763* (hereafter *LJ[B]*), edited and with an introduction and notes by Edwin Cannan (Oxford: Clarendon Press.

_____ (1966 [1776]) *Wealth of Nations*, vol. I.

Stamp, Josiah.(1880-1941) (1931a) Work and Wages. I. Fettered by the Dole: A French Theory. London Times. June 11. P. 17.

_____, (1931b) Work and Wages. II. The Ban on Employment: A System Out of Gear. London Times. June 12. P. 17.

Tobin, James (1918-2002) (1948). The Fallacies of Lord Keynes' General Theory: Comment. The Quarterly Journal of Economics, Volume 62, Issue 5, 1 November, 763–770, https://doi.org/10.2307/1883470

Triffin, Robert.(1911-1993) (1960). Gold and the Dollar Crisis: The Future of Convertibility. (New Haven: Yale University Press)

Walras, Leon (1834-1910) *Elements of Pure Economics, or the Theory of Social Wealth [Éléments d'économie politique pure, ou théorie de la richesse sociale]* (1874).

Wicksteed, Philip H. (1844-1927) *The Common Sense of Political Economy* [1910], edited with an introduction by Lionel Robbins (London: Routledge & Kegan Paul, 1933)

Worland, Stephen T.(1923-2017) (1967), *Scholasticism and Welfare Economics.* (Notre Dame, IN: University of Notre Dame Press)

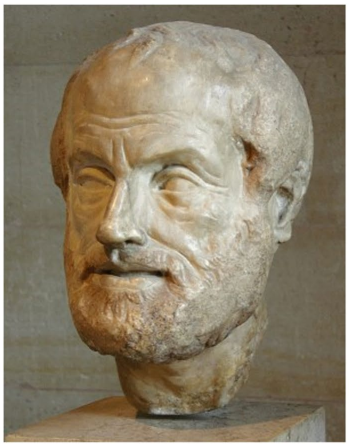
Chapter 1: Man as 'Personal Animal,' both 'Rational' and 'Religious'

Scholastic Economic Theory might be called AAA Economics, because its basic formula is: Aristotle + Augustine = Aquinas (Figure 1.1). The best way to understand the relation of these three to each other and to economic theory is to begin with Thomas Aquinas's selection and integration of the basic elements, or "first things," of economic theory: his descriptive, or "positive," economics.

But first we must address an equally fundamental reality. Man is a rational animal, as Aristotle called him; and because he is a rational animal, man is also a religious animal. But we simply don't inhabit the same religious universe as Aristotle. The main development in world-wide religion since Aristotle's day has been the shift from nearly universal anthropomorphic polytheism to nearly universal monotheism among religious believers today and in the foreseeable future (Figure 1.2). While it is certainly the case that religious practice has declined and the share of "nones" (those professing no religion) has increased in what were once known as the First and Second Worlds (the Western bloc and allies of the former Soviet Union), this is the opposite of the case for the world as a whole, for a very simple reason: religious believers have far more children than either non-believers, agnostics or atheists. For this reason, the share of "nones" in world population has been declining, and is projected to continue at least through the end of the 21st century.

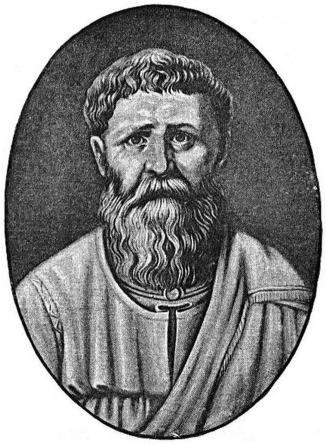
Figure 1-1

The Formula of Scholastic Moral Philosophy



Aristotle

+

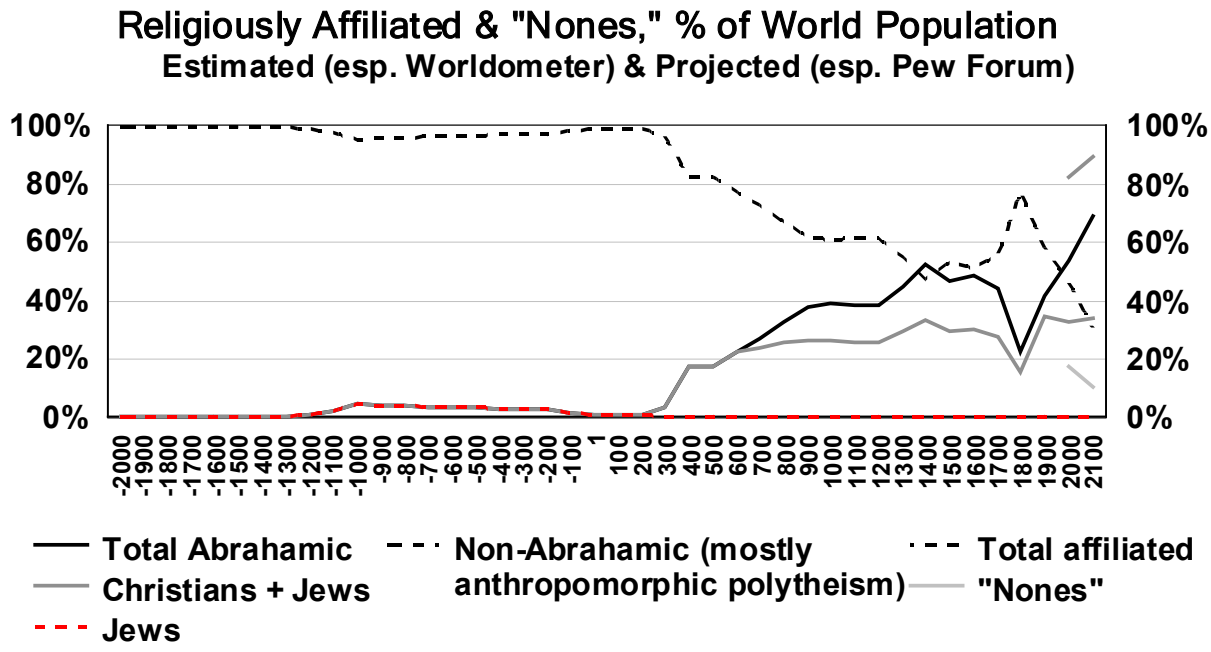


Augustine

=

Aquinas

Figure 1-2



After asking how and why Aquinas's description of economics differs from Aristotle's, we will briefly consider the applications made by later Scholastics, and finally summarize their prescriptive or "normative" Scholastic Economic Theory.

The Scholastic outline of economic theory

Perhaps surprisingly, economic theory is integral to Thomas Aquinas's comprehensive description of the human person.[4] The whole of economic theory can be reconstructed from four elements first gathered by Aquinas and derived by him from just two sources, Aristotle and Augustine. Aquinas's genius lies in his recognition that an adequate picture of human nature required combining the insights of both men. Furthermore, Aquinas's synthesis contains

[4]Aquinas's economics is embedded within a broader philosophy that seeks to comprehend all human knowledge, with a place for everything and everything in its place, as summarized in Table 1-1. The scholastic framework outlines what it means to be a "rational," "conjugal," and "political animal" by describing the theological, intellectual and practical virtues. The latter pertain either to action (moral virtue) or production; the moral virtues discipline the senses according to reason and are oriented either toward oneself (temperance to curb inordinate attractions and fortitude to overcome inordinate aversions to human goods) or toward other persons (beneficence and commutative justice between individuals and distributive justice in any domestic or political society). The whole of human knowledge and action can be outlined in a single table. Thomas Aquinas, *The Division and Methods of the Sciences*, translated by Armand Maurer, fourth revised edition, Pontifical Institute of Medieval Studies, Toronto, 1986 [1255-59]; Thomas Aquinas, *Commentary on Aristotle's Nicomachean Ethics,* translated by C. I. Litzinger, Foreword by Ralph McInerny, Dumb Ox Books, Notre Dame, IN, 1993 [1271-72; 1964 Henry Regnery Company], Lecture I, 1-3; Jacques Maritain, *The Degrees of Knowledge*, University of Notre Dame Press, 1995 [1932].

the first complete statement in history of what is involved in any human economic action, a description that is not only formally complete but also valid at any level—from a single person, to a family, business, or non-profit foundation, to a nation under a single government, to the entire world economy. It is helpful to state the Scholastic outline of economic theory in three ways: first from the commonsense point of view of a noneconomist, then from the point of view of an economist, and finally from its historical sources.

First, the commonsense explanation: What is economic theory *about?* Or, as the title of a delightful children's book asks, *What Do People Do All Day?*[5] Jesus once answered that question by observing that from the days of Noah and of Lot down to his own time, and presumably for as long as there are humans on earth, people have been doing and will continue to do four kinds of things: "planting and building," "buying and selling," "marrying and being given in marriage," and "eating and drinking."[6] In other words, we human beings *produce, exchange, distribute,* and *consume* our human and nonhuman goods.

That's the usual order in action, but not in planning. Thomas Aquinas realized that rather than four *different* acts, these verbs actually constitute four essential aspects of *every* economic act. Whether I want to consume something (after, in effect, making it a "gift" to myself) or give it to someone else to consume, I must first produce it, or else produce something else and exchange it for the item I wish to use or give away. Aquinas integrated these four basic elements of economic theory into a coherent outline. Moreover, rather than being "strictly Aristotelian,"[7] as Schumpeter believed, Aquinas subordinated Aristotle's thought on these matters to Augustine's.

Economics is essentially a theory of providence. Every human economic action raises three basic questions: First, *for whom* shall I provide? Second, *what* shall I provide? And third, *how* shall I provide it? Any adequate economic theory must answer these three questions. This will require either three or four answers, depending on whether exchange is involved.

To grasp the logic, take an everyday example: What happens when someone plans, prepares, and serves a pot-roast dinner for family and friends? The question "For whom?" must be answered to explain why *these* particular persons—of all others—were chosen to consume the dinner; the answer is that the host prefers them to all others (at least for this purpose) and expresses that preference by sharing with them this meal.

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[5] Richard Scarry's *What Do People Do All Day?* Random House, New York, 1968.
[6] Lk. 17:27–28.
[7] Schumpeter, *History,* 93.

The question "What?" must be answered to explain the fact that a pot roast, rather than, say, an eggplant casserole, is being served. The host might well prefer eggplant casserole if she were cooking only for herself, but she also knows the preferences of the people she has invited to share the meal. Hence the pot roast.

The question "How?" must be answered to explain the otherwise mysterious fact that pot roast actually materializes on the table. But this answer is not as simple as the first two; it is dependent on whether the family has had to produce and exchange other things in order to get the pot roast. If there is no exchange, the household produces of its own resources not only the total amount but also the exact variety of each good consumed by its members—this might happen, say, on a cattle ranch where potatoes and vegetables are also raised. The "How?" answer would explain where the cow came from, how it was raised and slaughtered, how the meat was dressed, how the potatoes, onions, and carrots grown, and all the other steps needed to prepare and serve the meal.

But when exchange is involved—as of course it usually is—the family's members first produce something that they think other producers will value more highly than the good that they have produced, and then they exchange the products for mutual benefit. Now, we do not typically barter sides of beef for consulting services. We almost always use money (or claims on it) as our "medium" of exchange. Such exchanges require us to answer a two-step question: first, what goods or services were produced and sold to acquire the money with which to purchase the dinner ingredients that the host family did not itself produce? And second, how did their purchases allow the grocery store to pay its employees, the rancher, the farmer, and everyone else in order that they all might realize their own very different dinner plans for the same evening?

Let's approach each element from the point of view of an economist. We will give a name to each of the four elements of Aquinas's outline of economic theory and describe them concisely, with the benefit of mathematical notation that had not been invented in the thirteenth century.[8] (I will put most economic equations in footnotes so as not to daunt the numerophobic reader, though the math is very elementary.)[9] Although the level of detail and sophistication at

[8] I first presented the Neoscholastic outline of economic theory as an empirically verifiable system of four simultaneous equations in a paper presented at Princeton University's James Madison Program in American Ideals and Institutions: John D. Mueller, "The End of Economics, or, Is Utilitarianism Finished?" April 15, 2002, available at http://www.eppc.org/docLib/20050216_mueller_apr02.pdf (retrieved 16 May 2006). I'm grateful that Professors Robert P. George and Peter Singer of Princeton graciously agreed to join the discussion.

[9] All the actions described are understood to have the dimension of time—for example, consumption C should be understood as C/δt, or consumption per unit of time—the notation for which is usually omitted here for simplicity. By abstracting from differences in timing, we leave until later our consideration of investment, which is essentially providing for future consumption by producing more than we currently consume.

which we understand each of the elements has advanced considerably since the Middle Ages, especially since the invention of mathematical calculus in the seventeenth century and its general use by economists since the late nineteenth century, the reason we have a mathematical theory of economics today is that both Aristotle and Augustine recognized from the beginning that the objective aspect of justice and of loving your neighbor with finite goods could be described in mathematical terms.

As all the elements are simultaneously necessary for a complete economic explanation, the order in which we consider them is somewhat arbitrary. What comes first in logical order may be last in the succession of time, and vice versa. But in describing them here, I will try as far as possible to treat them in logical order.

1. *For whom?* The theory of "final distribution"[10] describes personal gifts (as well as their opposite, crimes) and their social analog, which Aristotle called "distributive justice." The Cobb–Douglas function is used most often in Neoclassical economic theory to describe production (as in equation 3 below) and consumption (as in equation 2 below). But here we will apply it also to describe the distinguishing feature of Neoscholastic economic theory: the distribution function, which is necessary to prevent the "underdetermination" that is endemic to the Neoclassical system. Let the shares of income Y devoted to two types of person, self *S* and other *O,* be described as

$$Y = Y_S^{\alpha} Y_O^{\beta}, \alpha + \beta = 1 \qquad (1).$$

Aristotle (and Aquinas following him) referred to the formula for distributive justice as the "geometric ratio" which matches the distributive shares α and β with the relative significance of the persons *S* and *O* (to *S*). The most common example of distributive justice is the gifts of existence, rearing, and instruction, which parents make to dependent children. (Empirically, according to Mason and Lee, considering private transfers alone, $\alpha + \beta < 1$ when age ≤ 30, and $\alpha + \beta < 1$ when age ≥ 30, particularly when age ≤ 49. That is, parents support their dependent children (while also saving for their own retirement) and continue to make net transfers to other family members throughout their own adult lives.

Each person's share in the total use of goods is proportional to that person's significance compared to all persons sharing in the distribution. One person's total consumption therefore

[10] I say "final" distribution, because, as we will see, Adam Smith started a long tradition among economists of using the term "distribution" without properly distinguishing it from compensation—the explanation of how the incomes of the factors of production are determined.

equals his own income or wealth plus or minus any consumption financed by gifts or other "transfer payments" received or given.[11]

Though most obviously applicable for an individual person in a single period of time, this general description of economic action is also valid with appropriate modifications for explaining the behavior of any social group over any period. Ordinarily, we are not considering a Robinson Crusoe, deprived by shipwreck of spouse and offspring, but rather members of family households within larger political communities integrated by money, specialized production, exchange, and all the social, legal, and political institutions that these entail.

This requires us to revise our account as necessary to suit the particular agent we are describing: an individual person, a family household (or one of its modern offshoots, the business firm and nonprofit foundation), a monetary authority, or a government. For example, while final distribution always involves some kind of "transfer payment," this might be a gift from one person to another, a joint gift from parents to their children, or a tax-funded government benefit authorized by a political community according to its formula of "distributive justice."

2. *For what?*

2.a The theory of *utility* describes how we value (or rank or prefer) the scarce human and nonhuman goods we choose as the means to be used (consumed) by or for the persons who are the end or purpose of our action.[12]

2b. *Utility function*. The consumption levels of two types of good *E* and *F* may be described as

$$U = U(E^{\gamma}F^{\delta}) \qquad (2)$$

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[11] For clarity and simplicity later on, we will define
(5) $Y_i \equiv rK_i+wL_i$
meaning that Y_i is the total net factor compensation (labor and property income) of Person *i;* and
(6) $Ti \equiv Y_i—Y_iD_{ii}/\Sigma D_{ij}$.
By substituting (5) and (6), (1) may therefore be restated as:
(1a) $C_{Ki,} + C_{Li} = Y_i—T_i$.
This makes clear that the difference between Person *i*'s total consumption, $C_{Ki,}+C_{Li,}$ and total compensation, Y_i, is equal to T_i—(net) personal, domestic and political "transfer payments" from person *i* to other persons. Transfer payments comprise any income *not* received as compensation for contributing to current production. "Net" means that personal gifts made are offset by gifts received, while taxes are treated as transfers paid to the government and balanced against government transfers received.

[12] (2) $U_i = f(C_{Ki,} C_{Li})$ [utility function],
where U_i is the ranking by Person *i* ("utility") of $C_{Ki,}$ and $C_{Li,}$ the units consumed in use by Person *i* of the services of his or her nonhuman goods, K_i, and human capital, L_i, respectively. In reality, K and L are not two goods but two classes of goods consumed: (K_1, K_2, . . . , K_n) and (L_1, L_2, . . . , L_n). Scarcity implies that the value of each unit consumed declines as the number of units increases ($\delta U/\delta C<0$: "declining marginal utility"), and that goods are "used up"—that is, rendered unusable—by consumption (for example, $C_{Ki} = -\delta K_i$).

where γ and δ are constants and γ + δ = 1. A utility-maximizing consumer will spend a proportion γ of his budget on good *E* and a proportion δ on good *F*.

3. How? The theory of *production* explains how we produce such scarce means, by combining the useful services of people ("human capital") and of property ("nonhuman capital"), both of which are usually reproducible.[13]

3a. *Production function*. If we denote aggregate output by *Y*, the input of nonhuman capital by *K*, and the input of labor by *L*, the Cobb–Douglas production function is:

$$Y = AK^{\alpha}L^{\beta} \qquad (3)$$

where A, α, and β are positive constants. If α + β = 1 this production function has constant returns to scale; that is, if *K* and *L* are each multiplied by any positive constant λ then Y will also be multiplied by λ. (If α + β > 1, there are increasing returns to scale, and if α + β < 1 there are diminishing returns, meaning that increasing inputs increase output, but less than proportionally.) The Cobb–Douglas production function has been applied also at the level of the individual firm. With this production function, a cost-minimizing firm will spend a proportion α of its total costs on nonhuman capital and a proportion β on labor.

The Cobb–Douglas function may be extended to include three or more arguments such as factors of production. For example, Mankiw, Romer and Eastman (1992) found that (for all but oil-producing countries),

$$Y = AK^{\alpha}L^{\beta}H^{\gamma} \qquad (3a)$$

where *K* = nonhuman capital, *L* = tangible human capital, *H* = intangible human capital (e.g., education) and α = β = γ = 1/3.

3.b. The Scholastic theory of justice in exchange, which economists now call *equilibrium*, explains how the sale of each product supplies the compensation of its producers: labor compensation for the workers and property compensation for the property owners.[14]

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[13] (3a) $\delta K_i = f_1(K_i, L_i)$ [production function for nonhuman capital];
(3b) $\delta L_i = f_2(K_i, L_i)$, [production function for human capital];
where δK_i is the change in the stock (production) of nonhuman goods, and δL_i the change in the stock of "human capital," owned by Person *i.*

[14] (4) $P_K\delta K_i + P_L\Delta L_i = rK_i + wL_i$, where P_K and P_L are the unit prices of *K* and *L,* respectively, *w* labor compensation per unit of *L,* and *r* property compensation per unit of *K.* (P_L is a market price only in a slave-owning society, like ancient Athens or the antebellum American South.)

3.c. *Budget constraint/equilibrium conditions*. If (as in equation 2) there are only two goods, *E* and *F*, and $U = E^{\alpha}F^{\beta}$, the budget constraint in Neoclassical economic theory is simply the ratio a/β. More generally, the equilibrium condition is that production = (property plus labor) income:

$$Y = rK + wL \qquad (4)$$

where *r* is the rate of return on nonhuman capital *K* and *w* is the wage rate for labor *L*. We will describe all of these later. But whatever the change in details, at least three and usually all four elements remain necessary for a complete and correct description.

To understand the historical development of economic theory, then, it's important to notice several things. First, the Scholastic system can be described in *a set of economic equations* (though I haven't entirely followed the advice of Alfred Marshall to "burn the mathematics" but instead greatly simplified it).[15] Second, the system is *logically complete,* which we can verify by seeing that there is one equation to explain each unknown variable.[16] Third, the system is *empirically verifiable*: the dependent variables correspond to measurable realities, like goods consumed and produced, market prices paid, and incomes received. Fourth,

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[15] Economics is (and has been since Aristotle) a mathematical as well as moral discipline. But Alfred Marshall once gave another economist this excellent advice: "(1) Use mathematics as a shorthand language, rather than an engine of inquiry. (2) Keep to them till you have done. (3) Translate into English. (4) Then illustrate by examples that are important in real life. (5) Burn the mathematics." In other words, mathematics cannot say any more than can be said in English. "Twice two equals four" means the same as "2 x 2 = 4." But the math does serve some very useful purposes: checking whether a theory is logically complete, discovering its implicit assumptions, and quantifying and testing its predictions. Once you realize this, math loses any mystique and becomes no more exciting (though it remains no less necessary) than proper spelling and grammar. The practicing economist is a man of simple pleasures, like Charles Dickens's Mr. Micawber: "Annual income twenty pounds, annual expenditure nineteen pounds six, result happiness. Annual income twenty pounds, annual expenditure twenty ought and six, result misery." Or rather, for the practicing economist: Four unknowns, four equations, result happiness. Four unknowns, three equations, result misery. As an empirical practitioner, I began to suspect that most of the misery in modern economics results from the simple error of starting with more unknown variables than explanatory equations. All varieties of modern Neoclassical economics have no more than three kinds of equations to explain the four essential facets of human economic decisions. Each missing equation or explanation forces economists either to resort to circular logic (thus making their descriptions unverifiable), or else to replace missing variables with assumptions (and thus to prescribe and falsify rather than describe the facts). The explanatory equation missing from Classical and Neoclassical economics is the one that describes gifts (and their opposite, crimes) at the personal level and distributive justice at all social, e.g. family and political levels. The actual mathematics is pretty basic and confined mostly to footnotes. Marshall to Bowley, 27th February 1906, in Memorials of Alfred Marshall, edited by A.C. Pigou, 427.

[16] The known variables include the D's and U, which describe preferences for persons and nonpersonal wealth that are independently (freely) determined by Person *i;* also the variables resulting purely from simplifying definitions (Y and T). For realism, the system described includes two goods consumed (C_K and C_L) and two factors (K and L). As a result, there are two equations in the production function instead of one, while two equations were added to define Y and T. But to show its logical completeness and consistency (though at the cost of losing empirical realism), the system could be reduced to one containing only one good and one factor, for example, by eliminating L, C_L and P_L, while Y and T could be eliminated without changing the substance. In doing so, it becomes clear that there are only four equations with four unknowns (C_K, P_K, r and K), and that for each additional unknown variable an equation was added.

so far it is *purely descriptive* or "positive": the system attempts to describe what actually happens, not what *ought* to happen. Fifth, this system remains *valid at every level* of analysis, from a single person to the entire world economy. To continue from one level to the next, we simply add the equations describing all the persons involved.[17]

Finally, since the Scholastic outline is a logically complete description of reality, *the outline itself never changes* in the least. Goods must be produced, exchanged, distributed for final use, and consumed, whether or not economists describe these actions accurately. But when (as often happens) economic theorists replace facts with assumptions, their descriptions become empirically false, and when they ignore any element, their descriptions are made logically incomplete and unverifiable. For example, rather than omitting the distribution function (equation 1) altogether, both Classical and Neoclassical economic theory instead replace it with a distribution function presuming the special case of pure selfishness:

$$Y = YD^{1}_{S}\, D^{0}_{O} \qquad (1a)$$

in which 100% of income is devoted to oneself and 0% to any other person. It is similarly obvious that the Utility *U* described in equation 2 inherently can pertain solely to oneself, never to anyone else.

Sources of the Scholastic outline

Now let's look at the same ideas from a historical perspective. Where did the four elements of "AAA" economic theory come from?[18]

Aristotle provided a theory of final distribution of the social and political distribution of common goods; he assumed rather than stated the theory of utility; and he provided the theories of production and equilibrium. Augustine filled out Aristotle's theory of social and political distribution with a theory of personal distribution based on a scale of preferences for persons including oneself. He also supplied a theory of utility as a scale of reference for non-personal things in the place of Aristotle's sketchy remarks on the subject. Aquinas synthesized the two. Let us take the elements in order.

1. *Final distribution.* Our evaluation of things, not according to their inherent value but according to their value *to us,* involves the choice of both ends and means. Our ranking of

[17] If we analyze a single person's actions, we are not considering how that person's actions will affect other persons, and vice versa. For example, market prices are taken as given. This would be a partial equilibrium analysis. As we add more persons, our perspective changes from a partial toward a general equilibrium analysis. A truly general equilibrium approach requires adding other economic agents (a monetary authority and a government, for example).

[18] Appendix 1 contains links to the complete works of Aristotle and Aquinas as well as to Augustine/s major works. (Augustine is thought to have written, or dictated, about 6 million words, some of which have not yet been translated.)

persons as the ends of our economic activity is expressed by our distribution of goods among them for final use, while utility is our ranking of such goods as means.

By what principles do we distribute our wealth? Aristotle noted in his *Ethics* that every human community necessarily has a principle for distributing its *common* goods, which he called its "distributive justice."[19] In each case, the goods are distributed in (geometric) proportion to the relative importance or merit of the persons involved: "All men agree that what is just in distribution must be according to merit in some sense, though they do not all specify the same sort of merit." Aristotle applied this idea mostly to political distribution,[20] noting that "democrats identify it with the status of freeman, supporters of oligarchy with wealth (or noble birth), and supporters of aristocracy with excellence."[21] In other words, Greek democrats wanted equal shares in every public benefit, wealthy citizens wanted shares proportional to the value of their wealth, and the nobility wanted shares according to their social status. This is a fine piece of analysis, because it tells us exactly what we are disagreeing about when we debate (for example) proposals to raise or lower taxes or government spending. We are arguing about two things: first, how much (and from whom) private wealth will be appropriated as common wealth; and second, what share any person shall enjoy of its use. Everyone accepts the basic principle that shares be distributed according to some formula, but people often disagree about what that formula ought to be.[22]

However, without a theory of personal distribution, the practical value of this analysis is limited, because it cannot explain why or how individual persons join families or political communities, and (except in communist societies) common political goods ordinarily are a minority of a community's total wealth. Augustine, on the other hand, provided a theory of personal distribution in seeing that every human person, by virtue of his natural interdependence with other persons, also has a principle for distributing the use of his wealth between himself and other persons: the degree of his love for other persons relative to himself.[23]

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[19] *The Nicomachean Ethics of Aristotle,* translated and introduced by Sir David Ross, Oxford University Press, 1954, Book V, Ch. 3; 112–114.

[20] Aristotle says "the distribution is made from the common funds of a partnership… according to the same ratio which the funds put into the business by the partners bear to one another." Ibid., 114. But this is not necessarily the case. The shares may be and often are the result of investments made (or other compensation for goods and services), but businesses also can and do make "transfer payments" to persons who do not contribute to current production.

[21] Ibid., 112–113.

[22] It's possible to determine the appropriate formula with a reasonable degree of objectivity; the main problem is factions seeking unjustly to prevent it.

[23] *On Christian Doctrine,* I, 28.

Augustine was hardly the first to say that persons *ought* to be treated as ends and not merely as means. What sets Augustine apart as an analyst is his observation that every human *does,* as a matter of fact, always act with some *person(s)* as the ultimate end or purpose of action.

Earlier philosophers, including Aristotle, had debated whether happiness lay in making one's highest good wealth or fame or knowledge or moral virtue or pleasure (and each answer defined a different school of moral philosophy). But Augustine sliced through all this. A miser is said to love money as his highest good, noted Augustine—yet he still parts with it to buy bread to continue living, thus showing that his deepest motive is love of self, not money.[24] But it is not the case that every human acts *solely* for him- or herself. That is precisely what each person is free to decide. Every economic choice is therefore a moral choice. In other words, each of us has not only a scale of preferences for instrumental goods as means but also a prior scale of preferences for persons as ends of our actions.

"Human society is knit together by transactions of giving and receiving,"[25] Augustine noted. But these outwardly similar transactions are of two essentially different kinds: "sale or gift."[26] Generally speaking, we *give* our wealth without compensation to the people we particularly love, and *sell* it to (or *exchange* it with) people we don't.

Augustine began with Aristotle's definition that to love a person means to will him or her some good, but he took the idea much farther by going on to explain that the share of goods that a person gives to others relative to the share he retains for his own use is proportional to his love for those others relative to himself. If there are only two of us, and I love you equally with myself, and I will give you the use of half my resources; if I love you half as much as myself, I will give you a third and keep two-thirds; and so on.

Two persons agree to exchange wealth, on the other hand, when they choose different people as the ends or purposes of their action (for example, I want to provide for *my* family, not yours, while you want to provide for *your* family, not mine) and when the means they have chosen are compatible (I offer something useful to your family to receive something useful for mine). "The specific characteristic of an economic relation [i.e., exchange] is not its 'egoism,' but its 'non-tuism,'" as Philip Wicksteed pithily put it—*tu* being Latin for "thou,"' as *ego* is

[24] *On Christian doctrine,* I, 26.
[25] To Simplician—On Various Questions," Book 1, question 2 article 16 in *Augustine: Earlier Writings,* selected and translated with introductions by John H.S. Burleigh, Westminster Press, Philadelphia, 1953, 398.
[26] Augustine, *On Free Will,* in *Augustine: Earlier Writings,* edited by John H.S. Burleigh, The Westminster Press, Philadelphia, 1953, 131.

for "I." "The economic relation [exchange] does not exclude from my mind everyone but me, it potentially includes everyone but you."[27]

Recognizing their mathematical similarity and social complementarity, Aquinas combined Augustine's theory of *personal* distribution with Aristotle's theory of *political* or *social* distribution. At least in principle, the final distribution of the use of all a society's wealth was accounted for the first time.

2. *Utility.* Aristotle suggested in his *Ethics* that economic value is based on *chreia.*[28] Though sometimes anachronistically translated as "demand," the Greek word connotes use or need. But the economic theory of utility as a mathematical scale of preference was first explicitly described by Augustine in *The City of God.* Each thing's being, and thus its inherent goodness or value, is utterly unaffected by any human's attitude toward it: It is what it is, no more and no less. "This is the scale according to the order of nature," said Augustine, "but there is another gradation which employs utility as the criterion of value."[29]

Utility is the value of any thing considered, not in or for itself, but as a mean to some other end or goal, which, ultimately, is always one or more persons. For example, the intrinsic value of a live mouse—a sentient being—is obviously higher than that of a dead plant; yet most of us prefer loaves of bread (which are made from dead plants) to live mice in the house. Why? Because we plan to eat the bread but not the mice. The natures of the mouse and the wheat are the same whether there exist one or a billion specimens of each; but the order of our preference according to utility is affected by the relative scarcity of the two goods. (The world's only specimen of a certain kind of mouse might be worth a lot of "dough." Or if bread and all other substitutes were sufficiently scarce, as in a famine, we might even learn to eat mice.)[30]

Augustine also introduced the fundamental distinction between "private" goods like bread, which inherently only one person at a time can consume, and "public" goods (like a performance in an ancient amphitheater, a modern radio or television broadcast, national defense, or enforcement of justice) that many people can simultaneously enjoy because (at least

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[27] Philip H. Wicksteed, *The Common Sense of Political Economy,* edited with an introduction by Lionel Robbins, Routledge & Kegan Paul, London, 1933 [1910], Vol. I, 174.
[28] *Ethics* V, 5.
[29] *City of God* XI, 16.
[30] Among modern economists, only Jacob Viner (late in his career) seems to have identified correctly Augustine's main technical contribution to economic theory, distinguishing separate scales of preference for persons (love and justice) and non-persons (utility), and both from the absolute metaphysical scale of being: Augustine deals "simultaneously with three scales of value, relating to order of nature, utility, and justice." Jacob Viner, *The Role of Providence in the Social Order,* op. cit., 55.

within certain limits) they are not "diminished by being shared."[31] Most of our discussion of personal and domestic economy will concern private goods, but as we'll see later, both public goods and "quasi-public goods" (which benefit many but not all citizens) are often central to political economy.

3. *Production.* We humans not only reappraise but also rearrange the things we find in nature in order to produce combinations we value more highly. Though our decision to produce one kind of good rather than another is dictated by their relative value, production determines the number of resources actually available for final distribution and use, and since production alters the relative scarcity or abundance of the goods, it will in turn affect our estimates of their relative value.

How are goods produced? Aristotle remarks in his *Politics* that "any piece of property can be regarded as a tool enabling a man to live; and his property is an assemblage of such tools."[32] He notes that some goods are enjoyed or consumed directly, but others indirectly, by helping to produce goods that are consumed directly; furthermore (a point too often overlooked), some goods are versatile enough to serve either purpose. Thus, Aristotle distinguishes final products from the factors that produce them. Aristotle also observes that "tools may be animate as well as inanimate; a ship's captain uses a lifeless rudder [for steering], but a living man for watch; for the worker in a craft is, from the point of view of the craft, one of its tools." In other words, wealth may take either of two forms: what modern economists call human capital (the useful qualities embodied in human persons) and nonhuman capital (the useful qualities embodied in property). To produce more of either kind of wealth usually requires a combination of both.

In Aristotle's day, both people and property were products of the household: a business was simply a merchant's or craftsman's household, just as a government was essentially a king's or chieftain's household. Moreover, some people *were* property: slaves were a

[31] "In the case of corporeal things, that is, things we perceive with the bodily senses, when we cannot both perceive them together but must do so severally, it is due to the fact that we make them completely ours by consuming them and making them part of ourselves, like food and drink of which you cannot consume the same part as I do.... It is therefore evident that things which we perceive with the bodily senses without causing them to change are by nature...common to us both, because they are not converted and changed into something which is our peculiar and almost private property. By 'peculiar and private property' I mean that which belongs to each of us alone, which each of us perceives by himself alone, which is part of the natural being of each of us severally. By common and almost public property, I mean that which is perceived by all sensitive beings without thereby being affected and changed." Augustine, *On Free Will,* viii, 19, in Burleigh, ed., 146. Private goods are sometimes now called "rival" goods. The formulation "diminished by being shared" is from Augustine's *De doctrina christiana* ("On Christian Doctrine") I, 2.

[32] *Ethics* Book I, Ch. 4

significant part of human capital. Over time, the biblical understanding of the human person led first to the replacement of slavery with serfdom and eventually to the widespread abolition of both. The economic functions of the ancient household were also differentiated among more specialized entities—the modern household (which specializes in producing and maintaining human persons); the modern business firm (which specializes in producing and maintaining property owned by the persons in households); and the modern nonprofit foundation (which specializes either in assisting the household's investments in people or in its distribution of charitable benefits to persons outside the household).

4. *Equilibrium.* Aristotle suggested that the compensation of producers comes from the sale of their product, and that the value of the compensation depends on their respective contributions to the value of that product.[33] At least, this is how Thomas Aquinas's teacher, Albert the Great, and all later Scholastics read him.[34] Equality between each product's value and the total income of its producers is necessary for economic *equilibrium,* which Aristotle called "justice in exchange," or "commutative justice," and for the very continuation of the economic system. But actual equality can come about only with a properly functioning monetary system and in the absence of monopoly (because only then can no one party rig market prices to its own advantage) and other obstacles to an effectively functioning market.[35] The price determined under such conditions was once called the "just price" and is now called the "equilibrium price."[36] Aristotle noted that to overcome the disadvantages of multilateral barter we agree to use one commodity as a medium of exchange—money—and that its roles as standard and store of value are derived from this function.[37]

Watching Aquinas at work

All four elements of Scholastic Economic Theory, then, originated with Aristotle and/or Augustine. By integrating them into a coherent system, Thomas Aquinas fashioned a kind of analytical Swiss Army knife that contained all the basic tools necessary to explain any economic event, simple or complex. Economists have been using it ever since.

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[33] *Ethics* Book V, Ch. 5.

[34] Odd Langholm, *Price and Value in the Aristotelian Tradition: A study in scholastic economic sources,* Universitetsforlaget, Bergen, 1979, 61ff.

[35] Aristotle analyzed monopoly in *Politics* I, 11; Sinclair ed., 47–49.

[36] As we will see, the notion that the medieval just price was supposed to be determined by distributive rather than commutative justice, and specifically by social status rather than by market conditions, is an error that can be traced to a late 19th-century British historian. The immediate relevance of "justice in exchange" in a modern economy has been underscored by the economic damage to consumers, investors, and workers that results from abuses of monopoly, insider trading, self-dealing and fraudulent business accounting—all of which violate justice in exchange.

[37] Politics I, 9; op. cit., 42. This means that each person's money, K_{Mi}, must be included among the goods produced, used, exchanged, and donated (or stolen).

But far from being the culmination of an integrated Scholastic Economic Theory, Aquinas represented its beginning. We can date this beginning approximately to the year 1250, when Albert the Great began to lecture on Aristotle's newly recovered and translated *Nicomachean Ethics* at the University of Cologne, assisted by Aquinas as second professor and master of students. Aquinas transcribed Albert's lectures on the subject and later prepared Albert's commentary for publication.[38]

Three of the four elements of economic analysis (the distribution function, the utility function, and the equilibrium conditions) are to be found (and the production function implied or mentioned) in Aquinas's own later commentary on the *Nicomachean Ethics,* while the production function is described in his commentary on Aristotle's *Politics.*[39] The same analysis is also scattered throughout much of his *Summa theologiae.* By comparing his treatment of the material in both places, we can watch Aquinas integrating Augustine's elements with Aristotle's. At the same time, we can begin to understand why Augustine's considerable contribution has been neglected and why Aquinas's economics has been dismissed as "strictly Aristotelian," though its content and organization differ from Aristotle's.

Aquinas describes personal distribution most explicitly in the *Summa theologiae,* where he correctly attributed its mathematical formulation to Augustine.[40] He inserted the same theory (but not Augustine's name) in commenting on Aristotle's theory of friendship in the *Ethics*: "Thus it seems that one person is a friend of another if he acts the same way for a friend as he might for himself;[41] and "a person loves himself more, to the extent that he assigns to himself greater goods."[42] Because the fit is so natural, it is easy to overlook the fact that Aristotle had not exactly said that, or that Aquinas is describing the pagan Aristotle's ideas using Augustine's explanation of the Second Great Commandment to "love your neighbor as yourself."

Similarly, when explaining Augustine's theory of utility in the *Summa theologiae,* Aquinas cites its author by name: "As Augustine says . . . the price of things salable does not depend on their degree of nature, since at times a horse fetches a higher price than a slave; but

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[38] James A. Weisheipl, O.P., "Albert the Great and Medieval Culture," *The Thomist,* October 1980, 481–501.

[39] Thomas Aquinas, *Commentary on Aristotle's Nicomachean Ethics*, translated by C.I. Litzinger, O.P., Foreword by Ralph McInerny, Dumb Ox Books, Notre Dame, IN, 1993 [1271-72], Book V Lectures IV-IX, 293–318. The social "distribution function" is described on 294, the "equilibrium conditions" on 294–296 and 297–299, and the "utility function" and analysis of money on 312–315; the "production function" in Thomas Aquinas, *Commentary on Aristotle's Politics*, (Tr.) Regan, R.J., Indianapolis and Cambridge: Hackett Publishing, 2007 (1271-72), Book I, Ch. 4; 6-7.

[40] *Summa theologiae* II-II Q26 A 6.

[41] Op. cit.. 548 (commentary on *Ethics* IX, 4).

[42] Ibid., 567 (commentary on *Ethics* IX, 8).

it depends on their usefulness to man."[43] When commenting on Aristotle's sketchy remarks on the subject in the *Ethics,* Aquinas inserts Augustine's scale of utility, along with Augustine's mouse example from the *City of God*: "Articles are not valued according to the dignity of their nature, otherwise a mouse, an animal endowed with sense, should be of greater value than a pearl, a thing without life. But they are priced according as man stands in need of them for his own use."[44]

Why would Aquinas insert Augustine's economic theory into his commentary on Aristotle's *Ethics*? Primarily because Aquinas saw correctly that both Augustine's mathematical theory of personal distribution (gifts and crimes) and his mathematical theory of utility, though not worked out specifically in response to Aristotle, were complements necessary to complete Aristotle's mathematical theories of production, equilibrium (justice in exchange), and distributive justice. He thereby completed Aristotle's account by drawing out implications that Aristotle had overlooked. Aquinas's became the authoritative interpretation of Aristotle's economics, with the ironic result that even as erudite a scholar as Schumpeter could view Aquinas as "strictly Aristotelian" and ignore the critical contributions he had drawn from Augustine. Aquinas similarly received no recognition for replacing Aristotle's division of moral philosophy into ethics and politics (which left discussion of the household floating uncertainly between the two) with the more logical tripartite structure of personal, domestic, and political philosophy (and economy).[45]

So why the "Great Gap?"

Now we have enough information to solve the puzzle posited by Schumpeter: Why were there no Aristotelian economists after Aristotle? Starting with Albert the Great and Thomas Aquinas, historians are able to trace the transmission of economic theories from teacher to student, and from one "school" to another, right down to the present. But no earlier tradition of a purely Aristotelian economics has been found, even though the Greek Academy continued until 529 AD.[46] Aristotle's economic ideas were seldom repeated, and not at all developed, until Aquinas integrated them with Augustine's.

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[43] Thomas Aquinas, *Summa theologiae* II-II Q77 A2 ad3. In the same article, Aquinas combines utility with scarcity by noting that value will be affected by "the difference in supply;" II-II Q77 A2 ad2.

[44] Thomas Aquinas, *Commentary on Aristotle's Nicomachean Ethics,* translated by C.I. Litzinger, O.P., Foreword by Ralph McInerny, Dumb Ox Books, Notre Dame, IN, 1993, 312 (Book V Lecture IX).

[45] Thomas Aquinas, *Commentary on Aristotle's Nicomachean Ethics,* translated by C.I. Litzinger, Foreword by Ralph McInerny, Dumb Ox Books, Notre Dame, IN, 1993 [1271-72], Lecture I; 1-3.

[46] Josef Pieper noted that the date is symbolic because the monastery of Monte Cassino was founded the same year: Greek philosophy was subsumed, handed on, and enriched by the Schoolmen; "Scholasticism," 16 *Encyclopedia Britannica* 352, 15th ed.

An obvious reason for the "Great Gap" is that Aristotle's outline of economic theory was too incomplete to serve as the platform for universal application to questions like the determination of prices and incomes, which is necessary for solving practical problems like the proper conduct of monetary, fiscal, and regulatory policies. Without Augustine's theory of personal gifts and crimes, Aristotle's theory of distributive justice, which applies only to common goods, left the distribution of most wealth in most societies unaccounted for. And without Augustine's theory of utility, it was not possible to work out the reasons for most of the systematic variation of market prices.

Why could Augustine see farther than Aristotle on these points? Two concepts were missing from Aristotle's description of reality, but present in Augustine's: "creation" and "person." As a result, also missing from Aristotle's worldview, and therefore lacking in his economic theory, is Augustine's understanding that every person—God or man—is fundamentally motivated to act by love of some person(s), including but not limited to him- or herself.

Both Aristotle's virtuous man and his God were largely self-contained. Aristotle's God was a First Mover but not a Creator; he informed but did not create prime matter. For Aristotle, God was "Self-Thinking Thought." He did not actually know things (including humans) outside himself as individual beings, but only collectively, according to their species or concepts. And as far as humans are concerned, Aristotle argued that, since friendship involves a kind of equality, "when one party is removed to a great distance, as God is, the possibility of friendship ceases."[47] In Aristotle's philosophy, God and man could not and did not communicate or share gifts with one another; both were isolated and alone.

The idea that the universe was created from nothing is in itself a philosophical rather than a religious idea. But it simply did not exist in pagan Greek or Roman philosophy. The Christian belief that God had become a particular man could not help but affect even pure philosophy in its view of both God and man. For Augustine, in addition to rational intellect and will, personhood always includes *relationships* to, and love for, other persons. For Augustine and Aquinas, God knows and loves each human person individually. Humans resemble God in being persons who are similarly motivated by love of persons, including one another and God, and who express this love with gifts.[48]

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[47] *Nicomachean Ethics,* VIII, 7.

[48] Thus Aquinas says, in contrast to Aristotle, "there is a communication between man and God, inasmuch as he communicates His happiness to us," and defines the chief theological virtue of charity as "the friendship of man for God." *Summa theologiae* II-II Q23 A1.

Though he expounded it at greater length in *The City of God*, Augustine first worked out the relation between divine and human providence in a much shorter earlier work, which Augustine cited twice later in life as a turning-point in his own thought on the subject. That work is a letter to his friend Simplician, who had been instrumental in Augustine's conversion, and who would succeed Augustine's mentor St. Ambrose as bishop of Milan.[49] Shortly after Augustine became bishop of Hippo in northern Africa, Simplician asked him to consider certain problems raised by the Apostle Paul's letter to the church at Rome, which seems to indicate God's unequal treatment of different people (notably the twin brothers Jacob and Esau: "Jacob I loved, but Esau I hated"), and apparently causing some men to sin (as when God is said "harden" Pharaoh's heart to continue Israelite slavery).[50]

Augustine's response focused on the fact, and ended with an explanation, of the order in human transactions. Earlier in the same letter, Paul had contrasted justice in exchange with a gift: "Now when a man works, his wages are not credited to him as a gift, but as an obligation" (Rom. 4: 4). These, Augustine suggests, are the paradigms for *all* transactions, not only among men but also between the Creator and his creatures. Creation means that everything (including a good will) is received as a "free gift of God."[51] This places God in the same relation to his creatures as a creditor to impecunious debtors. "Human society is knit together by transactions of giving and receiving, and things are given and received sometimes as debts, sometimes not. No one can be charged with unrighteousness who exacts what is owing to him. Nor certainly can he be charged with unrighteousness who is prepared to give up what is owing to him. This decision does not lie with those who are debtors but with the creditor. This image or, as I said, trace of equity is stamped on the business transactions of men by the Supreme Equity."[52]

Weakened by sin and having chosen to disobey God, "sinful humanity must pay a debt of punishment to the supreme divine justice. Whether that debt is exacted or remitted there is no unrighteousness." God does not "compel any man to sin when he simply does not bestow his justifying mercy on some sinners, and for that reason is said to 'harden' some sinners." Evil is not a *thing*, but a disorder, man's turning from God, the source of all good things, to his creatures, which are lesser goods. "Every creature of God is good. Every man is a creature as man but not as sinner. God is the creator both of the body and of the soul of man. Neither of these is evil, and God hates neither. He hates nothing which he has made. But the soul is more

[49] Augustinus Aurelius, "To Simplician—On Various Questions," in *Augustine: Earlier Writings*, selected and translated with introductions by John H.S. Burleigh, Westminster Press, Philadelphia, 1953 [c.397].
[50] Rom. 9:10-29.
[51] Augustine, "To Simplician—On Various Questions," ibid., 391, 394.
[52] Augustine, "To Simplician—On Various Questions," Bk. 1, q. 2 a. 16; ibid., 398.

excellent than the body, and God is more excellent than both soul and body, being the maker and fashioner of both. In man he hates nothing but sin. Sin in man is perversity and lack of order, that is, a turning away from the Creator who is more excellent, and a turning to the creatures that are inferior to him. God does not hate Esau the man, but hates Esau the sinner."[53] God freely offers his grace, without which the sinner, having freely fallen, cannot freely turn back to God. Why some accept this grace, while others do not, remains a mystery. But Augustine has shown at least that God is just, truthful and free, and that man's will, though foreknown, is not predetermined by God (as the Stoics had maintained). The letter to Simplician amounts to Augustine's first draft of the Christian theory of divine providence, which he elaborated on in *The City of God*, and which Aquinas follows closely.[54]

The Scholastic development of economic theory

Let us sketch a few of the ways in which the Scholastic economists after Aquinas applied the basic elements of economic theory that he had integrated. As we'll see more clearly later, since the thirteenth century there has been an unbroken tradition at the highest academic level of teaching two of the four elements of economic analysis (production and exchange), and a third—utility—with less than a century's interruption. Historian Odd Langholm, following what he called "one of the shrewd proposals made by Schumpeter,"[55] undertook the daunting project of tracing the chain of custody of these three elements through the unbroken tradition of Latin Aristotle commentaries from the thirteenth to the seventeenth centuries. His research allows us to follow the Scholastics' analysis of supply and demand, first at the microeconomic level, then on progressively broader and more highly aggregated levels, and finally as it is integrated with a monetary theory that encompassed the whole economy and served as the foundation for modern macroeconomics.

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[53] Augustine, "To Simplician—On Various Questions," Bk. 1, q. 2 a. 16; ibid., 398.

[54] Aquinas's metaphysics of existence would radically recast (and improve) Augustine's philosophical description of the nature of God, both in Himself and in relation to His creatures: Etienne Gilson, *The Unity of Philosophical Experience* [1937], Ignatius Press, San Francisco, 1999; *Being and Some Philosophers*, Pontifical Institute of Medieval Studies, Toronto, 1952. Aquinas also corrected Augustine's occasional Platonic tendency to describe human nature as "a soul using a body" (the phrase occurs in *On the Moral Behavior of the Catholic Church*, I, 27, 52, cited in Bourke, ed., 67) and rejected his argument that man requires special divine illumination for the ordinary use of his natural reason. But all this had the effect of putting Augustine's social, economic, and political theory on a firmer philosophical foundation. On all questions of order—the nature of evil (*Summa theologiae* I-I Q18 A1; Q48 A4; Q49 A1; Q49 A2 ad2; I-II Q92 A1; Q93 A6), God's providence (*Summa theologiae* I-I Q22 A2-A4), the ineradicability of natural law from human nature (*Summa theologiae* I-II Q94 A6), and the real but imperfect order in human society (*Summa theologiae* I-II Q91 A4; *Summa Contra Gentiles* III, XX)—Aquinas follows Augustine closely. The distinction between Augustinians and Thomists, often useful in revealed theology, does not apply to economics, because regarding justice in exchange and distributive justice, Augustine was already Aristotelian and Aquinas (unlike Aristotle) was thoroughly Augustinian. As F.C. Copleston put it, "What [Aquinas] did was to express Augustinianism in terms of Aristotelian philosophy" Copleston (1991), 33.

[55] Odd Langholm, *Price and Value in the Aristotelian Tradition: A study in scholastic economic sources,* Universitetsforlaget, Bergen, 1979, 32.

On the "demand" side, Henry of Friemar (d. 1354) advanced the theory of product prices in the late thirteenth and early fourteenth centuries by formally aggregating the concept of need or use, "not of this or that person, but of the whole community."[56] His "common need of something scarce" begins to approach the notion of total market demand for a product. Though many early commentators (apparently because of Aristotle's use of the word "need" for utility) restricted their discussions to the prices of necessities, Jean Buridan made clear in the mid-fourteenth century that demand implies an ability to offer something in exchange, and that the same principles of utility and scarcity explain the prices of luxuries as well as of necessities.

Monetary theory is especially important in every age. Since money forms part of every exchange in a market economy, a monetary theorist is responsible not merely for explaining the labor market or product market or capital market, but also for providing an overview of the entire economy. In the first treatise devoted to money, Nicole Oresme (1320–82) extended Buridan's analysis from a treatment of the total demand for one product in the direction of an analysis of the total or aggregate demand for all products. He also developed the most important implications for government economic policy (which I'll consider shortly in the context of Scholastic normative economics). Oresme's monetary analysis was to be followed by Bernardo Davanzati (1529–1606), Geminiano Montanari (1633–87), and Ferdinando Galiani (1728–87). The macroeconomics of the twentieth and twenty-first centuries grew out of these monetary theories.

Meanwhile, the supply side of value analysis had developed, at first in parallel with the demand side and then finally integrated with it. Aristotle had said in *Ethics* that "the builder must get from the shoemaker the latter's work," and that if such exchanges were not equal "the arts would be destroyed."[57] Thomas Aquinas's teacher, Albert the Great, interpreted this to mean that if the builder cannot cover his *labor et expensae,* "the art of building would be destroyed"—suggesting that market prices are also regulated by the cost (and thus profitability and scale) of production. Thomas Aquinas kept Albert's idea, and his followers transmitted it to Gerald Odonis, a Franciscan of the early fourteenth century. Odonis was the first to try a unified theory of the value of products and their factors or producers; he explained the income of the producer by the demand for his product and the rarity of his skills. St. Bernardino of Siena in the fifteenth century; St. Antonino of Florence and Johannes Mair of Scotland in the

[56] Ibid., 108.

[57] *Ethics* Book V, Ch. 5.

sixteenth century; and Johannes Crell (whom Langholm describes as "a Thomist of the German Protestant branch") in the seventeenth century progressively developed this approach.[58]

Langholm's research therefore shows that the Scholastics had continued farther and sooner toward an integration of the key economic theories of product value and factor compensation than Schumpeter had been aware. In fact, all the crucial elements in the scholastic tradition mentioned by Schumpeter had developed much sooner than Schumpeter suggested—within a century of Aquinas's synthesis, by the mid-fourteenth rather than by the sixteenth century—and their development thrived on a clash of different philosophical schools. It was not merely a placid development within a single recognizably Thomist tradition.[59]

The fact that this development occurred nearly two centuries before the Protestant Reformation in the sixteenth century helps explain an otherwise mystifying fact on which Schumpeter and Langholm agree: there is no significant difference on economic theory between Catholics and Protestants after the Reformation.[60] Langholm showed, for example, that the price analysis of the sixteenth-century Protestant Reformer Philip Melanchthon (1497-1560) continued the tradition traceable from Aquinas through Nicolas Oresme and Henry of Friemar, and that Melanchthon's Protestant followers transmitted it basically unchanged into the following century.[61] Historian Henry William Spiegel further traced Scholastic economic ideas to prerevolutionary Protestant America, where he noted that Puritan clergyman John Cotton's (1584–1652) rules of business behavior were "similar to those laid down by the medieval schoolmen."[62]

Though straightforward in retrospect, discerning these lines of development was complicated for two reasons. First, the invention of movable type seems to have had the curious effect of slowing down or even decreasing the quality of economic analysis—much as the average *quality* of information has dropped sharply since the Internet vastly expanded the *quantity* that is freely available. The information available in electronic form on any subject displaces the printed information sitting in the libraries. Likewise, most of the manuscript economic

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[58] Odd Langholm, *Price and Value* (1982 [1979]), op. cit., 160.

[59] Odd Langholm, *Price and Value in the Aristotelian Tradition: A study in scholastic economic sources,* Universitetsforlaget, Bergen, 1982 [1979]; also: *Wealth and Money in the Aristotelian Tradition: A Study in Scholastic Economic Sources,* Universitetsforlaget, Bergen, 1983; *The Aristotelian Analysis of Usury,* Universitetsforlaget, Bergen, 1984; *Economics in the Medieval Schools: Wealth, Exchange, Value, Money and Usury According to the Paris Theological Tradition, 1200–1350,* Universitetsforlaget, Bergen, 1992; and *The Merchant in the Confessional: Trade and Price in the Pre-Reformation Panitential Handbooks*, Brill, Leiden-Boston, 2003.

[60] Notwithstanding the famous debate about usury, which was essentially a disagreement about economic assumptions, not faith and morals.

[61] Langholm, *Price and Value*, 120.

[62] William Henry Spiegel, *The Rise of American Economic Thought,* Chilton Company, Philadelphia, 1960, 5–8.

commentaries written before 1500 were never printed, and therefore sat unknown, while a few newer, printed books filled the demand for such analysis. As a result, we find Grotius and Pufendorf debating aspects of price theory that had been elaborated and settled centuries earlier.[63] And we see Galiani still treating in parallel the Scholastic theories of value concerning the prices of products and of the factors that produce them, though they had been integrated at least two hundred years earlier.

Second, the entanglement of economic discussions with religious controversies, while not changing the analysis, made it much harder to see accurately where certain ideas came from. For example, St. Antonino of Florence was always generous in disclosing the sources of his economic ideas, but in one important case he was able to preserve and hand on the economic analysis of a man accused of heresy only by concealing its source.[64] After the Reformation, similar considerations made it far less likely that a Protestant would correctly attribute ideas originating with Thomas Aquinas, or that Catholics would give credit to Protestants for having developed those ideas.

Particularly important for the transmission of Scholastic economic theory to the American colonies and its adoption by key American Founders was Samuel Pufendorf. Writing in the first generation after the Peace of Westphalia ended Europe's brutal religious wars in 1648, Pufendorf had embraced and renewed Augustine and Aquinas's argument that among citizens who disagree about divine revelation, only reasoning from common human experience—the natural law—can supply a workable basis for government. Though not intended primarily as an economic treatise, Pufendorf's concise and readable compendium of the natural law, *On the Duty of Man and Citizen According to Natural Law,* contains the four basic elements of economic theory, organized according to personal, domestic, and political economy, and integrating descriptive with prescriptive theory by the Two Great Commandments.[65] Pufendorf's work was widely circulated in the American colonies and recommended by Alexander Hamilton (1755–1804), who penned two-thirds of *The Federalist* and became the first U.S. Secretary of the Treasury under George Washington.[66] Also

[63] Odd Langholm, *Price and Value*, 104–105.
[64] Langholm, *Price and Value,* 153–4.
[65] Samuel Pufendorf, *On the Duty of Man and Citizen According to Natural Law*, translated by Michael Silverthorne, edited by James Tully, Cambridge University Press, 1991 [1673]: Personal distribution, 64–67; social and political distribution, 32 and 61–63; utility, 94–96; production of and by human and nonhuman factors, 84–89; society organized around family household, 120–131; justice in exchange or equilibrium equating product values and factor compensation, 31 and 94–95; the Two Great Commandments integrating description and prescription. 11-12.
[66] Alexander Hamilton, "The Farmer Refuted" (1775), I *The Works of Alexander Hamilton,* (Ed.) Lodge, H.C., New York: G.P. Putnam's Sons, 1904. Retrieved from

noteworthy are the Founders' extensions of Aristotle's theories of production, faction and ideology, and Augustine's theory of public goods, into the theory of American public choice, which we will consider below.

The main analytical shortcoming in early Scholastic economics

The early Scholastic "economists" certainly knew the nature and causes of the wealth of nations. As we will see more clearly when considering the notion of domestic economy, their theory has everything necessary to explain investment and economic growth—which amount to producing human and nonhuman resources faster than they are consumed or exhausted.[67] But like most economists, they routinely made simplifying assumptions that seemed warranted by experience. They routinely adopted Aristotle's assumption that the population and its average standard of living do not increase—because mankind in general had never experienced a substantial and sustained increase of either.[68] One reason they had not increased was that the average length of a human life had not increased. As we will discover in a later chapter, a key determinant of the rate of investment in both human and nonhuman capital—and therefore of real economic growth—is the length of human life. The average life expectancy in England in the fourteenth and early fifteenth centuries—twenty-four years—was about the same as it had been in Roman Egypt.[69] Since longevity had not increased, and a twenty-four-year lifespan is too short for the average person to acquire much human or nonhuman wealth, the average per-capita real income was close to the subsistence level, and the average annual real economic growth during the whole period was approximately zero. Life expectancy and economic growth appear to have risen in the twelfth and thirteenth centuries, but the Black Death of the fourteenth century reversed this progress, making it seem like an aberration. Another decline in mortality caused life expectancy in England to rise to about thirty-four years, or by almost half, by the mid-sixteenth century.[70] Both the population and the living standard began to grow, though at rates that we would consider very slow. The

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http://oll.libertyfund.org/Home3/Book.php?recordID=0249.01 30 June 2009. Hamilton read Pufendorf when it was loaned to him by his employer in 1771-2 and again at the King's College (New York: now Columbia University) when Hamilton was enrolled in 1773-74: Broadus Mitchell, *Alexander Hamilton: A Concise Biography,* Oxford University Press, 1976; 16, 25.

[67] Net investment in human and nonhuman resources occurs when $_n\int^1 \delta L_i > {}_n\int^1 C_{Li}$ and ${}_n\int^1 K_i > {}_n\int^1 C_{Ki}$. Other things equal, this leads to increased total annual labor and property compensation.

[68] In terms of the system of equations outlined above, this amounts to adding the assumptions $\int\delta L_i = \int C_{Li}$ and $\int\delta K_i = \int C_{Ki}$. In other words, the total investment in people and property equals their total consumption.

[69] Angus Maddison, *The World Economy: A Millennial Perspective,* OECD, Paris, 2001, 29.

[70] The decline in mortality that was chiefly responsible for the rise in life expectancy was due to improved public hygiene, increasing medical knowledge, and improved nutrition. On the last, see Robert William Fogel, "Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy," Nobel lecture, December 9, 1993, available at http://nobelprize.org/nobel_prizes/economics/laureates/1993/fogel-lecture.html, last accessed 11 July 2007.

Scholastics' assumptions (as opposed to their theory) about production and economic growth did not account for this actual experience.

The Scholastic assumption that economies did not grow was directly relevant to the controversy about interest and usury. Aristotle had argued that charging interest on loaned money is unnatural because money itself is sterile: unlike crops or livestock, money does not naturally reproduce itself. The Scholastics carefully analyzed the components of interest and resolved them into three: the risk of loss (*damnum emergens*) when the borrower defaults or repays the loan in depreciated money, for example; the opportunity cost of foregoing income from alternative investments (*lucrum cessans)*; and the pure interest (*interesse*) excluding these factors. A consensus allowed for the charging of interest to compensate for risk of loss, but it did not allow charging pure interest, while there was disagreement about whether it was right to expect compensation for opportunity cost.

If pure interest is in fact zero, it is hard to argue with Aristotle's point: People shouldn't be charged for what doesn't exist. In that case, interest should be charged only to compensate for risk of loss, because there is no opportunity cost. But pure interest is a matter of empirical fact, not morality, and therefore cannot be settled by theoretical deduction. As Schumpeter pointed out, "the fundamental factor that raises interest above zero is the prevalence of business profits."[71] A stagnant economy, the kind the early Scholastics routinely assumed, rarely produces aggregate business profits, because new production at best replaces goods consumed directly and the human and nonhuman capital used up in production. Those who favored allowing interest in the case of opportunity cost were generally located in cities or regions that were commercial centers experiencing economic growth and aggregate profitability.

Prescriptive or "normative" Scholastic economics

It is often helpful to distinguish carefully between "positive" theory, which describes things as they are, and "normative" theory, which prescribes how they ought to be.[72] The descriptive or positive economic theory of the Scholastics was distinct from—but integrated with—their prescriptive or normative economics,[73] and Aquinas followed Augustine in placing

[71] Schumpeter, *History,* 105.

[72] For example, in an influential essay Milton Friedman wrote, "Positive economics is in principle independent of any particular ethical position or normative judgments"—which is true—but then asserts that "fundamental differences in basic values [are] differences about which men can ultimately only fight"—a gratuitous and unsubstantiated denial of Aristotle's reasoned observation that humans are rational animals. (If "men can ultimately only fight" about basic values, they are not just fallible but fundamentally irrational.) Milton Friedman, "The Methodology of Positive Economics," in *Essays in Positive Economics,* University of Chicago Press, 1953, 3–43; 4, 5. Friedman appears to confuse scientific and metaphysical truth.

[73] Historically, normative economics preceded and stimulated the development of positive economics. "They wrote for many purposes but principally for the instruction of confessors," Schumpeter, *History,* 102. A council of

the fact of scarcity squarely at the center of moral decision-making. Since I will consider normative economics in more detail at the personal, domestic, and political levels, I will only offer a brief overview here.

1. *Personal economy*. The virtue of Augustine's "positive" theory of human choice is that it can equally describe the behavior of both the person who observes and the person who violates moral norms. Good and bad persons alike require some wealth to live, both choose among real or imagined goods (not "bads"), and both derive their preferences for such goods from their love for some person or persons. The whole difference lies in the order in which they rank these ends and means. The good man treats at least some person other than himself as an end and only lower things as pure means, while the bad person may rank every person but himself as a mere means.

The moral norm governing preferences for the ends and means of economic action consists of the Two Great Commandments: "You shall love God with all your heart, soul, mind and strength" and "You shall love your neighbor as yourself."[74] According to the Scholastic "natural law," these are not "counsels of perfection" intended only for believing Christians or Jews, but the rule of reason that naturally binds the conscience of everyone, everywhere, always—which, for emphasis, received the sanction of Hebrew and Christian revelation. No commandment, "You shall love yourself," is necessary, explains Augustine, because everyone naturally loves himself. The whole problem is to love ourselves "ordinately": that is, while observing the proper ranking of persons as ends and instrumental goods as means.

As love properly means willing some good to some person, said Augustine, what it means to love your neighbor as yourself depends critically on whether the good in question is "diminished by being shared with others"—that is, by whether it is scarce.[75] Augustine, followed by Thomas Aquinas, accordingly distinguished two ways in which we can love our fellow man: *benevolence,* or good will, which can be extended to everyone in the world, and *beneficence,* or doing good, which cannot.[76] We can always avoid harming others, which is

1215 had greatly stimulated the demand for economic analysis by establishing the (still current) Church law that everyone must confess his sins to a parish priest at least once a year. To give proper advice, the priests had to understand what was being confessed.

[74] Deuteronomy 6:5 and Leviticus 19:18; Matthew 22:37–39 and Mark 12:29–31.

[75] *On Christian Doctrine,* I, 1.

[76] Aquinas draws the terms "benevolence" and "beneficence" from Aristotle's *Ethics,* IX, 5 and IX, 7, but his distinction between the two based on the scarcity of the good willed to the other person is from Augustine. "Perfection for man consists in the love of God and of neighbor," says Aquinas. "For a man to love thus, he must do two things, namely, avoid evil and do good. Certain of the Commandments prescribe good acts, while others forbid evil deeds. And we must know that to avoid evil is in our power; but we are incapable of doing good to everyone. Thus, St. Augustine says that we should love all, but we are not bound to do good to all." "Explanation

why there are no exceptions to the prohibitions against murder, theft, adultery, and so on. But the share of one's scarce goods that can be distributed to others is practically limited, because no one, however rich, can share equally with everyone in the world and still leave himself enough to live on.

What is inherently impossible is not morally binding. This means that when scarce goods are involved, loving your neighbor *as* yourself cannot mean loving your neighbor *equally with* yourself. "Since you cannot do good to all," wrote Augustine, "you are to pay special regard to those who, by the accidents of time, or place, or circumstance, are brought into closer connection with you."[77] The Good Samaritan is the classic case of "loving your neighbor as yourself."[78] He loved the man he found beaten by robbers *as* himself by regarding him *as a person* like himself; but he did not love him *equally with himself,* by dividing his property equally with him. The economic value of the Samaritan's time and the two coins he gave to care for the man probably amounted to half his wages for the week—not for the year or his whole life. This was a generous but also properly human—not superhuman—act, and everyone should be prepared to undertake such a sacrifice in order to prevent the death or extreme misery of a fellow human being.

2. *Domestic economy*. According to the Scholastics, the same moral imperative to love your neighbor as yourself applies to decisions at every social level, from the personal to the political; but the practical limits on distribution imposed by the fact of scarcity also apply: the approximate equality of wealth and income that can actually be practiced in a group the size of a household cannot be extended to a whole nation or the world. At the same time, the wide acceptance of the view that a person's eternal salvation depended on treatment of his or her neighbor led to the elaboration of specialized methods of distribution at the domestic level: for example, the endowment of charitable foundations by personal gifts and bequests, and the incorporation of charitable distribution into the ordinary functions of guilds and business partnerships. For example, it was not uncommon to create a fund for the poor with part of a company's capital, to pay a proportional share of the dividends as alms, and to make the poor a creditor in the event of bankruptcy.[79]

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of the Ten Commandments" in *The Catechetical Instructions of St. Thomas Aquinas,* Joseph F. Wagner, Inc., New York, 1939; reprinted by Sinag-Tala, Manila (no date), 101.

[77] *On Christian Doctrine,* I, 28.

[78] Luke 10:29–37.

[79] Armando Sapori, *The Italian Merchant in the Middle Ages,* translated by Patricia Ann Kennen, W.W. Norton & Co., New York, 1970, 21–28.

3. *Political economy*. At the political level, a much wider range of questions is raised, questions concerning the whole social order. What right do humans have to appropriate inanimate objects and animals for their own use? Does the right extend to human slavery? Should most or all property be privately owned or held in common? Who should have responsibility for alleviating cases of extreme need? Should restrictions be imposed on economic activity, such as freedom of foreign and domestic trade or allowable wages and prices? And how should the government's own finances be conducted? On these questions Aquinas combines and develops Aristotle's and Augustine's ideas, and later thinkers built on his foundation.[80]

4. *Right to ownership and use of property*. The Scholastics believed that the right to own and use animals and inanimate objects is rooted in man's reason, which enables man to make use of them to satisfy his needs.[81] Unlike Aristotle, the Scholastics viewed slavery as conventional, not natural.[82]

5. *Purpose of government*. Aquinas's theory of the proper role of government is most concisely presented in *On Kingship.*[83] He rejects the idea that the end of human life is an abundance of wealth. If that were so, "the knowledge of economics would have the last word in the community's government."[84] Instead, "men form a group for the purpose of living well together, a thing which the individual man living alone could not attain, and good life is virtuous life."[85] To this basically Aristotelian view of society, Aquinas adds the Augustinian

[80] See the excellent discussion in Stephen T. Worland, *Scholasticism and Welfare Economics,* University of Notre Dame Press, 1967, especially 27–50.
[81] Aristotle had grounded the human right to own property in nature: "Getting a living in this self-supporting way is clearly given by nature herself to all her creatures," *Politics,* I, 8. Aristotle, *The Politics,* translated with an introduction by T.A. Sinclair, Penguin Books, Baltimore, 1962, 39. And "we must believe that plants exist for the sake of animals, second, that all other animals exist for the sake of man." Ibid. 40. Augustine and Aquinas agreed with this, but where Aristotle refers to nature for the hierarchy of being (plants, animals, man) that justifies man's ownership of property, Aquinas cites "the divine intellect, which is the source of natural things." Thomas Aquinas, *Commentary on Aristotle's Politics,* translated by Richard J. Regan, Hackett Publishing Co., Indianapolis, 2007, Prologue, 1.
[82] In his *Commentary on Aristotle's Politics,* Aquinas says we study Aristotle's views on slavery not only to learn about ancient slavery or Aristotle but also that "we can thereby understand matters better than what ancient peoples thought about mastery and slavery." Commentary on Bk. I, Ch. 2; ibid., 22.
[83] Thomas Aquinas, *On Kingship: to the King of Cyprus,* translated by Gerald B. Phelan, revised with introduction and notes by I. Th. Eschmann, Pontifical Institute of Medieval Studies, 1982 (first published 1949). As the editor explains in the introduction, it is important to note that *On Kingship,* known in the Middle Ages as *De regno,* is an authentic work of Aquinas, but another, longer "apocryphal compound," called *On the Governance of Rulers* (*De regimine principium*), also circulated under Aquinas's name. The latter was "welded together by an unknown compiler" in the early fourteenth century using a mangled version of *De regno* and other, inauthentic fragments "profoundly different in scope and even contradictory in doctrine" (ibid., ix-xxvi).
[84] *On Kingship* II, 3; 59.
[85] Ibid.

proviso: "it is not the ultimate end of an assembled multitude to live virtuously, but through virtuous living to attain to the possession of God."[86]

Aquinas's primary concern is with establishing and maintaining social order. Man is not only an intelligent but also a social animal, and his social life is integrated in several social institutions, each with a different level of self-sufficiency: the "family of one household," which provides life itself and satisfies the most basic daily needs; the local community, which Aquinas views as including and organized around the economic occupations that sustain the household; the city, which is devoted not just to living but to "living well"; and the province, in which "still more self-sufficiency is found… because of the need for fighting together and of mutual help against enemies."[87]

6. *Principles of social order.* For an individual human to lead a good life "two things are required. The first and most important is to act in a virtuous manner (for virtue is that by which one lives well); the second, which is secondary and instrumental, is a sufficiency of those bodily goods whose use is necessary for virtuous life."[88] Both are true of community life as well, but every community also has a third vital concern—its own unity, which unlike an individual's, is not naturally organic.[89]

7. *Private vs. communal ownership.* From this view it follows that a political commonwealth obviously does require some "common wealth": common goods administered by government to promote the general common good. But the fact of scarcity requires that most property be privately owned,[90] because in administering scarce goods, private ownership usually has the triple advantage of greater social peace, productivity, and order.[91] Whether or

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[86] *On Kingship* II, 3; 60.
[87] *On Kingship* I, 1; 9.
[88] *On Kingship* II, 3; 65.
[89] "Therefore, to establish virtuous living in a multitude three things are necessary. First of all, that the multitude be established in the unity of peace. Second, that the multitude thus united in the bond of peace, be directed to acting well. For just as a man can do nothing well unless unity within his members be presupposed, so a multitude of men of men lacking the unity of peace will be hindered from virtuous action but the fact that it is fighting against itself. In the third place, it is necessary that there be at hand a sufficient supply of the things required for proper living, procured by the ruler's efforts." Ibid., 65.
[90] "While property up to a point should be held in common, the general principle should be private ownership." *Politics* II, 5; Sinclair, ed., 63. Aquinas appropriates Aristotle's argument, adding that "possessions be private as to ownership, but common as to their use." Thomas Aquinas, *Sententia libri politicorum,* liber 2 lectio 6.
[91] Aristotle pointed out the first two general advantages of private property over Plato's proposed communal ownership of all property: greater social peace and productivity. "If the responsibility for looking after property is distributed over many individuals, this will not lead to mutual recriminations; on the contrary, with every man busy with his own, there will be increased production all round." *Politics* II, 5; Sinclair, ed., 63. Aquinas added the third, greater order resulting from the efficient use of specialized knowledge: peace ("a more peaceful state is ensured to man if each one is contented with his own"), productivity ("every man is more careful to procure what is for himself alone than that which is common to many or all") and order ("human affairs are conducted in more orderly fashion if each man is charged with taking care of some particular thing himself, whereas there would be confusion if everyone had to look after any one thing indeterminately"). *Summa theologiae* II-II Q66 A2

not the government provides such goods itself, it must ensure that there are places of learning, military defense, law courts, markets, places of worship, and the various productive occupations.[92]

8. *Care for the needy.* The ownership of wealth does not necessarily coincide with its use: that is the whole point of making decisions about its final distribution, and human arrangements of private property do not supersede the fact that every human being requires property to live.[93] In fact, Aquinas goes so far as to say that in cases of extreme need when there is no other remedy, taking and using another's property to avoid death is not even stealing. This is because the conventions of private property do not take precedence over the fact that some wealth is necessary for everyone to live. But Aquinas at once points to the fact of scarcity as the reason for placing the general responsibility for the poor, except in emergencies, primarily on individual persons in their various intermediating social relationships rather than the government.[94]

9. *"Globalization" and foreign trade.* Aquinas presents a clear-eyed view of the tradeoffs involved in pursuing this view of human life and society in the face of "globalization"—which, far from being a new problem, is one of the oldest. After public health and safety, the most essential instrumental goods are food and energy (in his time, vegetation and animal feed, which provided most motive power before the use of steam and internal combustion engines). If a city or nation cannot supply these, it must trade for them, and a broader circle of exchange unambiguously brings a greater abundance of wealth by lowering prices paid for imported goods and increasing prices received for exported goods. However, self-sufficiency in food and energy is militarily safer, since "the city may be overcome through lack of food [and feed]." It's also "more dignified," since foreign trade undermines the unity of civic life insofar as it introduces foreign customs and dependence, promotes vices like greed and venality, and bestows honor on the rich—as the result of which "civic life will necessarily be corrupted." Having noted these problems, Aquinas firmly rejects autarky as impractical.[95]

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[92] *On Kingship,* 57. Some of these functions are public goods and some quasi-public goods, a distinction made below.

[93] "Now according to the natural order established by Divine Providence, inferior things are ordained for the purpose of succouring man's needs by their means. Wherefore the division and appropriation of things, which are based on human law, do not preclude the fact that man's needs have to be remedied by these very things." And "whatever a man has in super-abundance is owed, of natural right, to the poor for their sustenance." *Summa theologiae,* II-II Q66 A7.

[94] "Since, however, there are many who are in need, while it is impossible for all to be succored by means of the same thing, each one is entrusted with the stewardship of his own things, so that out of them he may come to the aid of those who are in need." Ibid.

[95] "Still, trade must not be entirely kept out of a city, since one cannot easily find any place so overflowing with the necessaries of life as not to need some commodities from other parts. Also, when there is an overabundance

In other words, there are several legitimate reasons for restricting foreign trade, but they exact an economic cost. This balanced discussion fairly captures the pros and cons of "globalization" today and the unsatisfactory nature of insisting on either laissez-faire or autarky.

10. *Regulation of domestic trade.* In contrast to foreign trade, the same view argues generally against regulating domestic commerce, except to enforce standard weights and measures and curb unjust uses of monopoly power.[96]

11. *Regulation of monopoly.* Following Aristotle, the Scholastics understood that justice in exchange requires that prices be determined in a market free from monopoly or other price manipulation to the benefit of a few.[97] Otherwise, government intervention was justified to correct the injustice. These are among the conditions of equilibrium in modern economic theory. Similarly, the Scholastic thinkers opposed collaborative fixing of prices by guilds as a violation of commutative justice.

12. *Basic principles of monetary and fiscal policy.* Partly because his theory had some important gaps, and partly because Greek governments had not yet financed government spending on a large scale by issuing money, as later Roman emperors and medieval monarchs were to do, Aristotle did not develop some of the most important economic policy implications of his monetary analysis.[98] Where Aristotle suggested as a *statement of fact,* "Now the same thing happens to money itself as to goods—it is not always worth the same; yet it tends to be steadier,"[99] Aquinas corrected this to the normative principle, "Nevertheless, it *ought to be so established* that it retains the same value more permanently than other things."[100]

Following Aquinas's lead, but with the advantage of three or four generations of further development of supply-and-demand analysis guided by the Thomist framework, Oresme

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of some commodities in one place, these goods would serve no purpose if they could not be carried elsewhere by professional traders. Consequently, the perfect city will make a moderate use of merchants." Ibid., 75.

[96] "Now the relations of one man with another are twofold: some are effected under the guidance of those in authority; others are effected by the will of private individuals," wrote Aquinas. "And since whatever is subject to the power of an individual can be disposed of according to his will, hence it is that the decision of matters between one man and another, and the punishment of evildoers, depend on the direction of those in authority, to whom men are subject. On the other hand, the power of private persons is exercised over the things they possess: and consequently their dealings with one another, as regards such things, depend on their own will, for instance in buying, selling, giving, and so forth." *Summa theologiae* I-II Q105 A2.

[97] Besides the works of Dempsey and de Roover cited in the previous chapter, see also: Raymond de Roover, "The Concept of the Just Price: Theory and Economic Policy," *Journal of Economic History* 18, December 1958, 418–34; and Stephen T. Worland, "Justum Pretium: One More Round in an 'Endless Series,'" History of Political Economy 9, Winter 1977, 504–21.

[98] Aristotle lived about as close to the first coinage of money in Greece as we are to the American Revolution. Coinage was introduced in Lydia in the seventh century B.C., and in Greece in the sixth, only about 150 years before Plato and Aristotle analyzed the nature of money.

[99] *Ethics* V, 5, Ross, ed., 120.

[100] Thomas Aquinas, *Commentary on Aristotle's Nicomachean Ethics,* V, v, Lecture IX, §987, "Money," op. cit., 314.

showed monetary debasement resulting from the monetary authority's abuse of its monopoly privilege to issue money as a fundamental cause of "injustice in exchange," or disequilibrium. This takes the form of general price inflation (or less often deflation, because it is usually less lucrative for the government). As we've seen, justice in exchange or equilibrium entails a near equality in value of the products and services exchanged. This requires that the value of money remain roughly constant over time, and also that the total value of products supplied closely equal the total value of products demanded. Practically speaking, the main source of inequality between the two is the issue of money to finance a deficit in the government's budget, which adds to the total demand for goods but not their total supply. Oresme pointed out that money is owned by the people who use it, not the monetary authority that issues it, and he laid down the normative principle that except in extraordinary circumstances like war (when the community's survival is at stake and gives its approval), the government must not issue money as a significant source of revenue. This simple precept meant that the government must balance its other revenues with its expenditures over time, though not necessarily every year.[101] If the government has no other significant source of revenue, the current consumption of the goods and services it supplies must be financed by taxes on the incomes of workers and property owners. But taxes on production discourage production, and this disadvantage must be weighed against any advantages derived from the expenditure. The distribution of taxation, the use of government-provided goods and services, and the receipt of transfer payments are all governed by the political community's formula for distributive justice.

13. *Modern confusion among justice in exchange*, *distributive, and social justice.* A confusion of commutative and distributive justice, as well as of distributive and social justice, has bedeviled both critics and admirers of the Scholastics. The errors are still widespread enough to require mention. For example, a few Neoclassical Economists ignorant of the history of economics have dismissed the thought of the Scholastics on the grounds that their concern for distributive justice vitiated their economic analysis.[102] On the other hand, modern admirers of the Scholastics have used the same misunderstanding of the just price to argue for legislation that would regulate maximum prices or minimum-wage rates as a matter of distributive justice.[103]

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[101] Government borrowing is advantageous if it finances investment in government-owned assets, as long as the advantage of investment exceeds the cost of borrowing. But the debt's repayment with interest will still require taxation.

[102] A typical example is Todd G. Buchholz, *New Ideas From Dead Economists: An Introduction to Modern Economic Thought,* revised edition, Penguin Putnam, New York, 1999, 5–6.

[103] John A. Ryan, *A Living Wage: Its Ethical and Economic Aspects,* Macmillan, London, 1906; *Distributive Justice: The Right and Wrong of Our Present Distribution of Wealth,* Macmillan, New York, 1916.

As Stephen Worland has pointed out, this error can be traced to a book by Sir William Ashley that was first published in 1888.[104] Ashley was much taken with the speculation of Sir Henry Maine that society has evolved since ancient times from being based on status to being based on contract.[105] He accordingly misinterpreted a key passage in Thomas Aquinas[106] to mean that the Scholastic just price meant that "the maker [of a product] should receive what would fairly recompense him for his labour, not what would enable him to make a gain, but what would permit him to live a decent life according to the standard of comfort which public opinion recognized as appropriate to his class."[107] Thus, Ashley incorrectly said that the Scholastic just price was a matter of distributive, not commutative, justice, and that it was based upon the social status of the parties to an exchange, rather than on market conditions. According to Ashley, Aquinas "clearly considers that in any particular country or district there is for every article, at any particular time, some one just price: that prices, accordingly, should not vary with momentary supply and demand, with individual caprice, or skill in the chaffering of the market."[108]

But Aquinas said nothing of the sort. In the question Ashley cites, Aquinas clearly states that at any time and place, "the just price of things is not fixed with mathematical precision, but depends on a kind of estimate, so that a slight addition or subtraction would not seem to destroy the equality of justice."[109] He notes that human laws allowed variation of up to "half the amount of the just price of the thing," and that an article's price changes according to differences in location, time, or the risk incurred in transferring it from one place to another. Neither purchase nor sale according to this principle is unjust."[110] Considering the objection that "it is not lawful, in trading, to sell a thing for a higher price than we paid for it," Thomas responds that, while greed is always wrong, "nothing prevents gain from being directed to some necessary or even virtuous end, and thus trading becomes lawful." Among such ends are "trading for the upkeep of his household, or for the assistance of the needy."[111] In other words, the issue in the article Ashley misquoted was whether it is morally justifiable to trade for a profit—not how the price of goods is determined.

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[104] Stephen T. Worland, *Scholasticism and Welfare Economics,* University of Notre Dame Press, 1967, 290n.
[105] Henry Sumner Maine, *Ancient Law: Its Connection with the Early History of Society, and its Relation to Modern Ideas,* 3rd American from 5th London edition, Henry Holt and Company, New York, 1888 [1861].
[106] Thomas Aquinas, *Summa theologiae,* II-II, Q77.
[107] Sir W.J. Ashley, *An Introduction to English Economic History and Theory,* Longmans, Green and Co., London, 1923 [1888], Vol. I, 138.
[108] Ashley [1888], Vol. I, 146.
[109] Thomas Aquinas, *Summa theologiae,* II-II, Q77 A1 ad1.
[110] Thomas Aquinas, *Summa theologiae,* II-II, Q77 A4 ad2. (Dempsey's translation, op. cit. 481.)
[111] Thomas Aquinas, *Summa theologiae* II-II Q77 A4.

The Scholastics, as we have seen, correctly noted that the continuation of the economic system depended on market prices covering the costs of production. This is another key condition of equilibrium in modern economic theory. If a businessman failed to cover his costs under normal competitive conditions, the loss was his, regardless of his need or social dignity. *Distributive* justice required that *common* goods be distributed according to the prevailing social norms, which might take account of the dignity or need of persons. But this did not directly involve the just price of goods or services.

Another confusion mixes up social justice with distributive justice. According to one frequently heard view, "The term *social justice* is today generally used as a synonym of what used to be called *distributive justice*."[112] Actually, *social justice* corresponds to what Aristotle and Aquinas termed *legal justice*. Equating *social justice* with *distributive justice* is incorrect, because distributive justice always refers to *common* goods. To mistake general or social justice as equivalent to distributive justice, one must erroneously presume that all goods are common goods. If we accept the term "social justice" as equivalent to general justice, it must refer to *all* goods—not just common goods, but also, for example, personal gifts of individual goods.

Both Aristotle and Aquinas spoke of "legal justice," which Aquinas called a "special virtue." Aquinas says, "there must be one supreme virtue essentially distinct from every other virtue, which directs all the virtues to the common good; and this virtue is legal justice."[113] He notes that corresponding (and superior) to the "special virtue" of general justice, which orders other virtues to the common good, is the "special virtue" of charity, which orders all particular virtues to God.[114]

15. *Differences over church-state relations.* While maintaining remarkable consistency in their natural law philosophy and economic theory, adherents to Scholastic economics differed in their theory of the relation between government and religion. Aquinas presumed the unity of Roman Catholic religion that largely prevailed in Western Europe in the 13th century, so that authority in purely temporal matters rested with secular rulers, while authority in spiritual matters rested with the pope.[115] Four centuries later, Pufendorf's Protestant version of

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[112] Burke, Joseph. (2010) "Distributive Justice and Subsidiarity: The Firm and the State in the Social Order," *Journal of Markets & Morality* 13(2), 297-317; p. 297.

[113] S.T. II-II Q58 ad4, available at http://www.ccel.org/a/aquinas/summa/SS/SS058.html#SSQ58A6THEP1. This suggests that general or social justice may not be unambiguously quantifiable, as distributive or commutative justice usually is.

[114] III Q23 A4: http://www.newadvent.org/summa/3023.htm#article4.

[115] "[J]ust as the king ought to be subject to the divine government administered by the office of the priesthood, so he ought to preside over all human offices, and regulate them by the rule of his government." *On Kingship* I, 15."[T]he ministry of this kingdom [of Our Lord Jesus Christ] has been entrusted not to earthly kings but to priests,

natural law presumed the principle *cuius regio eius religio:* each nation would have a unified Christian religion, chosen and supported by the secular ruler.[116] As Seamus Hasson amply and engagingly documented, starting with the *Mayflower*, the first thing every religious minority has done after fleeing to America to escape religious persecution, was turn around and persecute members of other religions once in power.[117] In reaction to these earlier models, the American Founders devised a system that treated religious observance as a fundamental human right: any state might establish its own religion, but national religious establishment was prohibited.

American Founders' development of the theories of property, faction, and public goods. We noted above that Aristotle's theory of production included both people and property; that according to his theory of distributive justice, any community's use of common goods must be shared according to a geometric ratio, but that in political distribution there is systematic disagreement about the precise ratio depending on each class of citizens' interest. The American Founders developed each of these by broadening the understanding of property, tying it to equal protection of all forms and specifying that true public goods should be defrayed by taxes levied equally on income from all forms of property.

The Founders' theory of government is crystallized in James Madison's Federalist No. 10: "From the protection of the different and unequal faculties of acquiring property possession of different degrees and kinds of property immediately results; and from the influence of these on the sentiments and views of the respective proprietors, ensues a division of the society into different interests and parties. The latent causes of faction are thus sown in the nature of man."[118] In this very Augustinian view, factional injustice is inevitable, caused by the twin scourges of ignorance and sin: inordinate self-love.[119] Hence, "Different interests necessarily exist in different classes of citizens."[120]

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and most of all to the chief priest, the successor of St. Peter, the Vicar of Christ, the Roman Pontiff." *On Kingship* I, 14.

[116] "It is… the duty of the sovereign… to ensure that the pure and sincere Christian doctrine flourishes in the state, and that the public schools teach dogmas consistent with the purpose of states." Samuel Pufendorf, *On the Duty of Man and Citizen,* Book II, Ch. 11, 4.

[117] Kevin Seamus Hasson, *The Right to Be Wrong: Ending the Culture War Over Religion in America,* Encounter Books, 2005.

[118] James Madison, Federalist No. 10, , in George W. Carey, The Federalist (The Gideon Edition), Edited with an Introduction, Reader's Guide, Constitutional Cross-reference, Index, and Glossary by George W. Carey and James McClellan (Indianapolis: Liberty Fund, 2001); p. 43, Accessed from http://oll.libertyfund.org/title/788/108577/2273715 on 2009-09-11

[119] "As long as the reason of man continues fallible…he is at liberty to exercise it…and the connection subsists between his reason and his self-love..., his opinions and his passions will have a reciprocal influence on each other." James Madison, Federalist No. 10, ibid.

[120] James Madison, Federalist No. 51, ibid, 270. Accessed from http://oll.libertyfund.org/title/788/108659/2274491 on 2009-09-11

Perhaps because this statement was so compressed, Madison elaborated on it in a 1792 summary, "Property," where he distinguished "property strictly so called" from "property in the general sense of the word." In the narrower sense, "property means 'that dominion which one man claims and exercises over the external things of the world, in exclusion of every other individual.' [But i]n its larger and juster meaning, it embraces every thing to which a man may attach a value and have a right; *and which leaves to every one else the like advantage*." Property "strictly so called" therefore includes "a man's land, or merchandize, or money," but property "in the general sense" comprises "his opinions, his person, his faculties, or his possessions"—including "a property of peculiar value in his religious opinions, and in the profession and practice dictated by them…. In a word, as a man is said to have a right to his property, he may be equally said to have a property in his rights."[121]

The narrower meaning approximates the classical Roman Stoic notion of absolute dominium or proprietas, ignores justice, and can be (in fact, was) used to justify slavery.[122] Property "in the general sense" is analytically more comprehensive, but also universally binding prior to any economic transaction (gift or exchange).

Meanwhile, Hamilton distinguished true public goods, which benefit all citizens equally, from what might be called "quasi-public goods," which benefit many but not all citizens.[123] Combining Madison's theory of faction with Hamilton's distinction between public goods and quasi-public goods, the corresponding theory of American political distributive justice implies that true public goods should be financed by equiproportional taxation of income from all sources of property, but quasi-public goods by taxation on the class of citizens that benefits.

The two definitions of property therefore not only differ, but lead to two different theories of government—as became clear in the decade before the U.S. Civil War.[124] Yet as

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[121] James Madison, "Property" (29 Mar. 1792), 14 *The Papers of James Madison* 266-68, edited by William T. Hutchinson et al. Chicago and London: University of Chicago Press, 1962-77 (vols. 1-10); Charlottesville: University Press of Virginia, 1977- (vols. 11-); available at http://press-pubs.uchicago.edu/founders/print_documents/v1ch16s23.html (emphasis in original).

[122] F. Pringsheim, "The Unique Character of Classical Roman Law," 34 *The Journal of Roman Studies* 1 & 2: 60-64 (1944).

[123] Among true public goods, for which government is instituted, Hamilton listed in Federalist No. 31 "the duties of superintending the national defence, and of securing the public peace against foreign or domestic violence" (ibid., p. 151), accessed from http://oll.libertyfund.org/title/788/108619/2274086 on 2009-09-11. In Federalist No. 34 he added also what might be called quasi-public goods, which benefit many but not all classes of citizens equally: "the encouragement of agriculture and manufactures." Such public and quasi-public goods "will comprehend almost all the objects of state expenditure." Alexander Hamilton, Federalist No. 34, ibid, 165, accessed from http://oll.libertyfund.org/title/788/108625/2274123 on 2009-09-11.

[124] "Slavery is founded in the selfishness of man's nature—opposition to it, in his love of justice. These principles are an eternal antagonism… [R]epeal the [D]eclaration of [I]ndependence—repeal all past history, you still can

Lincoln showed so effectively, attempts to enact the narrower definition of property fall apart as soon as it is applied impartially to those who would enforce it on others.[125]

not repeal human nature." Abraham Lincoln, Speech at Peoria, Illinois, October 16, 1854. 2 Collected Works of Abraham Lincoln 270, (Roy P. Basler ed., 1953).

[125] This principle is "[s]o plain that no one, high or low, ever does mistake it, except in a plainly selfish way; for although volume upon volume is written to prove slavery a very good thing, we never hear of the man who wishes to take the good of it, by being a slave himself." Fragment on slavery, [April 1, 1854?] according to Lincoln's secretaries, but possibly from 1858 or 1859, according to the editors of the Collected Works.

fined).

The treatment by later economists of the first things of economics

The Scholastic outline of economic theory was both versatile and durable. I have sketched only a few of the main theoretical and practical applications Scholastic economists derived from it. Tracing the later development of each of the four elements—for example, the theory of production, or the theory of equilibrium—can be fascinating. So can tracing their joint applications, for example, in the theories of money, interest, international trade, economic development, the household, business firm, or industry. But in doing so, even in severely truncated form, it is easy for both economists and noneconomists to lose the forest for the trees. That is, the overall *structure* of economic theory, as used by economists, tends to be overlooked.

From the perspective of its structure, the entire history of economic theory thus far may be naturally divided into just three periods: the Scholastic (1250–1776), the Classical (1776–1871), and the Neoclassical (1871–c. 2000). To gauge the net result of the development of economic theory so far, let's make a standing broad jump across the whole 750 years of development to the present. What do we find? We find that nearly all modern economists are still using Thomas Aquinas's "Swiss Army knife"—but most seem to be under the impression that it contains only three (in a few cases, only two) tools instead of four. Most modern economists are trained to use mathematical forms of the second, third, and fourth basic elements—utility, production, and equilibrium—but not the first, which I have called final distribution.

This is odd, since Aristotle, Augustine, and Aquinas all supplied its mathematical formula. How did this "hole" in theory come about? Well, Adam Smith tried to discard two of the basic elements (final distribution and utility), and he was followed in this effort by most Classical economists. This meant that Classical economics was logically incomplete, falling two equations short of the number of unknown variables. The Classical economists' Neoclassical successors have so far restored only one of the omitted elements (utility). But there is still an analytical hole, that left by the omission of final distribution. Most of the difficulties of modern economists can be traced to this very fact.

Table 1-1
The Origins and Historical Structure of Economic Theory

Common-sense meaning	*Gifts (or Crimes) & Distributive Justice*	*Consumption*	*Production*	*Justice in Exchange*
Generic meaning	1. Preference for persons as ends	2. Preference for scarce means	3. Actualization of means: a.	4.Actualization of means: b.
Element of Economic Theory	Final Distribution (social unit described)	Utility (type)	Production (factors typically assumed to vary)	Equilibrium (type)
Source	Augustine, *On Christian Doctrine* I, 26 (person); Aristotle, *Ethics* V, 3 (household, business, government)	Augustine, *City of God* XI, 16 (ordinal: 1st, 2nd, 3rd, ...)	Aristotle, *Politics* 1, 4 (none)	Aristotle, *Ethics* V, 5 (partial)
Period Ancient Greek (c. BC350-322)	Mixed (household, government)	No	Yes (none)	Yes (partial)
The 'Great Gap' (BC322-c.AD1250)	–	–	–	–
Scholastic (1250–1776)	Yes (all: personal, domestic, & political)	Yes (ordinal)	Yes (none)	Yes (partial)
Classical (1776–1871)	No	No	Yes (tangible human)	Yes (partial)
Neoclassical (1871–c.2000)	No	Yes	Yes	Mixed
School:				
British	”	” (cardinal: …-1,0,1,2, ...)	” (tangible nonhuman)	Yes (partial)
Austrian	”	” (ordinal)	” (” ”)	No (Mises)
Walrasian	”	” (ordinal)	” (” ”)	Yes (general)
Chicago	”	” (cardinal)	” (” ”)	Yes (partial)
(1920-1960)	”	” (cardinal)	” (” ”)	Yes (partial)
(1960–)	”	” (cardinal)	” (all: tangible & intangible human & nonhuman)	Yes (partial)
Neoscholastic (c. 2000–)	Yes (all: personal, domestic, political)	Yes (ordinal)	Yes (all)	Yes (general)

Chapter 2: Man as 'Domestic Animal' ('Conjugal,' 'Money-Using' and 'Social')

The Greek root words of "economics"—*oikos* and *nemein*—literally mean "to manage a home (or household)." In other words, economics has its roots in *domestic* economy. Now as then, domestic economy is rooted in the fact that man is not only a "rational" but also a "conjugal animal." In this chapter we'll elaborate the Neoscholastic theory of marriage, as well as of two modern offshoots of the ancient marriage-based household, the business firm and nonprofit or charitable foundation.

Man as 'conjugal animal'

A few basic facts of domestic economy remain as true in twenty-first-century America as when Aristotle enumerated them in his *Nicomachean Ethics* in fourth-century B.C. Athens:

> Between man and wife a natural friendship seems to exist, for they are more inclined by nature to conjugal than political society. This is so because the home is older and more necessary than the state, and because generation is common to all animals. Only to this extent do animals come together. Men, however, cohabit not only to procreate children but also to have whatever is needed for life. Indeed, from the beginning, family duties are distinct; some are proper to the husband, others to the wife. Thus mutual needs are provided for, when each contributes his own services to the common good. Therefore, this friendship seems to possess both utility and pleasure. But it can exist for the sake of virtue if the husband and wife are virtuous, for each has his proper virtue and they can delight in it.
>
> Children seem to be a bond of union. Hence sterile [childless] couples separate more readily, for children are a common good of both parties; and what is common maintains friendship.[126]

In observing that humans are by nature not only "rational" and "political" but also "conjugal" or "matrimonial animals," Aristotle combines biological, social, and metaphysical truths. First of all, his observation concerns the nature not just of human society in general but of each human *person.* Everyone is born biologically male or female. (There are some "intersex" persons, but they comprise no more than about .02% of all people.) Not everyone will marry and have children or even a heterosexual orientation (though the overwhelming

[126]Litzinger's translation, from St. Thomas Aquinas, *Commentary on Aristotle's Nicomachean Ethics,* Translated by C.I. Litzinger, O.P., Foreword by Ralph McInerny, Dumb Ox Books, Notre Dame, IN, 1964, 520. I use this translation because, as explained above in "A Brief Remedial Economics" as well as later in this chapter, the elements of economic theory originated not from the "Greek" but the "Latin Aristotle": Aristotle as known in Latin translation and first interpreted by Albert the Great and especially his student Thomas Aquinas.

majority does in all three cases). But every human being originates from the union of exactly one mother and one father.[127] If humans ever stopped sexually reproducing, all persons and households would disappear within a single lifetime.

Second, while involving animal biology, our "matrimonial" nature cannot be reduced to it. Like most animal mating, marriage has elements of pleasure and utility; but what makes it also rational and specifically human is the virtue that each spouse exercises as "friend" or "lover" of the other, which Aristotle defines as "one who wills and does what is good (or apparently good) for the sake of his friend."[128]

Third, beyond merely pursuing their individual goods, the man and woman through their complementary roles acquire, produce, and share *common* goods, about which they must decide jointly according to "distributive justice." Distributive justice is the "geometric ratio" describing how "common goods . . . are to be apportioned to people sharing in social community . . . as one person as compared with another may have an equal or unequal share . . . according to a certain merit." Distributive justice may be considered a joint or collective gift, analogous for any human community to personal gifts.

Finally, the most important common good the married couple produces is children, for whom they provide the fundamental goods of "existence, rearing, and instruction."[129] All other kinships are derived from these original marital and/or parental relationships.[130]

Having sketched the theory of the nuclear family household in his *Ethics,* Aristotle tried more ambitiously but less successfully in the later *Politics* to adapt his theory to explain also the contemporary Mediterranean slave-holding agricultural estate and the basic principles of social order. He started once again with two basic household relationships, but rather than "husband and wife" and "parents and children," as in the *Ethics,* these were now "a man and a woman" and the more generic "ruler and ruled." This last relationship he variously identified

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[127]This would be true even if it were possible for one human person to be "cloned" from another, since no matter how far apart in time they were born, the two would remain identical twins with the same mother and father.
[128]*Nicomachean Ethics,* Book IX, Ch. 4 (Litzinger tr.), op. cit, 547.
[129]Aristotle mentions this triple parental benefit in *Nicomachean Ethics* Book VIII, both Ch. 11 & 12. W.D. Ross translated the terms in Ch. 11 as "existence," "nurture" and "upbringing" (Ross tr., op. cit, 211), in Ch. 12 as "being," "nourishment," and "education" (ibid, 214); C.I. Litzinger, Ch. 11 as "existence, "rearing" and "instruction" (op. cit, 515), Ch. 12 as "existence," "upbringing," and "training" (ibid, 519); Aquinas' paraphrase of Ch. 11, "by generation, . . . existence," "by upbringing, . . . rearing," and "instruction" (ibid, 517; in the Introduction, as "generation," "nourishment" and "instruction" (ibid, 2). According to the American Heritage Dictionary, education connotes formal academic and training non-academic instruction; teaching the broadest term for instruction; rearing caring-for, which is much broader than nourishment; and upbringing the combination of rearing and training. The most precise and concise translation into modern American usage would therefore seem to be "being, rearing, and teaching," to which Litzinger's translation of Ch. 11 comes closest.
[130]*Nicomachean Ethics* Book VIII, Ch. 12 (Litzinger tr.); op. cit., 519.

as the principle of order between an animal's body and soul, between male and female animals, between rational humans and irrational animals, between the human intellect and emotions, between husband and wife, between master and slave, and between political ruler and subject.

Aristotle proceeded from the nuclear family household to the slave-owning agricultural estate by classing the former's livestock with the latter's human slaves as "slaves by nature"[131]; and by this reasoning he purported to have found in the slave-owning agricultural estate three rather than the previous two "natural" human relationships: "the first, smallest parts of the household are master and slaves, husband and wife, and father and sons."[132] In each of these relationships, according to Aristotle, the male householder naturally provided the ruling principle of order: over the wife by analogy to the "aristocratic" rule of human reason over the passions, and over the slave by analogy to the "despotic" rule of the soul over the body. Equally crucial to his argument was the assertion that human nature means man only at his combined mental, physical, and moral peak.[133]

Aristotle had criticized his teacher Plato (not without justice) for assuming that "associations differ only in size, not specifically. For example, they suppose that the fathers of families rule few persons, household managers more persons, and statesmen and kings still more persons, as if there were no difference between a large household and a small political community."[134] Yet Aristotle's descriptions of the husband-wife and master-slave micro-communities went on to make essentially the same mistake, by treating both in effect as large *persons.*

The flaw in such analogies, as Aquinas pointed out, is that while every animal (rational or irrational) has an inherent natural unity—which is why we don't worry, for example, that we'll lose an arm or leg if we run—"the whole which the political group or the family constitutes has only a unity of order, for it is not something absolutely one."[135] Treating purely human communities as "organic unities" or "organisms" is misleading because, as "unities of

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[131]"It was out of the two associations of men and women and master and slaves that the first household arose. And the poet Hesiod rightly said that the first household consists of a wife and an ox for plowing, since the ox is the poor man's slave." *Politics* Book I, Ch. 1; op. cit, 4–5.
[132]*Politics* Book I, Ch. 2; ibid, 19.
[133]"But we should consider natural powers as things have them by nature and not in corrupt forms. And so we should consider those human beings who are both physically and mentally best disposed, those in whom the powers are clearly present. For the body will seem very often to rule over the soul of the diseased and the wicked, since they are disposed wrongly and contrary to nature *Politics* Book I, Ch. 3; ibid, 25.
[134]*Politics* Book I, Ch. 1; ibid, 4.
[135]Aquinas, *Commentary on the Nicomachean Ethics,* Introduction, op. cit, 2.

order," such communities are constantly threatened by dissolution *precisely through loss of members.*[136]

The failure of Aristotle's body/soul analogies blew several holes in the more elaborate *Politics* version of his household theory, since that theory could not really explain why a marriage, family, or household forms in the first place, gains or loses members, or continues through time. It is true, for example, that "children are a common good" for their natural parents and (as we will see) that "childless people part more easily." But this common good cannot *bring* the parents together, since it is a result rather than a cause of their association. And if the biological urge to procreate were all that were common to husband and wife, there would be no essential difference between human marriage and other animal mating, as Aristotle had previously maintained in the *Nicomachean Ethics*—nor could we explain why even many married couples with children divorce (albeit less frequently than childless couples). Nor could their common good bring or keep master and slave together since, as Aristotle said, "the authority of master over slave is exercised primarily for the benefit of the master and only incidentally for the benefit of the slave."[137]

Slavery was no less prevalent in Augustine's than Aristotle's day. Both men started from the same understanding of man as a rational, matrimonial, and political animal. Both also treated family, slavery, and political relationships in the same discussion.[138] But Augustine emphatically disagreed with Aristotle on two crucial, related points: that there could be anything natural about the enslavement of one rational creature by another, and that we should consider natural powers only "as things have them by nature and not in corrupt forms."

For Augustine the general explanatory principle is not "ruling and being ruled" but "peace, the tranquility of order." "In fact, even when men wish a present state of peace to be disturbed they do not do so because they hate peace, but because they desire the present peace to be exchanged for one that suits their wishes." In Augustine's view, the root of slavery (as of all sin or vice) is "pride, …. a perverted imitation of God," which causes those who would master others to fail first of all to master themselves. Rather than obeying the innate human reason that stamps them with the image of their Creator, would-be masters become enslaved to their own passion to dominate others.

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[136]The one community to which the organic analogy properly applies is the description of the Christian church as the "mystical body of Christ." But since this is a matter of revealed theology, it is beyond the scope of the current paper, which is confined to reasoning from sensible and empirically verifiable experience.
[137]*Politics* Book I, Ch. 3, vi, Sinclair, ed., op. cit., 188.
[138]*City of God,* Book XIX, Ch. 12-17; op. cit, 866-879.

Moreover, descriptive realism requires us to explain human behavior not only when it is reasonable but also—especially—in its "corrupt forms." Augustine seeks constantly to contrast and explain the best in parallel with the worst human behavior. For example, where Aristotle emphasizes that man is a social and political animal, Augustine says instead, "the human race is, more than any other species, at once social by nature and quarrelsome by perversion."[139] And in doing so he emphasizes the interconnection of behavior at the personal, domestic and political levels:

> Even in the extreme case when [men and women] have separated themselves from others by sedition, they cannot achieve their aim unless they maintain some semblance of peace with their confederates in conspiracy. Moreover, even robbers, to ensure greater efficiency and security in their assaults on the peace of the rest of mankind, desire to preserve peace with their associates.
>
> Indeed, one robber may be so unequalled in strength and so wary of having anyone share his plans that he does not trust any associate … ; yet even so he maintains some kind of peace, at least with those whom he cannot kill, and from whom he wishes to conceal his activities. At the same time, he is anxious, of course, to be at peace in his own home, with his wife and children and any other members of his household; without doubt he is delighted to have them at his beck and call. For if this does not happen, he is indignant; he scolds and punishes; and if need be, he employs savage measures to impose on his household a peace which, he feels, cannot exist unless all the other elements in the same domestic society are subject to one head; and this head, in his own home, is himself. Thus, if he were offered the servitude of a larger number, of a city, maybe, or a whole nation, on the condition that they should all show the same subservience he had commanded in his household, then he would no longer lurk like a brigand in his hide-out; he would raise himself on high as a king for all to see—although the same greed and malignity would persist in him.
>
> We see, then, that all men desire to be at peace with their own people, while wishing to impose their will on other people's lives. For even when they wage war on others, their wish is to make those opponents their own people, if they can—to subject them, and to impose on them their own conditions of peace.[140]

Augustine contrasts this degenerate semblance of peace with that in the transcendent City of God, which lives side by side on earth, and so far as possible seeks cooperation on purely temporal affairs, with members of the Earthly City who do not share this view.[141]

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[139]*City of God,* Book XII, Ch. 28; ibid, 508.

[140]Ibid, 866–867.

[141]"The peace of the body, we conclude, is a tempering of the component parts in duly ordered proportion; the peace of the irrational soul is a duly ordered repose in the appetites; the peace of the rational soul is the duly ordered agreement of cognition and action. The peace of body and soul is the duly ordered life and health of a living creature; peace between mortal man and God is an ordered obedience, in faith, in subjection to an everlasting law; peace between men is an ordered agreement of mind with mind; the peace of a home is the ordered agreement among those who live together about giving and obeying orders; the peace of the Heavenly City is a perfectly ordered and perfectly harmonious fellowship in the enjoyment of God, and a mutual fellowship in God;

This is where domestic peace starts, the ordered harmony about giving and obeying orders among those who live in the same house. . . . But in the household of the just man "who lives on the basis of faith" and who is still on pilgrimage, far from that Heavenly City, even those who give orders are the servants of those whom they appear to command. For they do not give orders because of a lust for domination but from a dutiful concern for the interests of others, not with pride in taking precedence over others, but with compassion in taking care of others.[142]Aristotle's formulation of "ruling and being ruled" does not work as the general principle of social order, because merely giving or receiving orders does not create order. The resulting nature and degree of order depend critically on the assessments of oneself vs. the other on the parts of both the speaker and hearer.

Against what Aristotle seems to argue in the *Politics,* Augustine traced the household's origin to marriage alone and slavery to the human convention of positive law rather than natural right. Augustine succinctly stated that "the first natural bond of human society is man and wife," and that in all cases marriage combines two inseparable elements—sexual fidelity and acceptance of resulting children—with a third (sacrament) pertaining only to baptized Christians.[143] To Christian slaves unable to gain their legal freedom, Augustine recommended the Apostle Paul's advice to suffer the injustice and serve their masters willingly, thereby avoiding enslavement to their own passions for revenge and exceeding their masters in both internal freedom and happiness in this life and the next.

In his commentaries on Aristotle's *Ethics* and *Politics*, Aquinas recognized that Augustine's contributions had made it possible to disentangle Aristotle's theory of the household from the latter's apparent justification of slavery. He also saw that Augustine had made it possible to integrate a complete and coherent theory of personal, domestic, and political economy.

Aquinas used Augustine's theory of personal economy to turn the theory of love or friendship from what had seemed an incidental, superfluous, or conflicting feature of Aristotle's philosophy into its simplifying and unifying core. The ultimate principle of social

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the peace of the whole universe is the tranquility of order—and order is the arrangement of things equal and unequal in a pattern which assigns to each its proper position." Ibid, 870.

[142]Ibid, 874.

[143]"The good of marriage throughout all nations and all men stands in the occasion of begetting, and faith of chastity: but so far as it pertains unto the People of God, also in the sanctity of the Sacrament. . . . All these are goods, on account of which marriage is a good: offspring (*proles*), faith (*fides*), sacrament (*sacramentum*)." Augustine of Hippo, "Of the Good of Marriage," (de Bono Conjugali), http://www.newadvent.org/fathers/1309.htm, accessed 2 February 2005.

order is neither physical nor social coercion nor yet supposedly superior masculine cleverness, but the personal love (for oneself and other persons) that is always ordered to the good of the beloved person; and this remains true whether the act is intended to be basically altruistic, indifferent, or even predatory.

Moreover, Aristotle had seemed to suggest that what unites any human association is simply *sharing the benefit of one or more common goods.* Without denying this (and while correcting Aristotle's error on slavery) the Scholastic theory initiated by Thomas Aquinas follows Augustine by saying that what unites any human community above all is not common enjoyment but *common sacrifice of goods,* which is always motivated by love and expressed through personal and/or collective gifts.

Lessons of a lemonade stand

To apply this theory we must first state it in a form capable of empirical verification (or falsification), and then compare it with the evidence. I noted when presenting the Scholastic outline of economic theory that with appropriate modification it can describe any economic unit from a single person to the world economy, and that it contains all the theory necessary to explain investment and real economic growth. I left the elements of production and exchange in the background while discussing personal economy in order to focus on the theories of personal distribution and consumption. The reason is now apparent: our inherently "matrimonial" nature means that an economic event, whether simple or complex, consisting entirely of isolated and unrelated individuals is not only unsustainable; it's unexplainable. It would require that everyone be, literally, "self-made" men and women—which have never existed anywhere, despite the assumptions of modern economic theory.

To see how these elements must be combined and integrated, let's begin with the simplest possible example: a children's lemonade stand. The prerequisites of such an enterprise are a product (lemonade), a supply of potential customers (say, the people entering or leaving a hiking trail or bike path on a warm day), and a purpose (say, using half as personal spending money and donating the other half for disaster relief). To produce lemonade, as with almost any other product, it is necessary to combine the services of some person or persons (so-called "human capital") with those of productive property ("nonhuman capital"). To keep track of their contributions, we will suppose that a brother and sister are involved: One supplies only the labor (mixing the ingredients, setting up the stand, making a sign, waiting on or soliciting customers), while the other supplies only the property (say, a folding table, a pitcher, a cooler, a mixing spoon, glasses, poster board, and marker or crayons for a sign) and the raw ingredients (lemonade mix, water, and ice).[144]

Beyond these prerequisites, the success of the business is largely a matter of price. Because customers ordinarily value the first glass of lemonade more highly than the fifth, the demand for lemonade varies inversely to its price. If the price were set too low (say, a penny a glass), the supply of lemonade would be quickly exhausted: Customers would have to be turned

144We might also recognize a third productive factor, enterprise: whose idea was the lemonade stand; who chose the time, location, organization, etc.? We could also begin, as we will later, by distinguishing tangible and intangible forms of capital, between capital consumption and maintenance—as many distinctions as necessary. Because our purpose in his section is basically to understand the nature of production and the relation between a product's price and the compensation of its producers, I will ignore such complications for now and treat profits as if they were a part of property compensation. To avoid fallacies like Smith's "labor theory of value" it is sufficient merely that there be at least two productive factors.

away, yet the stand would fail to cover its cost of raw materials, much less provide any income for the children. Economists call this "excess demand." If the asking price were too high (say, $100 a glass), there would be no customers and, again, no income: a case of "excess supply." Somewhere in between is the price that equalizes supply and demand, maximizing income for the sellers and conforming most closely to the preferences of customers. Ordinarily, this optimum price cannot be predicted in advance but requires a certain amount of trial and error.

Anyone who has observed this process in real life realizes that it is necessary to take into account the demand for lemonade, not only from potential customers, but also from the "worker" and "proprietor" of the stand. In calculating quantities to produce and the selling price, the sellers will want to allow for the possibility of drinking some of the lemonade themselves, especially if it promises to be a long, warm day. If demand is slack and the price received from customers is below a certain point, the sellers may prefer to drink the stuff themselves; on the other hand, if demand is brisk and the price higher, they may curb their own consumption in order to increase the stand's cash sales and their own compensation.

Now, how should the revenues from the sale of lemonade be divided? It might seem that a fifty-fifty split makes the most sense, and if the children contributed equally to starting the enterprise, this is a reasonable way to split any profits. But this does not help in figuring out the compensation of the worker and proprietor, because their services constitute most of the costs. A little experience reveals that what is fair compensation varies, ultimately depending on how sales revenue responds to changes in the relative contributions of the two parties. For example, suppose that, on two successive days, all conditions but one were the same—same number of passersby, same weather, same quantity of lemonade produced and offered for sale—except that, on the first day, the lemonade stand's worker puts in four hours, and on the second day, five hours. It is obvious in this case that the additional revenue must be due to the worker's additional effort. Alternatively, suppose that the number of hours worked and all the other factors are the same on both days, except that, on the first day the "proprietor" forgets the cooler that keeps the lemonade from becoming lukewarm, while on the second day he brings it, thus allowing the advertised "ice cold lemonade" to be sold chilled throughout the day. In this case, the increase in sales on the second day is attributable to the provision of the cooler.

In principle, the entire proceeds from the sale of lemonade can be divided in this way, between the child who provides only labor and the child who provides only the use of property. The children will notice that, just as the value of an additional glass of lemonade to a customer

varies inversely with the quantity the customer has already consumed, the value of the worker's and proprietor's incremental services varies inversely with the value already provided. For example, the amount of extra sales realized when the worker works one hour is obviously larger than when he works none, and that, in turn, is ordinarily larger than the extra sales realized when the worker works for two hours instead of one, three hours instead of two, and so on. Similarly, the increase in sales will normally be larger after the first dozen ice cubes are added to the pitcher than after the second dozen. So, if the children accurately perceive what is happening, they should be able to divide the income with a reasonable degree of objectivity, in proportion to the share of the proceeds traceable to the contributions of each. It is often difficult in the real world to disentangle all the variables, especially for an isolated business. But it is much easier to see under conditions of competition—for example, with one or more competing lemonade stands in the vicinity—because the change of a single feature by one business firm results in its capturing a larger share of the market, thus forcing the other competing firms either to offer the same feature or else to lose customers and ultimately go out of business.

In describing the lemonade stand, we have sketched the general description of a business firm that produces one kind of good (in this case, lemonade) with two kinds of factors or producers (people and property). And for many purposes—for example, explaining the distribution of family income or the effect of fiscal policy on unemployment at the national level—we will find that the whole economy can fruitfully be viewed as if it were one large stand producing a single composite product, GNP or GDP, instead of lemonade. This is because the analysis can take the absolute number of workers and the absolute size of the "nonhuman capital" stock as given. (The unemployment rate measures the share of workers employed or unemployed rather than their absolute numbers.)

So, if we left the analysis here, we would be able to explain both how products and their producers' incomes originate and what causes the producers to be employed or unemployed—but not where the producers themselves or their productive property came from. Yet without accounting for that, we would have nothing to say about fertility or population and little to say about what causes income and output to grow. In our example, where did the "proprietor's" property—the table, pitcher, cooler, and so forth—come from? These items must have been produced by a process essentially similar to the children's production of lemonade: by combining the services of people and property, possibly within the children's family, but more probably by a business firm from which the family purchased them. Moreover, in every

lemonade stand in my experience, the productive property has been borrowed from the children's parents without compensation: that is, it has been received as a gift.

Both facts apply to the children themselves: First, the children were produced (or "reproduced") by their parents in a way analytically similar to the children's production of lemonade or the business firm's production of the cooler. As G. K. Chesterton put it, "The family is the factory that manufactures mankind."[145] Second, the endowments of human and nonhuman goods with which the children began life were also received as gifts.

Thus, to have a truly general theory embracing fertility as well as the production of property, income distribution, and employment, we must be able, when necessary, to regard the two kinds of factors, human and nonhuman, as also being two kinds of reproducible goods, human and nonhuman. The analytical distinction between producer and product typically depends not so much on their inherent qualities as on how humans treat them: Just as we can use the same computer either to play games or run a business, or drive the same car either for business or pleasure, we can also use our own human faculties for work or recreation (or for activities like worship, which is neither). What's just as important, we can't have a fully adequate theory of production, even for an enterprise as simple as a lemonade stand, without taking into account the overlapping generations involved in any family.

Recall from our discussion of Scholastic economics that any economic activity can be fully described in four brief sentences, to which correspond four mathematical equations. Whatever the change in details, all four elements remain necessary for an accurate and complete account. But the analysis must be rewritten in order to suit the particular agent in question: an individual person, a married couple, a business firm, a charitable foundation, or a government. This time the description is restated so that we can more easily measure its predictions using government statistics on income and output, and so that we can apply it to the theory of fertility, which concerns the (re)production of people.[146]

1. *For whom: "Final Distribution.*" We express the significance of the persons who are the "ends" or purposes of our actions (including ourselves) by distributing the use of our goods

145G.K. Chesterton, "The Policeman as a Mother," The New Witness, Nov. 14, 1919; cited in Alvaro de Silva, G.K. Chesterton on Men & Women, Children, Sex, Divorce, Marriage & the Family, Ignatius Press, 1990, 141.

[146]Equations beginning with "1" denote the "two-factor, one-good" model, and those beginning with "2" denote the "two-factor, two-good" model. We can typically use the first for the discussion of employment but the second is necessary for the discussion of fertility. All the actions described are understood to have the dimension of time; for example, consumption, C, should be understood as $\delta C/\delta t$, or additional consumption *per unit of time*—the notation for which is usually omitted in this presentation for simplicity.

among them.[147] Each person's actual consumption of goods (after accounting for differences in timing) equals the total wealth or income to be distributed, multiplied by that person's significance relative to all the persons sharing in the distribution. It is therefore equal to that person's factor income plus any net "transfer payments" received or given.[148] While labor and property compensation are received for contributing to current production, transfer payments comprise any income *not* received as compensation for contributing to current production. These naturally fall into three categories: personal, domestic, and political.

1a. *Personal gifts (and their opposite, crimes).* At the personal level, transfer payments include the gifts of scarce resources that people make to one another, while crimes depriving others of life or property amount to involuntary transfer payments from the victim to the criminal.[149] Among the most fundamental examples of personal gifts are the ones a man and a woman make when they marry, which establish their household and provide its initial stock of common goods.[150]

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[147](1.1) $C_{Qi} = Y_i D_{ii}/\Sigma D_{ij}$ [final distribution function], where C_{Qi} represents the use ("consumption") by Person *i* of the good Q; Y_i is total compensation of Person *i;* D_{ii} is the significance of *i* to himself; ΣD_{ij} is the significance to *i* of all persons.

(2.1) $C_{Ki} + C_{Li} = Y_i D_{ii}/\Sigma D_{ij}$ [final distribution function], where $C_{Ki,}$ and C_{Li} represent the use ("consumption") by *i* of the services of "human capital," *L,* and "nonhuman capital," *K;* Y_i is total compensation of Person *i;* D_{ii} is the significance of Person *i* to himself; and ΣD_{ij} is the significance to Person *i* of all persons.

[148] For clarity and simplicity, we will define:

(1.5) and (2.5) $Y_i \equiv rK_i + wL_i$,

meaning that Y_i is the total factor compensation of Person *i;* and

(1.6) and (2.6) $T_i \equiv (1—Y_i)\, D_{ii}/\Sigma D_{ij}$.

By substituting (1.6) and (2.6), (1.1) and (2.1) may be restated as:

(1.1a) $C_{Qi} = Y_i — T_i$ and

(2.1a) $C_{Ki,} + C_{Li} = Y_i — T_i$, making clear that the difference between Person *i*'s total consumption, C_{Qi} or $C_{Ki,} + C_{Li,}$ and total compensation, Y_i, is equal to T_i—(net) personal, domestic, and political "transfer payments" from Person *i* to other persons. By "net," I mean that personal gifts made are offset by gifts received, while taxes are treated as political transfers paid and balanced against political transfers received. Equations (1.1) and (2.1) are the simplest and most general forms of the final distribution function for an individual person. The refinements necessary to specifically describe gifts within marriage, from parents to children and vice versa, as well as accounting for taxes and government benefits, are considered below.

[149] Such personal transfers are described in equations (1.1) and (2.1).

[150] In the passage cited at the beginning of this chapter (*Nicomachean Ethics,* op. cit., 214), Aristotle notes that a household, say, J_1, is created by the marriage of a man, M_1, and a woman, F_1, and that its wealth, $W_{J1,}$ is initially acquired by their "throwing their peculiar gifts into the common stock" of household wealth: $W_{J1} = K_{M1} + K_{F1} + L_{M1} + L_{F1}$. This means that each spouse, M_1 and F_1, starts marriage with an initial personal gift or transfer, $T_{M1:J1}$ and $T_{F1:J1}$, to the new joint family partnership, J_1, consisting of all his or her human and nonhuman wealth:

(1.6a) $T_{M1:J1} = K_{M1} + L_{M1}$.

(1.6b) $T_{F1:J1} = K_{F1} + L_{F1}$.

For the marriage partnership to continue and flourish, the initial gifts must be followed by a series of gifts by which any new income realized separately by each spouse (particularly from their "human capital," since it is not alienable) is put into the "common stock":

(1.6c) $T_{M1:J1} = Y_{M1}$, and

(1.6d) $T_{F1:J1} = Y_{F1}$.

according to a new joint family distribution function, D_{J1}. For example, the woman's share in the use of total current family income becomes:

1b. *Domestic "distributive justice."* Henceforth, the married couple determines the distribution of the family's income or wealth jointly, according to its formula of familial distributive justice. Such domestic "transfers" include not only those made to or received jointly from each individual spouse to their marriage partnership, but also the gifts that parents jointly make to their children (for example, by paying for their living and education expenses before they can support themselves),[151] or conversely, the gifts that adult children later make to support aged parents.[152] Because, as already noted, some of the ancient household's functions have been specialized by its modern offshoots, the business firm and charitable foundation, "domestic" transfers now also include benefits paid by business firms to former, retired, or disabled workers and their dependents, as well as payments made by persons to charitable foundations and the grants made by such foundations to others on behalf of those donors.

1c. *Political "distributive justice."* Just as with personal gifts and domestic distributive justice, political distributive justice determines the shares in using a political community's common wealth, according to the relative significance of the persons.[153] It is also effected by transfer payments, which include government benefits and taxes,[154] the former amounting to transfers to the beneficiaries from, and the latter

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(1.1b) $C_{QF1} = Y_{J1}D_{J1:F1}/\Sigma D_{J1:i}$ and

(2.1b) $C_{KF1} + C_{LFi} = Y_{J1}D_{J1:F1}/\Sigma D_{J1:i}$

A similar formula applies to every other family member—and, in fact, to everyone else in the world, for most of whom the distributive share in the family's resources is zero.

[151]For example,

(1.6e) and (2.6e) $T_{J1:M2} = (1—Y_{J1})\ D_{J1:M2}\ /\Sigma D_{J1:i}$,

which means that the gift or transfer from the parents, J_1, to dependent son, M_2, is determined by his relative significance, $D_{J1:M2}\ /\Sigma D_{J1:I}$, out of his parents' total distributed income, Y_{J1}.

[152](1.6f) and (2.6f) $T_{M2:J1} = (1—Y_{M2})\ D_{M2:J1}/\Sigma D_{M2:i}$,

which means that the gift or transfer from (now adult) son, M_2, to the parents, J_1, $T_{M2:J1}$, is determined by their relative significance, $D_{M2:J1}\ /\Sigma D_{M2:I}$, out of all the people among whom the son distributes his income, Y_{M2}.

We note that the son's gift at time t_n yields a quasi-rate of return on the parents' gift to the son at time t_0 equal to $(T_{M2:J1(t0)}/\ T_{M2:J1(tn)})^{1/n}$-1.

[153]For example,

(1.6g and 2.6g) $T_{Li} = (1—Y_{G1})\ D_{G1:i}/\Sigma D_{G1:j}$.

That is, a transfer payment from a government, G1, to Person *i,* T_{Li}, is determined by that person's significance relative to all persons who share in the distribution of such transfers.

[154]By including typical taxes and government transfer payments, (1.1) and (2.1) become

(1.1b) and (2.1b), $C_{Qi} = D_{ii}(1-\tau)[(1-p)wL_i + (1-\tau)(1-k)rK_i + T_i]/P_QD_{ij}$, where C_{Qi} is person *i*'s consumption of economic goods (*Q*), of which the price is *P,* $T_{G1:i}$ is net government transfer payments received by person *i, τ* is the income tax rate, *p* is the payroll tax rate and *k* is the tax rate on property income. D_{ii} is the significance of person *i* to himself or herself, and ΣD_{ij} is the significance of all persons to person *i,* including himself or herself. For realism and simplicity, we should also redefine Y_i as person *i*'s disposable (rather than gross) income:

(1.5a) and (2.5a) $y_i \equiv (1-\tau)[(1-p)wL_i + (1-\tau)(1-k)rK_i + T_i]/P$, thus preserving the essential simplicity of

(1.1) $C_{Qi} = Y_iD_{ii}/\Sigma D_{ij}$ and

(2.1) $C_{Ki} + C_{Li} = Y_iD_{ii}/\Sigma D_{ij}$.

amounting to transfers from the taxpayers to, the political "common wealth."[155] We will discuss these in more detail later in considering political economy, but we must also take them into account here, because domestic and political transfers often serve similar or competing purposes.[156]

2. *What: "utility" (consumption).* We value (or rank, or prefer) scarce economic goods, like lemonade, as the means we intend to be used by or for the persons who are the ultimate purposes or "ends" of our activity.[157] Scarcity implies both that, as the quantity of a good increases, the value of each additional unit declines,[158] and also that part or all of the goods produced are "used up"—that is, rendered unusable, by consumption.

3. How: "production." We produce such scarce goods by combining the useful services of people ("human capital") and of property ("nonhuman capital").[159] Generally speaking, the

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[155]Apart from debt service, government outlays are devoted to current consumption of goods and services, investment, and transfer payments, while government cash flow includes tax receipts (which consist, in the U.S., chiefly of the personal and corporate income taxes and the payroll tax), borrowing, and creation of fiat money:

(1.7) and (2.7) $C_G + \Delta K_G + T_L + T_K = \tau(w\Sigma L+r\Sigma K) + pw\Sigma L + kr\Sigma K + \Delta B_G + \Sigma K_{GMi}$ [government budget], where C_G is current consumption (including capital consumption) of government goods and services, T_L is government transfer payments to persons, T_K is government subsidies to property-owners, τ is the income tax rate (assumed to be equal for labor and property income), p is the payroll tax rate, k is the tax rate levied only on property income, B_G is government debt, and $\Sigma\Delta K_{GMi}$ is the issue of government fiat money. As we will see in the section on Political Economy, to maximize both fairness and economic efficiency, the sources and uses of government funds should be paired and restricted in this way: government should not be funded by fiat money creation; general consumption of government-provided goods and services should be funded by an income tax falling equally on labor and property income; transfer payments to persons funded by payroll taxes and subsidies to property owners by taxes on property income; all of which further implies that government borrowing should be confined to funding investment in government-owned assets. That is, $\Sigma\Delta K_{GMi} = 0$; $\Sigma C_{Gi} = \tau(w\Sigma L_i + r\Sigma K_i)$; $\Sigma T_{Li} = pw\Sigma L_i$; and $\Sigma T_{Ki} = kr\Sigma K_i$; implying $\Sigma\Delta B_{Gi} \leq \Sigma\Delta K_G$.

[156]As in the case of transfers between parents and children, the implicit rate of return on payroll taxes paid at time $t_{0,}$ $pwL_{(t0)}$, that fund pay-as-you-go retirement pensions to persons received at time t_n, $T_{L(t=n)}$, is $(T_{L(t=n)}/pwL_{(t=0)})^{1/n}$-1.

[157] (1.2) $U_i = f(C_{Qi})$ [utility function], where U_i ("utility") is the order of preference of Person *i* of units of his or her own consumption of the class of goods Q, C_{Qi}.

(2.2) $U_i = f(C_{Ki,}\ C_{Li})$ [utility function],

where U_i is the ranking by Person *i* ("utility") of units of $C_{Ki,}$ and C_{Li} the units consumed in use by person *i* of the services of nonhuman goods, *K,* and "human capital," *L,* respectively. In reality, C_{Ki} and C_{Li} are not two goods but two classes of goods consumed: $(K_1, K_2, \ldots, K_n)$ and $(L_1, L_2, \ldots, L_n)$.

[158]$\delta U_i/\delta C_i < 0$.

[159](1.3) $\Delta Q_i = f(K_i,L_i)$ [production function]

That is, Person *i*'s production of Q is a function of his or her "nonhuman" (K_i) and "human capital" (L_i). As we will see, for the market economy as a whole, the two factors are combined in roughly constant proportions: $\Delta\Sigma Q_i = \Sigma K^a\Sigma L^{1-a}$, where *a* is the share of the total marginal product, $\Sigma\Delta Q_i$, contributed by all "nonhuman capital," $\Sigma K_{i,}$ and 1-*a* is the share contributed by all "human capital," ΣL.

(2. 3a) $\Delta K_i = f_1(K_{i,}\ L_i)$ [production function for "nonhuman capital," especially a modern business firm];

(2.3b) $\Delta L_i = f_2(K_{i,}\ L_i)$, [household production function for "human capital," especially a household], where ΔK_i is the change in the stock (production) of nonhuman goods, and ΔL_i is the change in the stock of "human capital," owned by person *i.*

modern household specializes in producing and maintaining people,[160] while the modern business firm specializes in producing and maintaining property.

4. How: "equilibrium" (justice in exchange). The sale of each product provides the compensation of its producers: labor compensation for the workers and property compensation for the property owners.[161] The income is thus wholly divided between labor and property compensation. In a competitive market, each factor is compensated in proportion to the share it contributes to the total value of the final product.[162]

The importance of these elements will be easier to see as we apply them, starting with marriage. What unites any human community is not just the common *enjoymen*t but especially the common *sacrifice* of goods, which is always motivated by love and expressed through gifts. Applied specifically to marriage, this premise of Neoscholastic theory predicts that the strongest marriages will share three characteristics: First, the mutual gift of goods that the spouses otherwise could have used for themselves, including the literal self-giving that normally results in the parents' first gift to their children: their existence; second, the parents' cooperation in the joint sacrifices necessary for the gifts that ordinarily follow: the rearing and instruction of the child; and third, the common sacrifice of shared worship. In purely human and empirical terms, the theory says only that couples sharing all three elements—mutual personal gifts, joint gifts to others (especially their children), and the common sacrifice of shared worship—will be more likely to stay or get married than those missing one or more elements.

In considering the evidence for this theory, we at once face an apparently fatal objection: Isn't this an idealized version of marriage that has seldom existed in reality, and

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[160]Each child is unique and uniquely related to its biological parents., The "original" production function for the initial human capital endowment (L*), of a boy, M_2, whose biological father is M_1 and whose biological mother is F_1, may therefore be written:

(2.3g) $L^*_{M2} = f(L_{M1}, L_{F1}, K_i)$.

In other words, though the "nonhuman capital" that is necessary to bring a child into being does not have to belong to its biological parents, the "human capital" does. Once the child is in the world, many other persons, besides its parents, can and do make additions to this initial endowment, as described by the general "production function" for "human capital" (2.3b). Yet, it remains true that, until the child becomes an adult, the bulk of such investments are typically made by or at the direction of the child's biological parents.

[161](1.4) $P_Q\Sigma\Delta Q_i = w\Sigma L_i + r\Sigma K_i$ [equilibrium condition], where P_Q is the price level (ideally corresponding to the GNP deflator), $\Sigma\Delta Q$ a measure of total output corresponding to real GNP, ΣL_i total hours worked in the labor market, w labor compensation per unit of L_i, and r the rate of return per unit of "nonhuman capital" K. $w\Sigma L$ is therefore total labor compensation, and $r\Sigma K$ total property compensation.

(2.4) $P_K\Delta K_i+P_L\Delta L_i = rK_i+wL_i$ [equilibrium condition], where P_K and P_L are the unit prices of K and L, respectively, w is labor compensation per unit of L, r is property compensation per unit of K. P_L is a market price only in a slave-owning society, like ancient Athens or the antebellum American South.

[162]For example, $\delta\Sigma Q_i/\delta\Sigma L_i = w\Sigma L_i/P_Q\Sigma Q_i$ and $\delta\Sigma Q_i/\delta\Sigma K_i = r\Sigma K_i/P_Q\Sigma Q_i$.

insofar as it did, has all but disappeared? And if so, doesn't that make Neoscholastic theory of domestic economy irrelevant? Doesn't it rather confirm the prevailing Neoclassical theory, which starts by assuming one-person households for which marriage is not essential?

Consider the hard facts. First, barely one-third of the world's population even lives in societies in which monogamy is the only legal and/or culturally accepted form of marriage. In fact, sociological and anthropological research has indicated that some 80 to 85% of all known human societies in history have allowed polygamous marriage.[163]

Second, in 1960 about 85% of American households were family households (meaning related persons living together), with 75% headed by a married couple, and 44% comprising such couples living together with their own minor children. Yet by 2000 the share of American family households had shrunk by one-fifth from 85 to 68%, the share headed by married couples by nearly one-third from 75 to 52%, and married couples living with their minor children by nearly half, from 44 to 24%—less than one-quarter of all households. Meanwhile the share of family households with unmarried male or (more often) female heads had risen by more than half, from less than 8 to more than 12%. Most striking of all, the share of *non*-family households, consisting almost entirely of adults living alone, had more than doubled from 15 to 32% and was not only overtaking married couples with children but surpassing *all* families with children. Extrapolating those rates of change suggested that the last American households consisting of married couples with children would disappear by 2050; the last married-couple households by 2100; and the last families of *any* kind with children by 2150.

Thus, it is argued, the apparent strength and stability of American marriage and family constituted a rare and isolated cultural-historical exception that is now being inexorably supplanted. This claim is based on a misreading of the facts. First, in cultures where polygamy is legal or socially accepted, about 80% of all marriages still involve only one husband and one wife.[164] As a result, 89 per cent of adults in the world in 2000 had married by age 49—exactly the same as in the United States.[165] Nor does the evidence suggest that the case was ever

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[163]A succinct marshaling of research and data on the incidence of monogamous marriage with bibliography may be found at http://en.wikipedia.org/wiki/Incidence_of_Monogamy (last accessed 26 October 2007). The entry was apparently compiled by Andrey Korotayev, author of *World Religions and Social Evolution of the Old World Oikumene Civilizations: a Cross-Cultural Perspective,* Mellen Press, 2004.

[164]George P. Murdock, *Atlas of World Cultures,* University of Pittsburgh Press, 1981; Douglas R. White, "Rethinking polygyny: Co-wives, codes, and cultural systems," *29 Current Anthropology* 568–572; 572; White-Veit EhnoAtlas, available at http://eclectic.ss.uci.edu/~drwhite/ethnoatlas/nindex.html, last accessed 2 November 2007.

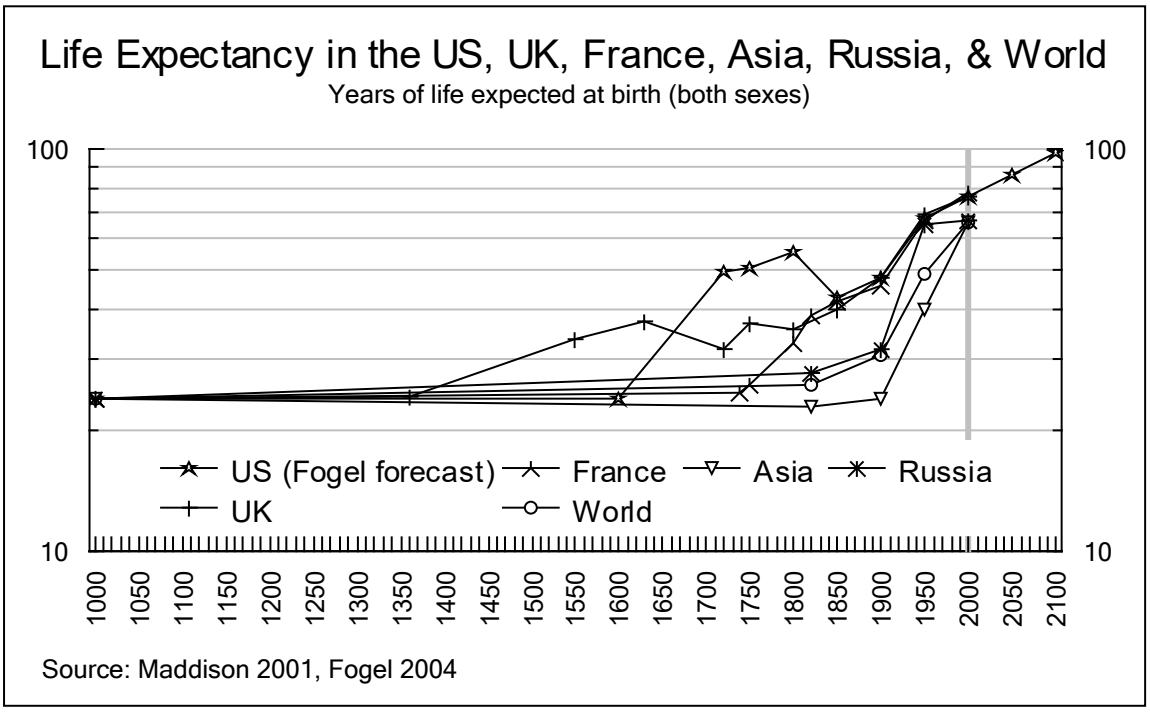
[165]United Nations, *World Fertility Report 2003,* New York, 2004, last accessed 27 October 2007 at http://www.un.org/esa/population/publications/worldfertility/World_Fertility_Report.htm.

substantially different.[166] Second, the most important factor driving the changes in American household composition is sharply increased longevity. For most of recorded history, average life expectancy at birth was about twenty-four years. In the United States, this had risen by about half, to thirty-seven years, by 1850; nearly doubled to forty-seven years by 1900; nearly tripled to sixty-eight years by 1950, and by 2000 averaged seventy-seven years (eighty for women and seventy-five for men). If (as some now project) mortality continues to decline at about the same rate as in the latter half of the twentieth century, U.S. life expectancy at birth will rise to eighty-seven years by 2050 and to ninety-eight years by 2100—more than quadruple the historical norm.[167]

[166]One reason suggested by sociologists is that to attract multiple wives, a would-be polygamous husband must achieve sufficient wealth and status, and most men fail to do so. G.K. Chesterton gave a more common-sense, less materialistic answer: most men have difficulty handling one wife, and few women stand for polygamy, in *any* culture: "Variability is one of the virtues of a woman. It avoids the crude requirement of polygamy. So long as you have one good wife you are sure to have a spiritual harem." G.K. Chesterton, "The Glory of Grey," in *Alarms and Discursions,* London, 1910.

[167]Angus Maddison, The World Economy: A Millennial Perspective, OECD, 2001, tables 1–4 & 1–5a; Robert William Fogel, The Escape from Hunger and Premature Death, 1700–2100: Europe, America, and the Third World, Cambridge University Press, 2004, Table 1.1, p. 2; Michael Haines, "Fertility and Mortality in the United States," EH.Net Encyclopedia, edited by Robert Whaples, January 22, 2005. URL http://eh.net/encyclopedia/article/haines.demography.Though in broad agreement over long periods and since 1900, these sources often differ in detail. The chart combines what seems the most sensible and consistent combination: Maddison before 1700, Fogel from 1700 until 1850, Haines since 1850, and Fogel's forecast.

Figure 2-1



This rapid increase in longevity has radically changed the typical course of human life. For most of history the twenty-four-year average lifespan meant many (possibly even a majority of) people ever born experienced at most the first two stages of life we have described: dependent childhood and active parenthood. These phases must have been of approximately equal average length, and children must have made the transition to adulthood and parenthood much younger than is now typical. Anyone fortunate enough to escape infectious disease and other mortal dangers might still live the biblical span of threescore years and ten, but only a tiny minority actually did. Thanks to increased longevity, most people can now expect to experience all four life stages: dependent childhood, active parenthood, the "empty nest," and retirement. For the average American born in 2000, these phases can be expected to be of roughly of equal length: say, twenty-one years for women, somewhat less for men.

Increased longevity has affected all five pivotal events that define the four life stages. First, because most children now survive to adulthood, parents have been having fewer children than when this was far less likely. Second, by increasing the economic rate of return on instruction of all kinds (since the associated increase in annual earnings can be realized for many more years), increased longevity has prolonged the periods of instruction and dependent childhood. Third, as instruction and dependent childhood have lengthened, people have been

marrying later and the period of active parenthood has lengthened commensurately.[168] Fourth, most parents now live long enough to see their children leave home and start families of their own: the "empty nest." This—not a larger proportion of married couples remaining childless—accounts for the larger share of married couples living without children. Finally, widows and widowers—not those choosing "alternative lifestyles"—account for most of the sharp increase in the number and share of householders living alone. (There are about twice as many widows as widowers due to women's greater longevity.)

Perhaps the simplest way to grasp these patterns is to begin with the two essential elements of marriage identified by Augustine: marital fidelity and fertility. Demographers, economists, and sociologists can look at both by "period" or "cohort." The period is typically a year and summarizes the experience of those of all ages, while a cohort comprises those born in the same period. We must combine the period and cohort approaches, because some marital or fertility characteristics are common to a particular age regardless of the year in which one is born (for example, everyone is born "never married," and people have children only after reaching sexual maturity). But whether and when one marries, divorces, or has children is also profoundly affected by major events that affect different cohorts at different ages. For example, the Second World War had a much more profound effect on the marital and fertility decisions of those born in 1925 than on those born in 1956, while the reverse was true of the legalization of abortion by several states beginning in the late 1960s and nationwide by the U.S. Supreme Court's 1973 *Roe v. Wade* decision. Few of those born in 1925 had already married or had children when America's 1941 entry into the war disrupted the plans of tens of millions of Americans, while the fertility of women in that cohort had ended before legalization of abortion. Conversely, the 1956 cohort was born fifteen years after America's entry in the war, and most had not yet married or begun having children in 1973.

If we consider marital status by sex and age, we are implicitly combining the period and cohort approaches, but with relatively limited information about the cohorts. For example, those who were seventy-five years old in 2000 were born in 1925, while those who were forty-four years old were born in 1956. But it is not immediately obvious from such a snapshot

[168]Yet thanks to improved nutrition (apparently accelerated by absence of natural fathers during female development), the age of sexual maturity has declined two to three years in the past century, causing a mismatch between social and sexual maturity with consequences for marital stability. See Peter D. Gluckman and Mark A. Hanson, "Evolution, development and timing of puberty," *17 Trends in Endocrinology & Metabolism 1:7–12,* January 2006; and "Changing times: The evolution of puberty," *254–255 Molecular and Cellular Endocrinology* 26–31, 25 July 2006; Robert J. Quinlan, "Father absence, parental care and female reproductive development," *24 Evolution and Human Behavior* 376–390*,* 2003.

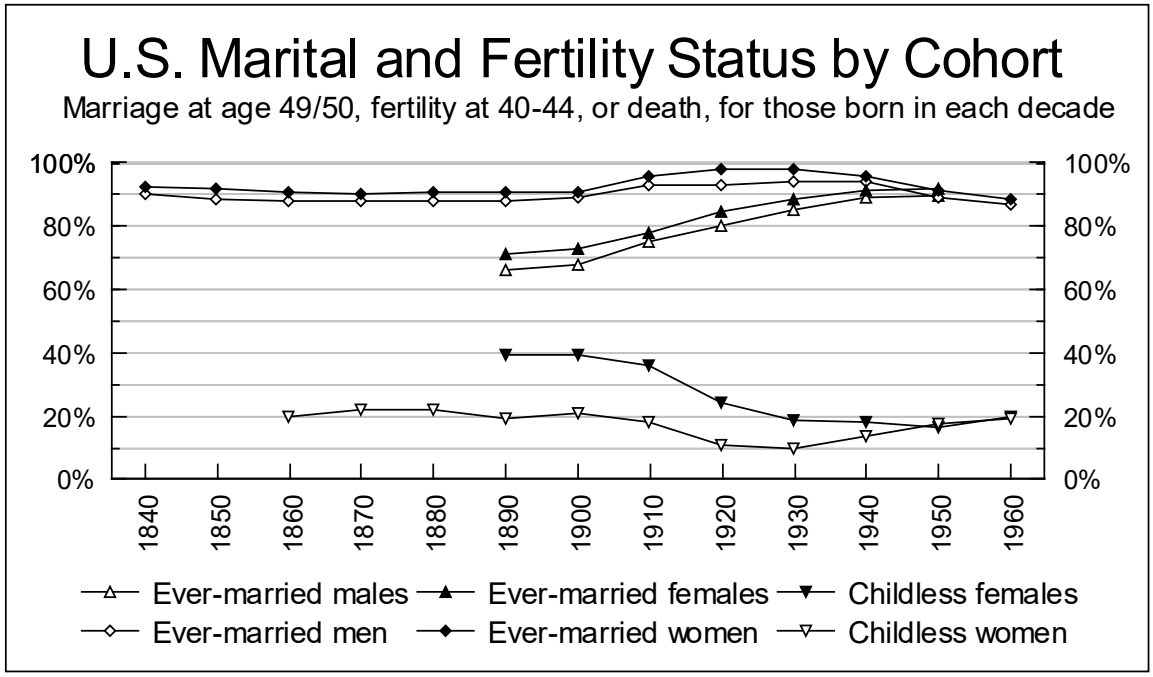
whether, say, the fact that far fewer of those seventy-five or older were currently divorced than those forty to forty-four years old was due to being over seventy-five rather than forty to forty-four years old, or to differences resulting from having been born in or before 1925 rather than from 1956 to 1960.

Even so, the "matrimonial" aspect of human nature is demonstrated by men and women's complementary marital status at every age. Almost equal shares of men and women below age forty-five were currently married in 2000 and 2022. . But for those above age forty-five, far higher shares of currently married men were mirrored by far higher shares of currently widowed women, mostly because nearly all had been married, but men hadn't lived as long as women.

Only 11% of Americans aged forty-nine or over had not married by 2000 or 2022. If we observe successive cohorts, we find that this was also almost exactly the same percentage for all American cohorts back to the 1840s—though Americans born from the 1910s to 1950s married at significantly higher rates, peaking at an apparently unprecedented 96% (98% of women and 94% of men) of those born in the 1920s and 1930s.

However, these figures take into account only those who had already survived to age fifteen. If we count everyone, the shares of "never-marrieds" rise and "ever-marrieds" fall substantially in proportion to higher mortality. For example, about 92% of American adults born in the 1890s who reached at least age fifteen had married by age fifty; but including those who died sooner, the share of ever-marrieds drops to 69%. The same respective numbers are 96%/83% for those born in the 1920s, and 96%/88% for those born in the 1930s. For those born in the 1950s, an average of about 88% of those who attained age fifteen married by age forty-nine. This was lower than for the cohorts born from the 1910s through the 1940s. But when *everyone* born in the 1950s is included, the share of ever-marrieds is actually higher than for all earlier cohorts.

Figure 2-2



Americans born from the 1910s through the 1950s were also exceptional in having children, compared with earlier and later cohorts. Contemporary changes in household composition are *not* the result of an unusually large share of American women having remained childless. Most variation in American fertility rates has resulted from the number of children parents choose to bring into the world), not whether they have had children at all. The share of childless American women dropped below 10% for those born in the 1930s, but for those born in the 1950s and 1960s it appeared to be stabilizing near the 20% average experienced by American cohorts born from the 1860s to the first decade of the twentieth century. As with marital status, the share of women having children or remaining childless is profoundly affected by mortality. After we make the same mortality adjustment in the figures for fertility as we did for marital status, the cohorts born in the 1950s appear to have had the lowest percentage of childless females.

From all available data, we can conclude with reasonable confidence not only that a larger share of Americans had married or had children at the end of the twentieth century than a century earlier, but also that the shares never married or remaining childless were the lowest in American history.[169] Thus, the evidence indicates that, far from being increasingly rare

[169]Consistent data series were constructed from Patrick Festy, "Canada, United States, Australia and New Zealand: Nuptiality Trends," 27 *Population Studies* 3:479–492 (Nov. 1973); Donald W. Hasting and J. Gregory Robinson, "A Re-Examination of Hernes' Model on the Process of Entry Into First Marriage for United States Women, Cohorts 1891–1945," 38 *American Sociological Review* 1:138–142 (Feb. 1973); Robert Schoen, William Urton,

exceptions, getting married and having children remained the rule rather than the exception for Americans at the start of the twenty-first century. Mortality aside, nine-tenths seems to be the historical norm for marriage, and four-fifths to nine-tenths for the share of Americans having children.

These facts raise two important points:

First, though overwhelmingly practiced, it is neither necessary nor even socially desirable that absolutely everyone marry and/or have children. In fact, that would make many socially useful and necessary occupations impossible. The lives of many of the greatest saints in history would have been inexplicable or at least less admirable if giving up marriage were not a major sacrifice. Many others who choose or are unable to marry and/or have children exhibit the same self-giving demanded of spouses towards each other and their natural children—actually or figuratively becoming adoptive or spiritual parents for those who otherwise would be abandoned.

Second, though at least nine-tenths of each generation of Americans have ultimately gotten married, how can Neoscholastic Theory account for their increasing difficulty in *staying* married, and for the divergent recent experience of such subgroups as African Americans?

The answer has two parts. First, because marriage can ordinarily end in only two ways—by the death or voluntary separation of one or both partners—the rising divorce rate is intrinsically related to the falling death rate. Moreover, the Neoscholastic Theory we have examined explains who stays marries and who gets divorced. Second, recent legal changes that separated the two essential elements of marriage, fidelity and fertility—above all, legalized abortion—have not only increased the divorce rate but also reduced the marriage rate most sharply among subgroups in which the abortion rate is highest, for exactly the reason given by Aristotle: "childless couples part more easily."

On the first point, while the impact of divorce as a social pathology ought not to be minimized, too little heed has been given to the observation by Paul H. Jacobson in 1959: "It is widely believed that the disruption of family life in the United States has been increasing at a rapid rate for many years. This view probably has its origin in the marked upward trend of the divorce rate, but it errs by omitting from the reckoning the counterbalancing effect on

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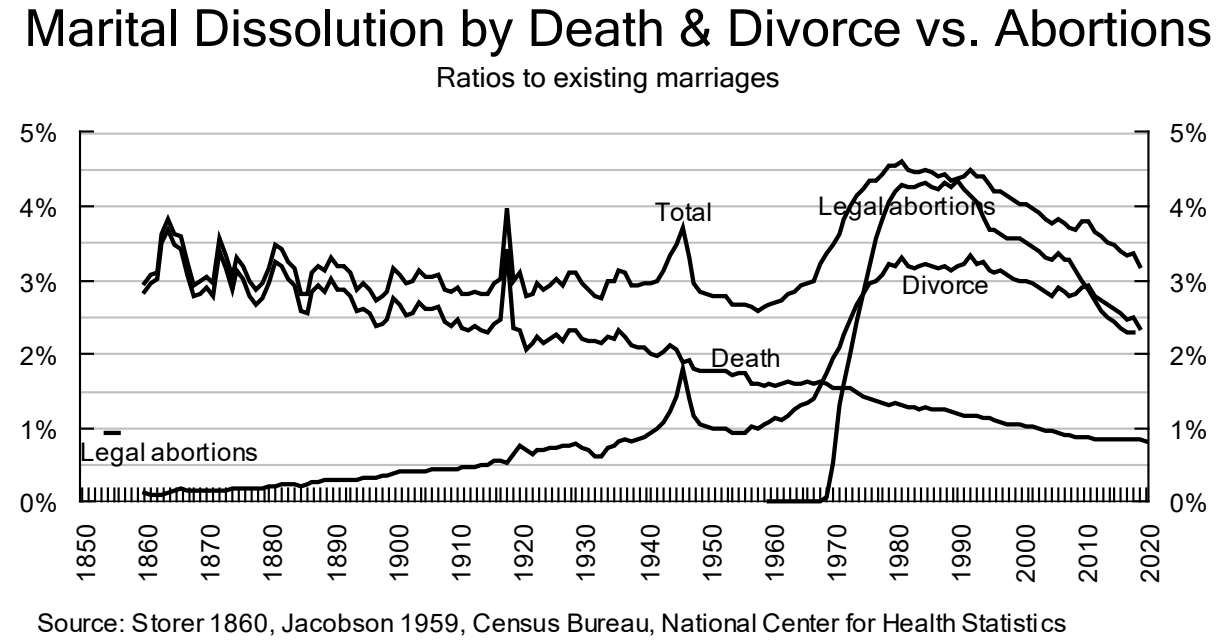
Karen Woodrow and John Baj, "Marriage and Divorce in Twentieth Century American Cohorts," 22 *Demography* 1:101–114 (Feb. 1985); Joshua Goldstein and Catherine T. Kenney, "Marriage Delayed or Marriage Foregone? Cohort Forecasts of First Marriage for U.S. Women," 66 *American Sociological Review*4:506–519 (Aug. 2001); Robert Heuser, "Fertility Tables for Birth Cohorts by Color: United States, 1917–73," DHEW Publication No. (HRA) 76–1152, National Center for Health Statistics (April 1976); and Jane Lawler Dye, "Fertility of American Women: June 2004," Census Bureau, 2005.

family life of the decline in the death rate."[170] Jacobson credited Walter Wilcox for being the first American demographer to recognize (in 1891) that "a marriage ends either 'naturally' by the death of either spouse or 'civilly' by divorce or annulment." But he noted, "no one, apparently, has considered quantitatively the total effect on the family of the long-term upward trend of divorce and the downward course of mortality. In other words, what has been the trend of the combined rate of marital dissolutions resulting from death and divorce?"[171] Jacobson undertook to answer that question with calculations that I have reproduced and updated in the chart below.

Figure 2-3



Source: Storer 1860, Jacobson 1959, Census Bureau, National Center for Health Statistics

As the chart shows, the rate of marital dissolution by divorce has had a steady uptrend since the Civil War, while the rate of dissolution by death has had a steady downtrend. Since the rate of marital dissolution by death has fallen faster than the rate of dissolution by divorce has risen, the *total* rate of marital dissolution was about the same at the start of the twenty-first century than at any time in the nineteenth century, when divorce was far less prevalent. Moreover, the total rate of marital dissolution would be at an all-time low but for the bulge in the divorce rate coinciding with the legalization of abortion.

[170]Paul H. Jacobson, *American Marriage and Divorce,* Rinehard & Co., New York, 1959; 138.
[171]Ibid, 143.

While a few Neoclassical economists have used Jacobson's calculations to extend the history of divorce statistics, they have managed to do so while either ignoring or dismissing the other half of his calculation (marital dissolution by death) and the main point he was making: that the divorce and death rates are inherently related.[172] The main reason for this oversight is that no version of Neoclassical economic theory contains the Scholastic "distribution function" that is necessary even to describe the problem in question accurately.

The connection will become clearer when we turn to the second point, which concerns recent legal changes, especially legalized abortion, that have reduced the marriage rate and increased the divorce rate by separating marital fidelity from marital fertility.[173] The legalization of abortion did far more than simply grant women an "option" that they did not have before. As George A. Akerlof and Janet L. Yellen of the Brookings Institution have written, it contributed to a retreat from marriage: "Although many observers expected liberalized abortion and contraception to lead to fewer out-of-wedlock births, in fact the opposite happened because of the erosion of the custom of 'shotgun marriages.'"[174] By making the birth of a child the choice of the mother, Akerlof and Yellen pointed out, the legalization of abortion had the unanticipated result of making acceptance of the responsibilities of marriage and child support also a choice of the father, not the unavoidable consequence of a previous choice. While the number and rate of abortions soared and the live birth rate declined immediately after *Roe v. Wade*, over time the number and proportion of both out-of-wedlock pregnancies and out-of-wedlock births also rose sharply.

The loosening of divorce laws and restraints on contraception at about the same time abortion was legalized seems to make sorting cause from effect difficult. But the driving role

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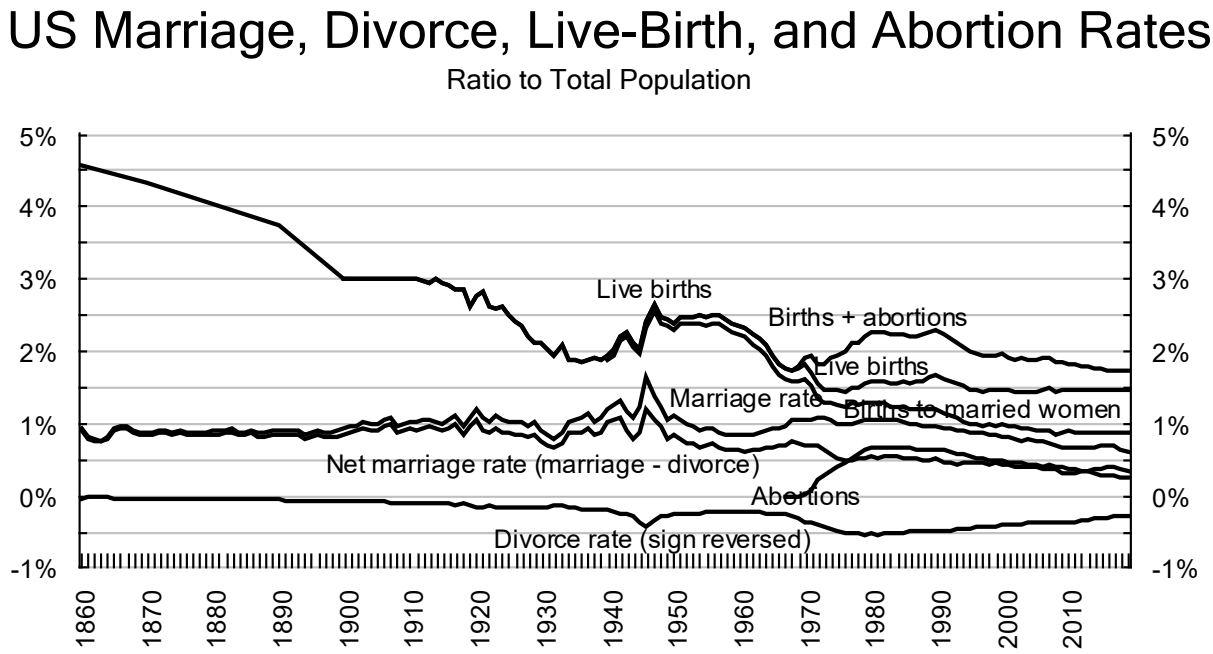
[172]See for example Betsey Stevenson and Justin Wolfers, "Marriage and Divorce: Changes and Their Driving Forces," published as NBER Working Paper No. 12944 and at http://knowledge.wharton.upenn.edu/papers/1335.pdf, accessed 28 November 2007. Despite a more thorough effort, Samuel H. Preston and John McDonald, in "The Incidence of Divorce Within Cohorts of Marriages Contracted Since the Civil War," 16 *Demography* 1: 1–25; 15, 16 (Feb. 1979), also relied on Jacobson's figures while dismissing his argument about mortality, and abandoned an effort to test for factors affecting the divorce rate due to "multicollinearity and measurement problems." These, we saw in the case of Steven Levitt's theory on fertility and crime in Chapter 2.3, are symptoms of "misspecification" errors resulting from Neoclassical Economic Theory's omission of the "distribution function." Divorce is obviously another field inviting re-examination and new research based on the more comprehensive Neoscholastic model.

[173] This section draws on John D. Mueller, "The Socioeconomic Costs of Roe v. Wade," *13 Family Policy 2:* 1–20 (March-April 2000); available at http://www.eppc.org/publications/pubID.2288/pub_detail.asp.

[174]George A. Akerlof and Janet L. Yellen, "An Analysis of Out-of-Wedlock Births in the United States," Policy Brief #5, The Brookings Institution, August 1996. The original article appeared as George A. Akerlof, Janet L. Yellen and Michael L. Katz, "An Analysis of Out-of Wedlock Childbearing in the United States," 111 *Quarterly Journal of Economics* 2:277–314 (May 1996).

of legal abortion is clear when the rise in the abortion rate is compared with the net marriage rate (the marriage rate minus the divorce rate), as shown in the following chart.

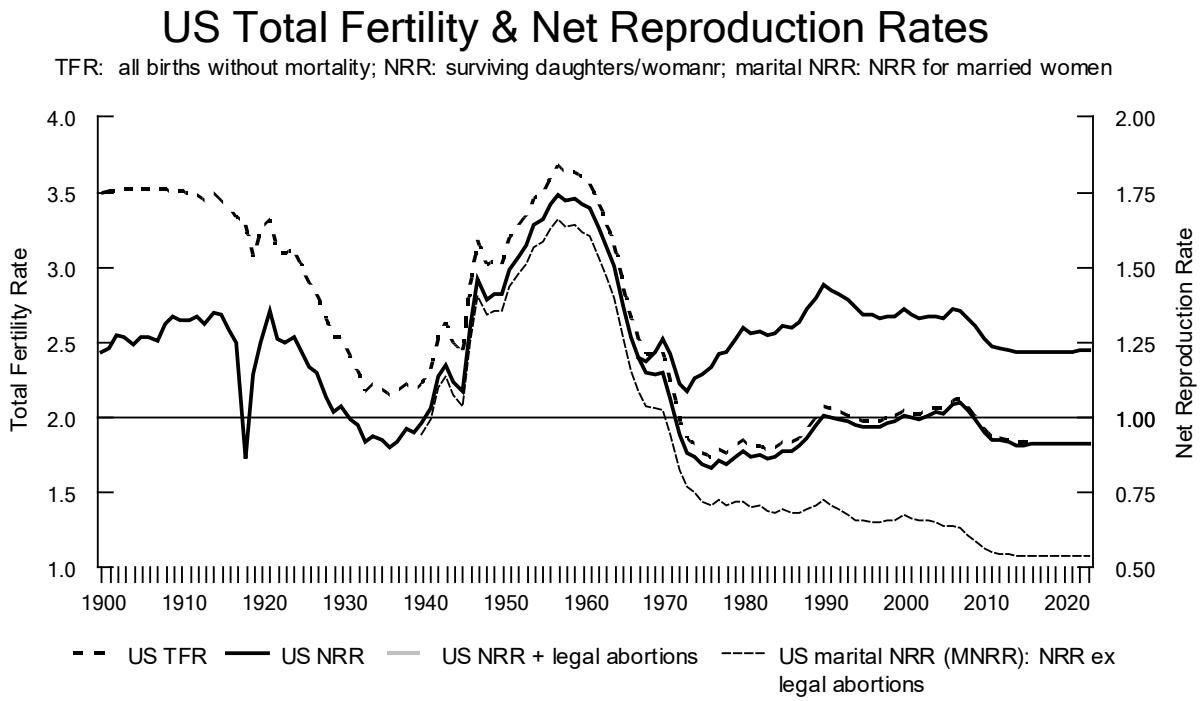
Figure 2-4



As Figure 2-4 shows, there was a boom in the rate of children conceived from the late 1960s through the 1990s, one that nearly matched the Baby Boom from the mid-1940s to mid-1960s in its effect on American population growth. But as the chart also shows, as soon as 24 to 30% of the Baby Boomers' own children were aborted each year, the marriage rate stalled and declined instead of rising with the population of young adults, and the divorce rate mirrored the rate of legal abortions. As a result, the net marriage rate fell by 35 percent between 1968 and 1976, exactly the period of the most rapid increase of the abortion rate. Since 1976, the net marriage rate has fallen further below the rate in 1968, before abortion was legalized.[175]

Figure 2-5

[175]U.S. National Center for Health Statistics, *Vital Statistics of the United States.*



The rate of out-of-wedlock births soared at the same time as the abortion rate rose and the net marriage rate fell. Excluding miscarriages (for which data are not available before 1976, but which occur in about 13% of all pregnancies), 91% of conceptions in 1967 resulted in live births to married women, the remaining 9% being live births to unmarried women. By 1980, the former percentage had dropped to less than 60%, and by 1995 to 52%. Before 1980 most of the decline of live births was the result of legal abortions. About 84% of abortions are performed upon women who are not married.[176] But over time, the number of live births to unmarried women has also risen, from 339,000 in 1967 to nearly 2 million in 2018; the proportion of pregnancies resulting in live births to unmarried mothers rose from 9% in 1967 to more than 40% by 2010. Thus, the proportion of pregnancies resulting in either live births or legal abortions to unmarried women rose from 9% in 1967 to more than 50% by 2018, where it has remained since

Research has confirmed Akerlof's and Yellen's surmise that legal abortion affected these trends by bringing about the decline of the "shotgun marriage." A 1999 survey of women who had been fifteen to twenty-nine years old at the birth of their first child showed that in 1960–64, 10.3% of first births were premarital; the rest were born to married women, but 15.5%

[176]National Center for Health Statistics, "United States Health, 1999, With Health and Aging Chartbook," Hyattsville, Maryland, 1999.

were premaritally conceived, leaving 74.3% to be conceived after marriage. By 1975–79, 25.7% of first births were premarital, 12% premaritally conceived, and 62.2% postmaritally conceived. In 1990–94, 40.5% of first births were premarital, while 12.3% were conceived before marriage and 47.2% after marriage. All of this indicates that among women who became pregnant before marriage, the share marrying before birth dropped from 60% in 1960–64 to 31.8% in 1975–79 to 23.3% in 1990–94 and only 5% by the 2010s..[177] The trend was sharpest in those parts of the population for whom the abortion rate was highest, particularly among African Americans, though the same trend can now be seen among recent immigrants of Hispanic origin.

Despite all these changes, the Neoscholastic theory of marriage with which we began this section reliably predicted who would divorce and who would remain married. According to that theory, couples sharing three characteristics—mutual personal gifts, joint gifts to others (especially their children), and the common sacrifice of shared worship—will be overwhelmingly likely to stay married, while those missing one or more element will be commensurately more likely to divorce or not marry in the first place.

One of the theory's advantages is ironing out existing contradictions in basic assumptions between Neoclassical Economic Theory and other disciplines. One study analyzed the characteristics of American couples that stay married rather than divorce or separate.[178] The study tested three dimensions of religious behavior—affiliation, orthodoxy of belief, and rate of attendance at worship—along with important factors that can coincide with or move independent of those religious categories. The results show that while divorce rates differ by religious affiliation, nearly all denominational differences become insignificant in predicting who will divorce or stay married once we look at behavioral factors—factors that are not specific to one religion but correspond to what most everyone regards as decent marital behavior. These behavioral factors map almost exactly onto the three criteria mentioned above.

The most fundamental element in today's Neoclassical Economics is the theory of utility, which explains how we value economic goods as means according to our relative preferences for them. But the Neoclassical outline omits the Scholastic theory of distribution,

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Amara Bachu, *Trends in Premarital Childbearing: 1930 to 1994,* Current Population Report P23–197, U.S. Census Bureau, Washington, D.C., 1999. Wendy D. Manning and Jessica A. Cohen, Teenage Cohabitation, Marriage, and Childbearing. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4426270/.

[178]Vaughn R.A. Call and Tim B. Heaton, 36 *Journal for the Scientific Study of Religion* 3:383–392 (Sep. 1997). Converting the original results to the simpler form shown in the table occasionally required some minor recoding of respondents' answers, e.g. when the original coding was "0" or "1" (since the logarithm of zero is undefined).

which describes our most fundamental scale of preferences, which is for persons as ends, not means.

This is why the Neoscholastic Theory can explain, while Neoclassical Theory cannot, exactly what connects skipping church on Sunday (or synagogue on Saturday), the choice of a married couple not to have children, and a significantly greater likelihood of divorce. Neoclassical Economics answers that we simply prefer lying in bed to worship and divorce to marriage, just as I prefer butter pecan to strawberry ice cream. But this is because Neoclassical economics assumes that we have always already made our primary choice—the choice of persons—and always chosen "number one": ourselves. This is a false assumption. The behaviors that affect divorce rates are inherently connected because they all express our preferences for persons, including ourselves, our spouse, children, and God. In general, people who get divorced are differentiated from those who do not in part by the way they prefer themselves over others.

The main serious threats to American family stability are relatively recent and mostly traceable to the legalization of abortion. The data clearly suggest that returning abortion law to its status quo ante would raise the net marriage rate, reduce the rate of illegitimacy, and increase the birth rate, just as quickly as those indicators moved in the other direction once abortion was legalized. Moreover, abortion is single-handedly responsible for the prospective imbalances in Social Security, and its restriction would both defuse the immigration issue and permit the United States to avoid the demographic implosion that has started to engulf the developed nations of Europe and Asia. But to understand such problems we must answer the question: "Why do parents give children existence, rearing, and instruction?"

Man as money-using animal: How Neoscholastic Economics explains our life earnings and spending

Money properly belongs to both domestic and political economy: to domestic economy because the business firm is one of three modern offshoots of the ancient household which arose directly from marriage (the third modern offshoot being the charitable or nonprofit foundation), and because we would need money with or without a government; and to political economy, because regulating the use of money is one of government's primary purposes.

The reproduction of human beings is at one and the same time what Aristotle called the first gift from parents to their children and the most obvious form of investment in "tangible human capital." Reduced mortality is typically quickly followed by lower fertility rates. Now

we must extend the analysis to show that the same increase in longevity also greatly stimulates investment in the "intangible human capital" of those born: their rearing and instruction—especially formal education and training, but also health, safety, and mobility.[179] We'll see that the peculiar pattern of modern domestic economic life can be explained fully only by combining all four elements of Scholastic Economics, above all the one missing from modern Neoclassical Economics: the theory of distribution, which describes personal gifts and familial distributive justice. In doing so we'll also find that our incomes and spending are systematically determined by just four factors—age, sex, education, and marital status—and that while most transactions outside the family are exchanges, most transactions *within* the family are gifts. This truth is beyond the ken of Neoclassical Economic Theory.[180]

Earnings by age and sex

We can see how these elements are integrated over a lifetime for one person with a stylized illustration that, though simple, is surprisingly versatile and empirically verifiable. It treats the typical life as divided into four phases: childhood, parenthood, the "empty nest," and old age. These four phases are the time periods between five pivotal life events, three of which are absolutely, and the other two nearly, universal: one's own birth; the end of instruction; the birth of a first child; the last child's departure from the household; and death. The "matrimonial" nature of the human person is indicated by the inherently intergenerational pattern**.**

Figure 2-6

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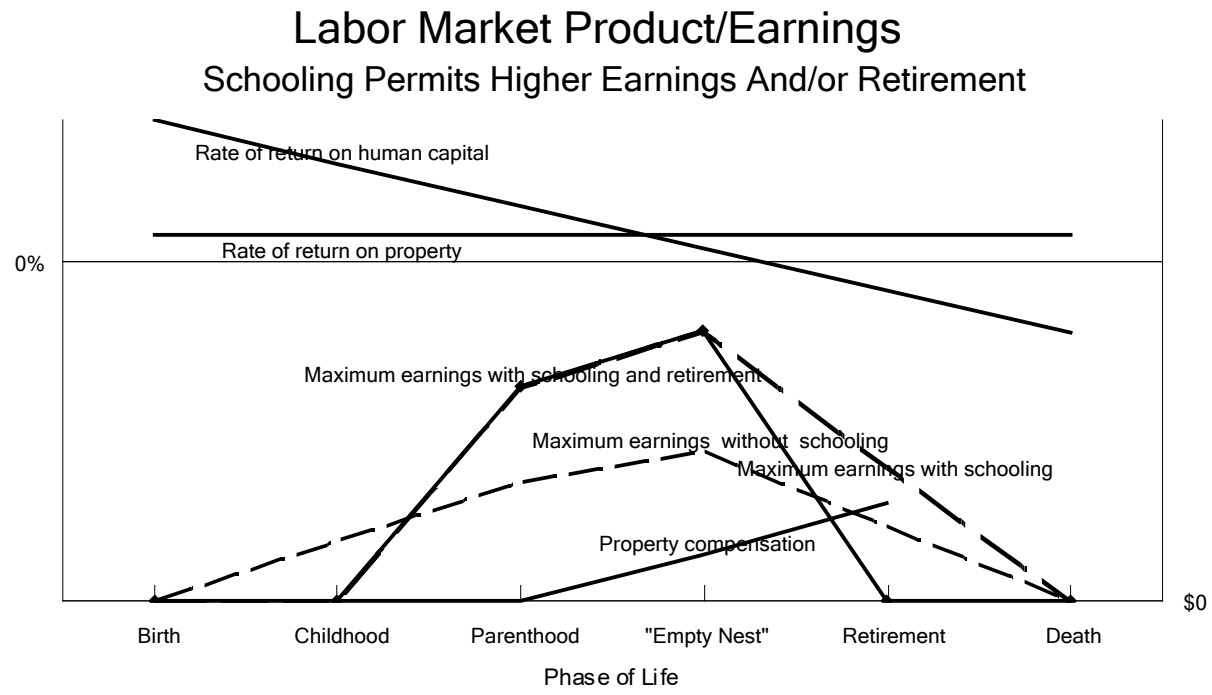

I presented this stylized description of lifetime income and consumption in *Redeeming Economics,* of which the first edition was published in 2010. Since then, other researchers, Ronald Lee and Andrew Mason, have shown that the stylized pattern presuming a flat share of consumption through life is a good empirical description of developing countries, but that industrialized countries, especially thanks to social and health insurance systems, have patterns of consumption that rise with age after retirement.[181]

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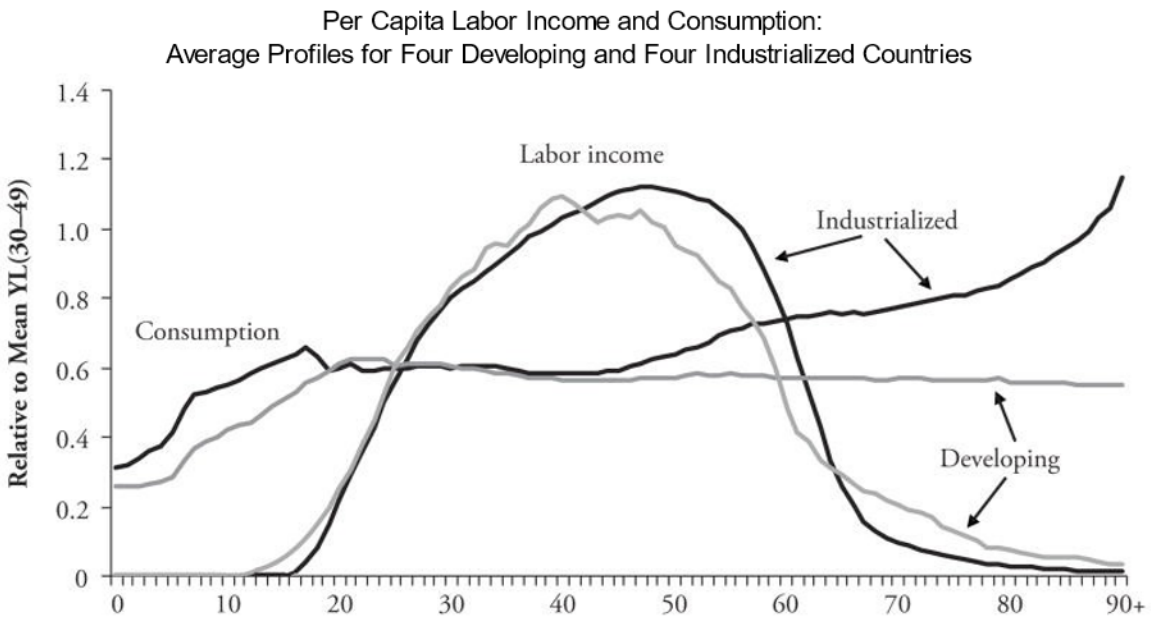
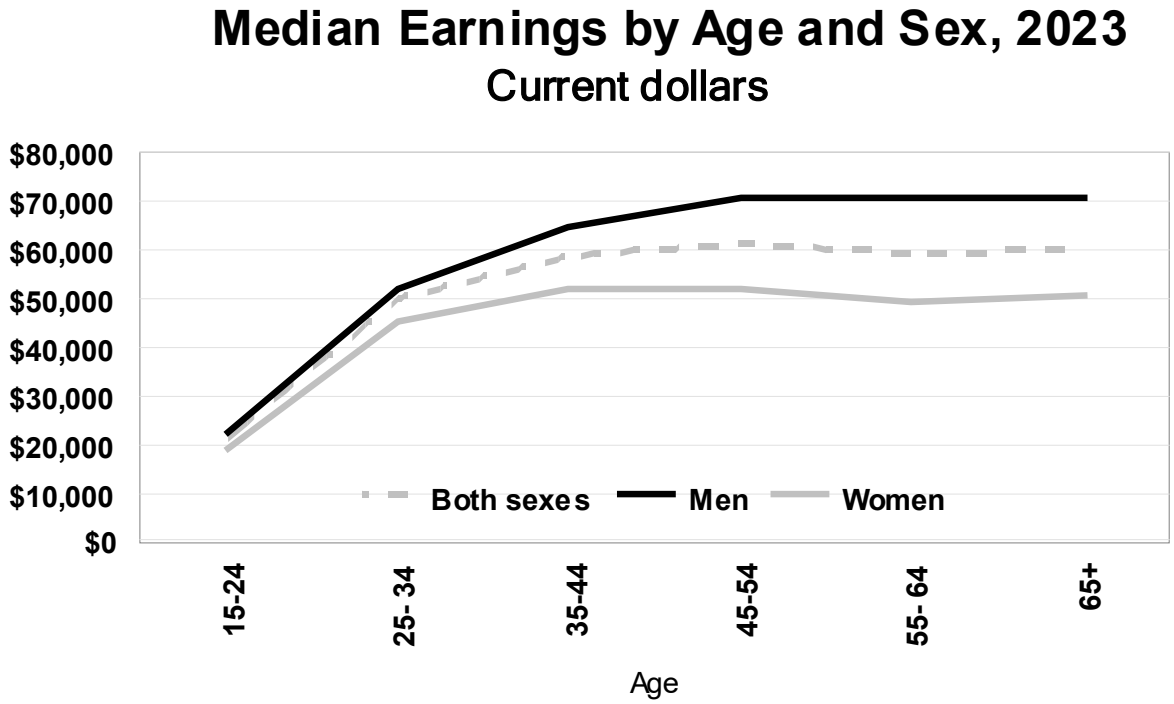
Figure 2-7



Source: Ronald Lee & Andrew Mason, Natl. Transfer Accts (http://www.ntaccounts.org). 2

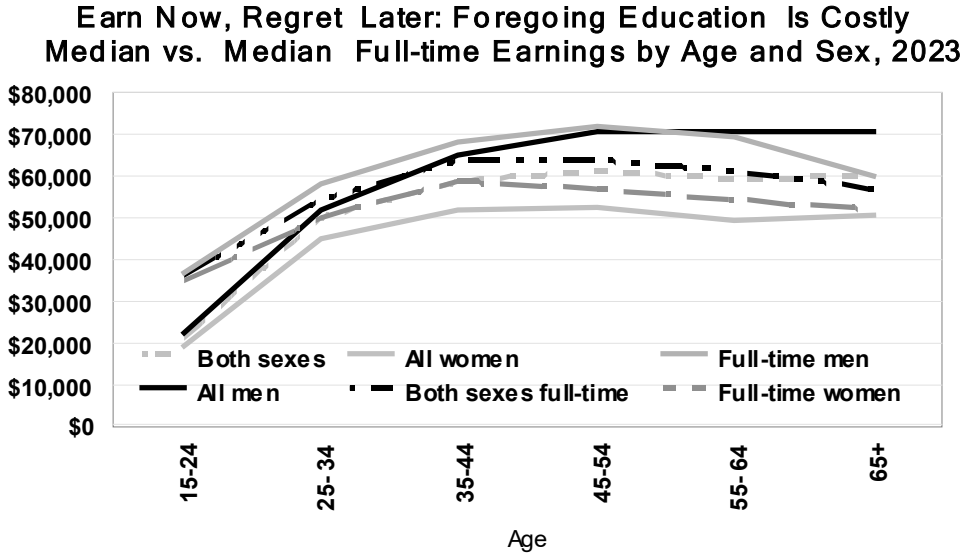
Differences in earnings may be due either to differences in rates of pay or in the number of hours worked. At each age, the cost of further education includes not only paying tuition expenses but also foregoing current earnings in the labor market instead of going to school. On the other hand, the additional education increases the student's future earning ability. The gain in earning ability is best seen by considering the annual earnings of full-time, year-round workers (see graph). In interpreting the figures, it must be recognized that, due to schooling and retirement, only a small fraction of persons under twenty-five or over sixty-five now work full-time and year-round. This makes the averages for those age groups less reliable.

Figure 2-8



The Bureau of Labor Statistics spends a great deal of effort informing us of what we *might* earn if we always worked full-time year-round. The implicit assumption is that working full-time year-round is normal; but in fact, it is highly abnormal, for a number of good reasons. First, seriously attempting always to do so would make formal education practically impossible, thereby both keeping us more ignorant than strictly necessary and substantially reducing our lifetime earnings. And second, formal education is what gives us a practical choice whether or not to retire. Both facts can be seen in Figure 2-8, which compares actual median earnings at each age with the (largely fictional) median earnings at each age of those who always worked full-time year-round.

Figure 2-9



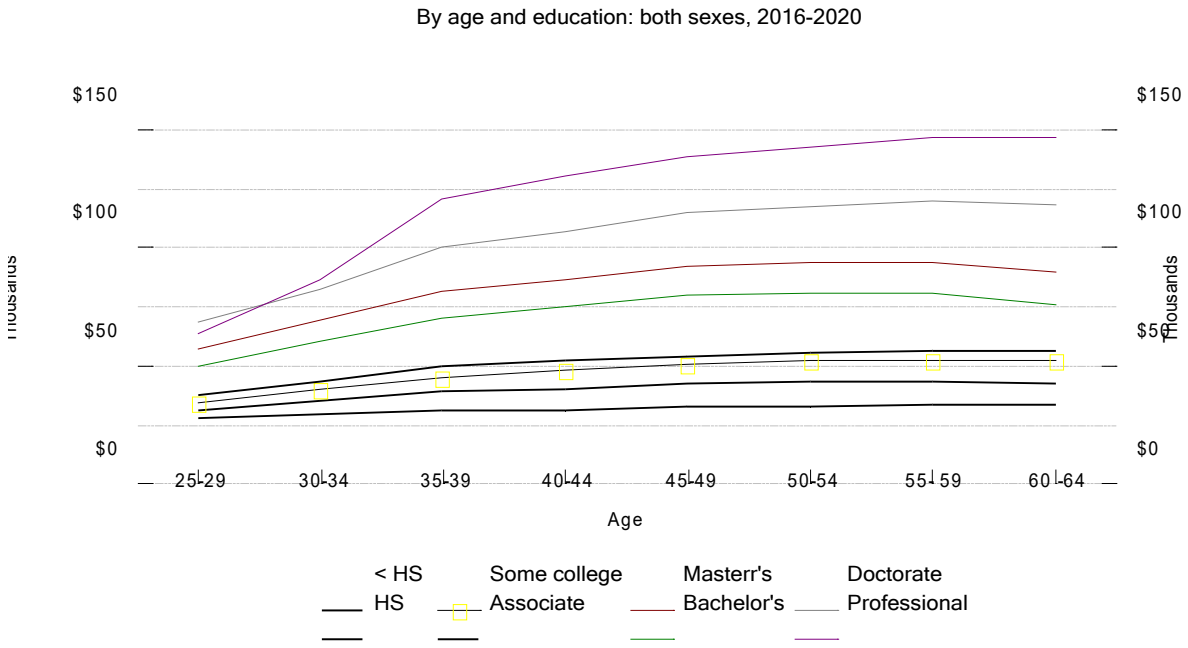
There are major differences for both men and women at both the beginning and end of one's working career. It is true that one's monetary income would be substantially higher if we worked full-time instead of gaining an elementary, high-school or college education. But foregoing such an education exacts costs, not only in the form of lower earnings throughout one's working career, but also a substantial decline in earnings late in life, when even working full-time year round cannot prevent a substantial decline in earnings compared with those who invested time in education, and therefore are both able to receive higher earnings while working and to choose retirement, financed either by contributions during one's working career to public pensions, or the return on earlier private saving in the form of equities or bonds (or both).

Earnings by education

Perhaps the most striking implication of the data is the difference in earnings between four years of high school and four years of college. The full-time, year-round earnings of workers with a high school diploma (or its equivalent) are about half again as high as the average earnings of those who did not graduate from high school. In other words, earning ability increases by approximately the same ratio as the years of education: twelve against eight, or three to two. But when we compare the earning ability of workers with a high-school diploma against that of workers with a bachelor's degree, the additional four years of schooling—a one-third increase—correspond to a near-doubling of average annual earnings. One comprehensive survey calculated the gross rate of return in 1999–2000 for both men and

women in the United States on the time and money invested in a college education to be about 19%—that is, about 16% beyond inflation.[182] This suggests that there is underinvestment not only in human capital in general but in college education in particular—a circumstance that has been true, and noted as such, for nearly half a century.[183]

Figure 2-10



All this provides a sound economic reason to help explain why most parents pay for their children's rearing and education first—instead of, say, leaving their children uneducated and investing the tuition money on their behalf in the stock market. It's also the main economic reason why most parents (if they cannot afford both) pay for raising and educating their children before saving substantially for their own retirement. In other words, families invest in "things" mostly after they've run out of attractive investments in people. Most American families run out of resources before the return on additional investment in their dependent children falls below the market return on nonhuman capital (although this minority exception is larger than it used to be).

But now let's consider why the rate of return on investing in people declines much more rapidly than the rate of return on investing in property. At every age, there is a limit to how

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much economically valuable education any one person can absorb. Most of us can't concentrate on learning more than one thing at a time, so doubling the ratio of teachers to pupils, for example, wouldn't double the amount of learning. At the same time, with each extra year (or dollar) invested in acquiring valuable skills, the "cost" of giving up current labor market earnings increases, while the additional future earnings that one could expect from further education get smaller. The same study I cited earlier calculated that the rate of return on investment in college education for men falls to about 9% at age forty, 7% at age forty-five, and less than 4% at age fifty (all before adjustment for inflation). After about age fifty, human capital depreciates in value. Most of us lose physical and mental energy and economic productivity, which lowers both the rate of remuneration and the likelihood of continued employment. But even if our annual earning ability did not decline with age, as it does for most people, our lifetimes are finite, because we all die. So as we get older, the total value of any additional earnings that we could expect from further investment in education diminishes with our remaining life expectancy. Nonhuman capital also depreciates, but unlike human capital an allowance for this property depreciation is already accounted for in calculating business profits and the market rate of return on investment property.

When the rate of return on investing further in human capital falls below the market rate of return that can be realized by investing in property, families start to invest in the latter. By the same token, families with a large amount of wealth after paying for their children's upbringing have little practical choice but to invest most of it in property rather than in their family's own "human capital."

We have seen that human and nonhuman wealth are analytically similar in several ways. Both are usually "reproducible"; that is, new examples can be produced by a combination of existing human and/or nonhuman resources. Both may exist in tangible or intangible form.[184] Both must be properly maintained in order to remain productive. The economic value of both kinds of investment can also depreciate: Machines wear out in use, or their services lose value because of market changes; the same is true of people. Finally, both human and nonhuman capitals earn a return on investment, in the form of labor or property compensation, respectively.

The two kinds of wealth differ fundamentally, however, in two extremely important respects: Human wealth is embodied in mortal human persons, and since the abolition of

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American slavery in 1863 there is no longer—fortunately—a market for buying and selling human beings, as there are markets for buying and selling all kinds of property. These differences have a consequence that is not immediately obvious but is highly significant for the economics of the family household: the rate of return on human capital ordinarily varies inversely and substantially with the age of the person in whom it is embodied, while, as long as machines are substantially interchangeable, the rate of return on investment in property ordinarily does not. For example, for most families with dependent children, the average rate of return on investment in "human capital," such as child-rearing and education, is significantly higher than the market rate of return on investment in property. But the economic returns on investment in humans diminish much more rapidly than, and later in life fall below, the rate of return on investment in nonhuman wealth.

What is the reason for this difference? In an organized, competitive market, a relative scarcity of one kind of productive property will tend to raise the share of the total value of the production resulting from one more unit of such property, and therefore its share of the additional income generated by the sale of the product. This raises its rate of return on such investment property relative to that on other kinds. Similarly, a relative abundance of one kind of property will tend to lower its relative rate of return. Investors seeking the highest return on investment will therefore tend to shift from investing in the kinds of property which are relatively abundant into those which are relatively scarce. This regulates the amount of investment among the different kinds of property, so as to equalize their rates of return (taking into account any expected differences in risk of loss, maturity of the investment, and so on). Thus, when investing in, say, the stock market, the amount invested by any one person or family does not appreciably lower the rate of return—at least, not until one is investing many billions of dollars, and even then, not by much. If investors bid up the prices of stocks, while current and expected stock dividends remain the same, the rate of return on stocks falls relative to other investments, like bonds or real estate.

We are used to thinking in such terms about investments in property, but not about investments in human beings. Yet in economic terms, the basic principle is the same: what will I receive in the future, in return for the cost of investment today? The difference in return, compared with the original cost, is the rate of return. For example, formal education or training has a cost, both in terms of direct expenses for books and tuition (which pay for teachers' salaries and for the use of school facilities), but also in terms of the income that a student could be earning by working in the labor market instead of going to school. The return on investment

in education is the additional earnings that are made possible by the additional education. This rate of return is affected not only by the absolute cost of the investment and by the absolute increase in annual earnings it makes possible, but also by how many years the student could expect to receive those higher earnings.

However, there is no organized market for buying and selling "human capital"—at least, not since slavery was abolished in the nineteenth century (though as I'll mention later, there have been serious though misguided efforts to restart one). To protect human dignity, the government forbids the ownership of other human beings, as well as labor contracts that amount to "indentured servitude." Everyone may "own" the "property" of his or her own person, as it were, but not anyone else's. That's a good thing, as well as a big change from most of human history. But it also means that if someone cannot afford the cost of additional education, even if that education would increase his or her lifetime earning ability by a much larger amount, the workings of the free market alone cannot be relied upon to remedy the situation. Public schools, tuition subsidies, scholarships, and subsidized education loans all help to relieve the problem, at least in primary and secondary education. But for most families with dependent children, the real rate of return on investing time and money in child-rearing and education (in terms of higher lifetime labor compensation for their children) is still much higher than the average return that can be received from investing in the stock market. For example, the long-run, inflation-adjusted average rate of return on the stock market is about 5–7% (or about 8–10% before subtracting the tax on business profits). Estimates of the average rate of return on the costs of child-rearing and education are consistently about five percentage points higher than this.

Full-time vs. part-time earnings

We can get an idea of the general extent of this coordination of the economic roles of men and women by considering their average labor market employment and participation and how it has changed over time. (See next graph.) Someone who is unemployed is still in the labor market rather than looking for one. Overall labor-market participation by adults rose from about 59% in 1950 to almost 67% in both 2000 and 2022 . Put another way, the share of adults in the labor market increased from about three-fifths to about two-thirds. But the labor-market participation of women rose from about 34% in 1950 to about 60% in both 2000 and 2022, while the participation of men fell from about 86% in 1950 to about 74% in both 2000 and 2022.

There is a difficulty in describing this relationship as "specialization," as if it were merely another example of the "division of labor" described by Adam Smith, akin to different workers in a pin factory specializing in different processes in the manufacture of pins in order to increase total daily production. There is an important difference between the kind of cooperation involved in producing property and in producing people. If these were merely different examples of the same principle of specialization, it would be difficult to explain the continued difference in earnings of men and women without concluding that equally qualified women are simply not as good as men at earning labor-market income. But the weight of evidence is on the other side: if anything, women are more diligent than men at earning income. And the coordination of roles in the human household also involves more than merely biological specialization. It is obvious that there is biological specialization between men and women—as between the sexes of almost all higher animals. Women bear children and men don't.

But a purely human factor works in the opposite direction: The rising importance of education, which we have already discussed, makes brainpower (in which women have no general disadvantage) relatively more valuable in economic terms than brawn (in which most men have an advantage over most women). And as Chesterton shrewdly observed, since a human is a *rational* animal—that is, one whose nature it is to be mentally omnivorous: to seek to grasp what is universal and not only (like other animals) what is particular in things—the economic aspect of the union of between a man and a woman is best described not as the cooperation of two "specialists," but rather as the joining "of special talent and of general sanity."[185] This, he said, is a basic requirement of raising children, "who require to be taught not so much anything as everything. Babies need not to be taught a trade, but to be introduced to a world. . . . I will pity Mrs. Jones for the hugeness of her task; I will never pity her for its smallness."[186]

Coordination of parents' economic roles increases the real value of household economic resources in two ways: first, by increasing the labor compensation earned by its members, and second, by reducing the costs of producing goods within the household and of products which must be purchased in the market.

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How do husbands and wives jointly decide how much of their time to devote to working in the labor market, and how much to working in the household, in order to maximize their resources? To answer that question, we have to say more about household production. We've already noted that until relatively recently, most households produced both people and property, and that most businesses were in fact conducted within family households. We also said that the modern business firm, historically speaking, is an offshoot of the household that specializes in producing property, while the household specializes in "producing" and sustaining people. But this doesn't mean that households no longer produce any property, or that all property is now produced by businesses. Specialization is always a relative term. Even though the final "product" of the modern household is complete human persons, to perform this function, the household must still provide itself with a number of "intermediate" products, like family meals.

When producing such "intermediate" goods, the mother undertakes a process of production that combines human and nonhuman resources, just like a business firm. Economists use the term "production function" to describe what the mother simply calls a "recipe." Let's begin with the example of a fairly labor-intensive dinner (though nowadays such a dinner is likely to be reserved for a special occasion) because the example makes it easier to grasp what's going on. Let's say that Sunday dinner will consist of roast beef cooked with carrots and onions, served with mashed potatoes and gravy. A hundred years ago, a typical family might have grown its own carrots, onions, and potatoes, and in many cases even its own cattle. Thus the "production function" or "recipe" would actually have included the whole process of agriculture and animal husbandry. Nowadays, what the mother would consider "raw ingredients" are actually purchased in a relatively highly processed form from more highly specialized producers. Even so, the "raw" beef still has to be seasoned, cooked, sliced, and served. The "raw" carrots, onions, and potatoes have to be pared, sliced, or mashed before cooking.

In doing all this, just as when she goes to the supermarket, the mother weighs marginal significances; but now she is considering the marginal significances of the elements required to produce a good, not just (as with milk) the marginal significance of the finished good itself. Preparing the mashed potatoes requires the mother's labor and the use of certain tools. Both the person and the tools contribute something to the final result. In fact, each contributes a service which, though qualitatively different, could (within certain limits) be quantitatively substituted for the other. If the mother is preparing the potatoes, she normally might use a peeler

to remove the skin, a knife to slice the potato, a pot and water to boil it, and a masher to mash it. If she is missing any of the tools, she might still accomplish the same task by working longer at it (and then she may not be as satisfied with the result). On the other hand, if she had several of each kind of tool, the process might not go much (if at all) faster than if she had only one of each kind, if she can use only one tool at a time—unless perhaps she can enlist the help of someone else, thus increasing the quantity of labor services along with the services of the tools.

In other words, just as the mother usually finds that the marginal significance of a good declines as the quantity consumed increases, she also usually finds "diminishing returns" in production when she increases the quantity of one productive ingredient while holding the others constant. In other words, she can probably produce more meals using two pots than using one, with the same amount of effort in both cases—but not twice as many; and she can probably produce more using the same tools and twice the effort—but not twice as much. To produce twice as much generally requires not only twice the effort, but also twice the tools. In deciding how much to pay for acquiring each tool, or how much of her effort to expend in one use rather than another, the mother implicitly considers the price in relation to the value of the services she expected it to contribute to the value of the "intermediate" good of meals. And she finds that the family's resources are greatest when the price paid for each productive ingredient corresponds to the value it has contributed to the final product.

The mother of 100 years ago spent much more time than does her modern counterpart preparing meals, cleaning house, and laundering clothes, and much less time working in the labor market or transporting family members from place to place. As increased longevity has increased the economic value of education, and increased education raised men's and women's labor-market earning ability, rising earnings have also increased the typical family's ability to pay for pre-cooked foods, washing and drying machines, automobiles, and microwave ovens—all of which economize on the use of the mother's valuable time. For example, families began buying condensed soups in cans, which needed only the addition of liquid and heating on a gas or electric stove, rather than making their own soups from raw ingredients cooked using a wood- or coal-burning stove. More recently, they began buying soups that were already fully mixed, and heating them in seconds using microwave ovens rather than gas or electric stoves. Of course, even today, the mother normally does not take the groceries home from the supermarket and dump them on the table. But she devotes less time to meal preparation.

The same principles that we found to govern our choices about purchasing and consuming goods also apply when we produce and sell them. In the section on personal

economy, we saw that our preferences for purchasing and consuming any scarce good are subject to diminishing returns. That is, the greater quantity of any good that we have already used, the less we value one additional unit. This "marginal significance" or "marginal utility" ultimately governs exchange value.

We saw that when there is one good, its total significance or utility in all uses is greatest when its marginal significance or utility is the same in every different use. And we saw that the marginal significance of a mother's spending on that good is greatest when this marginal utility is equal to the market price. If the price is "given," as for example in a supermarket, the mother adjusts the marginal significance of the good by altering the quantity of goods in her family's possession. With declining marginal significance, adding to the quantity reduces the marginal significance, while reducing the quantity increases the marginal significance.

A habitual consumer of milk for whom milk has a low value can normally increase its "marginal significance" (or value to himself) relative to other goods by buying and consuming less of it in a given period, and a consumer for whom milk has a high value can reduce its marginal significance by buying and consuming more of it. But in both cases, the same exchange is having the opposite effect on the producer/seller as on the buyer/consumer. The purchase of milk for money, while decreasing the marginal significance of milk to the buyer (by increasing his quantity), is at the same time increasing the marginal significance of milk to the seller (by reducing his quantity).

But what about someone who both produces and consumes a commodity? For example, let's suppose that our family lives on a dairy farm and also likes to drink milk. As with most other families, the first quart or two of milk per day is more valuable to the family than its market price. But such a family does not merely stop buying milk when its marginal significance falls to the market price. To earn its living, the family sets out deliberately to produce far more milk than it could possibly consume for its own use, on the expectation that it will be able to sell the surplus to others for whom milk stands higher in its scale of preferences than on the scale of the producing family. Just as a mother will buy milk only if its marginal significance to her family equals or exceeds the market price, a family producing milk will sell it only if the selling price of milk exceeds its marginal significance for the family's own use. The producing family sells the commodity in order to purchase other things that stand higher in its scale of preferences. Thus, both the quantity of the milk that the dairy-farm family sells, and the quantity that it keeps for its own use, are a single continuous function of the marginal significance of milk to the family, relative to the market price.

"But what about the 'supply curve' that usually figures as a determinant of price, co-ordinate with the demand curve?" asked Philip Wicksteed. "I say it boldly and baldly: There is no such thing. When we are speaking of a marketable commodity, what is usually called the supply curve is in reality the demand curve of those who possess the commodity; for it shows the exact place which every successive unit of the commodity holds in their relative scale of estimates. … The separating out of this portion of the demand curve and reversing it in the diagram is a process which has its meaning and its legitimate function, … but is wholly irrelevant to the determination of price."[187] In other words, a change in the price of milk today may cause milk producers to increase or reduce production and sale of the good, in which case the quantity on hand may be higher or lower tomorrow. But at every moment it remains true that there are two basic economic facts for each good: the quantities owned by potential consumers and the marginal significances for each potential consumer—including those consumers who are also producers.

It is part of the definition of a "perfect" or "competitive" market that no single consumer or producer can significantly affect the price of a commodity. But every individual purchaser or seller in a competitive market *does* affect the market price, if only imperceptibly. This is why all consumers together, and all producers together, *can* affect the price noticeably. The process by which all the parties adjust their holdings of certain goods, through exchange, in light of prevailing market prices is what makes the market as a whole tend towards "equilibrium"—a state in which everyone in the community *who owns any of the desired and exchangeable goods* comes to share *exactly the same relative preferences.* If that point were ever achieved, exchange would cease: because no one could further improve his position by exchanging goods that he values less at the prevailing market price for goods that he values more. But because most human needs are dynamic (however sated we become by eating and drinking, everyone gets hungry and thirsty again sooner or later), most markets never reach that point, but rather are always tending toward it.

Since very few households nowadays produce milk, the foregoing example may seem of little practical use. But nearly every household both produces and consumes the most widely used economic good in any economy: the labor services that are a necessary ingredient in almost every product of any business firm or household. In this way, almost every household is therefore in the same position as the dairy family that both produces and consumes milk.

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Each family is constantly faced with the choice whether to sell its services in the labor market in order to earn a wage or salary, or else to apply the same services directly to various productive uses within the household. Should we clean our own clothes, or hire a housekeeper or pay a commercial launderer to do so? Should we change the motor oil in our car ourselves, or pay a service station to do so? Should we prepare our own dinner at home tonight, or order a pizza to be delivered, or else go out to a restaurant? Should we rebuild the back deck of our home as a do-it-yourself project, or pay a professional contractor to do so? All of these choices are interrelated. But in each choice, however complicated, the allocation of the family's total labor services between sale in the labor market and direct use in the household is determined by comparing the marginal significance of the services to the family with their market "price"—i.e., the wage or salary (adjusted for any related costs, including taxes). The household will consume directly those services of which the net value to the family exceeds the net market price, and sell those services of which the net market price exceeds the net value to the family.

In families with young children, or in which the husband can earn a significantly higher salary or wage than the wife, it is typically the case that the father earns the majority of the family's outside income and the mother provides the majority of adult time devoted directly to the family. But in households where the wife's salary-earning ability more nearly equals or exceeds the husband's, and especially in which there are no young children or other dependents to care for, the couple is much more likely to decide that the amount of the wife's time spent working in the labor market should approach or exceed that of her husband.

Earnings by marital status

We have just considered the impact of a couple's marriage on their labor-market earnings. But marriage also affects their "cost of living" in terms of goods purchased in the market with those earnings. To get an idea of the economic consequences of marriage, we can begin by considering what happens when a man and a woman divorce after marrying. Living together, their income is combined into one household; after divorce, their income is split between two households. The difference is more than merely mathematical, however, because a married couple can live in one household much more cheaply than they can in two separate households. The official poverty level in 2000 for an adult living alone was $8,959; for a household of two adults it was $11,531, far less than the poverty level for two separate

households, which would be $17,918.[188] Thus, with the same income in both cases, the combined standard of living declines by at least $6,387 after a couple divorces or fails to marry, even if they have no children. (The difference in the cost of living will normally be larger for those above the poverty line, so this estimate represents the minimum change.)

The decline in living standards hurts the woman more than the man, because average lifetime earnings for men are higher than for women. For those born in 1955, the average married man can expect lifetime earnings to average about $55,739 in 2023 dollars; the average married woman, $27,513. Together, the couple can expect combined average annual lifetime earnings of $83,252.[189] For two unmarried people with the same age and education, average expected lifetime earnings are $49,776 for the man and $29,5766 for the woman, a total of $79,292. The differences are due to the fact that married men work more hours than unmarried or divorced men, while unmarried or divorced women work more hours in the labor market than married women. The net effect is to reduce average lifetime earnings for the couple by $3,995or about 4.8%. Taking both effects into account , as the result of failing to marry or getting a divorce, the average annual lifetime standard of living of such a couple would decline by at least $15,264, or 18%.

The problem is especially acute for households headed by divorced or unmarried mothers. The average American man and woman (including the unmarried) now have almost exactly two children in a lifetime. The poverty threshold for a married couple with two children in 2023 was $30,000. For the same four people split into two households, the combined poverty threshold was $24,860. 24,860 for a mother with two children, which is the most frequent arrangement. The woman's earnings are a little higher than when married because she is forced to work more hours in the labor market, but her share of the family's cost of living is substantially higher. All these reasons explain why the poverty rate is much higher for female-headed households than for married-couple households or for households headed by unmarried men. In many cases, compensation from the father is either nonexistent or poorly enforced. But even enforcement of child support or alimony, or any division of income, cannot prevent a decline in this family's combined standard of living, which falls by at least $9,098, or 17.0% of the family's initial income.

Intrafamily gifts and their substitutes

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Much of the economic planning of the typical American family has to do with the fact that in each phase of life, each person's market income is different from the current spending on market goods actually used by that person. During active parenthood and the "empty nest" stages, the couple's current income exceeds their current spending on market goods for their own use. But for the dependent child and the adult in retirement, current spending on market goods usually exceeds current market income. So at each stage, the person (or the family on his or her behalf) requires a strategy for bridging that gap. In the child's case, the gap is bridged by the parents spending some of their own current surplus upon the child's needs. But in the case of the retiree, current spending exceeds current market income, after counting all sources of income. The "retirement problem," essentially, is how the adults can transfer part of their current surplus from the "empty nest" stage into "retirement," when their "human capital" will be depreciating—ultimately, at death, to zero.

The 'Retirement Problem'

The problem is not due to poor planning; on the contrary, it results precisely from their planning and acting at each stage of life to take maximum advantage of those investments which offer the highest return—and therefore the highest possible lifetime wealth for themselves and their children—and to smooth consumption to be as even as possible over their lifetimes.[190]

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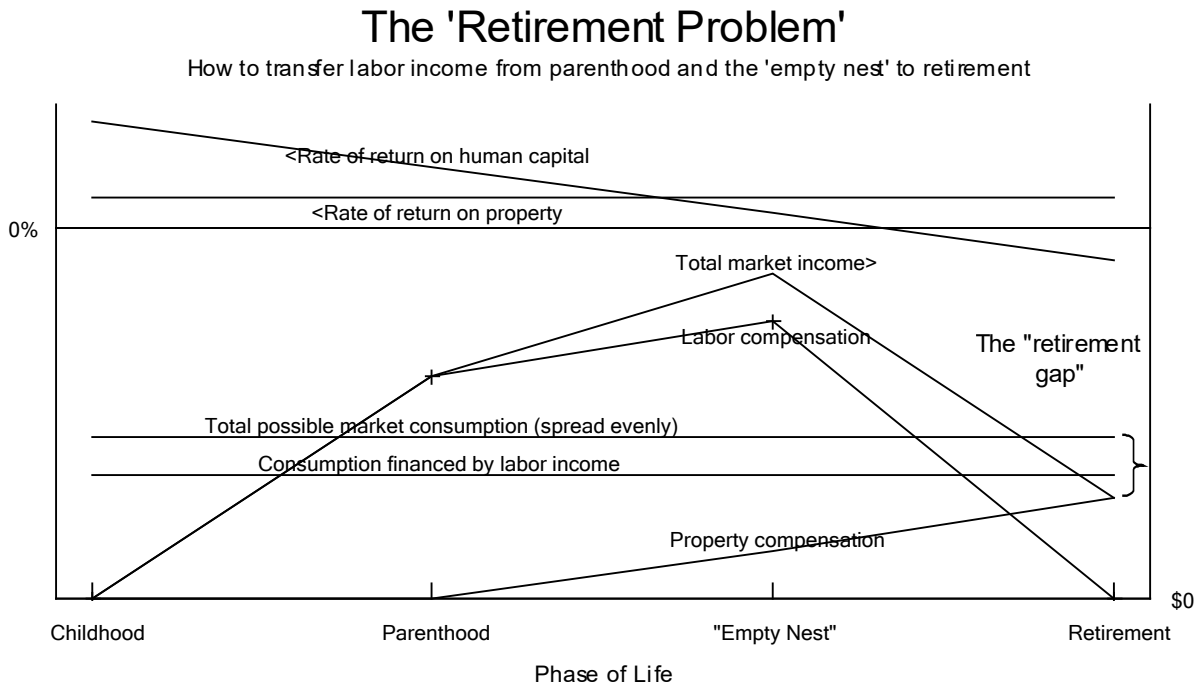
Figure 2-11



We've already noted that the combined consumption of each parent and child is likely to exceed the parent's income during the stage when the child is concentrating on investing in a good education. This requires most parents to borrow when their children are small and to repay such loans during the "empty nest" stage, after the children have left home. Borrowing requires paying rather than receiving interest. The solution might seem simple: to invest in enough nonhuman capital—which, unlike one's own "human capital," can be indefinitely replaced when it wears out. The trouble is that, in order to have enough nonhuman wealth to satisfy all current expenses in retirement, it would be necessary to invest less in human capital in the earlier ages of life when the rate of return on human capital is much higher than on nonhuman capital. A strategy of planning to live in retirement entirely out of property income (or the sale of previously accumulated property) would therefore lower the total amount of wealth that each person would enjoy throughout his or her lifetime.

Historically, there have been two strategies for solving the retirement problem. The first was for those too old to work to become dependent on their still-working adult children. Thus, parents would support their children when the children were young, but be supported by their children when the parents were aged and the children were adults. When mortality was much higher, most people did not live long enough to reach the "empty nest" stage, let alone today's

normal age of retirement. On the other hand, for those who did live long enough to be too old to work, there was a high probability that the children might die before the parents, or suffer some disability that severely reduced their ability to generate income. The second way of solving the "retirement problem" has been pay-as-you-go Social Security retirement pensions, which were established in 1936. It has been argued by opponents of the pay-as-you-go system that it discourages both the private saving available through the private capital markets and traditional intergenerational transfers within families.

After initially sharing that opinion, I changed my mind, finding upon investigation that pay-as-you-go Social Security retirement pensions provide a valuable form of retirement security that the private market cannot duplicate. Here is why: As we have seen, the average rate of return on human capital (particularly investment in "tertiary" or college education) is much higher than the rate of return on nonhuman capital. The fundamental reason is that human capital is embodied in human persons; and protecting human dignity requires forbidding some kinds of security for lenders or investors that are common when investing in property. For example, when you take out a mortgage to buy a house, or an auto loan, the lender receives the right to sell your house or car to satisfy the debt should you default on the payments.

To provide similar security for investment in human capital, the investor would require property in the borrower—which, indeed, Milton Friedman proposed when he first suggested abolishing Social Security: "The device adopted to meet the corresponding problem for other risky investments is equity investment plus limited liability on the part of the shareholders. The counterpart for education would be to 'buy' a share in an individual's earning prospects; to advance him the funds needed to finance his training on condition that he agree to pay the lender a specified fraction of his future earnings. In this way, a lender would get back more than his initial investment from relatively successful individuals, which would compensate for the failure to recoup his original investment from the unsuccessful. There seems no legal obstacle to private contracts of this kind, even though they are economically equivalent to the purchase of a share in an individual's earning capacity and thus to partial slavery."[191] Actually, there *is* a legal obstacle, as I discovered about fifteen years ago, when I met some entrepreneurs who had been inspired by Friedman's proposal and were trying to set up a family of "human capital mutual funds" on Wall Street. Their main problem, they explained, was to repeal or amend state laws that prohibit "indentured servitude"—the "partial slavery" to which Friedman

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alluded. That didn't stop a couple of enterprising young people from trying more recently to sell slices of their lifetime earnings to investors in return for tuition money on the internet auction site eBay. Their entries were removed for violating eBay's policies, not state laws. But such contracts would seem to be unattractive to investors for the same reason raised by the entrepreneurs I had met some 15 years earlier: they are unenforceable—and rightly so.[192]

In another form, the same problem has always confronted any parent who expected to be supported by his children in old age as a quid pro quo for the parent's investment in the child's "human capital." Not only does the parent have no legal way to enforce such an agreement, he also faces the problem of being unable to diversify his risk. A stock market investor avoids "putting all his eggs in one basket" by investing in a portfolio or mutual fund containing the shares of many different companies and industries. It's generally agreed that effective diversification requires at least twenty different companies, but the typical family nowadays has two children. Pay-as-you-go Social Security solved the "retirement problem" of transferring labor compensation from parenthood and the "empty nest" to retirement by serving in effect as a highly diversified mutual fund invested in labor compensation—the return on investment in rearing and instruction. However, a well-administered pay-as-you-go retirement system must not grow so large that paying for it makes it too expensive for families to raise children.

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Adding it all up: From lemonade stand to national income accounts

It's time to retrace our steps and literally "add it all up": not only to summarize the elements of domestic economy that we have identified, but also to see that in the process we have learned how the familiar yet often confusing measures of total national output and income are composed.

Although "matrimonial" human nature is inherently intergenerational, in this chapter we have largely confined ourselves, for the sake of clarity, to how the age, education, sex, and marital status of individual persons affect their lifetime earning and spending. Having analyzed these basic elements, we can now proceed in the other direction, measuring the total income of any community from a single family household up to the whole national or world economy, simply by adding up the incomes of its members.

Allowing for the basic differences between men and women we have already identified, we can represent each generation with an average of the incomes of representative couples. Even though each person's lifetime income and spending generally follows the rising-then-falling pattern we have identified, we would find that the total income of all family members would be constant through time, as long as each couple replaced itself with children on average, and as long as it consumed as much human and nonhuman capital as it produced in its lifetime. But this constancy of total income, under the assumption of constant total human and nonhuman resources, would conceal some important and interesting income dynamics.

First, both the level and sources of annual income among individual family members would be stratified according to individual persons' ages, because in each period we would be adding together the incomes of individuals in four successive generations at four different life stages: children without any current labor or property income; their active parents whose labor income was still rising quickly though below its lifetime peak, and who earned no net property income (after subtracting interest paid on borrowing: mortgages, tuition loans, etc.); their "empty nest" grandparents, whose labor income was at its lifetime peak but whose net property income was still rising; and their retired great-grandparents, whose labor income had ceased and whose total income came entirely from previous investments in property. With life phases of equal length and rates of return on human capital higher than on nonhuman capital in the first two, but lower in the last two life phases, between three-quarters and four-fifths of total family income would be labor income. Moreover, among living family members, the great-grandparents would be net owners of most of the family's property.

Second, we've already discussed three of the most important factors raising real family income from one generation to the next: the growth of population through net fertility (or immigration); the effect of investment in education and other kinds of productive assets in raising the average real value that each person can contribute to production and therefore receive as compensation; and bequests—gifts—willed by those dying in each phase, namely the grandparents. The effect of the first in increasing the number of family members is obvious, as is the effect of bequests in increasing total property income. The effect of rising education can be seen if, instead of lining up the average incomes at each age by education in the same year as we did earlier, we stagger those same figures as if each successive generation invested more time and income in a higher average level of formal education and other kinds of instruction.[193] In this case, rather than remaining constant, total real family income would rise from generation to generation by the combination of a larger number of members and a higher level of per-capita income.

In calculating total national output or income, government agencies in effect make the same kind of calculation for the whole country as we did earlier for a single business firm (the lemonade stand) and just now for a single intergenerational family. The three pairs of lines in Figure 12-11depict U.S. national production and income since 1890, indexed in each case to the starting values. In the bottom pair, the upper line shows the adult population and the lower line the number of adults employed in productive activities; their difference therefore indicates the rate of adult unemployment. In the middle pair, the upper line is "potential real GDP," which is an estimate of the maximum "real" or price-adjusted output and real income that could be achieved if all American workers and productive property were employed; the lower line of that pair is actual total national production income; and the difference, corresponding to the unemployment rate, is sometimes called the "national income gap." The upper pair of lines is simply the middle pair expressed in current dollars: national output and income without the "real" adjustment for annual inflation (or deflation) of the general price level.

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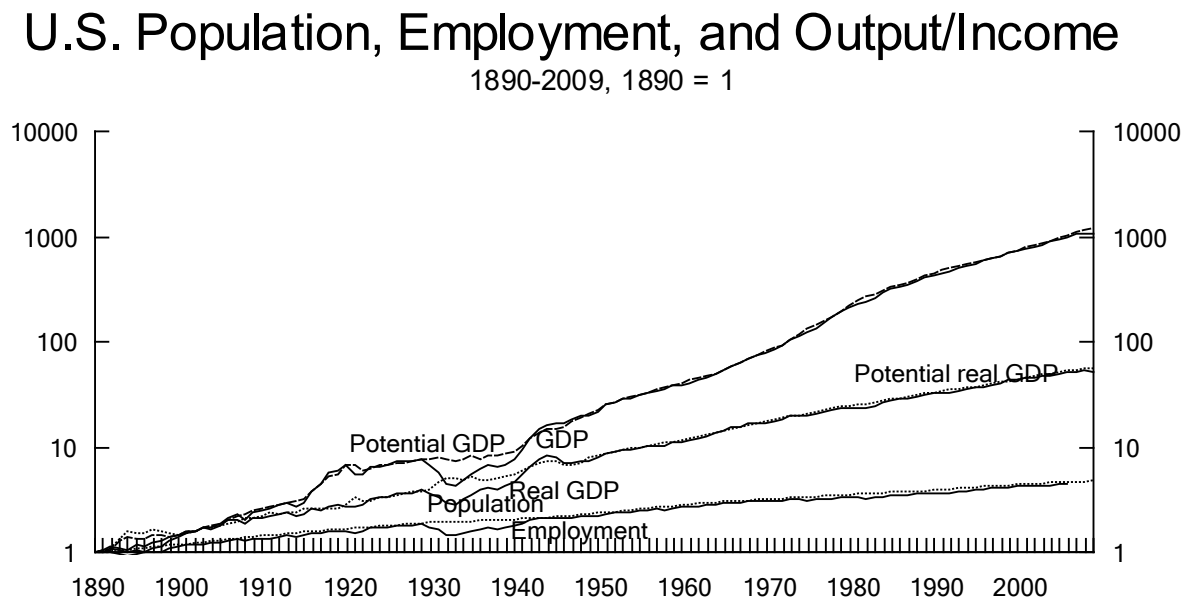
Figure 2-12



What is true of the purchase of a single product from a single firm by a single person or family remains true (allowing for the small fraction of international payments) if we add up all the purchases by all persons and families of all products from all firms in the country: namely, total factor compensation is equal to total spending on final products. [194] The national income and product accounts attempt to add up all individual transactions as total spending on final products (gross domestic or national product: GDP or GNP) and as total labor and property compensation received by producers (gross domestic or national income: GDI or GNI).[195] Looking at the income side, considered before the effect of taxes and government benefits, about two-thirds of Gross National Income (the counterpart to Gross National Product, or GNP) consists of labor compensation (wages, salaries, and fringe benefits), while about one-third is property compensation (dividends, retained profits, interest, rents, and royalties). This ratio implies that workers contribute about two-thirds and owners of productive property about one-third, on average, of any additional output.

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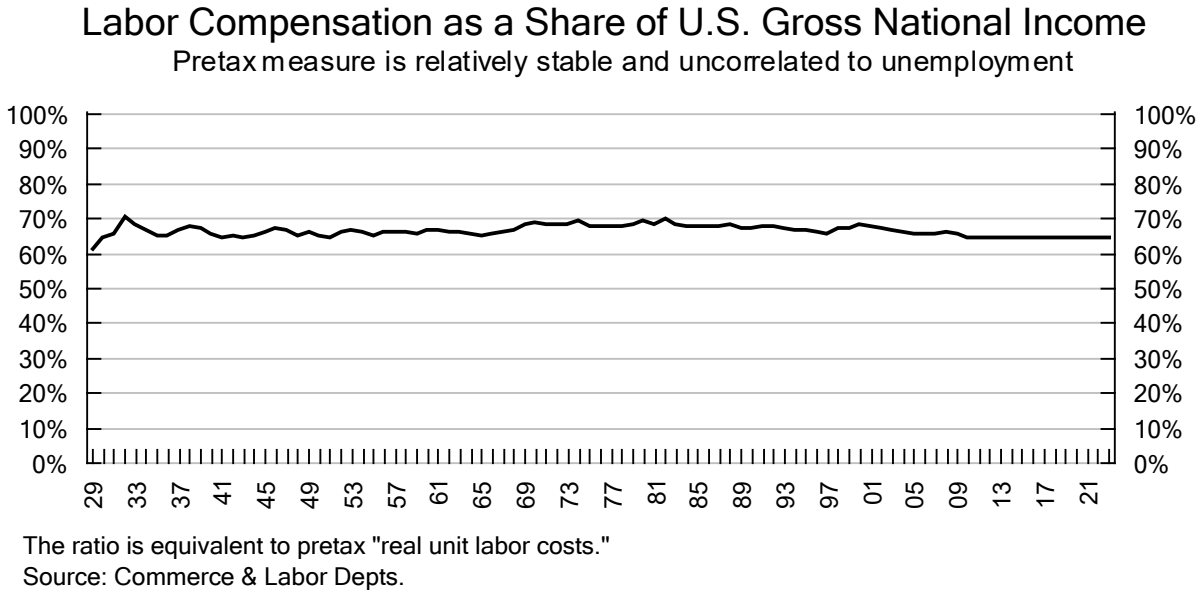
Figure 2-13



Yet as with the intergenerational family we considered, this remarkable stable average conceals exactly the same systematic differences we found in the levels and sources of labor and property compensation of American families. We can see this by considering shares of Gross National Income ranked by percentile of family income. For about 80% of American families, about 80% of income before taxes and personal transfers originates as labor compensation, and the remainder as property compensation. But this share falls to about 60% for the top 20% of families ranked by income, and the share of property income rises steadily to about 60% for the top 1% of families.[196]

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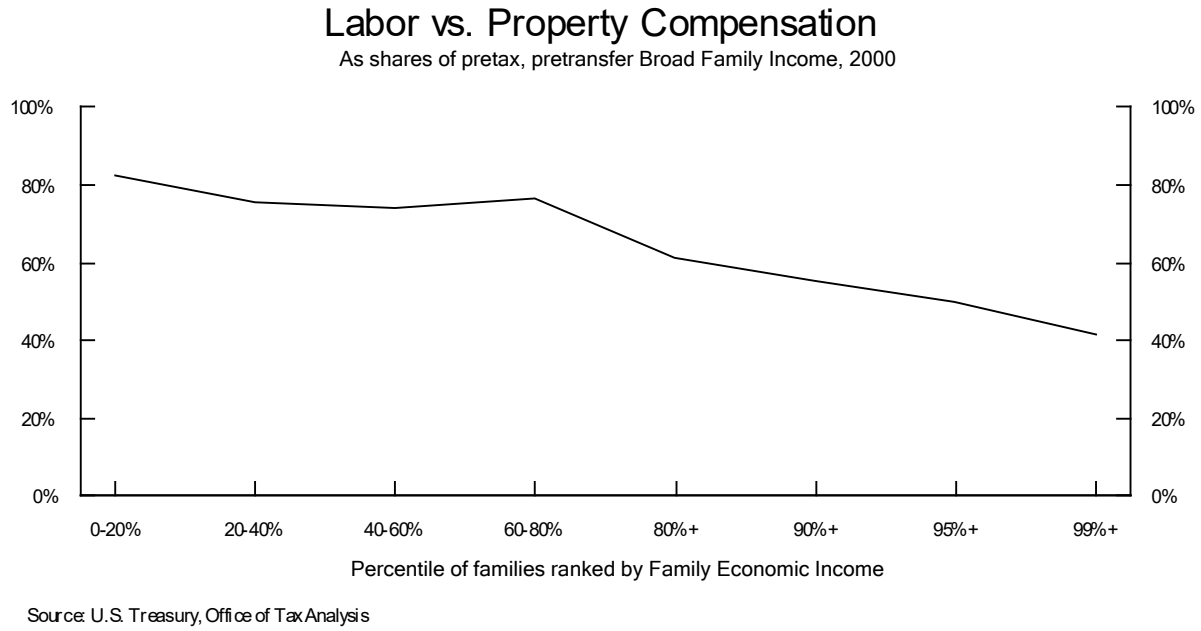
Figure 2-14



Thus, the basic principles of domestic economy we have outlined in this section would allow any diligent reader (in theory) to calculate and (within limits) even predict the American population and potential real national output and income. Explaining the causes of unemployment and inflation will require some further discussion, but as we will discover, the basic principles of Neoscholastic Political Economy build on the principles of domestic economy. Indeed, in the next section we will see how Neoscholastic Economics can be used solve the most pressing problem likely to face the United States over the next century: avoiding the combination of shrinking population and high unemployment rates that have engulfed the developed nations of Europe and Asia.

Man as 'social animal': Civil and non-profit society

Augustine's theory of personal gifts suggests a new approach to the whole cluster of theories regarding what some sociologists and economists have termed social, cultural, religious, and spiritual "capital"—terms often used, unfortunately, with greater enthusiasm than precision.28 (One researcher, for example, started seriously to apply the concept of social capital to natural resource management, but he found it necessary to abandon the effort as

impracticable after discovering no fewer than twenty different, largely incompatible definitions and no meaningful way to measure the concept.)[197]

When Theodore W. Schultz coined the term human capital to describe economic investments in people, he advanced the term almost apologetically, prefacing his remarks by noting that "our values and beliefs inhibit us from looking upon human beings as capital goods, except in slavery, and this we abhor."[198] But as Schultz's approach proved extraordinarily fruitful, subsequent researchers progressively extended the "capital" metaphor with fewer and fewer inhibitions. Almost the only thing on which theorists can agree is that the various forms of capital are all essentially produced by human beings at some cost and in the prospect of some return on the investment.

Yet the human realities that these terms attempt to describe are more properly identified as social, cultural, religious, or spiritual "graces"—that is, something essentially given or received gratis, as free gifts. Augustine's theory of personal distribution therefore provides the indispensable microeconomic foundation that has so far been missing from the discussion. Moreover, whatever its other merits or demerits, each theory remains formally incomplete until it integrates a description of how and why that form of capital may be freely given or received without explicit or implicit compensation.[199]

Consider, for example, the everyday gestures that most of us make when we allow someone we do not know and expect never to meet again to take our rightful, lawful, or customary place—say, allowing that person ahead of us in traffic or when waiting to be served at a store.[200] The facts that such gestures cost us scarce resources and that we do not expect reciprocation from the same persons make these social graces rather than investments in social capital.[201]

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[197] Claridge (2006).
[198] Schultz (1961), 2.
[199] Neoclassical welfare economics has admitted since the 1930s, and the theory of the household since the 1970s, that the three basic elements of Neoclassical economics—production, utility, and equilibrium—cannot fully describe economic behavior, because there is at least one equilibrium for every possible distribution of wealth or income. This means that at each level, from a single person to the world economy, the final distribution of wealth or income must be specified or else there will be fewer explanatory equations than variables to be explained. Such specification is the purpose of Augustine's theory of personal distribution and Aristotle's theory of distributive justice.
[200] By mentioning roads or other public accommodations, we implicitly introduce the principle of distributive justice, which governs the distribution of common goods. But whether the objects given and received are originally acquired by exchange, personal gifts, or domestic or political distributive justice, social graces are essentially little personal gifts.
[201] Such gestures might still be social graces even if we should later receive similar gifts from those same persons, but I have chosen the example of unrequited gifts because they are much easier to distinguish from exchanges.

At least as far back as Aesop's ancient fable of the town mouse and the country mouse, it has been observed that the urban population is materially richer, more anxiety-ridden, and less generous than the rural population. The rudeness of New York City's inhabitants to one another and to strangers is legendary. How, then, can we explain outpourings of generosity by New Yorkers, for example, to families whose members perished in the September 11, 2001, terrorist attacks on the World Trade Center?

The answer to this apparent puzzle, I suggest, is that city dwellers are not any less generous on average than country dwellers, but their daily generosity is typically distributed among many more individual recipients. A city dweller who interacts with hundreds or even thousands of other people in the course of a typical day (for example, when commuting to work) simply cannot afford to be as generous to each other individual as a country dweller who devotes exactly the same total time per day to strangers but whose total daily contacts may be numbered on the fingers of both hands. A person who loves three other people equally with himself will devote the same share of his or her scarce resources to the other persons as if he loved three hundred others 1 percent as much or three thousand others one-thousandth as much as himself. This explains how it can be true both that the typical city dweller is ruder on average to any one given stranger he or she meets, and no less generous to all strangers, than the typical country dweller. Such arithmetic also explains why, when the generosity of a significant share of citizens of a large city like New York is focused on a relatively small number of recipients, like the victims of the terrorist attacks, the average gift received can be extraordinarily large. Unlike the existing theory of social capital, an Augustinian theory of social graces is able to identify each small gift from some specific person to some other specific person, and to explain its reason.

Converse to social graces are the little social crimes or robberies we commit when we usurp other people's places according to right, law, or custom—say, by failing to yield in proper order at a stop sign or in traffic, thus delaying others' commutes to work. Moreover, someone who habitually does so in a crowded urban area often causes as much total economic damage in a single day as a single criminal who may be fined or jailed for inflicting that amount of damage on a single victim.

The same approach might also be extended to religious and spiritual graces, the context in which Augustine originally thought of them. All spiritual or religious experience involves (or is perceived to involve) some kind of gift. This is obvious whether the action is viewed as proceeding from God to man (for example, creation in Abrahamic traditions and redemption

and sanctification in Christian traditions); from man to God (gifts of praise, adoration, sacrifice, and thanksgiving in most religious traditions); or from human to human (such as sacramentally "giving and being given in marriage,"[202] making charitable donations, or doing volunteer work out of religious motivation).

[202] Matthew 24:38 and Luke 17:27.

Chapter 3: Man as 'Political Animal': Distributive and Commutative (In-) Justice

In the *Nicomachean Ethics*, Aristotle explained the two kinds of justice: distributive justice and commutative justice (justice in exchange).[203] Modern economists generally try to avoid ethical judgments, speaking instead about states of equilibrium and disequilibrium. A state of equilibrium is one in which the supply of and demand for a good are roughly in balance, so that the general condition can continue without major changes in the prices and quantities supplied and demanded. The two most important macroeconomic economic problems are unemployment and inflation, both of which concern a general market imbalance or disequilibrium, the first in the labor market and the second in the money market. But economists have generally not noted that these two cases correspond to the distributive and commutative justice outlined by Aristotle. Rueff's Laws of Unemployment and Inflation—named after the French economist Jacques Rueff (1896-1978)—explain how these principles apply in modern industrial society. The civilian unemployment rate is an approximate measure of the degree of distributive injustice, while the inflation rate is an approximate measure of the degree of injustice in exchange, prevailing in any country. (Because information from individual and corporate tax returns is necessary, these series are available almost exclusively as annual series.)

Before considering Rueff's important contributions, we must acknowledge some longstanding yet still uncorrected deficiencies in the commonly used method of economic accounting. The U.S. federal government adopted the National Income and Product Accounts

[203] Politics V 3 and V 5.

(NIPA) and their various detailed subsets in 1947. NIPA is the basis for such common and widely used official reports as Gross Domestic Product (GDP) and its counterpart, Gross Domestic Income (GDI), as well as their many subordinate classifications. The United Nations began the comparable System of National Accounts (SNA) in the same year as NIPA.[204] Though NIPA has done a decent job of accounting for physical capital, the central deficiency in NIPA is its omission of so called "human capital." This deficiency was recognized and extensively documented, first by Theodore W. Schultz,[205] who essentially reinvented Aristotle's theory of production, coining the term *human capital* to describe investments in people (particularly formal education) and "nonhuman capital" for investments in property; then by John W. Kendrick,[206] Gary Becker,[207] and Robert Eisner[208], who devised an alternative system, the Total Income System of accounts (TISA).[209] Yet the national accounting problem has been ignored for several decades by U.S. federal legislators and policymakers, so that today NIPA reflects relatively little of the by now large body of research on human capital and its accounting. Thus in this dissertation we must make do with NIPA as it is and adapt it so as to bridge the gap between the earliest description by (or no later than) Aristotle and today's NIPA.

Distributive injustice: Rueff's Law of Unemployment

The French economist Jacques Rueff (1896-1978) was the first modern economist to demonstrate empirically how the instruments of economic policy—taxes, product subsidies, personal transfer payments, and money creation—cause two of the three main problems of *disequilibrium* or *injustice in exchange* in modern economies: unemployment and inflation.[210] The third such problem—a "baby bust" or "demographic winter—became manifest in developed Europe and Asia only after Rueff's death in 1978. But it too results from factional injustice in exchange, typically because government transfer payments to persons substitute for

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[204] https://unstats.un.org/unsd/nationalaccount/hsn989/10174_1985-1989.pdf a.asp

[205]Theodore W. Schultz, "Investment in Human Capital," *American Economic Review*, vol. LI, no. 1 (March 1961): 1–17.

[206] John W. Kendrick, "Total Capital and Economic Growth," Chapter 5 in John W. Kendrick (ed.) The Formation and Stocks of Total Capital, NBER, 1976. http://www.nber.org/books/kend76-1.

[207] Gary S. Becker, *Human Capital*, Third Edition (Chicago: University of Chicago Press, 1994

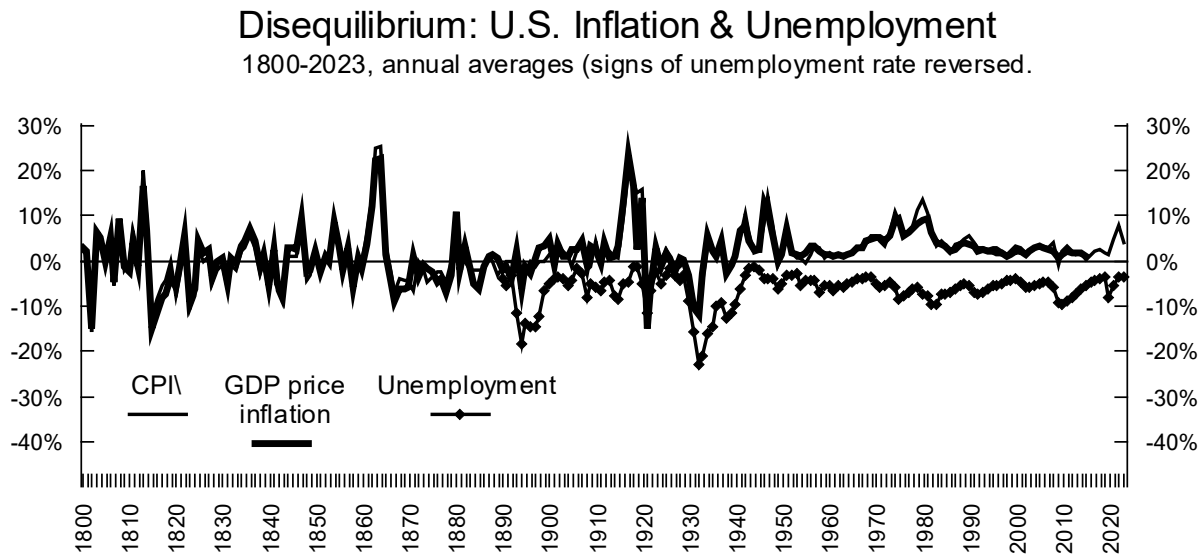
[208] https://press.uchicago.edu/ucp/books/book/chicago/T/bo3632546.html; Robert Eisner, The Total Incomes System of Accounts, University of Chicago Press, 1989, https://fraser.stlouisfed.org/files/docs/publications/SCB/pages/1985-1.

[210] This section was first published as part of John D. Mueller, "How Does Fiscal Policy Affect the American Worker?" 20 Notre Dame Journal of Law, Ethics and Public Policy 2:563–619 (Spring 2006), available at http://www.eppc.org/publications/pubID.2671/pub_detail.asp. For a brief biography and explanation of Rueff's significance to modern political economy, see John D. Mueller, "Jacques Rueff: Political Economist for the 21st Century?" *The LBMC Report,* Arlington, VA, 28 January 2000, http://www.eppc.org/publications/pubID.2261/pub_detail.asp; both last accessed 20 December 2007.

personal and joint gifts within families among husbands and wives, parents and children. In this chapter, therefore, we will consider the causes and cures of unemployment and a baby bust. In the next, we will consider the causes and cures of inflation.

Figure 3-1 shows key indicators for the first two problems in the periods for which data are available: the rate of consumer price inflation since 1800,; and the rates of GDP price inflation and unemployment since 1890. Both inflation and unemployment are signs of disequilibrium. But as we will see, unemployment is a result of distributive while inflation is a case of injustice in exchange.

Figure 3-1

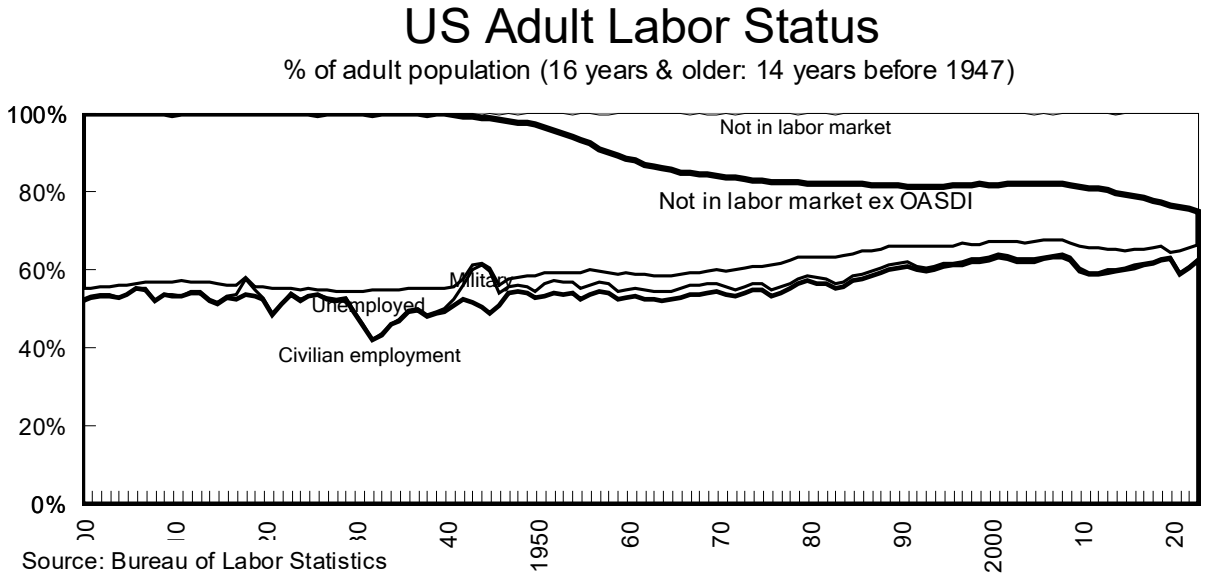


To make our discussion of employment comprehensive, we must account for everyone who could possibly be employed or unemployed. Practically speaking, this means all adults, now defined as everyone sixteen years and older. (Before 1947, the definition included those fourteen years and older.)[211] The first practical distinction we must draw is between those within and those outside the labor market, often erroneously described as those "working" or "not working." A great deal of work and production occurs outside the market. At one time, nearly *all* work and production occurred outside the market, and even today the production of many goods, as well as of people, occurs within the household. So, it is more accurate and fruitful to distinguish between those working in the labor market and those working outside the labor market in the household economy. For reasons that will become apparent, all

[211] *See* U.S. DEP'T OF COMMERCE, HISTORICAL STATISTICS OF THE UNITED STATES 121–26 (1975).

unemployment occurs within the labor market. We can therefore further exhaustively describe all adults in the labor market as being either employed civilians, employed in the military, or unemployed.

Figure 3-2



There are two basic facts to explain. First, what accounts for the unemployment rate, both as a share of the civilian labor force and as a share of the total adult population? Second, what accounts for people's decision to participate in the labor market and, particularly, the increased share of the adult population in the labor market since the Second World War? A closer look reveals a further complication: the labor market employment of men has steadily declined, while the labor market employment of women has steadily increased. So the rising employment/population ratio has resulted from the share of adult women employed in the labor market having risen by more than the labor market employment of men has declined. If we can account for both facts, we will have explained the variation in the (generally increasing) share of the adult population employed in the labor market, and the (generally declining) share outside the labor market. Let us deal with the problem of unemployment first.

Unemployment as disequilibrium: Rueff's Law of Unemployment

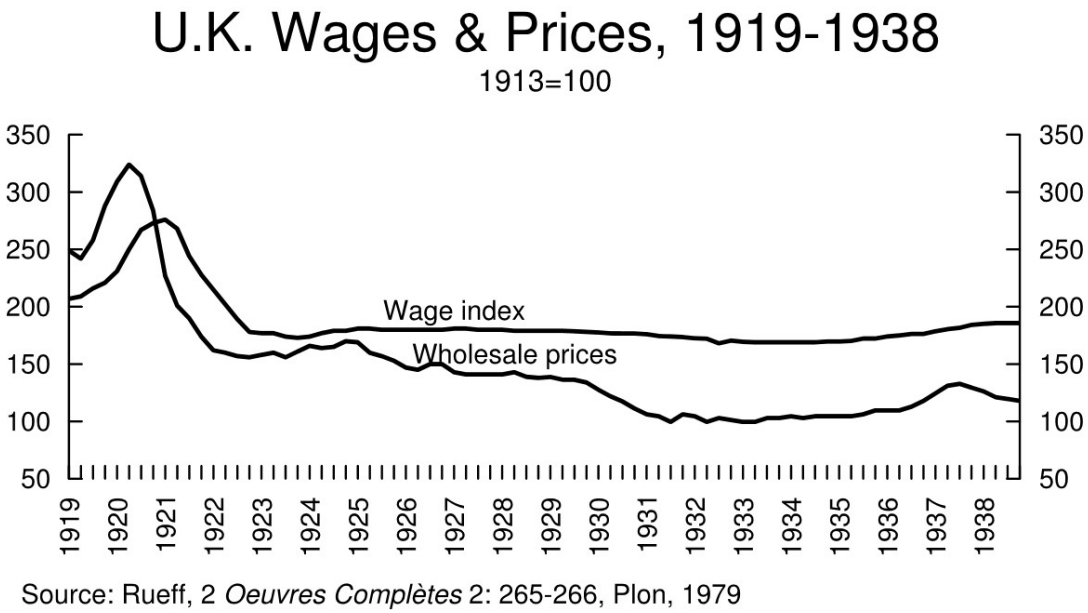
Unemployment is a case of market *dis*equilibrium. That is, when we say that a certain percentage of the civilian labor force is currently unemployed, it means that that proportion of workers is actively seeking a job in the labor market but unable to find employment at the prevailing level of labor compensation. The quantity of labor demanded by business firms falls short of the quantity offered by workers in that proportion.

Rueff was the first to demonstrate empirically that variations in unemployment are closely linked to the relative price of labor and offer an explanation for its variation.[212] The relation between the two was found to be so strong that it became known in the 1930s and 1940s as "Rueff's Law of Unemployment." Rueff showed that the reason for the unprecedented appearance of chronically high unemployment in England in the 1920s was a rise in the relative price of labor.[213] He traced its cause to the combination of the new (instituted in 1911) unemployment "dole," which was fixed in nominal terms (that is, so many shillings a week), and a sharp post–Great War decline in the price level (which resulted from Britain's decision to return to the gold standard at the pound's prewar gold value despite more than a doubling of the general price level).

Figure 3-3

[212] My friend and senior business partner, Lewis E. Lehrman, knew Rueff well, and The Lehrman Institute published Rueff's complete works in his native France (though unfortunately not yet in English). My use of the "World Dollar Base" is one of many analytical tools that were inspired by Rueff's work. Rueff was both a theorist and a successful practitioner of economic policy. He gave the earliest accurate diagnosis of the two biggest economic policy problems of the 20th century: chronic unemployment and chronic inflation. He used that diagnosis to engineer several successful reforms of national economic policy, and his analysis is just as valid today as when it was developed in the 1920s. Rueff also contributed to the philosophy of the "social market economy" and of what became the European Union. And he understood the critical link between economics as a science and economic policy as a branch of moral or political philosophy. I have tried to outline these important contributions in a monograph, "Jacques, Rueff: Political Economist for the 21st Century?" *The LBMC Report,* Lehrman Bell Mueller Cannon, Inc., Arlington, VA (Jan. 28, 2000), available at http://www.eppc.org/publications/pubID.2261/pub_detail.asp.

[213] Jacques Rueff, "Les Variations du Chômage en Angleterre," 32 REV. POLITIQUE ET PARLEMENTAIRE 425 (1925) [hereinafter "Les Variations"].



Source: Rueff, 2 *Oeuvres Complètes* 2: 265-266, Plon, 1979

Rueff's study caused a sensation when an updated version was reported upon in the *London Times* in 1931, just after British unemployment had risen most sharply.[214] Following Rueff's lead, other researchers found a similarly strong relationship between the relative price of labor and unemployment in at least a dozen other countries.[215] John Maynard Keynes's *General Theory* implicitly depends on Rueff's Law, plus the additional assumption that wage rates are fixed in nominal but not in real terms.[216]

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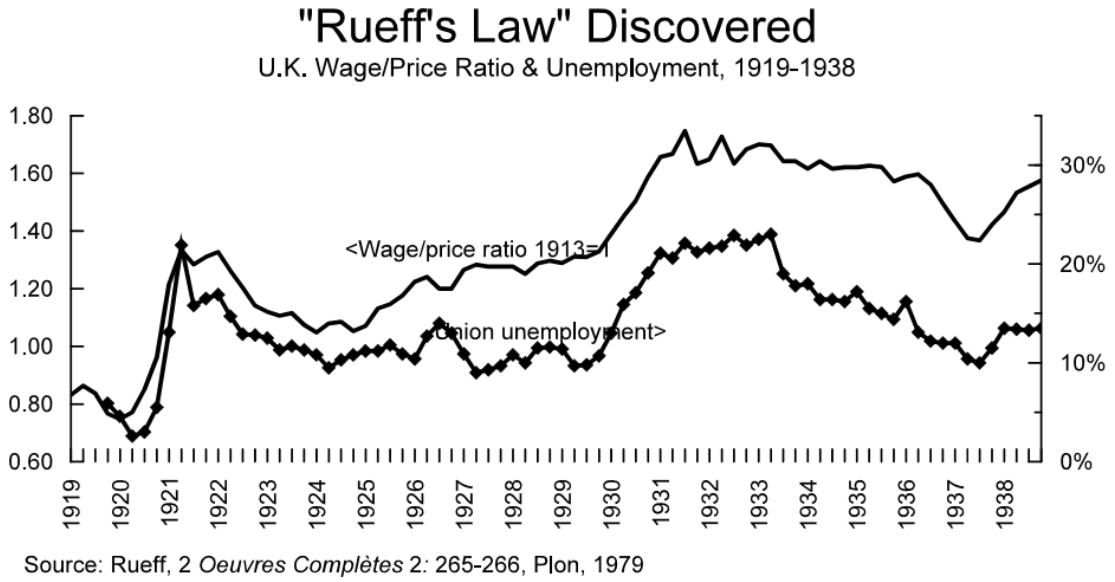
[214] Sir Josiah Stamp, "Work and Wages: I.—Fettered by the Dole: A French Theory," London *Times,* June 11, 1931, p. 17; "Work and Wages: II.—The Ban on Unemployment: A System Out of Gear," London *Times,* June 12, 1931, p. 17. "The astonishing thing is not that this relationship exists," Rueff modestly remarked in his memoirs, "but that it should astonish anyone." Jacques Rueff, *De l'Aube au Crépuscule: Autobiograhie*, Plon, Paris, 1977, p. 96.

[215] Jean Denuc, "Les Fluctuations Comparées du Chômage et des Salaires dans Quelques Pays de 1919 à 1929 [Comparative Fluctuations in Unemployment and Salaries in Several Countries from 1919 to 1929], BULLETIN DE LA STATISTIQUE GENERALE DE LA FRANCE (1930) (Fr.).

[216] Keynes cited Rueff's wage/price calculations to support his assumption of downward "stickiness" of wages: "Yet it might be a provisional assumption of a rigidity of money-wages, rather than of real wages, which would bring our theory nearest to the facts. For example, money-wages in Great Britain during the turmoil and uncertainty and wide price fluctuations of the decade 1924–1934 were stable within a range of 6 per cent., whereas real wages fluctuated by more than 20 per cent."
JOHN MAYNARD KEYNES, THE GENERAL THEORY OF EMPLOYMENT INTEREST AND MONEY 276 (1936). But while adopting downward "stickiness" of wages as a general assumption, Keynes did not acknowledge Rueff's explanation for it: the unemployment "dole," which, at the time (like chronic unemployment), was almost unique to the United Kingdom.

Figure 3-4



Rueff's Law of Unemployment forgotten and rediscovered

For various reasons, Rueff's Law was almost universally forgotten by economists after World War II. But the theory continues to explain variations of unemployment in economies as large as the United States[217] and as small as Puerto Rico,[218] once its measurement is updated.

To understand Rueff's Law of Unemployment, we must draw out the underlying relationships implied in our earlier discussion of domestic economy. That discussion implied that unemployment is a direct function of the "price" of labor. But what, exactly, *is* the relative price of labor? Obviously it has to do with the level of labor compensation. But like all prices, labor compensation has a meaning only in relation to other prices. From the point of view of a

[217] John D. Mueller, *The Answer to Three Puzzles: Welfare Reform Lowered Unemployment,* THE LBMC REPORT, July 23, 1999, *available at* http://www.eppc.org/publications/pubID.2367/pub_detail.asp.

[218] John D. Mueller and Marc A. Miles, "More Similar Than Different," Lehrman Bell Mueller Cannon, Inc., Arlington, VA, July 1998, a study commissioned by the Government Development Bank of Puerto Rico. Though the government declined to publish the study (which had demonstrated among other things that the Section 936 tax exemption had not increased the incomes of Puerto Rico's residents), some of its key findings were featured in Alexander Odishelidze and Arthur Laffer, *Pay to the Order of Puerto Rico,* Allegiance Press, Fairfax, VA, 2004.

worker, whether a wage of five dollars an hour is decent or lousy depends, for example, on whether a glass of lemonade costs five dollars or twenty-five cents. And for the prospective employer, whether it is profitable to employ a worker to produce the lemonade also depends on whether the glass of lemonade can be sold for five dollars or twenty-five cents. So the relative price of labor has to take both pay and prices into account.

The cost of labor is also affected by labor productivity. If a business firm could double the quantity of goods produced with an hour of labor while wage rates and prices remained the same, it would effectively cut the cost of labor in half. But in a competitive market, all units of labor (and capital) are paid incomes equal to what the last unit adds to output. If labor productivity suddenly doubled while product prices stayed the same, businesses would find that to maximize their profits they would need to keep hiring more workers until real wage rates had doubled, at which point the relative price of labor would have risen back to its initial level.

To a prospective employer, therefore, the effective "price" of labor is the labor compensation or wage agreed upon with the worker, adjusted for two things: the selling price of the finished product and the worker's productivity. This is sometimes called the "efficiency wage." The higher the efficiency wage, the lower the demand for workers; the lower the efficiency wage, the higher the demand to hire employees.

What is true of the purchase of a single product from a single firm remains true if we add up all the purchases of all products from all firms: namely, total factor compensation is equal to total spending on final products. This means that, just as we could view the purchase of lemonade either as spending on a product or as compensation to its producers, we can view the whole economy either as total spending on final products or as the total income of their producers.[219] The national income and product accounts attempt to add up all individual transactions as total spending on final products (gross domestic or national product: GDP or GNP) and as total labor and property compensation received by producers (gross domestic or national income: GDI or GNI).[220]

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[219] National income and product data pertain only to "final" products, since including the value of raw materials and intermediate goods, as well as finished goods, would result in multiple counting of the same "value added" in production.

[220] "National" refers to the production actually owned and received as income by a country's residents, while "domestic" refers to the income generated by production *within* a country, without regard to whether the income is ultimately received by residents or by foreigners. If our purpose is to maximize the incomes of the country's residents, then the appropriate measures are gross or net *national* product (GNP or NNP) and their counterparts, gross or net nstional*national* income (GNI or NNI). "Gross" means before, and "net" means after, subtracting the value of capital consumed in production, as well as indirect (sales) taxes.

In doing the calculations for the whole national economy, we discover that the relative price of labor or "efficiency wage" is the same as the share of labor compensation in total national income.[221] This is a great convenience in calculation, since it means that we can measure the economy-wide relative price of labor without actually knowing the average hourly wage rate, the number of hours worked, the level of productivity, or total real output: all we need to know are total labor compensation and total national income.

Before taxes and government benefits, gross labor compensation typically makes up about two-thirds, and property compensation about one-third, of gross national income, and those shares are remarkably constant over time. This is presumably because workers consistently contribute about three-fifths to two-thirds, and productive property about one-third to two-fifths, the value of gross output.[222] While this gives us a comprehensive overview of labor costs, the income shares calculated in this way do not have a particularly close correlation with the unemployment rate. This is because the cost of labor has been calculated without taking into account three important realities: taxes, transfer payments, and capital consumption. In particular, taxes and benefits must be included because they affect people's behavior. Perhaps ignoring them might have been justifiable seventy or eighty years ago, when both were relatively small in relation to the total economy. But not today.

Parental "economic policy" and the lemonade stand

To understand the effects of fiscal policy on (un)employment, we must return to our analogy of the lemonade stand and put ourselves in the place of the children's parents, who, after observing the children's efforts, decide to try to help them without taking over the operation.

1. *Price regulation.* The quantity of a product demanded by customers diminishes as the price increases, and there is generally only one price at which the quantity demanded equals the quantity supplied. What would happen if the parents overruled the children about the price

[221] Why is this? The relative price of labor is derived by dividing the rate of labor compensation per hour by both product prices and labor productivity. Let w be labor compensation per hour, L the number of hours worked, P the index of product prices, and Q net output. Then the "product wage" is w/P, and labor productivity (output per hour) is Q/L. So the relative price of labor is (w/P)/(Q/L) = wL/PQ. But wL is total labor compensation, and PQ is the value of total output. PQ (net of nonhuman capital consumption and indirect taxes) is also equal to national income. Therefore the relative price of labor is the same as labor's share of national income. As long as we know the aggregate value of labor compensation (wL) and national income (PQ), we can measure the relative price of labor without actually knowing w, L, P, or Q.

[222] $\Sigma Q = \Sigma K^{a}\Sigma L^{1-a}$, where a is the share of total product value contributed by all nonhuman capital ΣK, and $1-a$ the share contributed by all human capital ΣL; empirically, $a \cong 0.3–0.4$, so $1-a \cong 0.6–0.7$.

at which they had found they could sell all their lemonade—say, telling them they must sell lemonade for fifty rather than twenty-five cents a glass? This is essentially what the government does when it attempts to regulate the prices of products. If the selling price were already at the level at which the quantity of lemonade demanded just equaled the quantity offered for sale, raising the selling price would cause the quantity demanded to fall short of the quantity supplied, thus creating an unsellable surplus of lemonade. Likewise, lowering the selling price below the "equilibrium" price would increase the quantity demanded, but not the quantity supplied, thus creating a shortage of lemonade. In both cases, the amount actually sold would not be equal to the amount demanded. The same principle explains why government price controls, if enforced, always cause either a shortage or a surplus in a competitive market. Below-market rent controls create a housing shortage, below-market interest ceilings a credit shortage, and below-market gasoline price controls a gasoline shortage.

2. *Regulation of compensation.* Since Because the compensation is ultimately determined by the product's price, similar effects occur when the government attempts to set the rates of compensation of the productive factors. The most important example of a regulatory control on factor compensation is the minimum wage. This would be like the parents insisting that the child who supplied only labor be compensated at a certain rate per hour. If the minimum rate is set at a relatively low level, say one dollar an hour, when the children's analysis had indicated the rate should be at two dollars an hour out of revenues of three dollars an hour, the regulation has no effect. But if the rate were set above the level that would equalize the demand for and supply of labor—say three dollars an hour—labor compensation would absorb all revenues, causing the child "proprietor" to take all the property home. The result would be a labor surplus—in other words, unemployment—but without providing any alternate source of income to the worker, who would be unemployed as a result. The minimum wage makes it illegal, in effect, to hire unskilled workers at what their skills are currently worth, and thus to improve their skills and earn a higher wage. So they remain unemployed and unskilled. By removing the unskilled from the labor market, the minimum wage may raise the wages of skilled workers (which is probably why it is championed by labor unions), but it reduces the income of all workers as a group: a good example of economic policy motivated by faction.

3. *Product subsidies.* Government subsidies or benefits paid to producers can also create shortages or surpluses, but with an important difference compared with price controls. In this case, the surplus created by an above-market price is purchased by the government—rather like parents who insist that the children set the price of lemonade higher (say, fifty cents

a glass when most customers are willing to pay only twenty-five cents), but offer to buy any lemonade that remained unsold at that price. That way, the children's income would be increased at the expense of the parents. However, the benefit or subsidy would also encourage the children to produce more lemonade, thus making it potentially very expensive to the parents.

In the same way, farm price supports increase farmers' incomes but also create government-owned "lakes" of milk or wine and "mountains" of unsold butter, cheese, cotton, sugar, and wheat. The surplus products cannot be sold by the government without driving the market price below the level that it is the whole point of the policy to support. To avoid this, an alternative method might be to offer to pay the children twenty-five cents for every glass they manage to sell at any price. The subsidy might induce the children to make so much more lemonade that they had to lower the price to customers to ten cents a glass to sell it all, but the children would receive thirty-five cents a glass. (However, this would undercut the price of any other lemonade stands in the vicinity: which is analogous to the effect of agricultural subsidies in developed nations upon agriculture in less-developed nations.)

4. *Transfer payments to persons.* Something analogous to government subsidies for products happens in the labor market when the government offers social benefits or "transfer payments" to workers. But the economic consequences depend largely upon conditions on which the payments are granted. Personal transfer payments involve basically three kinds of conditions, with three different results on the employment and income of workers. The first category requires people to be in the labor force but be unemployed to qualify. This would be like the children's parents offering to pay the child "worker" whenever he was not working at the lemonade stand, but at a rate near what the child could earn by so working. This category includes unemployment insurance and welfare payments to the able-bodied that, after paying costs of commuting, etc., exceed the value of labor compensation available from a private job. The result is a surplus of labor that cannot be sold to private employers at the going wage, but which the government, in effect, chooses to purchase at a higher rate, which causes a reduction in market employment and an equal increase in *un*employment.

The second category requires the recipient to be outside the labor force. Such benefits include pay-as-you-go pensions conditioned on retiring from the labor force, as well as disability insurance, which also requires the recipient to be fully or partially disabled from working. This would be like the children's parents offering to pay them, say, to do their homework instead of running the lemonade stand. The result may be a reduction in labor market

employment, but not an increase in unemployment, since to receive the benefit recipients must leave the labor force.

The third category requires the recipient to be employed. This category includes an Earned Income Tax Credit or "workfare." Such benefits are analogous to an arrangement by which one of the parents donated part of his or her own salary to pay the child "worker" an extra dollar an hour in addition to any compensation the child derived from making and selling lemonade. This kind of benefit neither reduces employment nor increases unemployment. Instead, income is transferred from employed workers with higher incomes to employed workers with lower incomes.

Thus, the problem of unemployment is inextricably linked to the question of the overall distribution of income between workers and property owners—and particularly to the policies adopted by modern governments to affect that distribution. The updated version of Rueff's Law sheds a great deal of light on pinpointing which social policies, ostensibly intended to help the poor and particularly low-income workers, actually do so—and which policies actually worsen the situation of those they are supposed to help.

To calculate the relative price of labor accurately, we must therefore make three adjustments.

First, taxes on workers should be subtracted from net labor compensation (and taxes on property income from net property compensation). Second, transfer payments to persons should be made to add to the net cost of labor compensation (since the payments are not received by owners of property), while any subsidies to property owners should be added to net property compensation. Third, capital consumption must be subtracted, because using up wealth requires investing current income to replace it. Subtracting capital consumption (and sales taxes) from gross national income (GNI) leaves net national income (NNI).[223]

In other words, though all net income is originally produced and earned by two factors—workers and owners of productive property—the income is finally split three ways: part goes to workers as take-home pay after taxes and transfers to employed workers; part goes to property owners as property compensation after taxes and subsidies; and part is transferred to persons who do not contribute to current output. Under these circumstances, the net cost of labor is no longer the share of income actually received by employed workers, but rather the

[223] However, as noted above, the government calculates the consumption of nonhuman but not human capital, which is equally real.

share of total net income *not* received by owners of property—which is equal to employed workers' take-home pay plus net transfer payments to persons.[224]

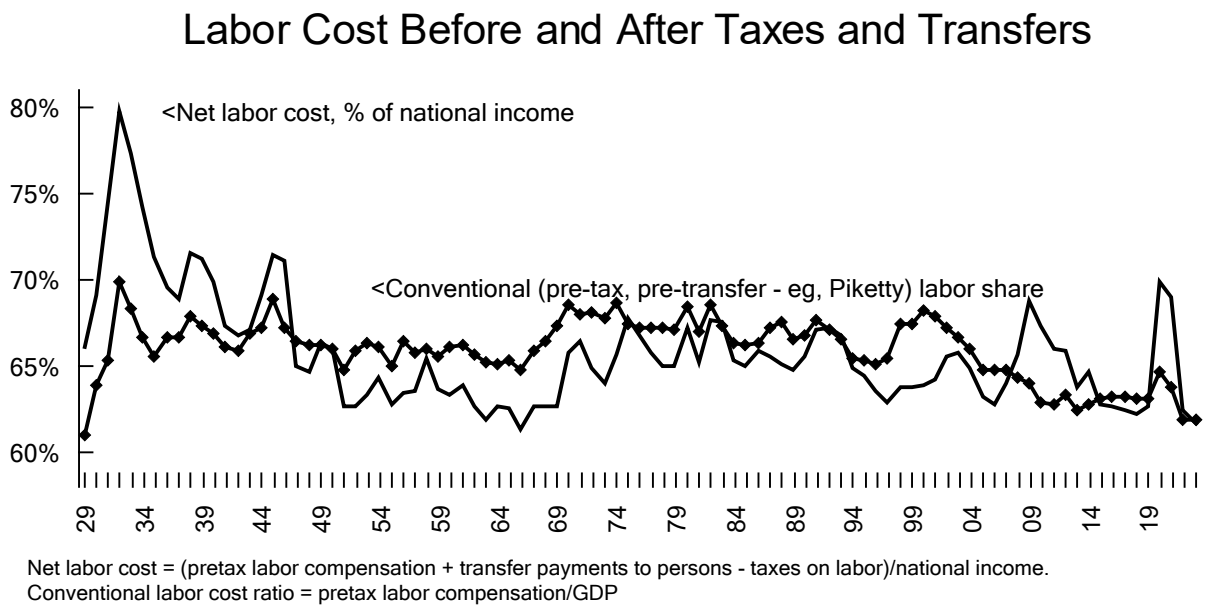
To estimate the relative price of labor on this basis, I went to the national income and product accounts and calculated pretax labor compensation (including fringe benefits and the government's estimate of self-employed labor income, which had to be reconstructed before 1947), plus after-tax transfer payments to persons, minus personal and payroll taxes on labor compensation.

Including taxes and government transfer payments reveals that the actual change in workers' take-home pay as a share of national income is often quite different from the share as conventionally calculated without the adjustments.[225] For example, take-home pay rose from 2000 to 2004 as a share of national income, while the conventional calculation showed the labor share declining—a fact which was made the basis of much ill-informed controversy and many well-intended but misguided policy recommendations.

[224] $L/L_{pot} = c_1 + b(1-\tau)[(1-p)wL+T_L]/(PQ-C_K)$; that is, employment as a share of the labor force is a function of labor's net share of national income, where c_1 is a constant, L is actual employment, and L_{pot} is the labor force (maximum potential employment), so L_{pot}—L is the number of (hours or workers) unemployed and $1-L/L_{pot}$ is the unemployment rate. When unemployment is eliminated, $L=L_{pot}$. Since actual employment can never exceed potential employment, and actual employment is a function of labor's share of total income, labor's net share of total income can never fall below $1-a \cong 0.6–0.7$. No matter how "greedy" employers are, their greed will cause them to hire workers, thus raising workers' incomes, as long as it is profitable to do so. It stops being profitable when $L=L_{pot}$.

[225] *E.g.,* PAUL GOMME & PETER RUPERT, FEDERAL RESERVE BANK OF CLEVELAND, MEASURING LABOR'S SHARE OF INCOME (2004), *available at* http:// www.clevelandfed.org/Research/PolicyDis/N07Nov04.pdf; Michael R. Pakko, *Labor's Share,* NAT'L ECON. TRENDS, Aug. 2004, *available at* http://research. stlouisfed.org/publications/net/ 20040801/cover.pdf.

Figure 3-5



Moreover, unlike the gross measure, the net cost of labor calculated in this way is highly correlated with the unemployment rate. The following chart shows the relationship for the United States since 1929 (the earliest year for which sufficiently detailed statistics are available).

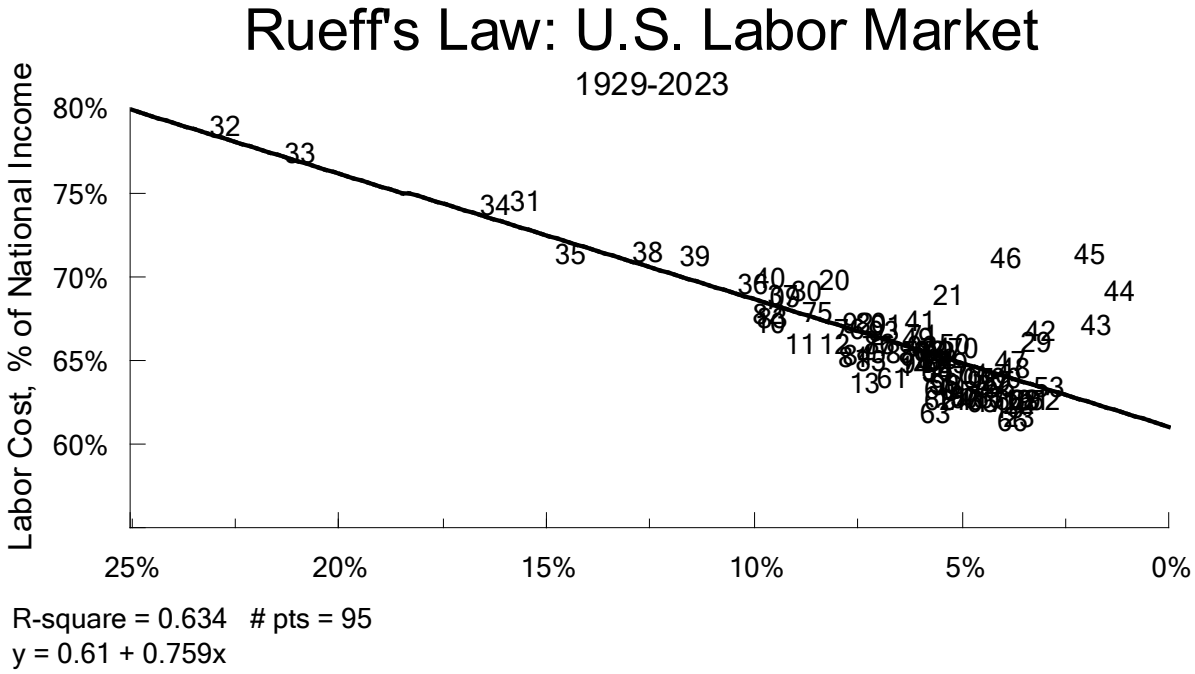
The higher the net labor cost, the higher the unemployment rate. Labor's share of actual national income reached 78% at the depth of the Great Depression; at the same time, unemployment peaked at nearly 23%.[226] The lower the net labor cost, the lower the unemployment rate. But, again as theory predicts, there is a limit, set by full employment, below which labor's net share of national income has never fallen. The lowest net labor share of national income since 1929 was about 59% and coincided with the lowest unemployment rate on record: 1% at the peak of the World War II boom in 1943. Since then, labor's share of national income has always been higher and has been mirrored by changes in unemployment.

Yet while labor's net share of national income, including transfer payments, has risen since World War II, the share received by employed wage-earners has declined. The entire difference is due to transfer payments to persons who are not employed in the labor market.

[226] As currently calculated. Before World War II, workers employed on public works projects were counted as unemployed, which raised the peak rate reported at the time to about twenty-five percent.

If we plot unemployment against the total net labor cost for all years, we have the updated version of Rueff's Law—in effect, the demand curve for labor services in the United States.

Figure 3-7



On average over the whole period, each 1 percentage point change in net labor cost, as a share of national income, has been associated with a 1.1 percentage point change in the rate of employment in the opposite direction, and in the unemployment rate in the same direction.

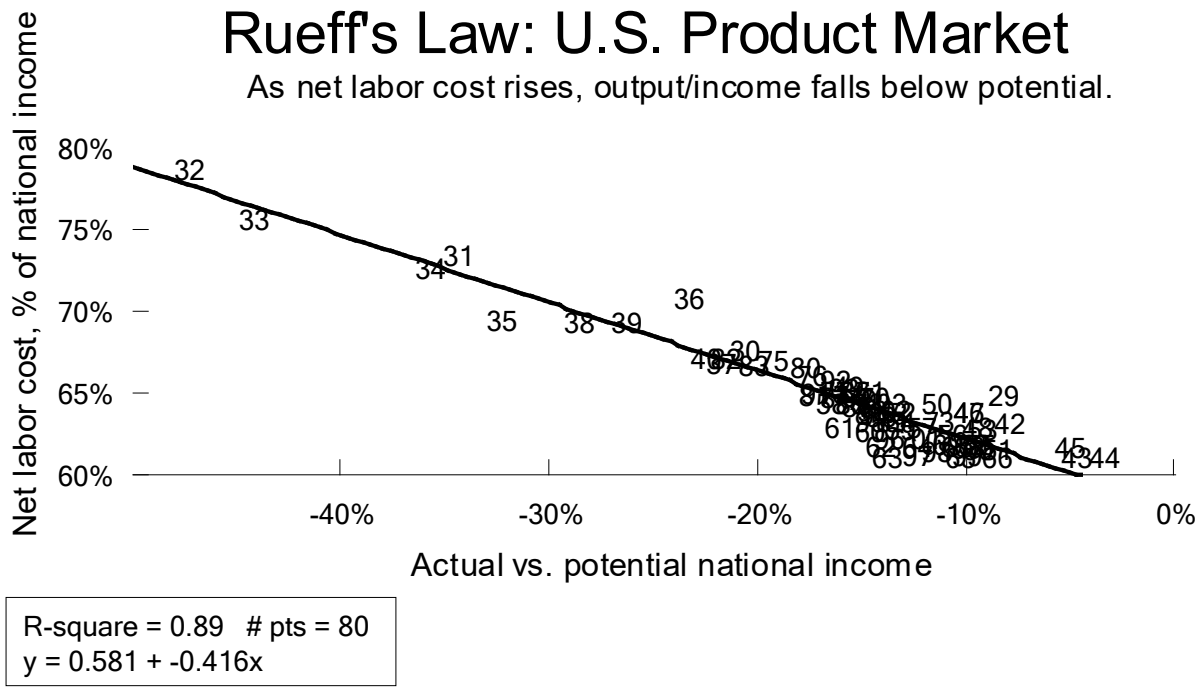
Net labor costs and national output/income

As both workers and productive property are necessary for any increase in production, in approximately constant proportions, every increase in unemployment is associated with a proportional decline in output relative to the level that could be achieved if all workers were fully employed.[227] This difference is often described as the "GDP gap," but for our purposes it makes more sense to express it in terms of the "national income gap."

[227] $NI/NI_{pot} = c(L/L_{pot})$; empirically, $c \cong 2$. When expressed in terms of GDP, this relationship is sometimes called "Okun's Law." The output gap is derived from that of the Congressional Budget Office, which is based on CBO's estimate of the Non-Accelerating Inflation Rate of Unemployment, which has frequently changed. The measure used here is based instead on output if all workers were employed: zero unemployment.

If we plot the relationship between the net cost of labor and the “national income gap” for all years, we find that the two series trace a relationship quite similar to that between the net cost of labor and the unemployment rate. This is not surprising, since the gap is estimated in relation to some measure of full employment. The only difference is that the change in real national income is twice as large as the change in employment. The main reason is that national income includes both labor and property compensation, and property compensation varies by a multiple of the corresponding change in labor compensation.

Figure 3-8



Over the period since 1929, every 1 percentage point rise in the U.S. net labor cost has been associated with about a 2.2 percentage point decline of national income below its potential at full employment.

The net effect on real labor income

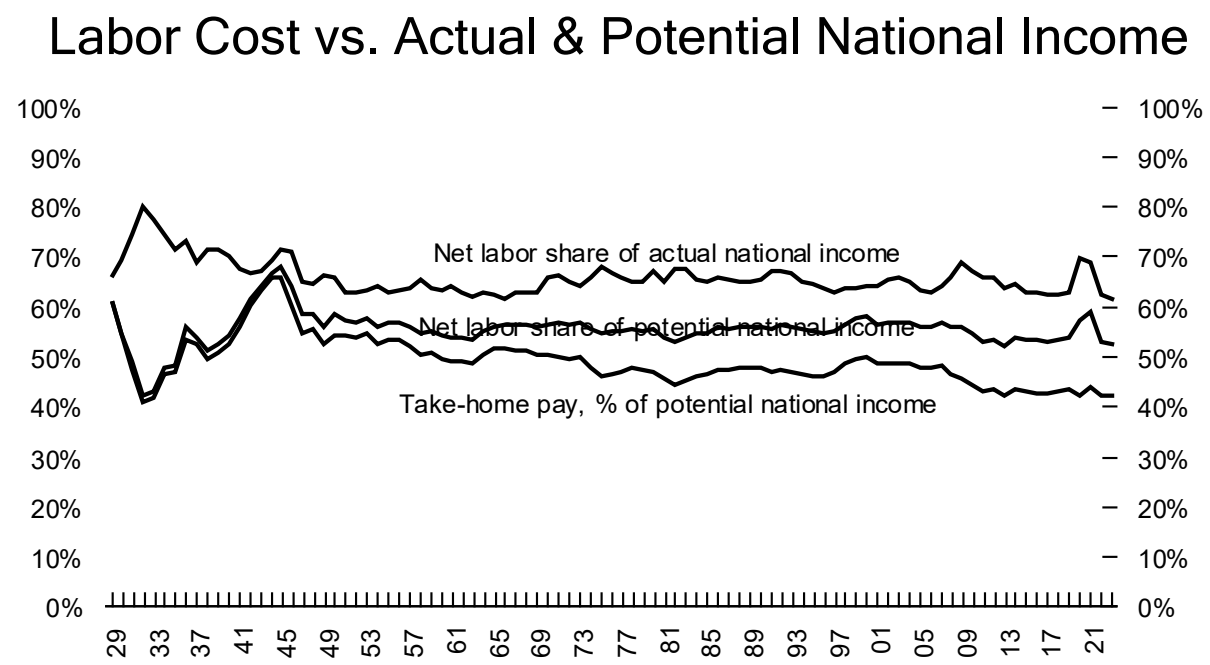
We have found that economic policies (or any other circumstances) that alter the net shares of total national income between workers and property owners have two effects, which work in opposite directions. On the one hand, reducing the relative income share received by property owners necessarily increases the relative remaining share, which goes to employed workers and recipients of transfer payments. (I will call this combined share "net labor cost" for simplicity.) On the other hand, reducing the relative share of net income received by property owners raises the unemployment rate and lowers total actual national income, including the labor compensation of employed workers, in absolute terms.

Thus, not only the cost of labor and employment, but also total output and income, are all tied in a unique relationship. Labor's net share of income is inversely related to employment; but employment is positively related to output and income (including labor income). Total labor income including take-home pay and transfer payments is positively related to national income, and inversely related to labor's share of national income.

Why is this? For any given equipment, organization, and technology, each extra hour of labor has less equipment to work with, and so adds less to output than the previous hour. Therefore total employment, output, and national income increase in absolute terms; but the "efficiency wage"—the share of labor compensation in total national income—must fall. However, labor's share of income must stop falling when full employment is reached because, if no more labor is forthcoming, labor's relative contribution to extra output cannot decline any further. Similarly, labor's income share rises with unemployment, because the last unit of labor hired has more capital to work with; but real labor income falls, because employment and national income are cut back.

It is crucial, therefore, to know the net result of both effects,; for this will determine whether workers, as owners of "human capital," are better or worse off if they seek a larger share of lower national income or a smaller share of a larger national income. W And we can answer this by comparing the shares of actual national income with potential national income, which is the total national income that would be realized if all workers were employed.

Figure 3-9



The comparison cannot be taken as precise, but it does indicate the general order of magnitudes involved. The most significant fact is that while net labor income (take-home pay plus net transfer payments) has never fallen *below* 62% of *actual* national income, it also has never *exceeded* 66% of *potential* national income. What this means is that, under the best of circumstances, the *gains* in net labor income due to a larger *share* of national income have never significantly exceeded the absolute *losses* caused by the associated fall in national income; yet the losses of net labor income associated with higher unemployment have often significantly exceeded the gains from an increased share.

This answers the question of whether workers as a group can increase their real income by ceasing to be employed in the labor market and instead collecting transfer payments while unemployed or remaining outside the labor force. The analysis strongly indicates that most transfer payments are inherently funded by reducing the take-home pay of employed workers. It also points to the central importance of measures that will increase earning ability, particularly increased education.

Different transfer payments, different effects on shares of income

The same analysis permits us to break the net cost of labor down into its components, and thereby see the different economic results of different tax-and-transfer programs. When we look at transfer payments, we should find that those transfer payments to the unemployed raise labor's share of national income, while transfer payments to persons outside the labor force are matched by a reduction in take-home pay as a share of national income. (Both should reduce labor market employment and lower market production and real national income.) And this is in fact what the data tell us.

The graph shows that, apart from cyclical variations, the changes in labor's share of income since the Second World War are approximately equal to the change of benefits to the unemployed (mostly unemployment insurance and welfare to the able-bodied), while the fall in take-home pay is equal to the rise of benefits to persons outside the labor force (mostly transfers to the aged and disabled).

While the effect of fiscal policy on unemployment is unambiguous, its effect on overall labor-market participation is not. This is because government transfer payments to persons are in some measure substitutes for transfer payments between men and women within the household. We have seen that marriage involves a specialization of roles. Generally, each couple's choice depends on each partner's labor-market earnings ability and whether the couple is currently raising dependent children. Since men's average lifetime labor market earnings are on average about twice as high as women's,[228] it is usually the husband who works more in the labor market than the wife. The co-variation in transfer payments as a share of national income and men's and women's labor-market employment suggests that without any government transfer payments to persons, the labor-market employment of men would be about 89% and the labor-market employment of women would be about 25%.

As the share of government transfer payments in national income has risen, the labor-force participation of men has fallen, while the labor-force participation of women has risen. The employment/population ratio for men has fallen by about 2 percentage points for each 1 percentage point increase in transfer payments as a share of national income. But for women,

[228] This estimate is from John D. Mueller, "Winners and Losers from 'Privatizing' Social Security," Washington, DC (March 1999), a study commissioned by the National Committee to Preserve Social Security and Medicare but undertaken in cooperation with the Employee Benefits Research Institute (EBRI) and Policy Simulation Group; a summary of findings was presented at a hearing on "Investing in the Private Market" before the Subcommittee on Social Security of the Committee on Ways and Means of the U.S. House of Representatives on March 3, 1999; Serial 106–13, Committee on Ways and Means, US Government Printing Office; http://bulk.resource.org/gpo.gov/hearings/106h/57507.pdf, last accessed 29 November 2007. The text only of the summary is available at http://www.eppc.org/publications/pubID.2369/pub_detail.asp, last accessed 5 December 2007.

the relationship is more complicated. As with men, the employment/population ratio has fallen about 2 percentage points with each 1 percentage point increase in transfer payments conditioned on being unemployed (mostly unemployment insurance and welfare to the able-bodied). But women's employment/population ratio has risen by about 4 percentage points for each 1 percentage point increase in transfer payments to persons outside the labor force. This is partly because the rise of transfer payments has lowered take-home pay for all workers as a share of national income. Unless they are disabled, most married women under age sixty-five do not qualify for such transfer payments, but many have entered the labor force to help make up for the relative decline of earnings by husbands—a decline, however, which is reinforced by the increased supply of highly educated women in an economy based increasingly on knowledge rather than physical strength.

Thus, we have our answers to the two questions that we set out to answer about the effects of fiscal policy on employment. First, the variation in the unemployment rate is almost entirely explained by the variation in the net cost of labor as a share of national income. Fiscal policy increases unemployment when transfer payments to persons increase the net labor share of national income, and this can occur in two ways: first, when transfer payments are conditioned on not being employed in the labor market (as with unemployment insurance and welfare for the able-bodied), and second, when transfer payments to persons are funded by taxes on property income rather than labor income. Second, the overall labor force participation and the employment/population ratio have risen because the labor-force participation of women has risen over the past half-century by more than the labor-force participation of men has fallen. This is labor-force participation of women has risen and the labor-force participation of men has fallen for the same reason: the rise in government transfer payments to persons, which substitute for the transfers that occur within the household between married men and married women.

In order to weather the "demographic winter" that has struck developed Europe and Asia, social benefits must not increase significantly as a share of national income and must continue to be financed by taxes on labor income, while general government is funded by an income tax that falls equally on labor and property income.

The Phillips Curve's disappearance

After dominating discussion of macroeconomic policy for several decades, the Phillips Curve disappeared just as its partisans were preparing to celebrate its 60th anniversary. This fact strongly suggests that economists must re-learn Rueff's Laws of Unemployment and Inflation.

"Every prejudice, which has long and extensively prevailed among the educated and intelligent," John Stuart Mill once observed, "must certainly be borne out by some strong appearance of evidence; and when it is found that the evidence does not prove the received conclusion, it is of the highest importance to see what it does prove" (Mill, 1844). Since countless economists, policymakers and central bankers still presume (and teach) the Phillips Curve, its abrupt disappearance requires us to ask what the Phillips Curve ever did prove.

Since shortly after its first graphical exposition (Phillips 1958), a "Phillips Curve" tradeoff between inflation and unemployment has been advocated by followers of John Maynard Keynes (Samuelson and Solow 1960, Blaug (1962) cf. Friedman 2010, Schwarzer 2013) and used as a primary input into policy decisions by the Federal Reserve and other official monetary authorities (Gordon 2011, Lipsey 2016). Understanding the failure of empirical evidence to support the Phillips Curve is therefore crucial for understanding its influence on monetary policy.

The Phillips Curve apparently had the twin attractions of a strong appearance of evidence and sometimes elegant theoretical parsimony (e.g., Ball and Mankiw 2002). Yet its implicit economic theory was always anomalous in at least two ways: First, it attempted to explain a "real" variable, the unemployment rate, with a nominal variable, the rate of change in a price or wage index. Second, though inflation is essentially ("always and everywhere" according to Friedman 1968) a monetary phenomenon, the Phillips Curve theory did not include any form of money.

Moreover, before its demise the Phillips Curve appeared to shift substantially. As Roberts (2006) summarized: "Since the early 1980s, the U.S. economy has changed in some important ways: inflation now rises considerably less when unemployment is low, and the volatility of output and inflation have fallen sharply. This paper examines whether changes in monetary policy can account for these changes in the economy. The results suggest that changes in monetary policy can account for most or all of the change in the inflation-unemployment relationship. In addition, changes in policy can explain a large proportion of the reduction in the volatility of the output gap."

The reduced form of the Phillips Curve used by Roberts (2006) is

$(\pi_t - \pi_{t-4}) - (\pi_{t-4} - \pi_{t-8}) = \Upsilon_0 + \Upsilon_1(\Sigma_{i=0,3}\ uer_{t-i})/4$ (1)

where $(\pi_t - \pi_{t-4})$ indicates the four-quarter percent change in core PCE price inflation and *uer* is the civilian unemployment rate.

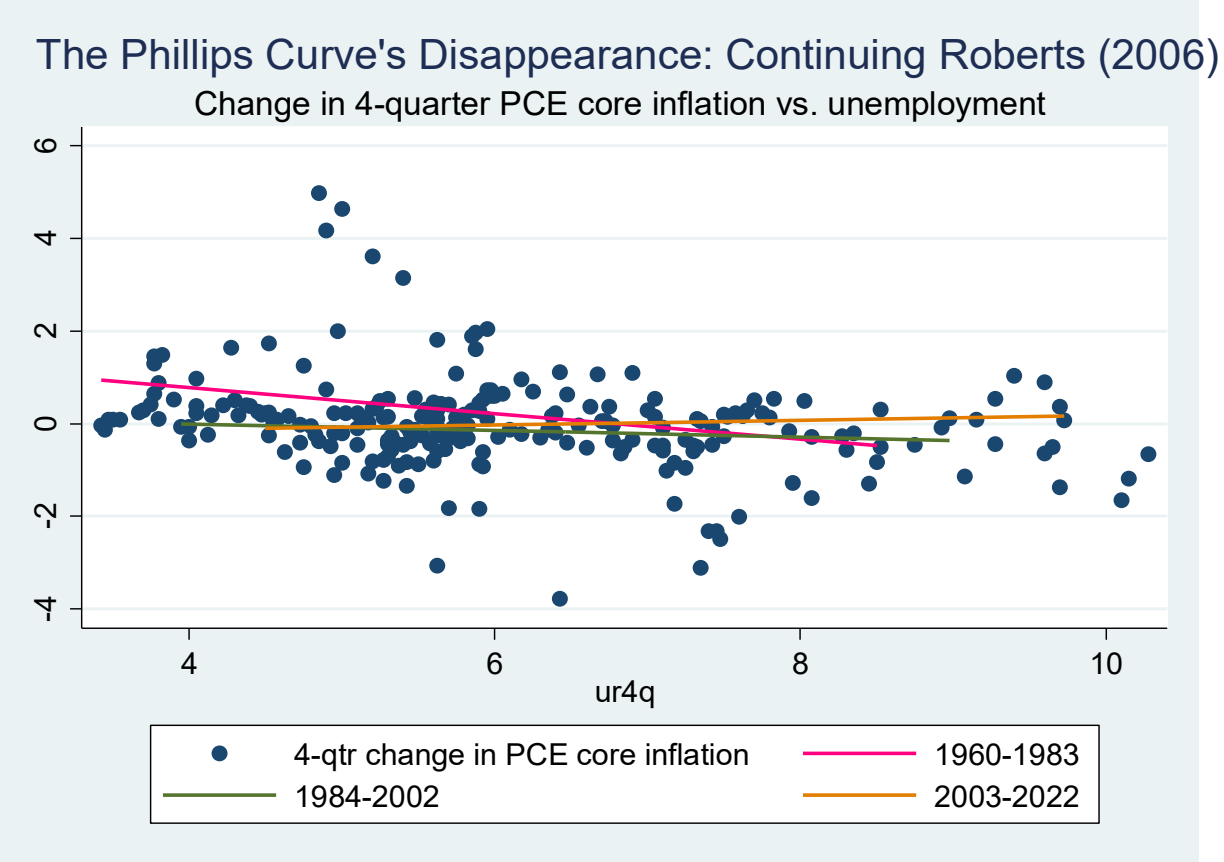
Table 3-1

The Disappearance of the Phillips Curve

	Core PCE deflator	Unemployment Rate	CBO Output Gap
2003:Q1-2023Q4)	**.0208**	**.057**	**.005**
	(.124)	**(.05)**	**(.003)**
1984:Q1–2002:Q4	**.0272**	**.072**	**.355**
	(.114)	**(.048)**	**(.071)**
1980:Q1–1983:Q4	**.0702**	**–.00378**	**.207**
	(.022)	**(.078)**	**(.043)**
1960:Q1–1979:Q4	**.042**	**–.00281**	**.355**
	(.026)	**(.115)**	**(.071)**

Roberts's measurement began in 1960Q1 and ended in 2002:Q4. But updating the same model yields the results shown in Table 3-1I. Rather than merely *shifting*, the Phillips Curve has disappeared altogether. Instead of a smaller *inverse* tradeoff between inflation and unemployment, in 2003Q1-2023Q4 there was actually a slightly *positive* (albeit not statistically significant) relationship between unemployment and inflation, as shown in Figure 3-10.

Figure 3-10



Keynes's Economic Model

Blaug (1962, 654ff) simply and elegantly presented the core of the Keynesian system as follows:

"The first and still most widely accepted interpretation of Keynes's meaning is the so-called 'income-expenditure model' associated with the names of John Hicks and Alvin Hansen…. If we ignore the government sector and the complications of the balance of payments, this Hicks-Hansen model of Keynes can be represented by five equations:

"The income function: $Y = C(Y,r) + I(Y,r)$. (1)

"The demand for real balances: $D_n = L(Y,r)$. (2)

"The aggregate production function: $Y = f(N)$ *with* $f'(N) > 0$ *and* $f''(N) < 0$. (3)

"The demand for labour: $f'(N) = F(w/\Pi)$ (4)

"The supply of labour: $N = N(w/\Pi)$ when $w \geq w'$. (5)

To explain his notation, Blaug added, "Y has hitherto referred to total money income. It will simplify the notation in this chapter if we now let it stand for the net national product at

constant prices or total money income divided by a price index of goods and services entering into NNP. We have used *C* before to mean fixed capital. But traditional usage demands that we use it now for real consumption. All the other variables have the same meanings as before. Labor is the only variable factor of production and the labor demand schedule is derived by taking the first derivative of the aggregate production function. The demand and the supply of labor are functions of the *real* wage rate, and indeed all the equations are functions of 'real' values...."[229]

Blaug helpfully added detailed charts and discussed several different interpretations of what Keynes "really meant," before concluding: "The *General Theory* is simply an untidy book—like Ricardo's *Principles,* Marx's *Capital* and Bohm-Bawerk's *Positive Theory*—that contains not one, not two, but three or four 'models' of the workings of a modem economy."

From the beginning, both partisans and opponents of Keynes's *General Theory* were bedeviled by the difficulty in understanding his theory of "unemployment equilibrium," and exactly which assumptions he was making. Donald Patinkin took a common-sense approach to argue that unemployment equilibrium ''is an indefensible position. For flexibility means that the money wage falls with excess supply, and rises with excess demand; and equilibrium means that the system can continue through time without change. Hence, by definition, a system with price flexibility cannot be in equilibrium if there is any unemployment'' (1948, 562). Others, perhaps most, like Barro and Herschman (1971), followed Patinkin's lead in seeking to explain the dynamics of unemployment disequilibrium.

But we may see these complications for two reasons: first, in order to focus on what Blaug correctly called "the first and still most widely accepted interpretation of Keynes's meaning"; second, because Rueff's interpretation of unemployment is compatible with general equilibrium even as described by Patinkin—but for reasons quite different from Keynes's.

We noted above two of Keynes's simplifications (as Blaug paraphrased them): "we ignore the government sector and the complications of the balance of payments"). Such omissions may be and have been rectified (e.g. as summarized in Mundell 1968 and Mundell 1971) by adding and substituting equations as necessary, while retaining the system's essential simplicity. For example, to include both the government and an open rather than closed economy, the income function is now typically rewritten as

[229] I changed Blaug's notation slightly, altering P to Π and p to π to avoid confusion with *p*, which represents payroll taxes in equation 4(a) below.

Income function: $Y = C(Y, i) + l(Y, i) + G + B + [(X - M) \equiv NX]$ (1a)

where *G* is government spending on goods and services (typically financed by an income tax τ), *B* is social benefits distributed to persons (typically financed by a payroll tax *p*), *X* is exports and *M* imports of goods and services, and *X* - *M* is defined as net exports, *NX*.

As Blaug further noted, "Labor is the only variable factor of production," even though equation (1) includes investment *I* in another productive factor, so-called nonhuman capital. Thus the production function may be rewritten:

Aggregate production function: $Y=f(K, N)$ *with* $f'(K) >0, f''(K)< 0, f'(N)>0, f''(N) < 0$. (3a)

Finally, although equation (2) specifies the demand for real balances, there is no corresponding equation for the supply of real balances, even though, as Blaug noted,. Keynes implicitly assumed that "the money supply [is] an exogenous variable determined by the monetary authorities." This omission also may easily be remedied by substituting the typical equation for the corresponding "M" part of the usual Hicksian IS-LM model:

Supply of real balances: $M_N/\Pi = f(Y, i)$ (6).

where M_N is the supply of base money and Π is the index of product prices.

We note further that Keynes's model omits logically necessary microeconomic foundations, including the utility function, from which any economic agent's demand curve is derived (as in equations 2 and 5), as well as omitting a function specifying each agent's distribution of income or wealth among him- or herself and other agents: an equation describing personal gifts and/or what Aristotle called domestic or political "distributive justice"; this omission is typical in modern Neoclassical Economics, but corrected in Neoscholastic Economics.

Every individual economic agent's utility function may be described as a scale of preference for non-persons k, which is expressed in the familiar Neoclassical utility function: The theory of *utility* describes how we value (or rank or prefer) the scarce human and nonhuman goods we choose as the means to be used (consumed) by or for the persons who are the end or purpose of our action.[230] The consumption levels of two types of good *E* and *F* may be described as

[230] (2) $U_i = f(C_{Ki}, C_{Li})$ [utility function],

$$U = U(E^{\gamma}F^{\delta}) \qquad (9)$$

where γ and δ are constants and γ + δ = 1. A utility-maximizing consumer will spend a proportion γ of his budget on good *E* and a proportion δ on good *F*.

But every economic agent's distribution function must also be described, also a scale of preference, but for persons rather than things, expressed by agent *i*'s distribution of income Y_i between himself, S_{ii} and other persons, O_{ij}:

Distribution function. The Cobb–Douglas function is used most often in Neoclassical Economic Theory to describe production (as in equation 10 below) and consumption (as in equation 9 above. But here we will apply it also as the distinguishing feature of Neoscholastic Economic Theory: the distribution function, which must be included to prevent the "underdetermination" which is endemic to the Neoclassical system. Let the shares of income Y devoted to two types of person, self *S* and other *O,* be described as

$$Y = Y_S^{\alpha}Y_O^{\beta}, \alpha + \beta = 1 \qquad (10).$$

Aristotle (and Aquinas following him) referred to the formula for distributive justice as the "geometric ratio" which matches the distributive shares α and β with the relative significance of the persons *S* and *O* (to *S*). The most common example of distributive justice is the gifts of existence, rearing and instruction which that parents make to their dependent children. (Empirically, according to Mason and Lee, considering private transfers alone, $\alpha + \beta < 1$ when age ≤30, and $\alpha + \beta < 1$ when age ≥ 30, particularly when age ≤ 49. That is, parents support dependent children (while also saving for their own retirement) and continue to make net transfers to other family members throughout their own adult lives.)

Similarly, in the case of a marriage M, for-profit business partnership P, non-profit partnership J, or government G, each member shares in determining the joint distribution function. The form is the same as in equation (10), except that decisions are made jointly rather than by an individual.

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where U_i is the ranking by Person *i* ("utility") of $C_{Ki,}$ and $C_{Li,}$ the units consumed in use by Person *i* of the services of his or her nonhuman goods, $K_{i,}$ and human capital, $L_{i,}$ respectively. In reality, K and L are not two goods but two classes of goods consumed: (K_1, K_2, . . . ,K_n) and (L_1, L_2, . . . ,L_n). Scarcity implies that the value of each unit consumed declines as the number of units increases ($\delta U/\delta C<0$: "declining marginal utility"), and that goods are "used up"—that is, rendered unusable—by consumption (for example, $C_{Ki} = -\Delta K_i$).

Omitting either the utility or distribution function results in the model's "under-determination," by virtue of containing fewer explanatory equations than the variables requiring explanation.

Nevertheless, with this handful of essential corrections, Keynes's model may still be simply explained, using what Blaug calls "the first and still most widely accepted interpretation of Keynes's meaning," which is also the way Keynes's model is still taught at the graduate and advanced undergraduate levels (though as noted, usually omitting equation [10,] which distinguishes Neoscholastic from Neoclassical Economics).

Rueff's revision of Keynes's Economic Model

Rueff has been called the "anti-Keynes" (Gregg 2018). But perhaps it is better to say, acknowledging their reciprocal influence, that debating Rueff helped Keynes become Keynes, while debating Keynes helped Rueff become Rueff.

Rueff recast Keynes's model in two basically simple yet important ways affecting economic policy. First, though Rueff clearly influenced Keynes's treatment of the demand for labor in the *General Theory*, Rueff effectively rewrote equation (4) by recasting the demand for labor in terms of *net unit labor costs* rather than (like Keynes*)* the *gross real wage rate,* as follows:

Rueff's Law of Unemployment: $f'(N) = f(nulc) = f([wL + B - \tau - P)/Y]$ (4a),

where w is the hourly wage rate, *nulc* is net unit labor costs, N the number of hours worked, B social benefits to workers and their dependents, τ is the income tax, P the payroll tax, and Y net national income (= πQ *[GNP]* – δ), where πQ is total output and δ is total depreciation or capital cost allowances.

Since $wL/\pi Q = (w/\pi)/(Q/L)$, labor's share of total net national income is equivalent to adjusting the average hourly wage rate for both product prices (Π) and labor productivity (Q/L).

We note that equation (4a) for net unit labor costs results from adding and netting the distributions of economic agents, whether these represent individual persons, for-profit or non-profit partnerships, or governments, as described for an individual in equation (10).

Second, by calling attention to the "credit duplication" caused by foreign exchange reserves, an innovation which Keynes had long advocated (Keynes 1913), Rueff also effectively rewrote equation (6) of the Keynesian model as follows:

Rueff's Law of Inflation: $\pi = f(M_w, N_{mfg})$ (6a)

where the inflation rate π is now a function of the world base money in the currency, (Mw)— for the United States, the World Dollar Base), which comprises total domestic (M_0) plus foreign official (R) monetary liabilities, and N_{mfg} is manufacturing employment. The so-called Triffin Dilemma (named after the Belgian-American economist Robert Triffin, though based on Rueff's insight) describes how any reserve-currency country becomes deindustrialized because its product price level rises faster than those of its trading partners.

Both of Rueff's changes to Keynes's model require further explanation.

Rueff's Law of Unemployment

The American economist Irving Fisher had already remarked in 1926, more than three decades before Phillips, upon the apparent tradeoff between price changes and the unemployment rate for the period 1861-1925 (Fisher 1926). And not long after Phillips's 1958 article, Milton Friedman used evidence from a nearly identical period in the United States (1867-1960) to advocate targeting the domestic money supply (Friedman 1960).

But in a 1932 lecture, Rueff had highlighted a key fact which accounted for the regularities later noted by Fisher (and Phillips and Friedman): From the mid-19th to mid-20th centuries, all major economies had metallic currencies. Rueff accordingly diagnosed and corrected Keynes's theory by proposing what the French economist Jean Denuc called "Rueff's Law of Unemployment" (Denuc 1930).

Rueff showed in 1925 that the unprecedented appearance of chronic unemployment in Britain in the 1920s closely paralleled the rise in the relative price of labor, which he measured by the average wage rate w divided by an index of product prices, the wholesale price index wpi (Rueff 1925). Rueff further argued that this rise in British real wages was due to the combination of the recently instituted (1911) ''dole,'' or unemployment benefit, in the face of a fall in the product price level following Britain's post-World War I return to gold convertibility in 1925 at the prewar gold parity, despite approximately a tripling of the general (GDP) price level. The same relation between the unemployment rate and real wage rate was quickly found to hold in more than a dozen countries and became known as ''Rueff's Law'' (Denuc 1930). "The astonishing thing is not that this relationship exists," Rueff modestly remarked in his memoirs, "but that it should astonish anyone" (Rueff 1977, 96). Keynes referred to Rueff's empirical relationship between gross real wage rates and the unemployment rate (though without mentioning Rueff) in his appendix to Chapter 19 of the *General Theory* [1936].)

Unit labor costs are still typically measured (e.g., by Piketty 2013 and Piketty 2020) in gross terms, that is, before subtracting taxes and adding such transfer payments as social benefits e.g., unemployment insurance. But according to Rueff's argument, the labor share of national income, or unit labor costs, should be measured in *net* terms: *after* subtracting taxes on workers and adding such transfer payments as social benefits received by workers and their dependents.

Because consistent quarterly or monthly data for some of the necessary series (particularly taxes paid) do not exist, it is necessary to use annual data to test Rueff's Law of Unemployment. For the period 1929-2023 there was about an 76% correlation between net unit labor costs and the civilian unemployment rate. But the National Income and Product Accounts also permit us to measure the effect of specific social benefits on the civilian unemployment rate and the labor force participation rate for both men and women, including each separate social benefit program:

$$lfp = f(nulc) \quad (11)$$

where *lfp* is the labor force participation rate and net unit labor costs are

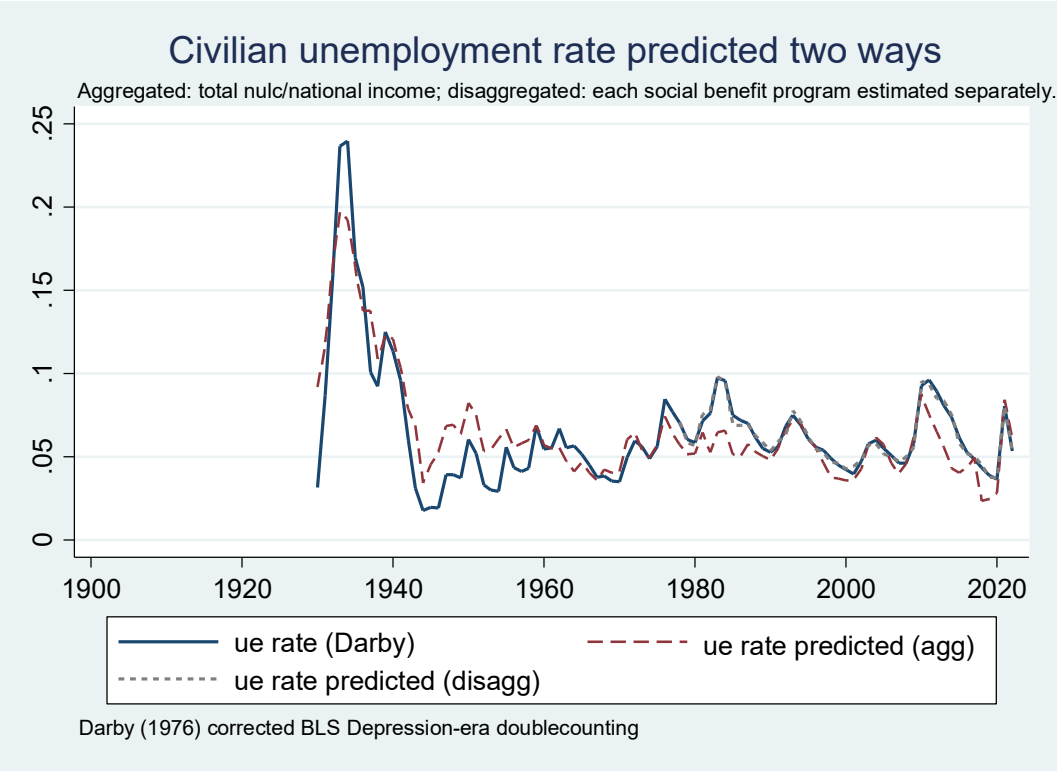
$$nulc = (wL + B - \tau - P)/Y \quad (12)$$

where wL is labor compensation, B social benefits, τ income taxes and p payroll taxes.

Labor force participation rates are calculated for all workers together (*lfp*) but also separately for male and female workers, *lfpm* and *lfpf*. However, as Darby (1976) showed, the BLS series for the U.S. civilian unemployment rate must be corrected for changes in the official definition of unemployment. (During the 1930s, workers receiving public relief through such programs as the Works Projects Administration [WPA], and were double-counted in official calculations as being simultaneously employed and unemployed.) Though there is a continuous series for total labor force participation for both sexes, combined, consistent series distinguishing male from female labor force participation do not start before the late 1940s.

The regressions testing equation (6a) for both the (corrected) civilian unemployment and labor force participation rates are shown in Table 3-2 in the appendix to this chapter.

Figure 3-11



Yet this approach suffers one significant drawback: it effectively gives equal weight to every dollar of income, implicitly assuming that every kind of tax, social benefit or take-home pay is of equal importance in determining both net unit labor costs and their influence on unemployment and labor force participation rates.

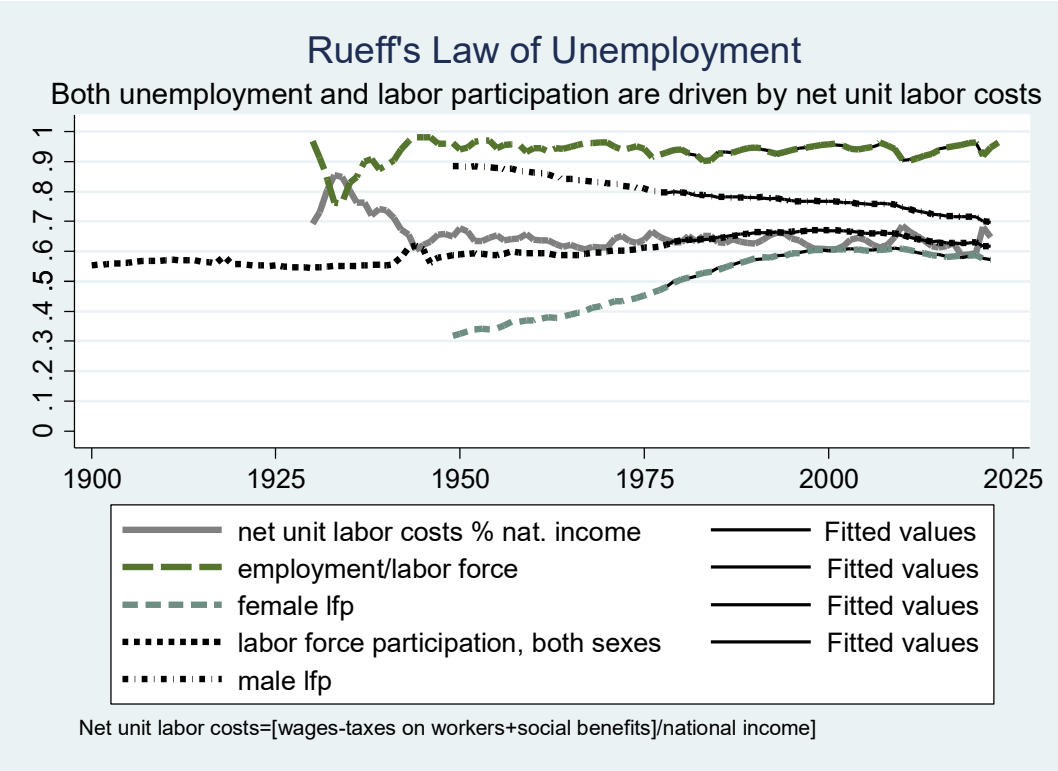
When we include data from each social benefit program separately, we see that Rueff's initial surmise was correct: some social benefits, such as unemployment benefits, which are conditioned upon being unemployed, are much more important than other influences on net unit labor costs. In fact, disaggregation makes it possible to isolate the influence of individual benefit programs and compare them with each other and with the variation in take-home pay as shares of net national income.

Without disaggregation, on balance, each percentage-point increase in net unit labor costs has been associated with about a 1 percentage-point rise in the civilian unemployment rate (and thus about a 1 percentage-point fall in civilian employment). Each percentage-point of national income devoted to the SNAP (food stamp) program is associated with about a 4 percentage- point increase in the civilian unemployment rate and a 6 percentage-point fall in labor force participation. Each percentage point of national income devoted to the state

unemployment insurance is associated with less than 1 percentage-point rise in the unemployment rate, while its influence on the labor force participation rate is ambiguous.
In contrast, emergency unemployment benefits raise the unemployment rate by 4 percentage points (their influence on labor force participation is ambiguous). Refundable tax credits have only a modest (0.5 percentage -point) effect in raising the unemployment rate, while the variation in take-home pay on balance is negligible. Meanwhile, Medicare and Medicaid appear to slightly reduce the unemployment rate while increasing labor force participation, presumably because they make it easier for workers to work, without the disincentives of losing cash benefits. Family benefits appear significantly to increase the labor force participation of men while reducing the labor force participation of women (except SNAP, which strongly reduces labor force participation for both sexes).

Thus, Rueff's Law of Unemployment must be considered as thoroughly confirmed based on annual data from the United States over nearly a century, with the strongest confirmation by disaggregation (separately estimating each benefit program) over the past four to five decades.

Figure 3-10


Rueff's Law of Unemployment
Both unemployment and labor participation are driven by net unit labor costs
0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1
1900
1925
1950
1975
2000
2025
net unit labor costs % nat. income
employment/labor force
female lfp
labor force participation, both sexes
male lfp
Fitted values
Fitted values
Fitted values
Fitted values
Net unit labor costs=[wages-taxes on workers+social benefits]/national income]

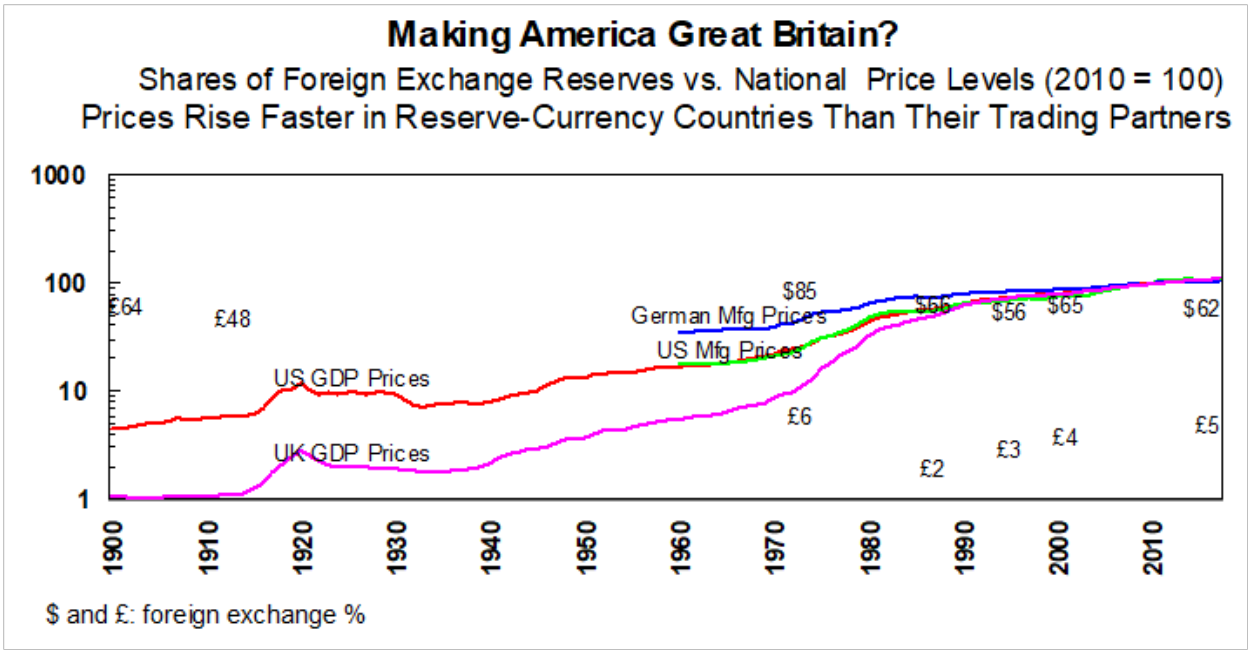
Man as 'political animal': Rueff's Law of Inflation—injustice in exchange

Rueff's disagreement with Keynes allows us to speak not only of what Denuc called "Rueff's Law of Unemployment" but also of "Rueff's Law of Inflation." As already noted, the century-long periods surveyed by Phillips in 1958 and Friedman in 1960 were periods of metallic—mostly gold-convertible—currencies in the U.K. and U.S., thanks to which the general (GDP or consumer) price indices were almost exactly the same at the end as at the beginning of the 19th century.

Keynes had been an advocate of the pound sterling's use as an official reserve currency. He argued in 1913 that whether a monetary authority holds gold or foreign-exchange reserves "is a matter of comparative indifference." Colonial India's "gold-exchange standard," he wrote, "far from being anomalous, is in the forefront of monetary progress" toward what he called "the ideal currency of the future" (Keynes 1913, 30, 259, 36). British experts including Keynes, seeking to forestall redemption of British World War I sterling debts in gold, succeeded in promoting the substitution of foreign exchange for gold as official monetary reserves at the 1922 Genoa Conference. That change ended the international gold standard, which had begun in Genoa in the 1440s after the Hundred Years War. The new gold standard sought explicitly to restore the Roman Emperor Constantine's gold *solidus* (from which the word *soldier* originated, since the coin was used to pay Roman soldiers).

But Keynes was mistaken in his claim that foreign exchange and gold reserves are economically equivalent. Rueff explained in 1932 why the gold-sterling-dollar standard established in 1925 had soon collapsed: With the creation of—for example—dollar reserves, purchasing power "has simply been duplicated, and thus the American market is in a position to buy in Europe, and in the United States, at the same time" (Rueff 1964 [1932]: 52–53). Hence the purchase of official dollar reserves causes inflation (and the sale of dollar reserves, deflation) for all countries with currencies tied to the U.S. dollar as official reserve currency. Moreover, as Figure 3.11 (updated from Mueller 2018) shows, the "credit duplication" makes prices rise *faster* in the chief official reserve-currency country than its trading partners, making its goods more expensive in a common currency (and turning the reserve-currency country from a net international creditor into a net debtor).

Figure 3-11



The gold-exchange arrangement was formalized and universalized again in the Bretton Woods agreement of 1944-1971, under which the dollar was convertible into gold while other currencies were convertible into dollar securities. Though the dollar became inconvertible in 1971, and the system of fixed exchange rates ended in 1973, the now-inconvertible U.S. dollar remained the chief official reserve currency.

Moreover, the so-called Triffin Dilemma is explained directly by Rueff's version of the model, since by consolidating and rearranging equations (1a) and (6b) for all countries, $\sum \Delta R_{ROW} = -NX$: any increase in foreign official monetary liabilities must be balanced by an equal cumulative current account deficit in the reserve-currency country.

These facts have important consequences for (forecasting) inflation, especially in the reserve currency country, which is now the United States. On one hand, the "high-powered" money now comprises not merely *domestic official monetary liabilities* (the U.S. monetary base [$M0], but *all* official monetary liabilities of the reserve-currency country: the World Dollar Base (M_w$: the U.S. domestic monetary base [$M0] plus foreign official dollar reserves [$R]). Because commodities are priced and transacted in dollars, commodity-price inflation in dollars will depend on lagged growth of the World Dollar Base, as well as changes in supply (including world oil production). At the same time, the faster rise of prices of manufactured goods in the reserve-currency country leads to its de-industrialization, so that the so-called "core" inflation (excluding commodities) depends not *inversely* upon the *unemployment rate* (as the Phillips Curve would have it), but *positively* upon *manufacturing employment*.

The GDP price level began to rise far more quickly in the United Kingdom than the United States while the pound sterling was, and before the United States dollar became, the world's chief official reserve currency. But how can we determine whether the reserve-currency system advocated by Keynes was the main reason, as Rueff claimed?

In order to avoid using annual averages for empirical testing of inflation, "Rueff's Law of Inflation" in equation (6) may be restated as

$$(\pi_t - \pi_{t-12}) = \Upsilon_0 + \Upsilon_1 m_{w(t-27)} + \Upsilon_2 oilprod_{(t-1)} + \Upsilon_3 \text{manemp}_{(t-1)} \qquad (6b)$$

where $(\pi_t - \pi_{t-27})$ indicates the 12-month percent change in the PPI all-commodities price index, $M_{w\ (t-27)}$ is the change in the World Dollar Base lagged 27 months, $oilprod_{t(-1)}$ is world oil production lagged 1 month, and $manemp_{(t-1)}$ is manufacturing employment lagged one month. The Newey-West procedure is used to correct autocorrelation of residuals.

Table 3-3
Evidence for Rueff's Law of Inflation in the United States:
World Oil Production is Almost or Entirely Statistically Insignificant
Regressions with Newey-West standard errors

	(1) wpic 1913-2022	(2) wpic 1939-2122	(3) wpic 1959-2022	(4) pcndc 1959-2022
L27.mwc	0.181	0.324	0.271	0.222
	(0.0337)	(0.0234)	(0.0233)	(0.0155)
L.manemp		0.00624	0.00952	0.00829
		(0.000741)	(0.00106)	(0.000662)
L.ieawcrs			0.000272*	0.0000802
			(0.000122)	(0.0000784)
_cons	0.0148	-0.0918	-0.164	-0.130
	(0.00358)	(0.0123)	(0.0220)	(0.0142)
N	1235	962	720	719

Standard errors in parentheses.

Note to abbreviations: wpic =12-month change in PPI All Commodities Index (former Wholesale Price Index)

pcndc = 12-month change in Personal Consumption Expenditures price index for nondurable goods

L27.mwc = 12-month change in World Dollar Base, lagged 27 months

L.manemp = U.S. manufacturing payrolls, lagged 1 month
L.ieawcrs = International Energy Agency monthly series for world crude oil production, lagged 1 month.

The PPI all commodities index begins much earlier (in 1913) than the personal consumption expenditure series for nondurable goods, but the series for manufacturing payrolls only in 1939. If we drop the manufacturing payrolls variable, the World Dollar Base variable remains highly statistically significant, but the R^2 is cut in half, indicating that manufacturing payrolls are also highly significant. This fact also suggests that official reserve-currency status entails deindustrialization for the United States, as it also did for Great Britain when the pound sterling was the world's chief official reserve currency (the so-called Triffin Dilemma). The same two variables, the World Dollar Base and manufacturing payrolls, are still more significant in explaining variation in the price deflator for the prices of nondurable goods, such as food and gasoline, than for the broader PPI index for all commodities. The monthly series for PCE nondurable goods series begins in January 1959. The optimum regression, again using the Newey-West procedure, lags the annual change in the World Dollar Base by 27 months and manufacturing payrolls by one month. With t-statistics of about 15, both variables are significant at the 0.0000 level. The double-digit inflation of the 1970s is typically explained as having resulted from "supply shocks" attributable for example to the OPEC oil embargo of 1973. Ball & Mankiw (2002) added such a variable to their Phillips Curve equation (without which the equation was statistically insignificant).

To test its influence, I added world oil production to the equation for Rueff's Law of Inflation:

$$(\pi_t - \pi_{t-12}) = \Upsilon_0 + \Upsilon_1 M_{w(t-27)} + \Upsilon_2 \text{manemp}_{(t-1)} + \Upsilon 3\ ieawcrs_{(t-1)} \qquad (6c)$$

where $(\pi_t - \pi_{t-12})$ is the 12-month change in the personal consumption expenditures price deflator for nondurable goods, $M_{w(t-27)}$ is the 12-month change in the World Dollar Base lagged 27 months, and $ieawcrs_{(t-1)}$ is the International Energy Agency's monthly series for world oil production lagged one month. The Newey-West procedure was again used to correct for autocorrelation of residual errors.

The regressions reveal that when added to Rueff's Law of Inflation, world oil production is barely statistically significant in determining inflation measured by the PPI All Commodities Index, and not at all statistically significant in a regression on the price index for PPI nondurable goods.

Moreover, the stock market is driven by the rate of commodity inflation which, as we have just seen, is driven by the combination of the World Dollar Base and manufacturing employment. Table V 3.4 shows that the stock market's retained earnings yield [(earnings – dividend)/share price], which moves inversely to the stock market's value, is driven in turn by the rate of commodity inflation, whether measured by the PPI All Commodities Index or the price index for personal consumption expenditures on nondurable goods. The relationships shown in Table 3-4 and Table 3-5 are depicted graphically in Figure 3-12 and Figure 3-13.

Table 3-4

The stock market ‘s yield is driven by commodity inflation

. esttab reyldwpi reyldpcnd, se

	(1) reyld	(2) reyld
wpic	0.125***	
	(0.00817)	
pcndc		0.339***
		(0.0170)
_cons	0.0293***	0.0234***
	(0.000497)	(0.000627)
N	1430	721

Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Note: wpic =12-month change in PPI All Commodities Index (former Wholesale Price Index)

pcndc = 12-month change in Personal Consumption Expenditures price index for nondurable goods

reyld = Retained earnings yield (earnings – dividends / price for the Standard & Poor’s 500-stock index

Figure 3-12

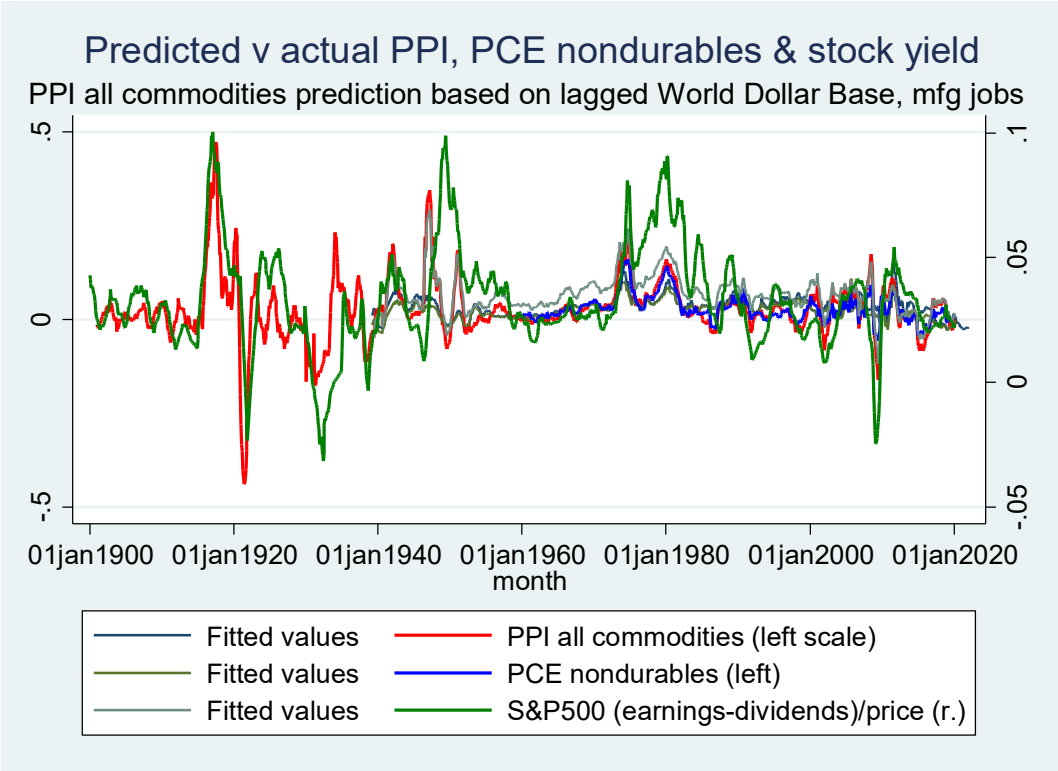
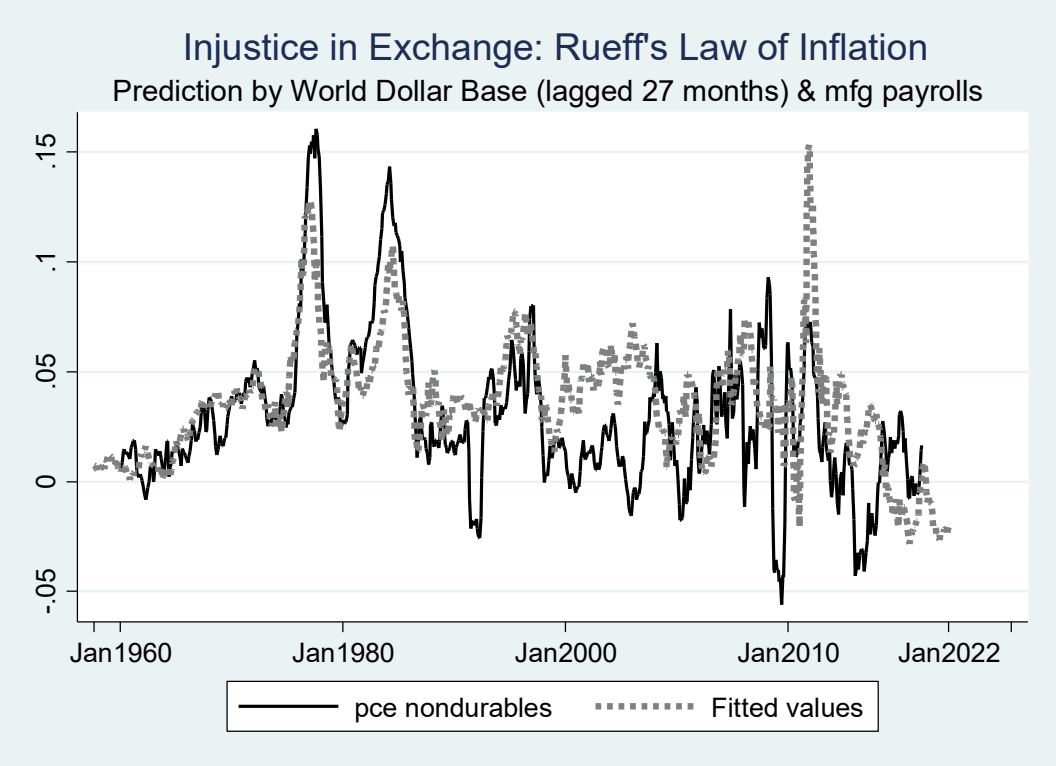


Figure 3-13



Thus, Rueff's Law of Inflation, like Rueff's Law of Unemployment, receives strong confirmation from all empirical data available when this thesis was submitted. Moreover, the price moves which have been interpreted as resulting mostly from oil "supply shocks" appear instead to have been "demand shocks" resulting from massive purchases (or far less often, sales) of official dollar reserves by national monetary authorities.

The paper on which this chapter is based was submitted in the midst of the sharp world-wide economic contraction triggered by the 2019 Coronavirus Pandemic. Though seeking, by applying the "Rueffian Synthesis," to explain how national economies are interconnected in a financial system in which U.S. dollar securities are the chief official monetary "reserves," at least a brief outline of the policy implications is necessary.

Though the coronavirus was new in 2019, both the economy and financial markets responded as in the past—with and without pandemics—in response to the combined monetary policy of central banks.

The Spanish H1N1 flu pandemic of 1918, which killed 50 million worldwide and 675,000 in the United States, superimposed medical insult at the end of World War I, upon monetary injury. A 50% World War I price inflation, peaking in mid-1917, was followed by a 40% deflation, bottoming in mid-1921 (measured by what then was called the Wholesale Price

Index, now the Producer Price All-Commodities Index). But also then as now, such price changes were driven by the previous actions of official monetary authorities, measured by earlier growth of the World Dollar Base ($Mw): the sum of all dollar-denominated securities held by the Federal Reserve and foreign monetary authorities (as well as manufacturing payrolls, which cause the inflation rate to rise or fall commensurately faster, presumably because workers then receive higher or lower wages).

These relationships were first explained by Rueff, who during his long career advised both French premier Henri Poincarė in the 1920s and President Charles de Gaulle in the 1950s and 1960s. Also then as now, the stock market reacted to the inflation or deflation caused by central banks, as reflected in the stock market's "retained earnings yield": corporate earnings minus dividends, divided by the average share price—a ratio which, like bond yields, moves inversely to security prices.

As we have seen, the stock market is highly sensitive to the inflation rate for products. The market has fallen whenever producer price inflation has risen *o*r fallen sharply, but above all when companies' production costs have risen faster than their product selling prices, causing earnings to fall below dividends paid to investors. That used to happen with alarming frequency before World War II, but only twice since then: before the financial crisis of 2008 and in the first quarter of 2020.

While the economic environment was deflationary, the Federal Reserve's actions didn't seem to matter as much as they used to, for two reasons. First, as Rueff explained, foreign official dollar reserves have the same impact on commodity prices as the Fed's own portfolio—but had mushroomed to nearly twice its size, so that it now took nearly three times the absolute change in the Fed's balance sheet to affect the total World Dollar Base and world commodity prices commensurately. Second, the foreign official dollar reserves had fallen over the previous five years, partly in response to a rising dollar exchange rate, so that the total World Dollar Base was lower in early 2020 than it had been in early 2015.

What should policymakers do? Strange as it may seem, now is an excellent time for the U.S.A. to begin repaying its trillions in foreign dollar reserves with gold reserves, ultimately restoring an international gold standard. There are several reasons.

First, doing so would end world-wide commodity deflation and give a countercyclical boost to the world economy. A growing stock of monetary gold would actually give the world a trade surplus with itself equal to the exports of gold-producing countries.

Second, such a plan would give the United States, China, Russia and other major countries a strong incentive to co-operate in rebuilding the world financial order despite mutual distrust, and remove the threat of deflation due to the prospect of liquidating existing dollar reserves, which would cut the price level back to where it was before those dollar securities were purchased.

Third, paying off existing dollar reserves would provide the incentives necessary to restore a U.S. trade surplus and revive American manufacturing. It would end the so-called "Triffin Dilemma"—the fact that any increase in foreign official dollar reserves must match an equal deficit in the U.S. current account (the broadest measure of its balance in international trade).

Finally, readopting honesty as the best economic policy would restore discipline to American federal finances, since restoring a gold dollar would end the practice of financing the federal budget by endless borrowing from the Federal Reserve and foreign monetary authorities. Democrats and Republicans would be forced to co-operate, like it or not.

The "Rueffian Synthesis" provides an alternative to the Keynesian model which is superior because of its inclusion of government taxes and social benefits in net unit labor costs and its inclusion of both domestic and foreign official liabilities reserves in measuring "high-powered" money. This is reflected in the empirical evidence recounted here.

First, as predicted by Rueff's Law of Unemployment, most of the variation in the civilian unemployment rate, as well as in civilian labor force participation rates, is proportional to net unit labor costs, chiefly driven by social benefit programs.

Second, contrary to the assertion that adroit manipulation of the Phillips Curve by Federal Reserve monetary policy was to thank for "the Great Moderation," Rueff's Law of Inflation suggest a sharply different interpretation: The deindustrialization of a reserve-currency country entailed in the Triffin Dilemma, reflected in declining manufacturing payrolls, reduced both the level and volatility of U.S. manufacturing employment, and thereby the level and volatility of commodity inflation, which continues to be determined chiefly by earlier growth of the World Dollar Base and by manufacturing payrolls.

When both variables are included, energy "supply shocks," as measured by world oil production, are not statistically significant. Inflation (or less often, deflation) results almost entirely from monetary "demand shocks."

Moreover, unlike the Phillips Curve, the empirical measurement of neither Rueff's Law of Unemployment nor Rueff's Law of Inflation has shifted appreciably in recent decades. The

Phillips Curve doesn't "work" because it posits an *inverse* relation between the inflation rate and the civilian unemployment rate, when in fact there is a strong *positive* relation between manufacturing payrolls and the inflation rate, reflecting the so-called Triffin Dilemma, which Rueff was the first economist to explain.

Finally, the Rueffian Synthesis provides a broad plan for re-starting and sustaining world economic development.

Conclusion: The Human Flourishing Index (HFI)

The "Human Flourishing Index" attempts to update the Scholastic moral philosophy, which was based primarily on the insights of Aristotle and Augustine, as combined by Thomas Aquinas (the "AAAs"). The Human Flourishing Index presumes the continued validity of the definition of man as a "personal" (rational" and "religious"), domestic ("conjugal," "money-using," and "social") and "political animal," as much in the 21st century A.D. as the 4th century B,C., the 5th or 13th centuries A.D.

Figure 4-1

The Human Flourishing Index (HFI):
A national index of human flourishing

CORVINUS UNIVERSITY of BUDAPEST
INSTITUTE OF ECONOMICS

INDICATORS	Social Unit / Human Quality					
	Personal		**Domestic**			**Political**
	Rational	Religious	Conjugal	Money-using	Non-profit	Government
	(1) % Adult tertiary education (*ter*: Barro-Lee data)	(2) Rate of weekly woship, % (*ww*: World Values Survey, ANES)	((3) Marital) net reproduction rate (*mnrr*: UN, World Bank)	(4) 1 + net monetary reserves/GNI (*netrespct:* IMF, Worlld Bank)	(5) Civil society participation rate, % (*civil*: IDEA)	(6) Voter turnout in national elections, % (*vote*:: IDEA from national sources)
	Animal: *Water*					(7) Population with improved water % (*h2o*: UN Aquastat)
	Food				Indices of > sustainable self-sufficiency	(8) Food security %: (*food*:= 1 – (food imports / merchandise exports) : UN FAO)
	Energy					(9) Energy independence % (*nrg:* US DoE; memo: renewable)
	Formula: hfi = ter * mnrr * netrespct * [(civil + vote + ww)/3] * [(h2o+ food + nrg)/3]; *mnrr = nrr * iw* (% births in wedlock)"; when unavailable, *iw* must be omitted from *hfi*.					

The HFI is an updated empirical application of the "AAA" Scholastic moral philosophy and economic theory. The "AAA's" are the three great ancient and medieval moral philosophers Aristotle, Aurelius Augustine and Thomas Aquinas. The first two provided the philosophical concepts, while Aquinas joined these elements into a systematic and comprehensive moral philosophy and economic theory.

The HFI is informed not only by the ancient and medieval roots of the Scholastic moral philosophy, but also by the modern critique of country indices. Martin Ravaillon distinguished two broad types of country indices, *theory-driven aggregate measures (e.g. GDP, poverty measures based on household income, net reproduction rate),* which are characterized by a limited scope (GDP/capacity - market income), close correspondence to theory, and statistical practice to correct anomalies; and "*mashup indices," (e.g. HDI: geometric means of life expectancy, years of schooling and logarithm of income),* which are characterized by a broad scope (human development, flourishing, freedom, governance etc.), no or much less cogent theory, a large gap between any claimed theory and actual implementation, and a lot of *ad hoc* choices in creating the composite index.

However, Ravaillon himself appears to make some strong assumptions, apparently presuming interpersonally comparable cardinal utility—an assumption pronounced unscientific by Lionel Robbins.[231] Though cardinal utility is still often carelessly assumed by some economists, a much more defensible position is that utility or welfare is only ordinally comparable; that is, we can generally say whether we prefer one state of affairs to another, but not by exactly how much, and utility is not comparable among different persons, so that the frequent assumption that not only first but second differences of utility or welfare are easily measurable—not only for an individual but also measurable among different persons—should be avoided.

The HFI is theory-driven in its conception of human nature. Aristotle famously defined a human being as a "rational,"[232] "conjugal,"[233] "social"[234] and "political animal." [235] But the Church Fathers made further distinctions which Aristotle had not: in addition to the four

[231] "There is no way of comparing the satisfactions of different people." Lionel Robbins (1932). An Essay on the Nature and Significance of Economic Science, Macmillan, London, 140.
[232] "Human beings' soul…[is] in itself [partly] possessed of reason, [and partly] capable of obeying reason." Aristotle, Politics, 1333a and men "naturally desire knowledge." Aristotle, Metaphysics, 980a.
[233] "Between man and wife a natural friendship seems to exist, for they are more inclined by nature to conjugal than political society. This is so because the home is older and more necessary than the state, and because generation is common to all animals." Aristotle, Nicomachean Ethics, 8.12.7
[234] "Man is by nature a social being." Aristotle, Nicomachean Ethics, 1097b.
[235] "Man is by nature a political animal." Aristotle, Politics, 1253a.

cardinal moral virtues that Aristotle's teacher Plato had adumbrated—prudence, temperance, fortitude and justice—Aquinas added the three theological virtues faith, hope, and charity, so that, beyond an account that (like Aristotle's) distinguished the "scope" of the virtues, Aquinas added differences in their 'method,' for example, between rational metaphysics and scripturally based revealed theology.

Moreover, where Aristotle had bisected moral philosophy into ethics and politics, Aquinas re-divided the field into three parts, based on the social unit described: the individual human person, the family household formed by marriage between a man and woman (and its modern offshoots, the business firm and non-profit foundation), and the political community, acting jointly through a common government. Hence, Aquinas distinguished individual, domestic, and political "prudence," a term he used interchangeably with "economy": individual, domestic, and political economy.

The Human Flourishing Index might be called an exercise in "social futuring"—an effort not merely to *forecast*, but also actively *shape*, future conditions to facilitate a nation's human flourishing.[236] ("Flourishing" translates the Greek word "eudaimonia," used by Aristotle, which has been described as: fulfillment, living a good (moral) life, human flourishing, and moral or spiritual success.)

Moreover, rather than merely comprising an index of empirical economic data, the HFI combines metaphysical with empirical, biological and historical categories. The HFI attempts to apply the most broadly applicable (Scholastic) moral philosophy to the broadest share of human population living in the 21st century. The HFI is based on the combination of three databases: the Maddison Project Database, which estimates national population and GDP per capita back to AD 1; the Barro-Lee database of educational attainment, back to 1820 and projected forward to 2040; and the data and demographic projections of the United Nations Population Division back to 1950 and projected forward to 2100.

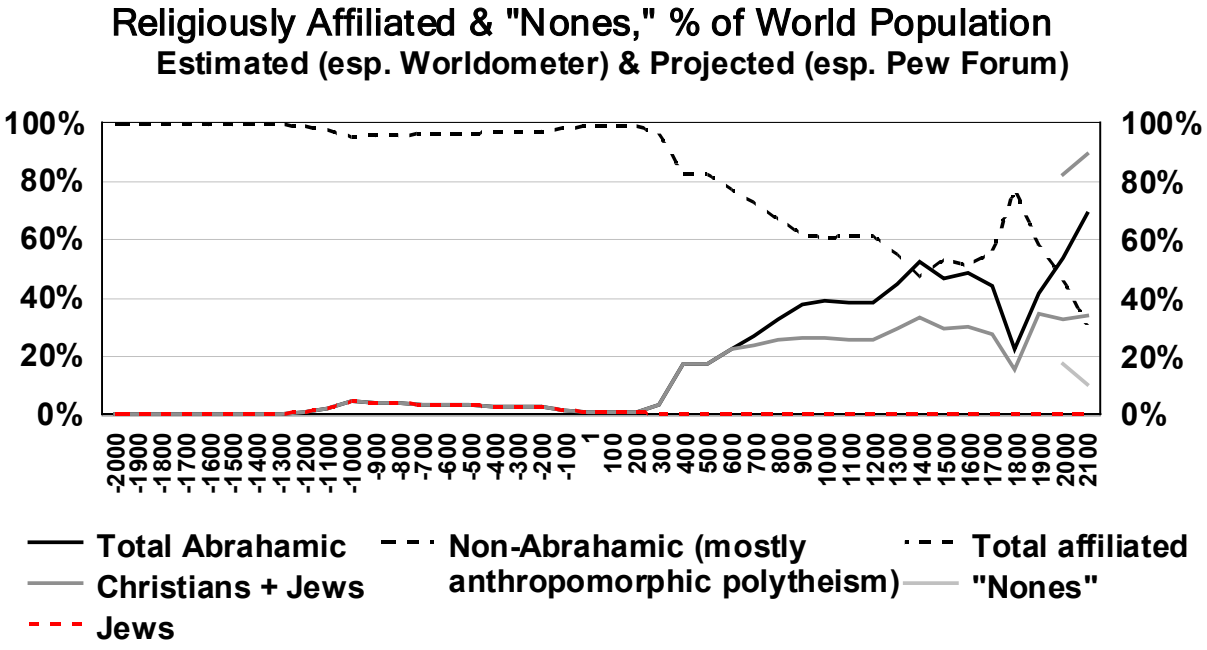
A matrix of the indicators which comprise the index is shown and described below.

1. *Rational*. Rationality is measured by the share of the adult population with tertiary education—not because those with an advanced degree any are more *rational* than other humans (the use of any human language is sufficient to establish rationality)—but because data on tertiary education are also useful in projecting and forecasting national indices of real output.

[236] Zoltán Oszkár Szántó et al (2020) Social Futuring Index: Concept, Methodology and Full Report, Social Futuring Center, Corvinus Institute for Advanced Studies, http://socialfuturing.com/

2. *Religious.* The main development in world-wide religion over the past four millennia has been a shift from nearly universal polytheism to nearly universal monotheism (Figure 4-2).

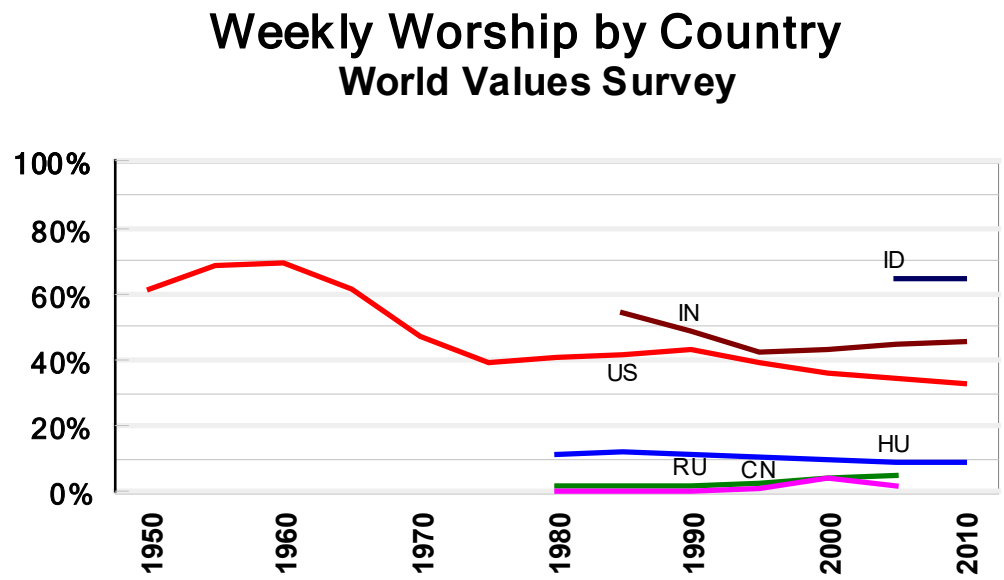
Figure 4-2



In Aristotle's day, nearly every religious believer was a polytheist; only about 3% of the world population were monotheists—mostly Jews, beginning with Abraham. That man is a religious animal follows from the fact that he is a rational animal. Religion is a natural, not a supernatural, virtue. It is not possible for anyone to know *what* or *who* God is, since we cannot encounter Him directly, and so we naturally know Him only in a confused sort of way. Understanding His essence would exceed all human ability. Moreover, different religions and religious denominations disagree in their understanding of exactly who or what God is. Nevertheless, it is possible for everyone to know with certainty *whether* God exists: We must infer His existence from our knowledge of all the other things which exist, with which we are more familiar. And if He exists, we clearly owe Him praise and thanksgiving, as a matter of the moral virtue of justice, which obliges us to render to everyone his due. The concept of creation *ex nihilo* is essentially philosophical, but it simply did not exist in ancient pagan philosophy. There was far *less* agreement on religion in Aristotle's day, because almost no one then believed that there is only one omnipotent, loving God; most people were polytheists, believing in an indefinite number of deities, most of whom were described as behaving like characters in a raunchy modern television soap opera. It has been possible to prove (insofar as anything can be scientifically proven) that the universe had a beginning in time (or rather that the universe and time are coeval) only in the last century, since the discovery and general

acceptance of the "Big Bang."[237] Man's understanding of his identity as not only a rational, but also a created, and thus "religious animal," is reflected in the rate of weekly worship, as recorded by the World Values Survey (WVS).[238] The weekly rate of religious worship has a strong correlation with measures of fertility, including the NRR and TFR.

Figure 4-3



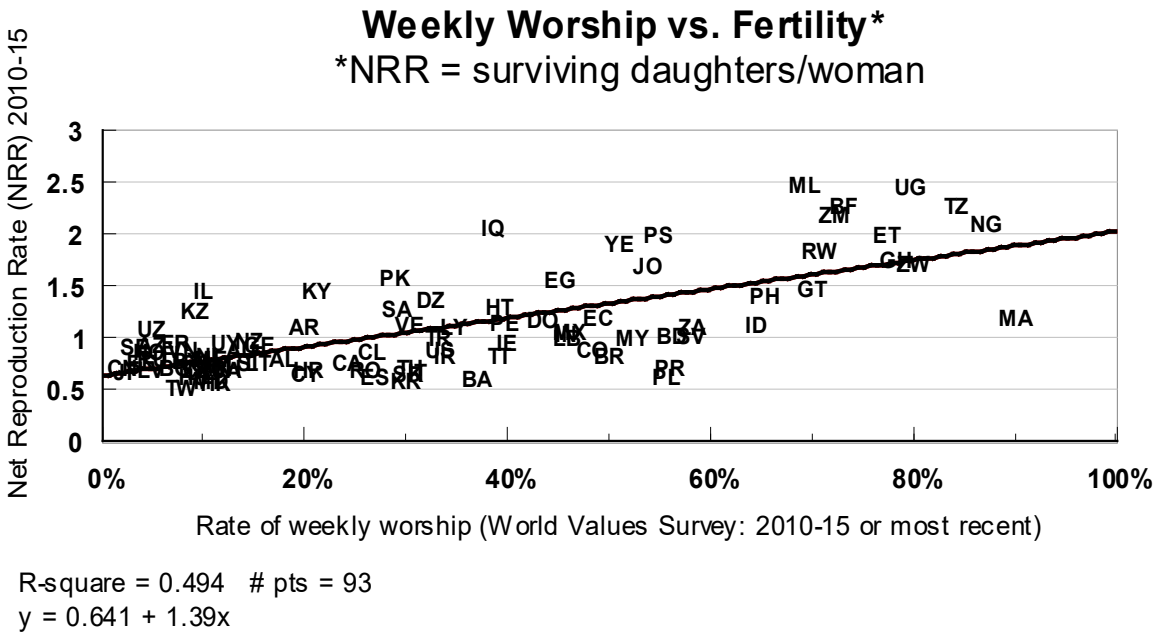
Source: World Values Survey, GSS (USA):

Paradoxically, differences among religions and religious denominations chiefly concern intangible and thus immeasurable realities, such as the existence and nature of God or the human soul. Yet as the strong empirical link between worship, fertility and altruism shows, some of the strongest differences in empirical behavior stem precisely from people's different understandings about such intangible realities.

[238]https://www.worldvaluessurvey.org/WVSEVStrend.jsp

3. *Conjugal.* That man is what Aristotle called a "conjugal" or sexual animal is reflected in the Net Marital Reproduction Rate (NMRR). The Net Reproduction Rate (NRR) is a composite estimating how many surviving daughters the average woman would bear if her experience matched that of women at all ages in the year for which the NRR is calculated. By counting only surviving daughters, the NRR and NMRR adjust the birth rate for mortality as well as fertility. This mortality adjustment makes the NRR more useful for most purposes than the more widely used Total Fertility Rate (TFR), because fertility tends to be higher when the mortality rate is higher. The "marital" reproduction rate adjusts the NRR to include only infants born within wedlock. Conceived in this way, the HFI avoids the contentious debate about "same-sex marriage," since all such unions, as such, are sterile.

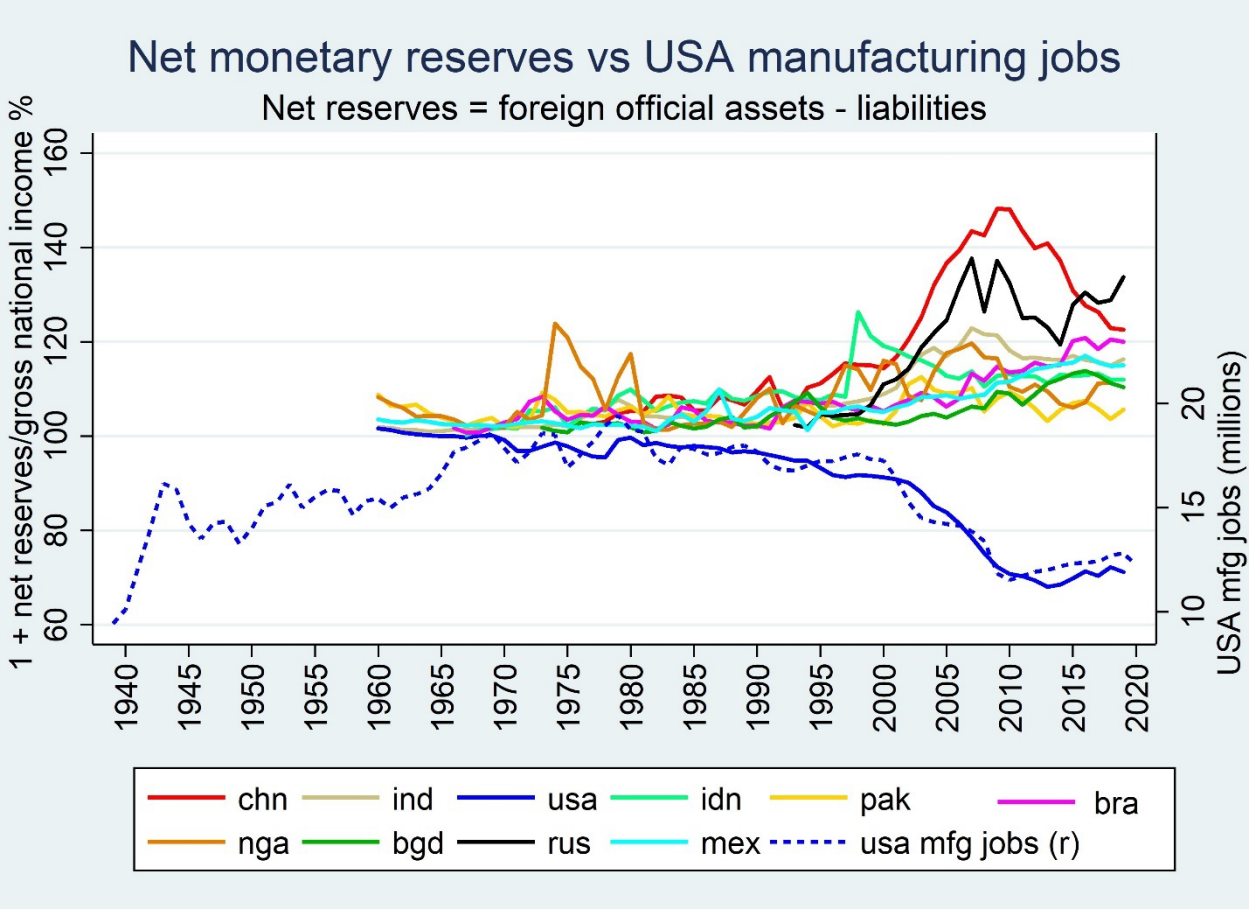
Figure 4-4



4 Money-using. A fourth adjustment reflects an important aspect of social and economic development: the modern household specializes, like the ancient household, in the production and maintenance of human persons. But the ancient household also has two specialized modern offshoots: the for-profit business firm and the non-profit foundation. All of these require the use of money. Unlike most other indices, the HFI does not include such measures of market output as gross national or domestic product—though (as we will see) its components can be

used to predict GNP or GDP. The third indicator is the share of national resources devoted to international monetary reserves that facilitate exchange of products among different countries. The reserve measure used in the HFI is (1+ net monetary reserves/gross national income)—"net" meaning official reserve assets minus official reserve liabilities. Ordinarily, the reserve component will be greater than 1. But when a national currency is used as an official international reserve, such "reserves" are actually debts of the reserve currency country. This can lead to the result that the reserve currency country's net reserves are actually negative, which encourages the expansion of its domestic and foreign debt.

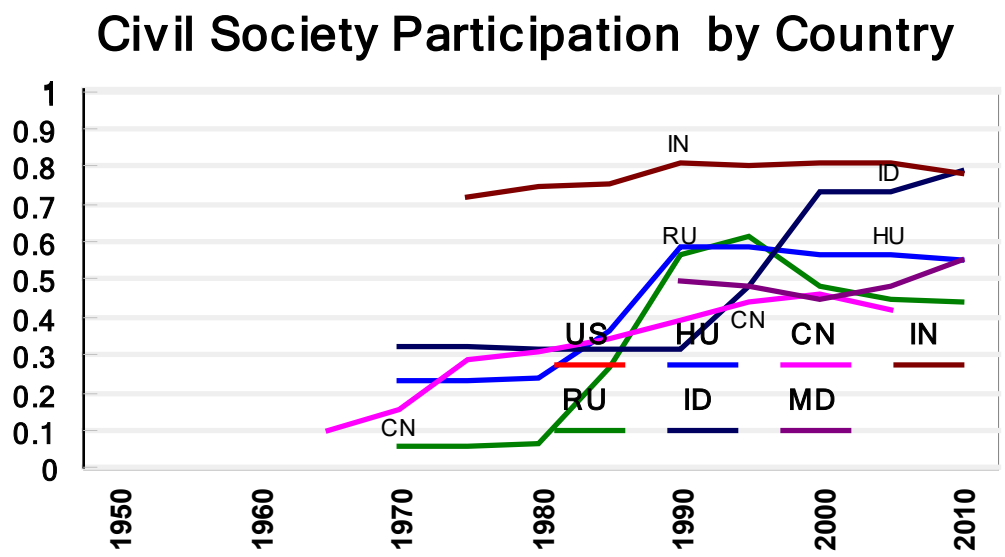
Figure 4-5



5 *Social (or civic).* A fifth adjustment reflects the fact that not only the modern business firm, but also the not-for-profit institution, is a modern offshoot of the ancient household. While the modern business firm specializes in the production and maintenance of property, which Theodore Schultz called "nonhuman capital," the non-profit institution specializes in the granting of gifts and performing acts of service to persons outside the modern

household. The latter development is reflected in the Civil Society Participation Rate, as measured by IDEA (The International Institute for Democracy and Electoral Assistance).

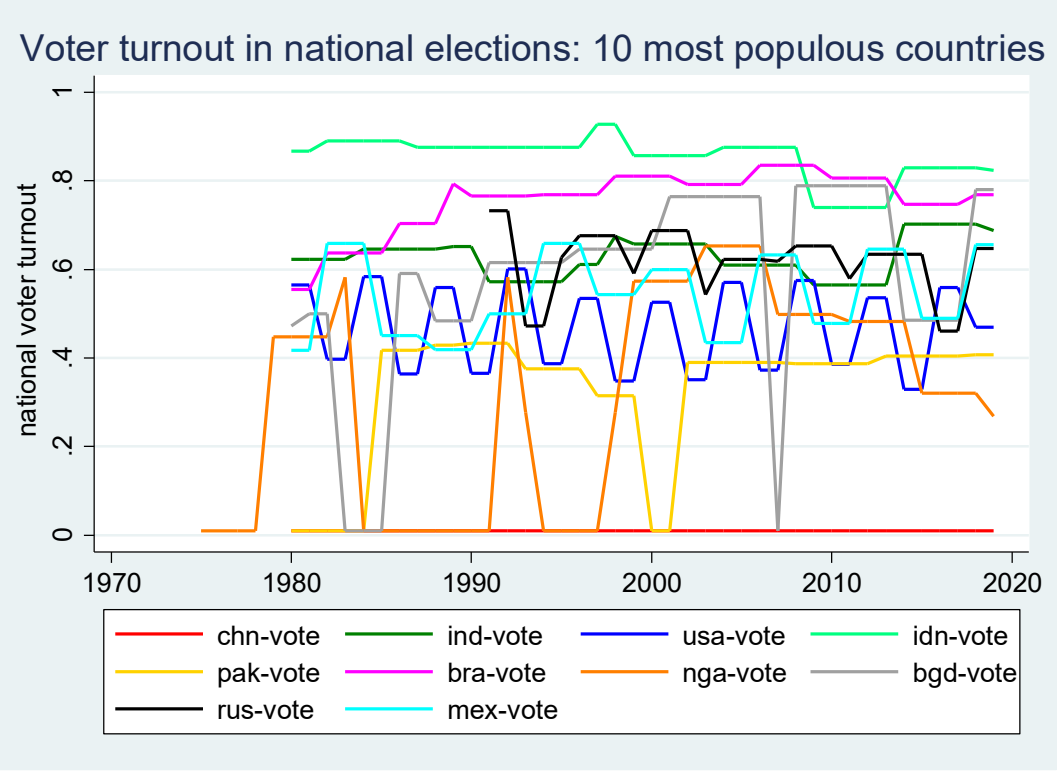
Figure 4-6



Source: IDEA

6 Political. A further irreducible dimension of human nature is that man is what Aristotle called *a zoon politikon*, or "political animal." This dimension is captured in the Human Flourishing Index by average voter turnout in national elections, as measured by IDEA (ultimately derived from national sources). Nearly all former communist or totalitarian countries have experienced sharp rises in their citizens' participation in non-profit institutions, but also in political life, particularly voting for representative government. A couple of countries, including China and North Korea, are rated as having zero participation in political life. But since zero leads to undefined mathematical results in many cases, the HFI is aggregated from arithmetic rather than geometric averages. (The elaborate and widely cited Human Development Index [HDI] was originally based on arithmetic averages, but the formula was shifted to a geometric average, resulting in many practical anomalies, as Ravaillon showed.)

Figure 4-7



7. Animal. Since humans are *animals,* not disembodied intellects, it is necessary to include three basic physiological aspects which humans share with other higher animals: the need for water, food, and to exert or use energy in order to survive. Therefore, the HFI reflects these three animal realities: (a) the percentage of a nation's population with improved water, (b) a nation's degree of food self-sufficiency, and (c) the degree of national self-sufficiency for sustainable renewable sources of energy. Water, food and energy self-sufficiency are important *strategic* considerations for any country, since all are prerequisites for national self-determination; but *renewable* energy self-sufficiency adds to these strategic considerations the long-run *sustainability* of any country's policies. Renewable energy independence is presented as a memo item that indicates how far most countries remain from sustainable energy independence; yet the relative country rankings change surprisingly little whether the HFI energy indicator refers to total or renewable energy independence.

The HFI, then, is comprehensive regarding all the irreducible dimensions of human nature as a "rational," " religious," "conjugal," "social" and "political animal," applied to nations in the 21st century, and maps these dimensions rather simply into corresponding single indicators (along with three indicators to represent the three basic requirements of human life: water, food, and energy).

To state these considerations in the negative, any nation is failing to flourish when its people are irrational, irreligious, or uneducated, when its population is shrinking, when its families are falling apart, when its people ignore the Two Great Commandments to love God and neighbor, or when they are oppressed through either their country's own or a foreign government. While comprehensive, the HFI could never claim to be *exhaustive* in measuring human flourishing. But the HFI still does represent a comprehensive, systematic and valuable starting point, and one simple enough for a single researcher to calculate.

The formula for the HFI is:

*hfiim = ter * netrespct * mnrr * [(civil+vote+ww)/3] * [(h2o + food + nrg)/3]*

where *ter*=share of adult population with tertiary schooling, *mnrr* is the marital net reproduction rate [=*nrr*iw*, the net reproduction rate *nrr* times the share of births to married women *iw* ("in wedlock")], *netrespct* is (1 + net monetary reserves [official assets less official liabilities]) /GNI [=Gross National Income]), *civil* is IDEA's Civil Society Participation Rate, *ww* ("weekly worship") is the share of the adult population attending religious services at least weekly according to the World Values Survey, *vote* is the voter turnout in national elections recorded by IDEA, *h2o* is the share of the population with treated water according to the UN's Aquastat, *food* is the degree of food self-sufficiency in % = (1 – food imports / merchandise exports), and *nrg* =total energy production/consumption, according to the US Department of Energy. When data on the share of births in and out of wedlock are not available, for such countries, *hfi* is used as opposed to *hfim,* omitting *iw*.

There is a practical tradeoff between the completeness of data series for individual countries and the share of world population represented by those countries.

The HFI omits five OECD countries due to lack of necessary data series (Austria, Belgium, Denmark, Luxembourg, and the United Kingdom) which together comprise just over 1% of world population. But besides 31 of 36 OECD countries, the HFI is calculated also for all of the world's 10 most populous countries, which comprise just over half world population. As a result, the Human Flourishing Index comprehends 39 countries, which comprise about two-thirds of the world population.

While many country indices include measure of market income (like GDP or GNI), the HFI does not (though two HFI indicators—population and tertiary education—comprise a good proxy for real GDP in most countries). While 36 OECD countries comprise about 17 percent of world population, the HFI covers 39 countries which comprise about 67% of world population, including the ten most populous countries in the world, a difference comprising just over half of the world population.

The Human Flourishing Index (HFI)

Human Quality	Social Unit	Indicator
1. Rational	1. Individual	1 Adult tertiary education, % (*ter*)
2. Religious	1. Individual	2.Weekly worship, % (ww)
2. Domestic	2. Marriage	3. Marital net reproduction rate (*mnrr=nrr*iw [in wedlock*)
	3. Business	4. (1 + net monetary reserves/GNI) (*netrespct*)
	4. Non-profit	5.Civil society participation rate, % (*civil*)
3. Political	5. Government	6. Voter turnout in national elections, % (*vote*)
5. Animal (*food*)	1. Individual	7. Population with improved water % *(h2o*) 8. Food security % = [1-food imports/ mdse exports] 9. Energy production/consumption % (*nrg*)

The Index (HFI differs from existing country indices in at least three ways: First, it avoids the many technical problems endemic to what Martin Ravallion has called "mashup indices," by being based on the coherent, longstanding Scholastic philosophy and economic theory. It seems to me that the more widely modern society diverges from the Scholastic view of man as a "personal" ("rational," and "religious,") "domestic" ("conjugal," "money-using,"[239] "civic,") and "political animal," the more resoundingly is the Scholastic view of human nature vindicated by the results of modern social science (which historically originated in the medieval "schools" or universities).[240]

Second, while avoiding the redundancy which results from including existing market indices like GDP, the HFI usefully combines three databases: First, the Maddison Project database, named after the Scottish economist Angus Maddison, who calculated the population and real GDP per capita for most countries back to AD 1; second, the Barro-Lee database on educational attainment, starting in 1820 and projected forward to 2040; and third, the UN Population Division database, which estimates the population for all countries from 1950 forward to 2100. Finally, with such techniques as analyzing microdata for all waves of the World Values Survey (WVS), the HFI illuminates the world-wide behavioral changes that have resulted from the decline in religious practice: reduced fertility, reduced altruism, and a reduction in self-assessed happiness.

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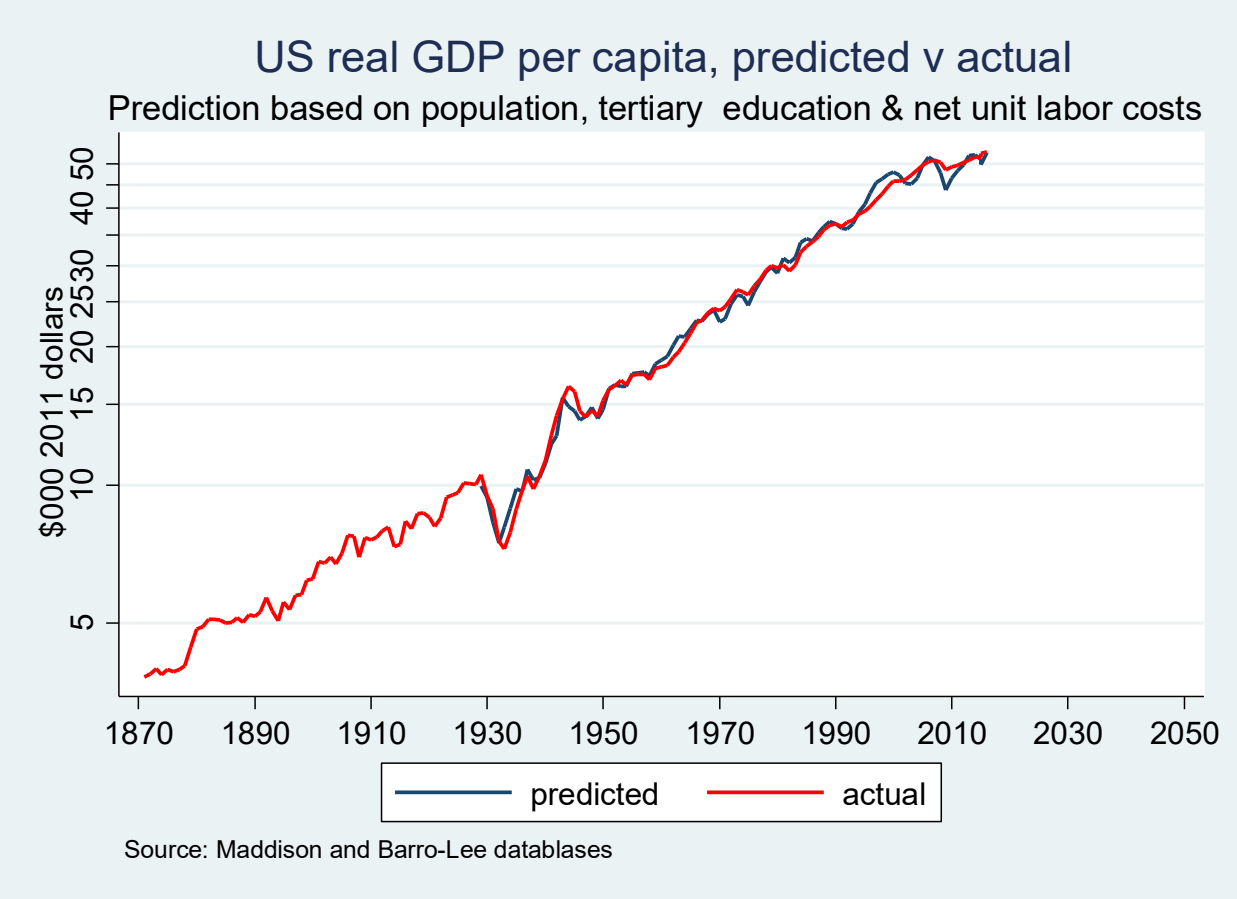
[239] It is difficult to translate the Greek *chrematikos* both concisely and accurately with a single English word. The concept refers to the acquisition of wealth that can be measured in money.

[240]Aquinas, T. (1982]) *On Kingship: To the King of Cyprus* (Tr.) Gerald B. Phelan, Toronto: Pontifical Institute of Medieval Studies, https://isidore.co/aquinas/DeRegno.htm (Original work published 1260-65.) Aquinas argued "men form a group for the purpose of living well together, and good life is virtuous life… [Yet] it is not the ultimate end … to live virtuously, but through virtuous living to attain to the possession of God."

One chart from the Maddison Project database compares life expectancy at birth with the logarithm of real GDP per capita over a period of more than 2,000 years. It indicates that rises in longevity have been associated with corresponding increases in the log of real income per capita—presumably because a longer life increases the rates of return on all kinds of long-term investments in both intangible and tangible forms of both human and nonhuman capital. (Human population is a form of 'tangible human capital'; education is an example of 'intangible human capital; buildings and machines are examples of 'tangible nonhuman capital'; patents are examples of 'intangible nonhuman capital.')

The Barro-Lee database contains many variables describing primary, secondary and tertiary education for more than 100 countries, and it was not obvious *a priori* which, if any, variables are important without analyzing their empirical relation to other variables. My attitude that "less is more"—that is, simpler models are usually more informative than more complicated models—was reinforced when I discovered that a single variable from the Barro-Lee database—the share of adult population with some tertiary education—accounts for most of the variation among countries in real GDP per capita, while none of the other Barro-Lee variables was statistically significant for this purpose.

Figure 4-8



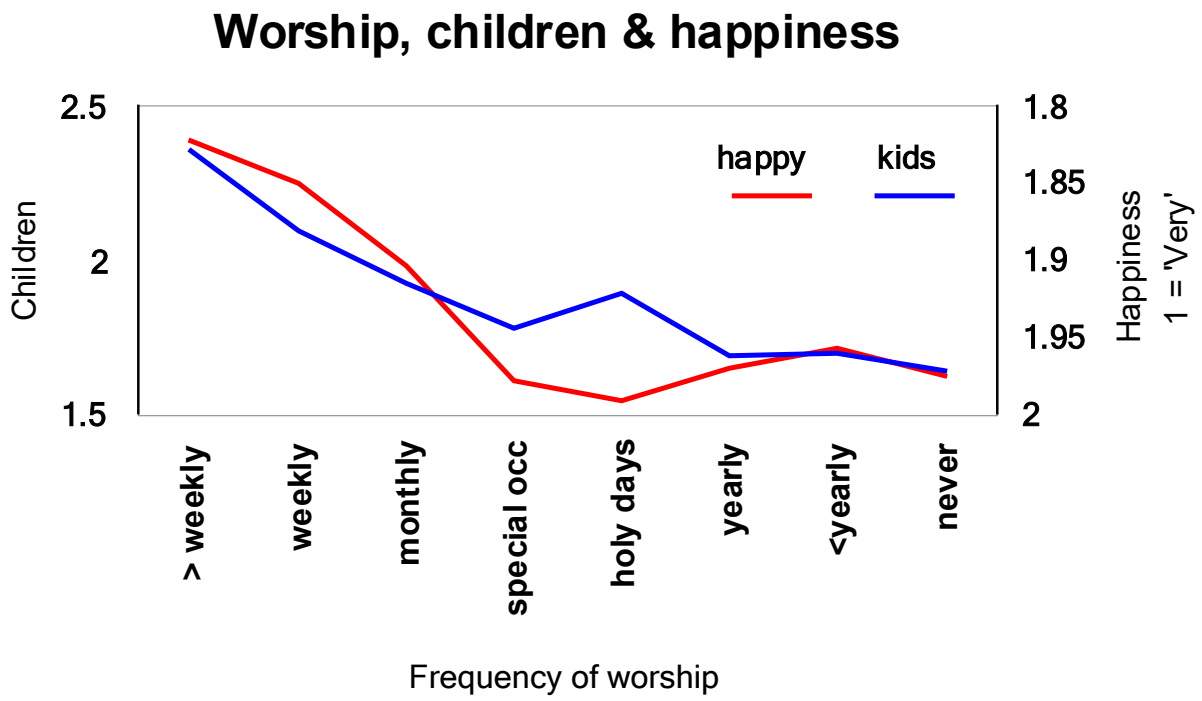
The UN Population Division database provides many demographic variables, but the Net Reproduction Rate (NRR: the average number of surviving daughters born to each woman) seems the most useful, as it amounts to a prediction of the multiple by which a country's population will change over the next generation. The HFI constructs the Net *Marital* Reproduction Rate by adding an OECD series on whether children are born within wedlock. The HFI, beyond mere tabulation, also implies several normative claims—for example, that it is better for parents, children, and the rest of society if each child is born and raised in an intact marriage of its biological parents than in any other.

By combining the share of population with tertiary education from the Barro-Lee database with the Net Reproduction Rate from the UN data, the HFI can be used to project real GDP about two to three decades ahead.

Based on the UN projections, in the rest of the 21st century, the NRR in nearly all countries will converge on a value below 1.00, indicating that world total population will be declining.

Why is this? Though the UN Population Division does not seem to recognize the link, the most important single reason appears to be the decline in religious practice, which explains about half the variation in fertility rates for those countries for which data are available. On average, in all the countries surveyed by the World Values Survey, those couples who worship at least weekly have about one child more than couples who never worship. Moreover, the same couples who worship at least weekly report themselves happier than those who never worship, roughly in proportion to their frequency of worship.

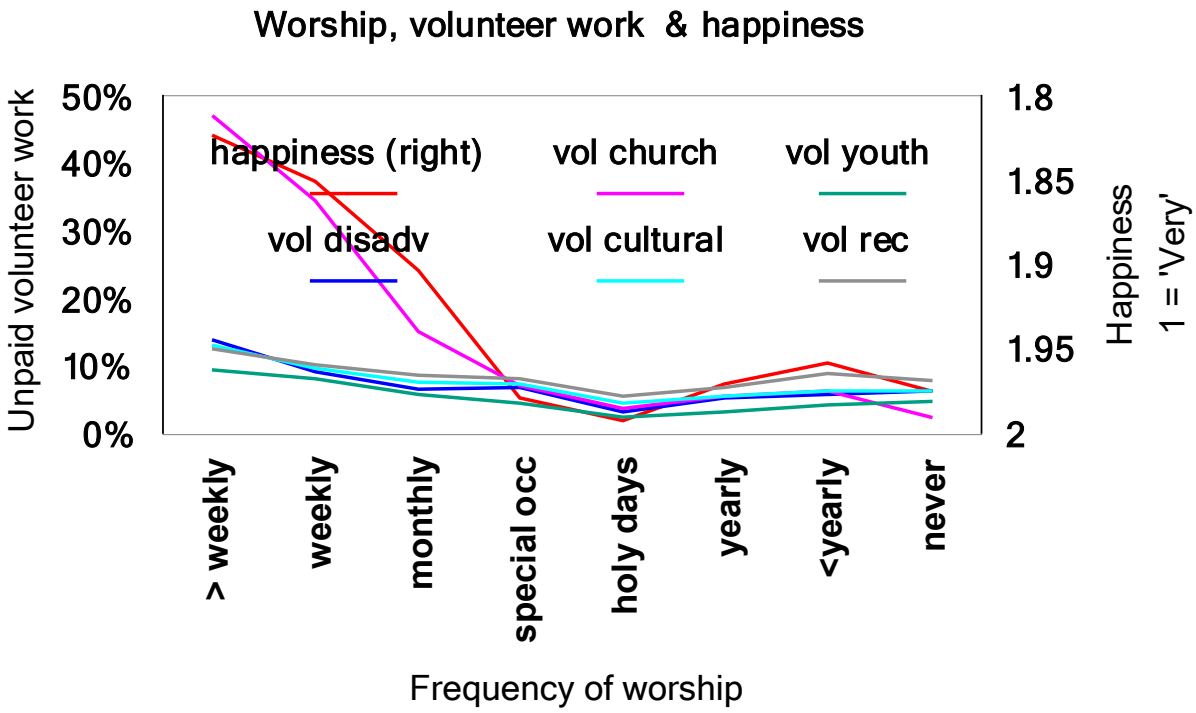
Figure 4-9



Source: World Values Survey, all countries & years

Something similar appears in the WVS data on altruism, as measured by unpaid volunteer work: Those who worship at least weekly perform the most unpaid volunteer work, not only in their own churches (which perhaps is not surprising) but also in non-religious charities serving youth, recreational, cultural activities, and the disadvantaged. They also report greater happiness than those who never worship, again roughly in proportion to their frequency of worship.

Figure 4-10



Source: World Values Survey microdata, all countries and survey waves

No country achieves the "magic number" of 1, which can be considered the minimum standard of human flourishing, but some are closer than others, and the HFI indicates which specific areas, objectively speaking, most require improvement.

Among the ten countries with the largest populations, Nigeria ranks first in the HFI, followed by Indonesia and Brazil. But the HFI is calculated in two ways regarding total and renewable energy independence (in which case Brazil ranks first, Indonesia second, and India third, with the USA eighth and China last).

Among all 39 countries for which the HFI can be calculated, however, comprising about two-thirds of world population and producing 80 percent of world real GDP, the top ten countries in order are Norway, Nigeria, Indonesia, Australia, Brazil, India, Canada, Mexico, Switzerland, and New Zealand. The USA ranks 28th and China 39th (last). But the USA and China each have a feature largely peculiar to itself: China ranks zero in voting by IDEA because of its communist government, and the USA is the only major country with negative monetary reserves—having more foreign official liabilities than assets—due to the dollar's use as official reserve currency.

OECD + 10 Most Populous Countries, by Share of World Population, GNI/capita and HFI									
Rank	Country	Popu-lation /World	Rank	WB code	GNI/ Capita $Int	Rank	WB Code	HFI (NRR)	HFIM (marital NRR)
1	China	0.1794	1	LUX	$74,400	1	NOR	0.2856	0.1299
2	India	0.175	2	NOR	$70,530	2	NGA	0.2417	n.a.
3	United States	0.0422	3	CHE	$82,180	3	IDN	0.1985	n.a.
4	Indonesia	0.0345	4	IRL	$67,050	4	AUS	0.1634	0.108
5	Pakistan	0.0286	5	USA	$63,780	5	BRA	0.1462	n.a.
6	Brazil	0.0271	6	NLD	$56,890	6	IND	0.1071	n.a.
7	Nigeria	0.0269	7	DNK	$56,410	7	CAN	0.1024	0.0682
8	Bangladesh	0.0217	8	AUT	$55,300	8	MEX	0.0992	0.0312
9	Russia	0.0186	9	ISL	$55,190	9	CHE	0.0978	0.0789
10	Mexico	0.016	10	DEU	$54,560	10	NZL	0.0957	0.0508
11	Japan	0.0159	11	SWE	$54,030	11	KOR	0.0953	0.0933
12	Turkey	0.0106	12	BEL	$51,740	12	RUS	0.0921	n.a.
13	Germany	0.0106	13	AUS	$50,050	13	BGD	0.0897	n.a.
14	France	0.0086	14	FIN	$48,580	14	POL	0.0891	0.0793
15	United Kingdom	0.0085	15	CAN	$47,590	15	NLD	0.0852	0.0455
16	Italy	0.0075	16	FRA	$46,360	16	TUR	0.0843	0.0818
17	South Korea	0.0066	17	GBR	$45,350	17	HUN	0.0839	0.0497
18	Spain	0.006	18	JPM	$45,180	18	ISL	0.0839	0.0497
19	Canada	0.0049	19	KOR	$40,090	19	SWE	0.0839	0.0373
20	Poland	0.0049	20	ISR	$39,940	20	CZE	0.0819	0.0691
21	Australia	0.0033	21	ESP	$39,800	21	DEU	0.0816	0.0526

22	Chile	0.0025	22	NZL	$39,410	22	ISR	n.a.	0.0724
23	Netherlands	0.0022	23	CZE	$37,530	23	GRC	0.0786	0.0712
24	Belgium	0.0015	24	SLV	$37,450	24	CHL	0.0774	0.0211
25	Greece	0.0014	25	EST	$34,970	25	SVN	0.0773	0.0334
26	Czech Republic	0.0014	26	LTU	$34,320	26	ITA	0.0764	0.0647
27	Sweden	0.0013	27	SVK	$33,060	27	FIN	0.0752	0.0448
28	Portugal	0.0013	28	PRT	$32,680	28	USA	0.0748	0.045
29	Hungary	0.0012	29	POL	$30,010	29	PAK	0.0742	n.a.
30	Israel	0.0012	30	HUN	$29,860	30	IRL	0.0725	0.0483
31	Austria	0.0011	31	LTV	$29,780	31	FRA	0.0704	0.0349
32	Switzerland	0.0011	29	GRC	$29,670	32	SVK	0.0702	0.0583
33	Denmark	0.0007	30	TUR	$27,640	33	JPN	0.0636	0.0622
34	Finland	0.0007	31	RUS	$26,470	34	PRT	0.0625	0.0433
35	Slovakia	0.0007	32	BRA	$24,450	35	ESP	0.0588	0.0531
36	Norway	0.0007	33	CHL	$24,190	36	LTU	0.0524	0.0438
37	New Zealand	0.0007	34	MEX	$19,340	37	EST	0.0521	0.021
38	Ireland	0.0006	35	IDN	$12,670	38	LVA	0.0372	0.0249
39	Lithuania	0.0004	36	IND	$7,680	39	CHN	0.0259	n.a.
40	Slovenia	0.0003	37	PAK	$5,860	Omitted (missing data)/WLD pop.			
41	Latvia	0.0002	38	NGA	$5,710	0.11 %	AUT		n.a.
42	Estonia	0.0002	39	BGD	$4,570	0.14 %	BEL	n.a.	n.a.
43	Luxembourg	0.0001	43	BGD	$4,964	0.07 %	DNK	n.a.	n.a.
44	Iceland	0.0001	44	PAK	$4,898	0.01 %	LUX	n.a.	n.a.

-	OECD	0.1664	GDP/ WLD	OECD	0.4953	0.85 %	GBR	n.a.	n.a.
-	OECD + Top 10*	0.6787	-	OECD + Top 10	0.8078	1.19 %	Total	-	-

References

All references asppear at the end of the Introduction, which served as the summary when this work was submitted as a doctoral dissertatiion to Corvinus University in Budapest.

Appendix 1: Aristotle's works

The list omits works which are doubtful or generally agreed to be spurious. Titles are given by the Revised Oxford Translation. [1]

Bekker Number/Category
Work[241]
Logic *Organon*
1a *Categories*
16a *On Interpretation*
24a *Prior Analytics*
71a *Posterior Analytics*
100a *Topics*
164a *On Sophistical Refutations*
Physics (natural philosophy)
184a *Physics*
268a *On the Heavens*
314a *On Generation and Corruption*
338a *Meteorology*
Psychology
402a *On the Soul*
436a *Sense and Sensibilia*
449b *On Memory*
453b *On Sleep*
458a *On Dreams*
462b *On Divination in Sleep*
464b *On Length and Shortness of Life*
467b *On Youth, Old Age, Life and Death, and Respiration*
Biology
486a *History of Animals*
639a *Parts of Animals*
704a *Progression of Animals*
715a *Generation of Animals*
Metaphysics
980a *Metaphysics*
Ethics and Politics
1094a *Nicomachean Ethics*
1214a *Eudemian Ethics*
1252a *Politics*
Rhetoric and Poetics
1354a *Rhetoric*
1447a *Poetics*

Appendix 1B: **Augustine of Hippo**

[241] URLs retrieved 2021-0903.

Major Works of Augustine[242]
Confessions
Christian Doctrine
City of God
On the Holy Trinity
The Enchiridion
On the Catechising of the Uninstructed
On Faith and the Creed
Concerning Faith of Things Not Seen
On the Profit of Believing
On the Creed: A Sermon to Catechumens
On the Work of Monks
On Holy Virginity
On the Good of Widowhood
On Care to be Had For the Dead
Merits and Remission of Sin, and Infant Baptism
On the Spirit and the Letter
On Nature and Grace
On Man's Perfection in Righteousness
On the Grace of Christ, and on Original Sin
On Grace and Free Will
On Rebuke and Grace
The Predestination of the Saints/Gift of Perseverance
On the Morals of the Catholic Church
Against Heresies
On the Morals of the Manichaeans
On Two Souls, Against the Manichaeans
Acts or Disputation Against Fortunatus the Manichaean
Against the Epistle of Manichaeus Called Fundamental
Reply to Faustus the Manichaean
Concerning the Nature of Good, Against the Manichaeans
On Baptism, Against the Donatists
Against Two Letters of the Pelagians
On the Proceedings of Pelagius
Answer to Letters of Petilian, Bishop of Cirta

Moral Philosophy
On the Good of Marriage
On Marriage and Concupiscence
On Continence
On Patience
On Lying
To Consentius: Against Lying
On the Soul and its Origin
Soliloquies
Scriptural Exegesis

[242] URLs retrieved 2021-0903.

Our Lord's Sermon on the Mount
The Harmony of the Gospels
Sermons on Selected Lessons of the New Testament
Tractates on the Gospel of John
Homilies on the First Epistle of John
The Enarrations, or Expositions, on the Psalms
Letters
Retractationes (Reconsiderations)

Appendix 1C: Thomas Aquinas[243]
Commentaries and Summas
Commentary on the Sentences
https://aquinas.cc/la/en/~Sent.II
https://aquinas.cc/la/en/~Sent.III
https://aquinas.cc/la/en/~Sent.IV
Summa Contra Gentiles
https://aquinas.cc/la/en/~SCG2
https://aquinas.cc/la/en/~SCG3
https://aquinas.cc/la/en/~SCG4
Summa Theologiae
https://aquinas.cc/la/en/~ST.I
https://aquinas.cc/la/en/~ST.I-II
https://aquinas.cc/la/en/~ST.II-II
https://aquinas.cc/la/en/~ST.III
https://aquinas.cc/la/en/~ST.IIISup
Disputed Questions
https://aquinas.cc/la/la/~QDeVer
https://aquinas.cc/la/en/~QDePot
https://aquinas.cc/la/en/~QDeAn
https://aquinas.cc/la/en/~QDeSpir
https://aquinas.cc/la/la/~QDeMalo
https://aquinas.cc/la/la/~QDeVirt
https://aquinas.cc/la/en/~QDeUni
https://aquinas.cc/la/en/~QI
https://aquinas.cc/la/en/~QII
https://aquinas.cc/la/en/~QIII
https://aquinas.cc/la/en/~QIV
https://aquinas.cc/la/en/~QV
https://aquinas.cc/la/en/~QVI
https://aquinas.cc/la/en/~QVII
https://aquinas.cc/la/en/~QVIII
https://aquinas.cc/la/en/~QIX
https://aquinas.cc/la/en/~QX
https://aquinas.cc/la/en/~QXI
https://aquinas.cc/la/en/~QXII
Old Testament Commentaries

[243] URLs retrieved 2021-0903.

https://aquinas.cc/la/en/~Rigans
https://aquinas.cc/la/en/~HicEst
https://aquinas.cc/la/en/~Psalm
https://aquinas.cc/la/en/~Jerem
https://aquinas.cc/la/en/~Lam
https://aquinas.cc/la/en/~Isaiah
https://aquinas.cc/la/en/~Job
Gospel Commentaries
https://aquinas.cc/la/en/~Matt
https://aquinas.cc/la/en/~Matt.Pr
https://aquinas.cc/la/en/~Ioan.Ex
https://aquinas.cc/la/en/~Ioan
Pauline Commentaries
https://aquinas.cc/la/en/~Rom
https://aquinas.cc/la/en/~1Cor
https://aquinas.cc/la/en/~2Cor
https://aquinas.cc/la/en/~Gal
https://aquinas.cc/la/en/~Eph
https://aquinas.cc/la/en/~Philip
https://aquinas.cc/la/en/~Col
https://aquinas.cc/la/en/~1Thess
https://aquinas.cc/la/en/~2Thess
https://aquinas.cc/la/en/~1Tim
https://aquinas.cc/la/en/~2Tim
https://aquinas.cc/la/en/~Titus
https://aquinas.cc/la/en/~Philemon
https://aquinas.cc/la/en/~Heb
Catena Aurea
https://aquinas.cc/la/en/~CaMatt
https://aquinas.cc/la/en/~CaMark
https://aquinas.cc/la/en/~CaLuke
https://aquinas.cc/la/en/~CaJohn
Commentaries on Aristotle
https://aquinas.cc/la/en/~DeAn
https://aquinas.cc/la/en/~DeSen
https://aquinas.cc/la/en/~Phys
https://aquinas.cc/la/en/~Meteor
https://aquinas.cc/la/en/~Peri
https://aquinas.cc/la/en/~Post
Nicomachean Ethics
https://aquinas.cc/la/en/~Eth
Table of the Ethics
https://aquinas.cc/la/en/~Tabula
Politics
https://aquinas.cc/la/en/~Polit
Metaphysics
https://aquinas.cc/la/en/~Metaph
https://aquinas.cc/la/en/~DeCael
https://aquinas.cc/la/en/~DeGen

Other Commentaries
https://aquinas.cc/la/en/~DeTrin
https://aquinas.cc/la/en/~DeHeb
https://aquinas.cc/la/en/~DeDivNom
https://aquinas.cc/la/en/~LibCaus
https://aquinas.cc/la/en/~CT
Opuscula I: Treatises
Compendium Theologiae
https://aquinas.cc/la/en/~CT.BookI
https://aquinas.cc/la/en/~DePrinNat
https://aquinas.cc/la/en/~DeEnte
1. https://aquinas.cc/la/en/~DeSubstant

On Kingship
https://aquinas.cc/la/en/~DeRegno
Opuscula II: Polemical Writings
https://aquinas.cc/la/en/~ContraImpu
https://aquinas.cc/la/en/~DePerfect
https://aquinas.cc/la/en/~ContraDoct
https://aquinas.cc/la/en/~DeUnitate
https://aquinas.cc/la/en/~DeAeternit
Opuscula III: Collations, Letters
https://aquinas.cc/la/1014/~DecemPrae
https://aquinas.cc/la/en/~PaterNoste
https://aquinas.cc/la/en/~Credo
https://aquinas.cc/la/en/~AveMaria
https://aquinas.cc/la/en/~DeRatio
https://aquinas.cc/la/en/~Decretalem
https://aquinas.cc/la/en/~DeArticuli
https://aquinas.cc/la/la/~Graecorum
https://aquinas.cc/la/la/~DeForma
https://aquinas.cc/la/la/~108Articul
https://aquinas.cc/la/en/~30Articuli
https://aquinas.cc/la/en/~43Articuli
https://aquinas.cc/la/en/~36Articuli

Appendix 2: Chapter 3 Statistics

Evidence of Rueff's Law of Unemployment

(Standard errors in parentheses)

Source	SS	df	MS	Number of obs	=	45
				F(20, 24)	=	41.15
Model	.011502558	20	.000575128	Prob > F	=	0.0000
Residual	.000335412	24	.000013975	R-squared	=	0.9717

```
-------------+---------------------------------- Adj R-squared   =    0.9481
       Total |   .01183797       44  .000269045   Root MSE       =    .00374


------------------------------------------------------------------------------
         ued |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        uirr |   131.5432   62.32572     2.11   0.045     2.909241    260.1772
         ssi |   20.75966   8.610986     2.41   0.024     2.987459    38.53186
       slgen |   11.68276   9.721768     1.20   0.241    -8.381978    31.74751
      uiemrg |   3.977489   .8995659     4.42   0.000     2.120876    5.834102
        snap |   4.072928   1.762703     2.31   0.030     .4348887    7.710968
        sldi |   6.830843   34.03459     0.20   0.843    -63.4131    77.07479
       slmed |   20.03769   11.23689     1.78   0.087    -3.154107    43.22948
       slnrg |   8.211572   14.31524     0.57   0.572    -21.33364    37.75678
          ss |   2.013017   1.023604     1.97   0.061    -.0995973    4.12563
         uis |   .7802215    .284646     2.74   0.011     .192741    1.367702
          th |   .2394398   .0798881     3.00   0.006     .0745589    .4043206
         mcd |  -21.53348   10.79736    -1.99   0.058    -43.81814     .751179
         mcr |   -2.30784   .9868226    -2.34   0.028    -4.344542   -.2711383
        slwc |  -13.31181    13.6783    -0.97   0.340    -41.54243    14.91881
        vets |   1.547125   4.864096     0.32   0.753    -8.491876    11.58613
          bl |  -15.80295   16.53755    -0.96   0.349    -49.93477    18.32887
        rtcs |  -.3384138   .3709724    -0.91   0.371    -1.104063    .4272355
       slempt |  -4.997052   10.43356    -0.48   0.636    -26.53087    16.53676
      sleduc |   7.241506   16.53276     0.44   0.665    -26.88043    41.36344
         fam |  -8.396288   5.191123    -1.62   0.119    -19.11024    2.317663
       _cons |  -.1510666   .0522717    -2.89   0.008    -.2589502   -.0431831
------------------------------------------------------------------------------


.  |       SS       df       MS      Number of obs   =        45
-------------+------------------------------ F(20, 24)      =     41.15
       Model |  .011502558       20  .000575128   Prob > F       =    0.0000
```

```
   Residual |  .000335412        24  .000013975   R-squared      =    0.9717
-------------+----------------------------------  Adj R-squared  =    0.9481
      Total |  .01183797        44  .000269045   Root MSE       =    .00374


------------------------------------------------------------------------------
         ued |      Coef.   Std. Err      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       uirr |     31.5432   62.32572     2.11   0.045     2.909241    260.1772
        ssi |     20.75966   8.610986     2.4   0.024     2.987459
      slgen |     11.68276   9.721768     1.20   0.24    -8.381978    31.74751
     uiemrg |     3.977489   .8995659     4.42   0.000     2.120876    5.834102
       snap |     4.072928   1.762703     2.3   0.030     .4348887    7.710968
        uis |     .7802215    284646     2.74   0.011     .192741     1.367702
       sldi |     .830843   34.0345      0.20   0.843    -63.4131     77.07479
      slmed |   20.03769   11.23689     1.78   0.087    -3.154107    43.22948
      slnrg |   8.211572   14.31524     0.57   0.572    -21.33364    37.75678
         th |   .2394398   .0798881     3.00   0.006     .0745589    .4043206
         ss |   2.013017   1.023604     1.97   0.061    -.0995973    4.12563
        mcd |  -21.53348   10.79736    -1.99   0.058    -43.81814     .751179
        mcr |   -2.30784   .9868226    -2.34   0.028    -4.344542   -.2711383
       slwc |  -13.31181    13.6783    -0.97   0.340    -41.54243    14.91881
       vets |   1.547125   4.864096     0.32   0.753    -8.491876    11.58613
         bl |  -15.80295   16.53755    -0.96   0.349    -49.93477    18.32887
       rtcs |  -.3384138   .3709724    -0.91   0.371    -1.104063    .4272355
     slempt |  -4.997052   10.43356    -0.48   0.636    -26.53087    16.53676
     sleduc |   7.241506   16.53276     0.44   0.665    -26.88043    41.36344
        fam |  -8.396288   5.191123    -1.62   0.119    -19.11024    2.317663
      _cons |  -.1510666   .0522717    -2.89   0.008    -.2589502   -.0431831
------------------------------------------------------------------------------


      Source |       SS       df       MS      Number of obs   =        45
-------------+------------------------------   F(20, 24)       =     41.15
```

```
      Model |  .011502558        20  .000575128   Prob > F        =    0.0000
   Residual |  .000335412        24  .000013975   R-squared       =    0.9717
-------------+------------------------------   Adj R-squared   =    0.9481
      Total |  .01183797        44  .000269045   Root MSE        =    .00374


------------------------------------------------------------------------------

       ------------------------------------------------------------------------------
         lfp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        uirr |   13.88994   40.84338     0.34   0.737    -70.40665    98.18653
         ssi |   4.552476   5.642963     0.81   0.428    -7.094028    16.19898
       slgen |  -1.435109   6.370882    -0.23   0.824    -14.58396    11.71375
      uiemrg |   1.096904   .5895048     1.86   0.075    -.1197744    2.313582
        snap |  -6.157075   1.155137    -5.33   0.000    -8.54116    -3.77299
        sldi |    23.3927    22.3036     1.05   0.305    -22.63966    69.42506
       slmed |  -12.36249   7.363772    -1.68   0.106    -27.56056    2.835592
       slnrg |  -3.167654   9.381086    -0.34   0.739    -22.52926    16.19396
          ss |   .5994759   .6707893     0.89   0.380    -.7849652    1.983917
         uis |   .0732545   .1865346     0.39   0.698    -.3117341     .458243
          th |  -.0814689   .0523524    -1.56   0.133    -.1895189     .026581
         mcd |   11.36351   7.075743     1.61   0.121    -3.240101    25.96713
         mcr |   .7500451    .646686     1.16   0.258    -.5846492    2.084739
        slwc |   18.23132   8.963682     2.03   0.053    -.2688066    36.73145
        vets |  -11.54661   3.187546    -3.62   0.001    -18.12538   -4.967833
          bl |   21.90355   10.83741     2.02   0.055    -.4637647    44.27086word countword
      slempt |    10.5485   6.837337     1.54   0.136    -3.563068    24.66007
      sleduc |   13.29651   10.83427     1.23   0.232    -9.064324    35.65734
         fam |  -1.758124   3.401854    -0.52   0.610    -8.779205    5.262958
       _cons |   .6778158   .0342548    19.79   0.000     .6071174    .7485141
------------------------------------------------------------------------------


. ued |          Coef.          Std. Err.       T                P>|t|          [95% Conf. Interval]
```

```
-------------+----------------------------------------------------------------

       uirr |   131.5432   62.32572     2.11   0.045     2.909241    260.1772
        ssi |   20.75966   8.610986     2.41   0.024     2.987459    38.53186
      slgen |    11.6827   9.721768     1.20   0.241    -8.381978    31.74751
     uiemrg |   3.977489   .8995659     4.42   0.000     2.120876    5.834102
       snap |   4.072928   1.762703     2.31   0.030     .4348887    7.710968
        uis |   .7802215    .284646     2.74   0.011      .192741    1.367702
       sldi |   6.830843   34.03459     0.20   0.843    -63.4131     77.07479
      slmed |   20.03769   11.23689     1.78   0.087    -3.154107    43.22948
      slnrg |   8.211572   14.31524     0.57   0.572    -21.33364    37.75678
         th |   .2394398   .0798881     .00    0.006     .0745589    .4043206
         ss |   2.013017   1.023604     1.97   0.061     -.0995973    .12563
        mcd |  -21.53348   10.79736    -1.99   0.058    -43.81814    .751179
        mcr |   -2.30784   .9868226    -2.34   0.028   -4.344542     2711383
       slwc |   -13.31181   13.6783    -0.97   0.340    -41.54243    14.91881
       vets |   1.547125   4.864096     0.32   0.753    -8.491876    11.58613
         bl |   -15.80295   16.53755   -0.96   0.349    -49.93477    18.32887
       rtcs |   -.3384138   .3709724    -0.91   0.371    -1.104063    .4272355
     slempt |   -4.997052   10.43356    -0.48   0.636    -26.53087    16.53676
     sleduc |   7.241506   16.53276     0.44   0.665    -26.88043    41.36344
        fam |   -8.396288   5.191123    -1.62   0.119    -19.11024    2.317663
      _cons |   -.1510666   .0522717    -2.89   0.008    -.2589502    -.0431831

------------------------------------------------------------------------------

Source |       SS       df       MS      Number of obs   =        45
-------------+------------------------------   F(20, 24)       =     99.30
       Model |  .011919203        20   .00059596   Prob > F        =    0.0000
    Residual |  .000144041        24  6.0017e-06   R-squared       =    0.9881
-------------+------------------------------   Adj R-squared   =    0.9781
       Total |  .012063244        44  .000274165   Root MSE        =    .00245


------------------------------------------------------------------------------

        lfp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------

uirr |   13.889944\              0.84338        0.34   0.737   -70.40665    98.18653
slgen |  -1.435109   6.370882    -0.23   0.824    -14.58396    11.71375
```

```
uiemrg |   1.096904   .5895048     1.86   0.075    -.1197744    2.313582
snap |  -6.157075   1.155137    -5.33   0.000     -8.54116    -3.77299
uis |   .0732545   .1865346     0.39   0.698    -.3117341     .4582
sldi |    23.3927    22.3036     1.05   0.305    -22.63966    69.42506

ssi |   4.552476   5.642963     0.81   0.428    -7.094028    16.19898
slmed |  -12.36249   7.363772    -1.68   0.106    -27.56056    2.835592
slnrg |  -3.167654   9.381086    -0.34   0.739    -22.52926    16.19396
h |  -.0814689   .0523524    -1.56   0.133    -.1895189     .02658
ss |   .5994759   .6707893     0.89   0.380    -.7849652    1.983917
mcd |   11.36351   7.075743     1.61   0.121    -3.240101    25.96713
mcr |   .7500451    .646686     1.16   0.258    -.5846492    2.084739
slwc |   18.23132   8.963682     2.03   0.053    -.2688066    36.73145
vets |  -11.54661   3.187546    -3.62   0.001    -18.12538   -4.967833
bl |   21.90355   10.83741     2.02   0.055    -.4637647    44.27086
rtcs |   .3366392   .2431061     1.38   0.179    -.1651072    .8383856
slempt |    10.5485   6.837337     1.54   0.136    -3.563068    24.66007
sleduc |   13.29651   10.83427     1.23   0.232    -9.064324
cons |   .6778158   .0342548    19.79   0.000     .6071174    .7485141
------------------------------------------------------------------------------
```

(Key to abbreviations: nulc: net unit labor costs; lfpm: male labor force participation rate; lfpf: female labor force participation rate; lfp: total labor force participation rate; snap: food stamps (Supplementary Nutrition Assistance Program); uis: state unemployment insurance; uiemrg: emergency unemployment insurance; uirr: railroad unemployment insurance; uifed: federal unemployment insurance; bl: federal black lung benefits; vets: federal veterans benefits; slgen: state & local general assistance; slwc: state & local workers compensation; sldi: state & local disability insurance; ssis: state supplemental security income; ss: Social Security retirement pensions; mcr: Medicare; mcd: Medicaid; slmedoth: other state & local medical benefits; slnrg: state & local energy assistance; sleduc: state & local education benefits; slempt: state & local employment and training programs; fam: family benefits; rtcs: refundable tax credits (Earned Income Tax Credit and child credit); th: take-home pay; cons: constant.)