

THE FUTURE OF WORK IN THE INCLUSIVE WORLD ECONOMY

Working Draft 1

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Contents

ABOUT THIS DRAFT	V
PREFACE	VII
THE RESEARCH AND WRITING WORK	VII
ACKNOWLEDGEMENTS	XI
INTRODUCTION	1
GLOBAL RISE OF ECONOMIC HARDSHIPS	1
SURPRISE IN THE FIELD OF ECONOMICS	8
EXPECTATIONS FOR THE FUTURE OF WORK	9
THIS TIME LOOKS DIFFERENT	10
A NARRATIVE FOR DIFFERENT EXPECTATIONS	13
PART ONE	19
CHAPTER 1: CONCEPTUALIZING THE SYSTEM THAT CHANGES	21
THE CONCEPT OF AN ECONOMY IN ECONOMICS	22
AN ALTERNATIVE CONCEPTUALIZATION: THE INCLUSIVE WORLD ECONOMY	25
WORK IN THE INCLUSIVE WORLD ECONOMY	32
CHAPTER 2: CHANGE FROM WITHIN	35
SYSTEM STRUCTURE AND DYNAMICS	35
SYSTEM CHANGE IN THE INCLUSIVE WORLD ECONOMY	39
IMPLICATIONS FOR STUDYING THE WORK WORLD	45
PART TWO	47
CHAPTER 3: THE ECONOMIC GROWTH SLOWDOWN IN THE HUMAN ECONOMIC ARENA	49
CORE PROCESSES BEHIND ECONOMIC GROWTH.....	49
THE ERA OF RAPID MARKET GROWTH	53
THE TRANSITION TO SLOWING MARKET GROWTH	56
THE DEVELOPMENT OF BARRIERS TO ECONOMIC GROWTH	58
CHAPTER 4: THE CREATION OF A GLOBAL WEALTH ALLOCATION CRISIS IN THE INCLUSIVE WORLD ECONOMY ...	67
THE LANDSCAPE OF AGENTS AND RELATIONSHIPS THAT CREATED THE CRISIS	68
DEVELOPMENT OF THE CRISIS	76
THE EXPANDING DIMENSIONS OF THE GLOBAL WEALTH ALLOCATION CRISIS	85
CHAPTER 5: ESCALATION INTO A GLOBAL POLITICAL CRISIS	91
THE ROOTS OF POLITICAL CRISIS	92
SHIFTING POLITICAL ATTITUDES	96
RISE OF CONFRONTATIONAL MOVEMENTS	98
THE EMERGENCE OF CRISIS POLITICS	100
POLITICAL CRISIS AND THE FUTURE OF WORK	101
PART THREE	105
CHAPTER 6: THE GLOBAL WORK SYSTEM AT THE BEGINNING OF THE 21TH CENTURY	107
A BRIEF HISTORY OF THE GLOBAL WORK SYSTEM	110

THE GLOBAL WORK SYSTEM IN A STATE OF TURBULENCE	117
THE FUTURE OF THE GLOBAL WORK SYSTEM	125
CHAPTER 7: ELEMENTS OF THE NEXT GLOBAL WORK SYSTEM	129
WORK RELATED ELEMENTS OF THE WEALTH ALLOCATION CRISIS	130
LARGE SCALE TENDENCIES IN THE GLOBAL WORK SYSTEM	133
LOWER QUALITY WORK ENVIRONMENTS	138
EMERGENCE OF A NEW STORY OF WORK	141
CHAPTER 8: A DESIRABLE AND PLAUSIBLE WORK FUTURE	143
BUILDING A MORE DEMOCRATIC GLOBAL CHANGE PROCESS	144
QUALITIES FOR AN INCLUSIVE GLOBAL WORK SYSTEM	145
POTENTIAL FOR AN INCLUSIVE POLITICAL COALITION	147
IT HAS TO BE DONE	153
REFERENCES	155
INDEX	173

About this Draft

This book is not yet ready to submit to a publisher for consideration. Some of the ideas presented are not as well developed and documented as I want them to be and the writing needs additional work. Some sections are more carefully and concisely written than others. The book has only been read through once for typos and grammar errors. These shortcomings will be addressed over time. For now, the line of argument is complete and I think certain readers will find value in the book as it is. The thesis is timely and some of the ideas presented may suggest research topics worth considering or stimulate thoughtful discussions.

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Preface

The idea for this book emerged when I began to see possible connections across several of my areas of interest – the world of work and employment, globalization, economic history, and environmental degradation. My interest in work and employment grew primarily out of my sociological interest in poverty and economic welfare and a few years of work in employment training programs; my academic training in the world-systems perspective on the history of capitalism gave me a particular way of viewing economic history and globalization; my interest in environmental issues came with the general uptick in public concern about environmental issues.

When I became interested in writing about the future of work, I could see that climate change and other forms of environmental damage were creating new lines of work. That led me to a search for studies that connect globalization, environmental changes, and global work trends in a unified perspective. I did not find what I was looking for. I discovered that a lot of work was being done, but from multiple and disconnected perspectives. I also found the key elements for this book.

Three lines of inquiry became connected in my mind: the growing discussion in the field of economics about stagnating global economic growth after the 2008 financial crisis, the much older inquiry into the environmental limits to economic growth, and the downward pressures on profits, wages, and working conditions produced in high affluence nations by globalization. I began to see that I could bring these lines of inquiry together in a coherent fashion within a single analytic perspective. The result of that work is the analytic framework and narrative of change presented in this book.

This book was a large undertaking and one with substantial research and interpretation challenges. I concluded early on that I could not expect to prove that my narrative of change is correct. I would have to be content with making a case that the narrative is plausible. I believe I have done that.

The Research and Writing Work

In scholarly work, good research questions to consider are usually the “next questions to be asked” in a collective effort to build a body of tested and proven knowledge in a well defined field of inquiry. Thus the standard approach to choosing a study to undertake is to survey the existing state of knowledge, derive a list of “next questions” and then choose one to try to answer. This is a scientifically sound and desirable approach, but it can’t always be adhered to.

Quite often pressing research questions well up from the times in which we live. Sometimes they become challenging questions because they arise out of disruptions to the normal and expected flow of life. When this happens, the usual methodological tools often don’t perform well. The theories that normally guide research in the relevant field of science don’t handle the question well and data identified as relevant by those theories aren’t the appropriate data.

The question of what comes next in the global work world has become that kind of question. It is a question that gets asked and answered anew year after year because work is the foundation on which we all build our lives. The usual research methods are applied and the answers they produce are not controversial. This approach no longer fits. The future of work is inseparable from the future of the world economy, but the future of the world economy has become a big unknown. The usual and expected trajectory of economic change has been disrupted. Institutional arrangements are volatile and the phrase ‘new normal’ is being applied to various economic, social, and political phenomena, including certain changes in the world of work. In this context, the question of what comes next in the world of work has become a question that prevailing economic theories are not equipped to handle well.

Prevailing economic theories are strongly biased in favor of revealing and explaining continuity from the past into the present and from the present into the future. They are not equipped to account for and explain the kind of shifts in economic trends and institutional volatility we are encountering. The bias toward historical continuity in economic theories undermines their usefulness in seeking out clues to the future of work in the current societal context. They are apt to deflect attention away from processes that contribute significantly to changing the world of work and to constrain the collection and interpretation of data in ways that obscure relevant patterns and trends.

The source of this bias is a core theme in the narrative of our times: our history is one of evolutionary economic progress that will continue to bless us long into the future. This theme was created in the context of the great acceleration in the production of wealth associated with the development of science and industry and by the peoples who most benefited from those developments. It influences all our sciences, especially the social sciences.

The misalignment of economic theories of change with the current record of faltering economic trends and institutional volatility defined the main methodological obstacle that I would have to overcome to write this book. I would have to come up with an economic narrative that would define the sharp changes that have marked recent decades as transformative disruptions rather than aberrations in a long record of evolutionary continuity. Within this kind of narrative, I believed, it should be possible to discern more reliable clues to the future of work.

This narrative of transformative disruption would have to be derived from a theory of change that provides a way to distinguish between transformative disruption and evolutionary change and that identifies the processes that produce disruptive change. My explorations led me to the world of systems theory. Theories of system change can account for transformative disruption as well as evolutionary change.

Systems theory also promised to solve a conceptual problem I had been struggling with in regard to this study. This problem had two parts to it. First, in an era of transnational production processes and transnational market transactions, is the world economy an actual economy or just an aggregation of national economies? Second, knowing that consequences flow back and forth between human activities and the physical and biological processes of the earth, what is the appropriate way to conceptualize the relationships between the human economic activities and the rest of nature? Systems theory provided a useful way to answer these questions because a system is a definable entity for which components, relationships among components, and a boundary can be empirically discerned

The answer to the first question came from the world-systems perspective on the world-economy developed by Immanuel Wallerstein and his colleagues and students. This is a sociological model in which the world economy is a totality rather than a simple aggregation of national economies. The answer to the second question came from encountering numerous books and articles in which the authors placed humans along side other species as interdependent partners in a total earth system.

I concluded that the economic system in which the processes that are producing the future world of work is the totality of economic processes carried out by humans, by other species and by atmospheric and geologic processes. The name I decided on for this economic system was the Inclusive World Economy. I presented the basic arguments for this concept in an article published in *Cadmus Journal* in 2014 and continued to work on it for this book.¹ In the course of my work, I discovered that Jason W. Moore was working with the same ideas and developed a very similar concept, a World-Ecology, in his book *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*.²

His work is a much more scholarly theoretical synthesis of insights and findings from multiple disciplines than my own and I could have adopted his terminology and mode of argumentation. Nonetheless, Moore's purpose was much different than my own and he wrote for a different audience, so I have retained my own terminology and way of constructing an image of the world totality.

The Inclusive World Economy is a hybrid system in which economic processes are carried out by human and non-human agents (e.g., plants and animals). A sociological theory of system change was adapted to fit this kind of hybrid system. This was done by using a concept of agency in a system that can accommodate both thoughtful (willful) actions and actions determined by genetic programming or the laws of physics. This made it possible to conceptualize processes of change that involved both human and non-human agents of change.

The analytic work was simple in concept but difficult in execution. There were two parts to it. The first part was analytic work designed to identify and document processes of change in the Inclusive World Economy that could account for the transformative disruption in our times and help identify its key features. The second part was analytic work designed to ferret out the implications for the world of work embedded in the key features of the transformation.

The working premises for the first part were that an economic process in the Inclusive World Economy has particular input and output requirements and that the capacities of other parts of the Inclusive World Economy system to meet those requirements change over time. One could expect that at certain times, barriers could emerge that would begin to shut down critical economic processes. Thus, the analytic work consisted of surveying changes in relationships among the various agents that make up the Inclusive World Economy during the last few centuries to identify those that would have large negative consequences for the production and distribution of wealth. This work produced a narrative of transformative disruption.

The working premise for the second part of the analysis were that knowing which economic processes are encountering barriers would make it possible to identify processes emerging in response to collapsing processes and that those emerging processes held the key to the future of work. The analytic work consisted of figuring out which emerging economic processes seemed likely to continue into the future and figuring out which elements of those continuing processes

are linked to which elements in the world of work. Those findings suggested which elements of the world of work would likely grow over time and which would likely diminish.

The analytic work would have been impossible without some way to limit the volume of data that would have to be examined. I did what all researchers do when faced with too much information: I used my knowledge and judgment, my research skills, and my access to the knowledge and judgments of others who have earned respect for their intellectual work to decide which agents and processes should be examined in detail and which could be ignored. This was an iterative process: as I learned more I found it necessary to make changes to the configuration of agents and processes getting my attention.

As the data collection and analysis work progressed I wrote both basic notes and sections of text to be incorporated into the book. Eventually writing and rewriting the book itself became the dominant activity, but I continued to collect data and revise findings as the writing process revealed the need to do so. The resulting book is divided into three parts: The first part presents an elaboration of the Inclusive World Economy concept and a theory of system change designed to fit the Inclusive World Economy concept. The second part presents the narrative of transformative disruption. The book concludes with two chapters that lay out the likely elements of the world of work in the future.

A Note about Terminology

Several new terms are introduced in this book. This was done because existing terms did not fit the methodology I used as well as I need. Some of them, at first, may seem a bit contrived, but I believe their purposes will become clear as you read deeper into the chapters where they are used.

I will note one change in terms here because you will first encounter the change in the Introduction. I use slightly different terms to refer to groups of nations than other social scientists do. Instead of terms such as underdeveloped, developing, developed, advanced and emerging, I use the terms high affluence nations, middle affluence nations, and low affluence nations. The nations in any group are roughly the same, but I preferred terms that avoid association with linear theories of change and with western cultural value judgements.

Both contemporary and historical data are collected and packaged into nation-state and other jurisdictional units. So, our terminology for talking about economic and societal change fits the idea that such change is unitized by jurisdictional boundaries. For example we talk about the economic development of Canada or Singapore, emerging market economies (i.e., emerging nations), and about advanced and underdeveloped nations.

It is not possible to get away from naming nations and groups of nations in order to talk about the data in a way that connects to what people know. However, such terms as developed and underdeveloped carry cultural biases. Others, like the world-systems terms core, periphery, and semi-periphery bring predefined relationships among nations with them. For this reason, I have opted to use the categories high affluence nations, middle affluence nations, and low affluence nations, terms which in my mind relate only to wealth and income differences.

A Note on Authorities

When my generation went to college, we looked upon researchers and faculty at colleges and universities as the ultimate authorities on the world in which we live. We saw the editors and publishers of academic books and journals as reliable arbiters of what is worthy of attention and what is not. Many of us no longer assign that hallowed standing to the academy. As we have aged and gained more experience, as we have learned how often findings in reputable journals turn out to be wrong, and as the Internet has provided more and more open access venues for publishing and accessing intellectual work, I and many others have changed our thinking about intellectual authorities. We have come to understand that people from all walks of life can be intellectually productive and profoundly insightful; that even in the most prestigious institutions, the most careful of people make research mistakes; and that people who hold positions of public trust do occasionally become corrupt.

We have learned that the measure of intellectual authority that we apply to something we read, view, or hear cannot always be a professional title and an institutional affiliation. Something more is required. To do our best work we must have the capacity to judge the quality of statements and we must apply that judgment even when those statements come from the most institutionally qualified and celebrated of people. We must rely on the theoretical narratives we choose to help us sort out the usable findings from the unusable. And yet, we must still remain open to the unexpected.

I have brought this up to explain my choice of sources for this book. A vast array of websites now serve as an enormous repository of freely available research papers, insightful observations, anecdotal indicators, and promising policy proposals. I wanted to use this repository as much as possible so that anyone can check out the sources for themselves and make their own judgments. The result is a work that I believe is intellectually sound, even though the methods do not align fully with scientific practice.

Acknowledgements

Over many years of reading and study and conversations with well informed people, I have accumulated many intellectual debts. People I know, but mostly people I don't know, helped me in many ways to develop the knowledge and skills I bring to my research and writing. I thank them for the many ways in which they guided me along the path to this book.

I wish to thank four people by name, but this in no way indicates agreement with or support for this book. None of them have seen the book, but their comments about related matters did give me helpful assistance and encouragement along the way. Thanks to Garry Jacobs, editor at *Cadmus Journal*, for graciously publishing a paper in which I presented some of the ideas that I further develop in this book. Thanks to Peter Grimes, a friend and colleague, for the hundreds of conversations about topics of mutual interest we have had and that often caused me to think harder and deeper about my ideas. Finally, thanks to Salvatore Babones at the University of Sydney for long ago reading a draft of a chapter and offering encouraging comments and thanks to Jason W. Moore at Binghamton University for encouraging comments about writings in which I first developed some of the ideas in this book. Encouragement is not a small gift.

¹ Jim Lunday, Replacing the Concept of Externalities to Analyze Constraints on Global Economic Growth and Move Toward a New Economic Paradigm, *Cadmus*, October 19, 2014, Vol. 2 Issue 3. Accessed online January 3, 2015. <http://www.cadmusjournal.org/article/volume-2/issue-3-part-2/replacing-concept-externalities>

² Jason W. Moore, *Capitalism in the Web of Life*, Verso, 2015. <https://www.versobooks.com/books/1924-capitalism-in-the-web-of-life>

Introduction

Something began to happen to the development of work in the world economy in the last decades of the 20th century. Industries and jobs began to move from nation to nation with increasing speed. Digital technologies transformed workplaces across the spectrum of enterprises, from industrial factories to professional service offices to government agencies to retail stores to street vending. In places like China, India, Brazil and other middle tier nations, these changes produced job growth and improving standards of living. The proportion of the world's people living in the direst of conditions (income of less than \$2 per day) declined. The global middle class was seen to be steadily growing.³

At the same time that trends in a growing number of poorer nations were pointing toward improving conditions of work and rising incomes, decades-long economic and political trends that had improved the lives of working people in the U.S. and other high affluence nations plateaued and in some cases reversed course. Working people in America, most nations of Europe, and other high affluence nations experienced declining standards of living. Those losses began well before 2008, but the Great Recession pushed them deeper and made them more enduring.

Global Rise of Economic Hardships

We can't know with certainty what happened to the overall standard of living for the world's working people before 2008 because the data for so many countries are so unreliable, but almost certainly, it fell after 2008. The data documenting this reversal of fortunes is reliable for the world's high affluence nations and peoples. For middle and low affluence nations it is less reliable, but such that it is, it suggests that any global trend toward lower levels of abject poverty and higher numbers of families with middle class incomes (relative to local standards) that may have existed before 2008 has now come to a stop.

The rate of annual global disposable income fell dramatically after 2008, reaching a low of almost negative 2.5 percent. The rate rebounded to about 1.3 percent in 2010, but fell again to less than 0.5 percent in 2012 and 2013. In 2014, the rate was again at the 2010 level.⁴

In 2015, the fortunes of the global middle class were not as rosy as was expected. The percent of the world's people living on \$20 per day or less only declined from 86 percent to 84 percent from 2001 to 2011.⁵ Thirteen of the 85 major economies in the Euromonitor International data set have shrinking middle classes, including some countries that are not counted among the high affluence nations.⁶

For decades the world's households have been adding to their debt, increasing their debt-to-income ratios. This is not a positive trend because it marks a growing level of vulnerability to financial crises and economic downturns. According to the McKinsey Global Institute, global household debt increased from \$19 trillion in 2000 to \$40 trillion in 2014. Household debt has

continued to grow in most high affluence nations. It has also grown in middle and low affluence countries where household debt-to-income ratios have grown significantly.⁷

Even people in the most high affluence nations were hit hard by the 2008 financial crisis and the Great Recession. In the U.S. the poverty rate for people ages 18 to 64 years was 17 percent in 1959. The poverty rate reached its lowest level in 1973 and 1974 (8.3 percent). From 1980 forward, the poverty rate for working age people has been above 10 percent. From 2010 to 2014 it has been above 13 percent.⁸ In the U.S. mortgage defaults rose dramatically after 2008, up from one percent of all mortgages before the crisis to 9 percent in 2010.⁹ Many families lost their homes.

Research done by the McKinsey Global Institute found that before 2005 almost all households in 25 high affluence nations saw real incomes rise. Between 2005 and 2014, real incomes in those same nations were flat or fell for 65 to 70 percent of households. Even when government transfers and lower taxes are considered, disposable income for up to a quarter of households either stagnated or fell.¹⁰

The large losses of income and savings and large increases in household debt are directly traceable to deteriorating conditions of work in the world as a whole. The greatest damage to conditions of work has been done in high affluence nations where large majorities of the populations had acceptable to good conditions of work. In these nations every aspect of work has changed in recent decades and most of these changes have economically and politically harmed working people and their families.

A fair number low and middle affluence nations have seen improvements in conditions of work as manufacturing, clerical, technical support and other jobs have been moved from high affluence nations to low and middle affluence nations and as trade patterns have changed. But the rate at which higher quality jobs are being created in low and middle affluence nations is slowing.

The Unexpected Deterioration in Conditions of Work in High Affluence Nations

People in high affluence nations have been caught off guard by the extent to which conditions of work have deteriorated and by the inability of policy makers to find a way to restore the past trend toward ever better conditions of work. That trend became a given as prosperity increased and spread in the decades following World War II. Steady wage and income gains drove upward mobility, creating large and politically powerful middle class populations. Growing government revenues funded massive expansions of public wealth (modern highway systems, well funded public school systems, expanded access to higher education institutions, environmental protection and cleanup programs, various entitlement programs and economic rights, etc.) that greatly benefited working people.

Economists, policy makers, and people in general expected these positive economic and public policy trends to continue indefinitely. But they didn't. The first signs of trouble in the U.S. showed up as job losses in steel, autos, and other industries in which workers received high wages and costly benefits. Even in the late 1990's when economic growth was very strong, signs of troubles were observable.¹¹ By the time of the 2008 financial crisis, wages and benefits for many middle and lower-middle income people had been declining in inflation adjusted dollars for decades. A new era of wage and benefit stagnation and decline was well established.

The harshest changes to the fortunes of U.S. and European working people happened in the wake of the financial crisis of 2008 and the ensuing Great Recession. In the high affluence nations, working people had to accept more and larger wage and benefit losses and deep cuts to government services and programs that contributed to their quality of life. Even nominal wages fell and benefits disappeared entirely for some categories of workers. Employment insecurity increased. Self-employed individuals and family run businesses lost customers and revenues. Individuals and families lost incomes and homes. The values of savings and retirement portfolios fell sharply as stock market values collapsed.

The Great Recession was officially over by the end of 2013. It ended in the U.S. in June 2009 and at later dates across Europe. Since then, the regions that have grown the most are Asia and Africa.¹² Corporate profits rose and the U.S. stock markets began to move toward pre-Great Recession values. In the U.S. and several other high affluence nations, industrial production rebounded. However, the recovery was far from what was expected and prospects for working people were not promising.

To a large extent, these losses are attributed to the global redistribution of industries and work opportunities that took place over the last several decades. In many communities in high affluence nations whole industries were disappearing before the 2008 financial crisis and with them the jobs and incomes that supported families and government services. This trend has continued, increasing the cumulative harm to communities in high affluence nations. Unprecedented numbers of working families are coping with recurring periods of unemployment and underemployment; increasingly, working people at all levels of income find themselves having to accept cuts in wages and benefits in order to get jobs and stay employed; a growing number of young people in high affluence nations have little or no access to paid employment opportunities over this entire period.

A Monthly Labor Review article summarized the situation in the U.S. as follows:

Perhaps more importantly, structural changes occurred in the economy, eliminating many jobs for skilled workers.²⁵ Increased integration in global markets led to low-skilled jobs moving overseas, where labor is less expensive. Technological gains enabled the automation of many jobs, leading to increased productivity and output without generating employment growth. This hollowing-out trend is expected to continue, although not as dramatically, because many of the most easily offshored or automated jobs have already been lost.¹³

The shift from gains to losses for working people in high affluence nations coincided with a massive transfer of production activities in the world economy from high affluence nations to middle affluence nations (often referred to as emerging economies) and to some low affluence nations. This process contributed to a deceleration in economic growth in high affluence nations and an acceleration of economic growth in most middle affluence and some low affluence nations. Those changes effectively shifted the dynamic centers of job creation from high affluence nations to other nations.¹⁴ Economic growth, with growth in higher end jobs and wages and benefits, has been especially strong in the semi-high affluence nations (such as China, India, Brazil, and South Africa).¹⁵

Most people in middle affluence and low affluence nations have not benefited very much from industry transfers from high affluence nations. Only a small proportion of all working people in those nations have found work in these new industries. Moreover, the characteristics of jobs created in the middle affluence and low affluence world are not the same as they were in high affluence nations. They typically have lower wages, fewer benefits, less control over working conditions, and less safety than would be associated with the same work in a high affluence nation.

It is not likely that improvements in wages, benefits, and working conditions in the middle low affluence nations of the world, as real as they are, have fully offset the losses in the high affluence nations of the world. It seems more reasonable to conclude that the average standard of living for the world's working people has actually fallen during recent decades, and that negative trends in wages and working conditions in high affluence nations are part of that general decline in the standards of living for the world's working people.

Global Changes in Employment and Conditions of Work

The world of work has changed rapidly and immensely in the last several decades and is continuing to change. Some peoples have gained jobs and better working conditions, particularly in middle affluence nations, but most of the world's peoples have either gained no benefit from the huge changes or have suffered losses of work opportunities, wages, benefits and workplace amenities. Many have been pushed into dangerous work situations, illegal work, and even into forced work. The current conditions in the world of work are not very good ones.

New Normal for Unemployment and Underemployment

Global unemployment and underemployment in 2016 were still well above the norm for the years prior to 2008. For the world as a whole, the unemployment rate was 6.0 percent in 2013 and is expected to be at 5.9 percent in 2017. Youth unemployment is much higher, at 13 percent in 2014 and expected to stagnate at 13.1 percent through 2018. This slow decline in the global unemployment rate reflects inadequate job creation. The total number of unemployed people is expected to rise through 2019, even while the global labor force participation rate is expected to continue to fall.¹⁶

Unemployment remains high, even in high affluence nations. In 2007 the average unemployment rate in the G20 advanced economies was 5.7 percent. This rose to 8.4 percent in 2013 and had only fallen to 7.4 in 2015. In Europe the situation was even worse. In the European Union, unemployment increased from 7.2 percent in 2007 to 10.9 percent in 2013. It was 9.9 percent in 2015 and is expected to be 9.5 percent in 2017.

The U.S. seems to be an exception among high affluence nations because the official unemployment rate finally fell below five percent in 2016. But, other aspects of the employment situation remained off the mark. A large part of the decline in unemployment was due to people withdrawing from the labor force. The number of long-term unemployed was still very high. There were some signs of renewed wage and income growth, but no return to pre-crisis levels. Public services that benefit working people were still being cut.

The Growth of Informal Work

Informal work includes self-employment, paid and unpaid family work¹⁷, unregulated wage work, and many kinds of illegal work. It is generally work done in inferior conditions of work

and with low wages and benefits. Informal workers are generally vulnerable to even greater losses.¹⁸ A good portion is done in conditions of servitude or near servitude. Even in the U.S. forms of servitude can still be found.¹⁹ Yet, informal work is a very large part of all work in the world economy and produces a substantial portion of the world's goods and services.

Conclusions about trends for informal work cannot be very detailed because of data limitations. In the first place, definitions vary considerably across countries. More importantly, informal employment is, by definition, much less visible to agencies that collect labor force information. Even in high affluence nations data collection capabilities are generally much less successful at obtaining accurate data about informal employment. Not surprisingly, estimates of informal employment vary greatly.

Most of the world's work is not done as formal wage employment, it is informal work. Informal employment may account for as much as 60 percent of the world's employment.²⁰ The Organization for Economic Cooperation and Development reports that over 55 percent of non-agricultural employment can be considered informal. In parts of sub-Saharan Africa and South Asia informal employment can reach much higher levels (e.g., 83 percent in the case of India and even 90 percent in the case of Chad).²¹ The International Trade Union Confederation estimates the global labor force to be 2.9 billion with 40 percent in the informal sector.

Some evidence suggests that informal work is increasing as a share of all work in the world economy. A 2005 report on informal employment in Egypt, El Salvador, India, Russia, and South Africa found that the informal economy as a share of total employment is growing in all the countries studied except El Salvador.²² In Latin America people have been moving from high productivity activities to low productivity activities.²³ This is a good proxy for the movement of people into vulnerable and informal work arrangements.

More and more displaced workers are turning to unregistered self-employment as a means of obtaining in-kind and monetary income. Activities include everything from domestic work to peddling low-price and throw-away items on the streets and in flea markets to scavenging usable items from landfills to producing goods and services for global corporations. One estimate is that 15 million people are involved in waste picking.²⁴

Informal work is not without enormous value in the world economy. Formal and informal enterprises are highly connected. They are knit together into a global system of employment through global market and transnational political relationships.²⁵

An Increase in Forced Work

The International Labour Organization reports that almost 21 million people are victims of forced labour – 11.4 million women and girls and 9.5 million men and boys. Almost 19 million victims are exploited by private individuals or enterprises and over 2 million by a state or rebel groups. Forced work in the private economy generates US\$ 150 billion in illegal profits per year.²⁶

Human trafficking, which is strongly associated with forced work has been increasing across the European Union according to a 2013 report. At the same time the number of convictions for human trafficking had fallen, suggesting a weakening in law enforcement efforts.²⁷

A Decline in Labor Union Representation

A decline of union power has been underway for decades in both North America and Europe, but it has accelerated in the last decade. Some of that decline can be attributed to changes in the mix of industries and concurrent changes in the culture of work. Much can be attributed to concerted efforts to curtail organizing rights.

In the U.S., union membership declined from nearly 25 percent of employed workers in 1973 to 11.1 percent in 2014.²⁸ Union membership in Western Europe has been going through a similar process of decline, especially since 1989. Trade Union density in Organization for Economic Cooperation and Development (OECD) nations was 21 percent in 1999. In 2014 it stood at 16.7 percent.²⁹ Across European nations, trade union density varies considerably, from over 70 percent in Finland and Sweden to as low as 12 percent in Poland, 10 percent in Estonia and 8 percent in France.³⁰ Only 200 million workers are in unions that are independent of government.³¹

The efforts of opponents of unionization to reduce union membership have become more successful in recent decades. Economic globalization has given business enterprises more freedom to threaten workers with job losses not only by moving a factory or call center to another part of a country, but by moving it to an entirely different nation. Workers know these are not idle threats and business owners and managers make it clear they do not welcome unions.

In the U.S. one of the key strategies for driving down union membership has been getting states to pass “right to work” legislation. These laws generally prevent unions from setting up closed shops (requiring all workers at a unionized workplace to join the union). These laws undermine incentives for workers to join a union because they can the benefits of a union contract without paying for union activities.³² During the years 1964 to 2000 only two states (Louisiana and Idaho) joined the states which prohibit unions from negotiating closed shop contracts. Since 2000 five more states have enacted such (Oklahoma, Indiana, Michigan, Wisconsin, and West Virginia).³³ Notably, several of these states were traditionally among those with the highest union membership rates.

Informal work, sharing economy employment and other non-standard forms of employment all facilitate the decline in union membership. Workers in those situations are less likely to develop long term relationships with other workers because jobs come and go. In sharing economy jobs, workers are geographically dispersed and often don’t know each other even though they are working in association with the same company.

A Probable Decline in Occupational Safety and Health

Official numbers show a decline in workplace injuries and deaths across most nations in recent years, suggesting that the world’s workplaces are becoming safer. However, there are three reasons to be wary of drawing this conclusion: the data on occupational injuries, illnesses, and deaths are unreliable, even for high affluence nations; government monitoring of the workplace safety and health is becoming less effective; and changes in other conditions of work suggest that the number of unsafe workplaces is increasing.

As one would suspect, the quality of occupational safety and health data for middle and low affluence nations is extremely poor. But, the quality of the data for high affluence nations is not good enough to provide convincing evidence that workplaces are really becoming safer. The

International Labour Organization reports that half or more of nonfatal injuries in high affluence nations such as the U.S. and European Union member states may not be counted.³⁴

Workplace monitoring activity has decreased and funding has stagnated or fallen. In the U.S. the number of workplaces doubled to 9 million from 1981 to 2011 and the number of workers rose from 73.4 million to 129.4 million. Yet, in that same period, the number of U.S. Occupational Safety and Health Administration (OSHA) inspectors decreased. The National Safety Council reports that U.S. OSHA has issued fewer standards since the 1990s (partly because the standards-setting process has gotten longer and partly because the easiest safety issues have been addressed).³⁵ For the years 2004 to 2013, the inflation adjusted OSHA budget declined from \$554 million to \$527 million. Estimates for 2014 and 2015 are still well below the 2004 figure.³⁶

The European Agency for Safety and Health at Work notes that new work situations are constantly emerging as companies respond to changing economic and social conditions. These emerging work situations pose new challenges for agencies charged with ensuring high levels of health and safety at work.³⁷ This is just as true for the U.S. where workplaces have been changing rapidly as new production technologies, new processes, and new raw materials are being introduced.

The picture of increasing global workplace safety painted by the data should also be mistrusted because of certain other changes in the conditions of work. As reported above, informal work and forced work have been increasing, even in some high affluence nations. Informal work is associated with rates of occupational injury and illness that are higher than those in formal work settings and with lower rates of reporting. Forced Work is extraordinarily dangerous and work related injuries and illnesses in forced work situations are certainly not reported. Thus, as the number of people engaged in informal and forced work has been increasing, the number of work related injuries and illnesses has almost certainly been increasing, but without being counted.

A Loss to Working People of Political Power over Conditions of Work

The political power of working people was expanding during much of the 20th century. It reached its highest levels in high affluence democracies with strong trade unions and well established democracy institutions. In recent years, this trend has been reversed. In a growing number of nations, shifts toward limiting authoritarian rule and limiting voting rights in democracies are taking place. This is happening even in some nations with well established democratic governing institutions.

In high affluence nations, the decline in trade union membership has drastically undermined the political power of working people. Workers have seen labor parties in various parts of the world abandon pro-labor agendas and move the needs of working families off the front burners of policy making. Governments in high affluence nations have negotiated and signed trade agreements that give corporations greater power to threaten workers with loss of work when they resist changes in pay, benefits, and work rules.

In the U.S. the Democratic Party, traditionally an advocate and voice for working people, has become increasingly less attuned to the interests of working people and more attuned to the interests of the business community. President Clinton's strong support for the North Atlantic Free Trade Association (NAFTA) and his deal with Republicans to transform the welfare system were hallmarks of this shift in the Democratic Party. President Obama's strong support for the

Trans-Pacific Partnership (TPP) free trade agreement reaffirms the reorientation of the Democratic Party away from working people.

That loss of political power has been exacerbated by persisting high rates of unemployment and wage stagnation in high affluence nations since the Financial Crisis of 2008-09. Losses of discretionary income make it very difficult for working people to support unions and pro-labor political candidates. Again, in the U.S., this is a huge disadvantage because money plays such a large role in political campaigns.

There have also been growing efforts to limit the rights of people to express themselves politically in a number of countries. Methods include limits on free speech and assembly, making certain political parties illegal, making it difficult for certain groups to vote, and political intimidation. In the U.S. in recent years, a number of states have made it sufficiently difficult to vote that they are among the most restrictive jurisdictions in the world.³⁸

Surprise in the Field of Economics

The positive developments in the world of work and earnings in middle and low affluence nations were not unexpected to economists. They have long asserted that every nation can devise a path to full employment and decent standards of living. What economists did not expect were the losses that working people in the already high affluence nations have experienced. They did not expect the global financial collapse in 2008 or the persistence of stagnant global economic growth that followed. Nor did they expect the robustly growing middle affluence nations like China and Brazil to lose their economic momentum so quickly and so deeply.

Despite the unexpectedly disappointing performance of the world economy, the prevailing view among economists and in the general public is that the world economy will eventually be righted; the strong economic trends that made the post World War II period in high affluence nations so promising and that began to bring people out of the direst of poverty conditions will be restored. Some industries will decline, new ones will appear, workplaces will change, and working people will have to set aside some skills and learn new ones. But, the core trends – increasing wages, growing family and community affluence, greater safety and comfort at work, and global poverty reduction – will return.

Yet, not everyone is convinced that all is well in the world economy. Some economists think it will perform at a subpar level many more years. But, their pessimism is only about the medium-term. Along with most of their colleagues, they are confident that the world's leaders will eventually heed the advice of economists and find their way back onto the economic road to ever greater affluence.

A small number of economists are more deeply troubled. They openly wonder whether the field of economics has come up against a new economic world that its models can't explain very well. They suggest that this time in the history of the world economy is different and that much of what is known in the field of economics may no longer apply. This assessment opens the door for many questions about how we got to the global conditions we now have and what kind of future we will have. It makes the future of the world economy a collection of glowing question marks. The future of work is one of those question marks.

Expectations for the Future of Work

We who live in high affluence western nations generally believe the history of the human species is one of continuous advancement. Our prevailing narrative about our times is strongly biased in favor of continuity from the past into the present and from the present into the future. This belief is nicely captured by the widely distributed illustration showing the evolution of humans from a reptile crawling out of the water through stooped over monkeys and higher apes to the upright modern man wearing a business suit. The last image portrays a life form that is taller, more upright, and smarter. The future continues uninterrupted from there.

We apply this way of thinking to human societies and institutions as well. Human societies evolve from hunting and gathering to agriculture to industrial production to producing information and services, and creating materials not found in nature. Tribal institutional arrangements have been superseded by the superior bureaucratic institutions of the modern nation-state and corporation.

We now think of institutional arrangements such as representative democracy, tripartite government (legislative, executive, and judicial branches monitoring each other), and free markets operating within limited parameters defined by governments as the pinnacle of human institutional achievements. We associate these institutions with the highest levels of human welfare and happiness that have been achieved in the course of human history.

Developments in workplace organization and the rising wages of working people after World War II fit this perception of human history. The most advanced institutional arrangements for organizing work are found in the high affluence western nations. These arrangements, which can be referred to as government regulated wage employment systems are generally associated with government monitored and enforced labor market rules and workplace rules. In general, these rules provide reasonable assurance that workers and employers can form and dissolve employment contracts at will (no forced work), that workers will receive fair wages and benefits, that workers will work in safe and healthful conditions, and that workers can bargain collectively with employers for contractual changes in wages, benefits and conditions of work.

We recognize that many of the world's nations do not fit this model or do so only partially, but we believe all nations can develop into replicas of the high affluence western nations. The high affluence western world of the late 20th century is the future of the entire world economy. Just as with other institutional arrangements found in high affluence western nations, government regulated employment systems are believed to be secure in the high affluence western nations and to be in the futures of the other nations of the world.

With regard to recent setbacks to wage employment in high affluence nations, we generally subscribe to the view that they are only temporary setbacks. Inevitably, high affluence nations will return to the 20th century path of progress in wages, benefits, employment rights, and workplace safety and comfort. We expect the world of work to change, but we feel assured that the future of work will be a bright one, a better one.

We also believe that once the residual effects of the Great Recession have been taken care of the 20th century western models for organizing work and distributing wealth through good jobs will continue to spread to the rest of the world. We expect the rights of workers we have developed in high affluence nations to become universal; rising wages to continue to move more and more

of the world's destitute into employment and more and more of the world's working poor into a growing global middle class.

The Optimism of Social Science

This optimistic way of thinking about the past and the future of work has a powerful influence on the social science and economic development professions. Economists, sociologists, development consultants and many other professional observers formulate their views of the past and future in more scientific terms, but optimism is deeply embedded in western culture, so confidence in human ingenuity and optimism necessarily carries over into much of their work.

In general, expectations about the future of work assume that the economic and geopolitical organizations of the future will be much the same as today's economic and geopolitical organizations in high affluence nations. The changes they anticipate will take place within the context of existing market arrangements and existing structures of relationships among owners of capital, workers and their organizations, and governments. A key expectation of business consultants is increased collaboration, facilitated by new information technologies, in slightly modified corporate style workplaces, and many good jobs.³⁹

A quick browse through items that come up for an internet search using search phrases like "the future of work" support the influence of this world view on workforce and workplace development experts. The numerous studies, blog entries, and news items that are found are largely in agreement about the drivers of workforce and workplace change and the kinds of changes that will take place. At the tops of the lists of drivers are demographic and technological changes. At the tops of the lists of expected changes are different skill sets and more collaborative relationships among workers. These are incremental changes. Adaptations, not transformations, will be the future.

A study of work in the U.S. by the Rand Corporation is typical. It predicts slower labor force growth, more women in the labor force, technological change, increases in productivity, and rising wages, among other changes. Nothing in this report suggests that changes will increase hardships on working people and their families. Many of the institutional arrangements (e.g., the laws and regulations governing work) may need to be changed, but the authors do not see a need for radical changes to government policies.⁴⁰

This Time Looks Different

In economic theories, the future of work is clearly tied to the future of economic growth. Strong and continuing economic growth (increases in Gross Domestic Product – GDP) provides the wherewithal of economic affluence that makes advances in the quality of institutional arrangements sustainable, including advances in the organization and conditions of work. Thus, expectations about the future of work should align with expectations about the future of economic growth.

At the time of this writing, the medium term future of economic growth does not look very promising, so the medium term future of work does not look promising. The recent history of economic growth in the world economy has been sporadic and lackluster and some economists don't think this record will improve any time soon. They observe that the world economy is plagued by numerous "headwinds" that will continue to thwart the efforts of policy makers to

restore a robust level of economic growth. If they are correct about the future of economic growth, the medium term future of work looks very unlikely to be what is hoped for.

The world economy is recovering from the Great Recession and again growing, but the rate of economic growth is unsteady and too low to significantly improve the lives of working people. The initial pace of recovery in the world economy after 2008 was strong, but slowed steadily after 2010. Following a surge to a GDP growth rate of almost five percent in late 2009, the rate of growth fell to a rate of 2.1 percent in 2013.

Stephen S. Roach, a senior fellow at Yale University's Jackson Institute of Global Affairs and a senior lecturer at Yale's School of Management, reports that the average annual growth rate in the major developed economies (high affluence nations) was a little less than 0.7% in the first half of 2014. U.S. economic growth was highest at just one percent, with Japan and Europe recording only 0.3 percent growth. He concluded that this is not good news for employment and poses deflation risks and trouble for global trade and export-dependent developing economies, such as China.⁴¹

Not only was the global rate of economic growth much too low, most economists saw the world economy as vulnerable to slipping into recession again. At the end of 2014, several European nations were on the verge of sliding into a third wave of recessions and middle affluence nations that had leaders of economic growth in the first decade of the 21st century were growing at slower rates. Furthermore, financial, governmental, and political institutions were unstable. The geopolitical tensions were rising, domestic upheavals were taking place in numerous parts of the world, extreme weather events were becoming more and more common, and concerns were growing that asset values were once again reaching unsustainable heights. In those circumstances, the chances were high that poor government policy choices, extreme weather events, political upheavals, failures of large financial institutions, or government defaults would trigger a cascade of economic failures that would pull the world economy back into recession.

Medium Term Pessimism with Long Term Optimism

A number of economists and other experts predict that economic growth in some or all of the most important nations in the world economy will remain below par for years or decades to come. They see the possibility of a much longer run of subpar economic performance and little or no improvement in the lives of most people for years to come. By extension, the rate of economic growth for the world economy as a whole will be below well established expectations of only a few years ago. The phrase “new normal” came to be applied to this era of slower economic growth and to other phenomena that seemed to have settled into a different rate of change.

Robert J. Gordon, professor of economics at Northwestern University, is perhaps the leading advocate for long term economic growth stagnation. In a September 2012 article he questioned the widely held assumption that economic growth is a continuous unending process. He proposed that U.S. economic growth may grind to a halt because the kinds of technological innovations that drove rapid U.S. economic growth are not on the horizon. Importantly, he is speaking only about the U.S., but the logic would apply to all of the world's high affluence nations. His book, *The Rise and Fall of American Growth*, expands on this argument.⁴²

In the same vein, Richard Clarida, global strategic adviser at Pacific Investment Management Company (PIMCO) offered the assessment that until the global economy finds a new growth model the world's economic growth rate will be modest.⁴³ These views suggest that it is unlikely that the near future will return working people to the promise filled days of the post World War II decades.

The U.S. Bureau of Labor Statistics expects slower GDP growth to become the "new normal." In addition to the recession's impact on potential growth, the economy faces other hurdles. A major factor will be the wave of baby-boom retirements. This demographic shift will continue to drive down the labor force participation rate, moderating growth. Structural changes to economic activity in the U.S. will also press downward on economic growth.⁴⁴

If many economists are pessimistic about the medium-term future, almost all are optimistic about the restoration of economic growth in the long-run. Not even pessimists about medium term economic growth assert that slow economic growth is a permanent state of affairs. In his book, *The Great Stagnation*, Tyler Cowen observes that America has been facing an economic growth slowdown for four decades, yet he remains optimistic about the future. In an article for *Foreign Affairs* he questions Robert J. Gordon's pessimism and proposes that innovation will once again spur economic growth.⁴⁵

Such optimism may be a widespread propensity in the field of economics. In an International Monetary Fund working paper, Giang Ho and Paolo Mauro report that economic growth forecasters tend to be overly optimistic. They report that the optimism of baseline forecasts is typically higher than warranted by past economic growth performance and that the optimism bias is greater when the forecast horizon is farther away.⁴⁶ This pattern can be seen in the years following the financial crisis of 2008, when economists and financial professionals reported disappointing economic growth numbers in the current year and then almost always accompanied that bad news with predictions that economic growth would be better in the coming year.

As the recession that followed from the financial crisis of 2008 deepened into the worst since the Great Depression of the 1930s, and fiscal policy tools failed to restore pre-2008 rates of economic growth and levels of employment, a question emerged that unsettled the field of economics: is this time different? Was the economic crisis kicked off by the financial crisis of 2008 an economic crisis of a unique kind; or was it just a very severe version of a routine kind of economic crisis?

The motivation to ask whether this time is different arose out of a widely shared observation that highly regarded models of economies failed to predict the financial crisis of 2008 and failed to explain why the economies of the world's high affluence nations did not return to previous rates of economic growth and previous levels of employment. Two explanations for the poor performance of economic models presented themselves. Either the models were woefully inadequate all along (and still are), or the models were once good ones, but changes in the world economy had invalidated them by 2008.

A few economists concluded that this time is different, at least in some major ways. They concluded that economic models can't be fixed with a little bit of tinkering at the edges. One group of highly regarded economists expressed their sense that something new has emerged and created an extraordinary challenge to the field of economics with the words "brave new world".⁴⁷ Some economists were even tempted to ask a very unlikely question: is this the end of capitalism

as we know it? This question was raised only on the margins of the economics field and the few economists who agreed to discuss this possibility treated it as more of a “what if” exercise than a real question about the future of the world economy. Nonetheless, posing such a revolutionary possibility suggested just how different this time might be.

Explanatory Doubts in a Global and Historical Context

In little more than a few decades, we have lived through massive changes at every level of social organization and in the natural environment in which all of life is embedded. The number of nations in the world has grown tremendously: in 1970 the United Nations had 127 members; today the membership is close to 200. The end of the Cold War ushered in a period of global geopolitical reorganization with no end in sight. Global systems of transportation and communication have spread and intensified competition among peoples and nations for investment capital, resources and jobs, putting an end to national immunity to happenings in other parts of the world even for a nation as powerful as the U.S. Climate change due to human induced global warming and mass species extinctions due to the accelerating destruction of natural ecosystems by human activities are now changing the earth in ways only a few scientists could envision 50 years ago.⁴⁸

This is a very different world than the one in which the paradigm for the economics field was originally formulated. Adam Smith gave the field its core formulation in the context of the rise of the modern nation-state system and the beginnings of the machine age in Europe and the Americas. Little of what we encounter and discuss everyday in the 21st century existed at that time. And it is a very different world than the one in which various modern formulations of that paradigm and associated policy tools were developed: Keynesianism, monetarism, Austrian economics, etc. Many of the sources of variability in economic matters that are part of the world economy today were unknown to or not well understood by economists working as late as the middle of the 20th century. Could it be that this time is different in some very fundamental ways?

A Narrative for Different Expectations

The prevailing narrative about our times is strongly biased in favor of continuity from the past into the present and from the present into the future. To ask whether this time is different is, thus, to ask whether the prevailing narrative of continuity is wrong. If this time is different, as it almost certainly is, then the continuity from the past to the present has broken down or is breaking down. One era has ended or is ending and another has or is beginning. We need a different narrative of change to describe and account for this kind of era-shifting break with the past?

The narrative of change developed in this book is one of disruptive and transformative change. It is derived from examining features of two dimensions of change that stand out in our times: our growing encounters with negative feedback from earth systems that are stressed by human activities and human population growth (such as climate change and species extinctions) and the growing institutional connections among the world’s peoples brought about through processes we call globalization. The narrative connects these changing historical conditions to changing prospects for economic growth.

We can discern that certain past conditions facilitated the emergence of the human activities that define the modern era of industrial advancement, including rapid accumulation of human-made wealth, are disappearing. Emerging earth system conditions and emerging global institutional conditions are making human wealth accumulation increasingly difficult. These changes are global and not reversible. Their impact on economic growth is negative, far reaching, and permanent, so they provide an explanation for why the continuity of economic growth has been disrupted; they explain why this time is different.

This is the first part of the narrative. The second part connects the future of work to the slowdown in the rate of economic growth and to the conditions that are producing that slowdown and making it permanent. This part of the narrative offers a future that is much different than the one commonly expected.

A Different Future for Work

The prevailing narrative of change is not only optimistic about economic growth; it is complacent about the future of work. As long as we can be optimistic that global economic growth will be renewed, we can rest assured that the world of work will soon return to the path of development we came to know and expect before 2008.

The disruptive change narrative offered in this book evolves into a narrative about a very different future for work than most economists and policy makers expect. As the rate of economic growth inevitably falls toward zero, returning to the trajectory of change for work that prevailed in the third quarter of the 20th century becomes increasingly difficult. A different world of work must emerge, one that is consistent with emerging conditions that are slowing the rate of economic growth and that can be expected to prevail in the future. That world of work will be different in very significant and many unexpected ways.

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PART ONE

ANALYTIC METHODS

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Chapter 1: Conceptualizing the System that Changes

In recent decades the world's people have gone through a process of change often summarized with the term globalization. The growth of communication and transportation systems and the development of transnational institutions have created new levels of economic, social and political integration not seen before on a global scale. Economists acknowledge this by frequently using the term "world economy". In doing so, they implicitly, and often explicitly, posit the existence of a global economic system. But, they don't give this global level of economic organization real standing as an economic system. They see it as an aggregation of economic systems, not a system in and of itself.

During these same decades the world's economic and political leaders have become increasingly aware of the multiple and dynamic relationships between human economic activities and the non-human natural world. In response, economists are beginning to refer to "ecosystem services" (such as absorbing the carbon dioxide released into the atmosphere when fossil fuels are burned) and to assign economic value to those services. But again, they are not conceptually integrating these ecosystem services into the system-ness of economic activity. They are external to their concept of an economic system.

An accumulating body of conceptual work is beginning to formulate a concept of a global social/political/economic system in ways that blend the transnational and multidimensional network of relationships among people and the relationships that tie ecosystem services to human economic activities into a single system. They are drawing upon lines of inquiry and a large and growing body of research in the environmental sciences, physics, ecological economics, biology, sociology, and other disciplines that expose the limits of conceptualizing human economic activities as separable from everything else happening on the planet.

Along these lines, the members of the Planetary Boundaries Research Network are pursuing research informed by the concept of an Earth system in which the world's social and biophysical systems are dynamically linked. On their website they state that achieving the kind of understanding required for sustainable human development requires a "step-change" in the methodological and analytic approaches now used to conceptualize the global human-environment system.⁴⁹ In a similar vein, Jason Moore and his colleagues use the concepts "World-Ecology" and "Web of Life" in their work to move beyond the division of the world into nature and society. In their studies of capitalism they start from an understanding of human organizations as both producers and products of the web of life.⁵⁰

This chapter formulates a similar totality of human societies and nature, the Inclusive World Economy, as part of the methodology for studying changes in the world of work. The use of the phrase "World Economy" in the name for this totality is intended to align the concept with the common understanding that the world of work is primarily understood as the activity that produces and distributes wealth. Other differences exist between this conception and those

mentioned above, but they primarily reflect different intellectual journeys and different methodological needs.

The Concept of an Economy in Economics

One of the striking features of work in the field of economics is that a key concept, an economy, is used by economists without a stable and theoretically well grounded definition. It has an ambiguously defined boundary and a problematic relationship to economic theory. These attributes undermine the ability of economists to bring all relevant factors into consideration in studying economic change.

An economy is generally defined as the human activities involved in producing, distributing, and consuming goods and services within a particular jurisdictional boundary – a city, a nation, a province, a state. Yet, a jurisdictional boundary has no definable and certain relationship to the economic activities it surrounds. It does have a practical use, identifying which economic transactions to aggregate into a macro level summary of economic activity and which to exclude.

A jurisdictional boundary also has an analytic use. It effectively excludes everything outside the jurisdictional boundary from consideration as causal factors in explaining such internal economic phenomena as economic expansions and contractions, changing rates of unemployment, and changing conditions of work.

Jurisdictional Boundaries and Externalities

The concept of a boundary brings with it the concept of the external, a concept widely used by economists to refer to all things that are outside the boundary of an economy. A jurisdictional boundary brings to mind the activities and peoples of other nations and territories, but, when used as the boundary of an economy, it also excludes the things of nature. In economics, only people and their activities are counted as an economy. All else is external.

External Status of Other Economies

By defining an economy in terms of the jurisdictional boundaries, economists divide people and economic activities into those that are part of the economy and those that are not. Other people and their economic activities and other territories are external to the economy that is the subject of attention. This conceptualization analytically blurs the supposed boundaries of other jurisdictional economies. The peoples on the outside become a mass other and their activities become only sources of inputs or receivers of outputs.

It is worth noting that this way of conceptualizing an economy has a political use as well as an analytic use. From the point of view of a population of people and their leaders defined by a jurisdictional boundary, other peoples and their national territories are defined as usable and without rights within the economy. Economic relationships with them are “foreign” relations entered into for instrumental purposes – to supplement domestic demand, to provide supplemental and low cost labor, to gain access to the resources in their territories, and to use their territories as dumping grounds for waste. The foreign peoples are accorded almost no role in the internal decision-making processes by which the internal people decide in which ways to make use of foreign people, lands, and resources.

With regard to subnational jurisdictions such as cities and provinces, this political function is subdued, but it is present. In the U.S., for example states routinely recruit businesses from other

states even though success will economically harm the people of that other state. Cities do the same thing.

The External Status of Nature

Nature is also external to a jurisdictionally defined economy. Only human activities and the things humans produce make up an economy. Technically, humans are part of the natural world, but conceptually we define ourselves and our activities as separate from nature. Nature is a separate and external form of existence.

The activities of nature are not economic activities; the things produced by nature are not part of the economy until people have done something with those things to give them market value (collected and delivered them; processed them into something else). Nature is also a dumping ground for waste and discarded wealth, even when the part of nature that is being used as a dumping ground is within the territorial borders of an economy. Waste and discarded wealth are externalized, move outside the domain of the economy proper.

The Primacy of National Boundaries

The most prominent jurisdictional boundary choice is that of a nation (or country). This is reflected in any number of definitions of the subject matter of economics. For example, a definition presented in the *Financial Times* online lexicon defines an economy as the system that produces goods and services for a country.⁵¹ It is also reflected in the enormous body of studies of economic development. By far the most important jurisdictional boundary used to aggregate economic data is the boundary of a nation.

The role of nation boundaries in defining economies has a long history. In his work, *An Inquiry into the Nature and Causes of the Wealth of Nations* (better known as *The Wealth of Nations*), Adam Smith identified the conceptual and analytic building blocks for the field of economics, particularly the concept of a national economy.⁵² The title is telling on this point. The emphasis is on the wealth of nations, not the wealth of individual people and families.

That emphasis fit the times in which Adam Smith wrote. *The Wealth of Nations* was published in 1776, in the midst of times when Europe was emerging from an era in which virtually all rights and property had belonged to a king or queen and ordinary people were their subjects. Nations were beginning to displace kingdoms and fiefdoms. Control over wealth was becoming the right of the national government and people were beginning to be assigned duties to the nation in place of duties to the royal family. The tallying of income and wealth was taken over by these new national governments. Thus, the dominance of national economies in the work of economists is closing tied to the development of the nation-state into the most powerful wealth controlling and tax collecting entity on the planet.

Even in our times of personal wealth and citizen and human rights, the ultimate control over wealth does not belong to a person or corporation. As everyone knows, around the world a national government can legitimately compel any owner of wealth to relinquish it for public use and it can give this power to subnational governments or take it away. National states have what is called allodial title to wealth and they defend it to the death.⁵³

Problems with the National Economy Concept

One has to ask whether a conceptual model of an economy formulated to fit an 18th century world of emerging national sovereignty and seemingly limitless natural resources now fits a world of diminishing national sovereignty, a multiplicity of global and powerful corporate actors, 200 nations teaming with seven billion people (seven times greater than in 1800), and an earth balking at the scale of human exploitation of resources and waste dumping. The answer is that it doesn't. Allodial title doesn't go a long way in a world in which transnational institutions tie all wealth producing processes together, missiles with nuclear warheads make defending national boundaries almost impossible, and climate change is caused by every nation and harms every nation.

The System Concept in Economics

Conceptualizing a national economy as a system should be an analytic strength. But, the concept of a national economy is not conceptualized in a way that is consistent with most conceptualizations of a system. A system is generally understood to be a collection of entities, defined relationships among those entities, and actions that serve a larger purpose or produce a higher level action.⁵⁴ The actions various entities are coordinated. Coordinated actions constitute processes that produce the outcomes associated with the system. A phrase associated with systems is "the whole is greater than the sum of its parts."

Economists use system ideas inconsistently. On the one hand, they set forth economic theories in which the output of an economy emerges from the autonomous actions of consumers and producers. Individuals and organizations of individuals (businesses, governments, etc.) are autonomous economic actors. Purposes reside in those actors, not in the economic system as a whole. Thus, the logic of the economy is generated from the bottom up. This notion of autonomous action is inconsistent with systems theory, in which the actors in a system are not autonomous from each other.

On the other hand, economists routinely translate economic processes into mathematical models in which the parts cannot act autonomously because they are governed by mathematical equations. The logic of the model of an economy is imposed from the top down. This practice is consistent with systems theory.

Methodological Problems with Jurisdictional Economies

The jurisdictional definition of an economy creates analytic difficulties. Every economist is free in practice to select any jurisdictional boundary around a population of people and call the aggregation of economic activities within that boundary an economy. Thus, economists name and study city economies, metro region economies, national economies, and multiple nation economies such as the European economy, and a world economy defined as the aggregate of all national economies. This produces a bit of an analytic mess because very little holds still. All these economies intersect and overlap in ways that constantly change. Jurisdictional boundaries change.

Analytic problems are also caused by the lack of a solid explanation for how an economy can develop as a totality. The theoretical problem is that macroeconomic theory should align tightly with microeconomic theory, but it doesn't. How the whole of an economy emerges from the actions of autonomous individuals is a bit of a mystery. This is a black box problem that Adam

Smith gave the field of economics with his Invisible Hand concept and it still bedevils economic research.

That black box contains the mechanisms that supposedly translate the autonomous actions of individuals into the totality of an economy, theoretical mechanisms that logically link the micro to the macro. Economists are well aware of this problem and many of them struggle to find a solution to it.⁵⁵ It is strongly connected to the jurisdictional boundary problem.

The upshot is that valid comparative and historical work is very difficult to do. On what basis can a population of autonomous economic actors be defined? How can a national economy that is highly connected to other parts of the world through trade and financial relationships have its own autonomous development path? How can it be compared to a national economy that is much more isolated?

These are not hypothetical questions. For real research they become practical methodological challenges that are difficult to overcome. Is the bank in South Africa that buys British bonds part of the population of economic actors that makes up the British economy? How does one compare the U.S. economy in 1950 when Alaska and Hawaii were not states to the U.S. economy of 1960 when they were? How do Puerto Rico and the U.S. Virgin Islands fit into the U.S. economy and is this fit the same from decade to decade? These are questions that economists do not answer consistently because they do not know whether the Invisible Hand national or transnational? A researcher can only guess at the answers.

An Alternative Conceptualization: The Inclusive World Economy

The weaknesses discussed above can be addressed by fully embracing a systems perspective. Seeing an economy as a true system eliminates the black box problem because it provides a relational definition of an economy that makes it possible to see how the parts produce the characteristics of the whole. The micro and the macro become integrated. This relational definition can also contribute to greater consistency among researchers in drawing economy boundaries.

With regard to human institutions, the term system has to be used with caution. This term tends to create an image of mechanical rigidity, a kind of rigidity that is not compatible with the fluidity in human relationships. However, sociologists and other social scientists have done a lot of work to create a concept of a social system that has stability but not rigidity. This concept offers a way to assign more system properties to an economy than is done using economic theory, without throwing out thoughtful and willful human action.

The Social System Concept

The concept of a social system employs sociological theories of human behavior. The relevant sociological insight is that relationships among individuals and the behaviors of individuals are inseparable. This perspective on human behavior is more compatible with standard systems theory than other social science perspectives that assign a high degree of autonomy to individual behavior. It allows sociologists to conceptualize groups, institutions, and societies as social systems.

Among sociologists, one of the early and best known attempts to bring systems thinking into efforts to explain human action and societies is the work of Talcott Parsons.⁵⁶ Parsons's work received a lot of well deserved flack over the years because the functional link between institutions and societal wellbeing that he created seemed to legitimize any existing social arrangements (e.g., racial segregation, exclusion of women from the workforce, even authoritarianism) and protect them from criticism and change. His work seems to say that if an institution exists it must be functional and serve the good of society. Nonetheless, Parsons did groundbreaking work in the development of the concept of a social system.

Many others have modified and added to Parsons' work to give us a concept of a social system that works well analytically. The most important contributions for this study have been to our conceptualization of human action, particularly the work of such social theorists as Pierre Bourdieu and Anthony Giddens.⁵⁷

Sociologists see relationships as structural, the building blocks of a social system. They have elements to them that are associated with the purposes of the social system, so they usually change very slowly over time. Thus, in the sociological view of human existence, behavior is imbued with social rationality as well as individual rationality (or irrationality), and social rationality overrides individual rationality more often than not. The dominance of social rationality ensures that human behavior is almost always repetitious and predictable.

This understanding of a social system can be applied to the task of identifying the boundary of an economy and the ways in which the actions of individual economic actors come together to create an economic totality.

An Economy as a Social System

We can now see an economy as an economic system with a particular understanding of the word system derived from the social system concept. An economic system is a configuration of relationships among economic actors that coordinates their activities for the purpose of producing and distributing wealth. Economic actors have some latitude for "bending the rules" of the system, but they are not nearly as much autonomy as bottom up definitions of an economy give them.

The field of economics has a concept that can be used to define an economic system, although economists don't seem to make the best use of it: the division of labor. One relevant use can be found in the concept of a functional economic area, which implicitly puts the division of labor into the definition along with coordination of actions. A functional economic area is defined as a cohesive network of trade in a defined region and is said to be the best approach to economic modeling.⁵⁸ However, economists don't seem to equate a national economy with a functional economic area, at least not in the most accessible of their writings.

A division of labor is an arrangement of work in a society in which economic actors perform only one or a few of the many economic activities that produce and distribute the items of wealth they want and need. They do not provide all of the wealth items they and their families want and need by their own activities. The wealth items they do not produce for themselves are obtained through economic exchanges (market relationships). The rationale for this arrangement is the premise that productive specialization combined with exchange is more labor efficient than an arrangement in which everyone produces everything they need for themselves only.

This concept offers a bridge between economic and sociological points of view. The sociologist Emile Durkheim, one of the founders of the field of sociology, used the concept to articulate a basis for solidarity in modern societies. He named the solidarity that arises from a division of labor “organic” solidarity. Organic solidarity refers to a binding together of people through interdependence and role specialization.⁵⁹ This is, of course, a characteristic of a system.

This configuration of relationships we refer to as the division of labor is the structure of an economic system. It is not a mechanical system or biological system, it is a social system. Everyone knows that they are part of this social system and that it must work well if our lives are to be good ones. Rules exist and rule enforcement is provided for. In most places and times, the people and organizations that are producing milk and eggs and automobiles today will produce milk and eggs and automobiles next week and next month. Repetition and predictability are the hallmarks of human economic behavior. Spontaneity and creativity are actually out of the ordinary and mostly confined to minor things. Even the innovations of companies hailed as quite innovative (like the Apple Corporation) are fairly predictable.

Importantly, the relationships that glue together a division of labor economy are largely observable and institutionalized. Consumer purchases, supply chain transactions, payroll transactions, workplace activities and other activities involved in relevant economic processes are all potentially observable (although actually observing some transactions and activities may be difficult because of legal or illegal secrecy). The role (functional) content of an economy can be identified and the total population of economic actors can be divided into those that fill the roles in that economy and those that do not. Thus the boundary of an economic system can be defined in relation to economic relationships rather than in terms of jurisdictional relationships.

The economy as division of labor social system approach offers observational guidance because it directs an economist to select an observable combination of wealth items and an associated pattern of distribution as the economic outcome of interest (we might call this a wealth outcome). Because of the relational coherence built into a systems approach, the selection of a wealth outcome identifies the population of processes, economic actors, and relationships among economic actors that constitute that economy.

The Global Dimensions of the Economic System

Conceptualizing an economy as a social system leads us to reexamine the question where the boundaries of an economy should be drawn. Drawing the boundary around the activities of a population of people identified with a nation doesn’t fit a division of labor conceptualization.

In the 21st century, the production of most kinds of wealth is distributed across multiple nations. The people and institutions that produce the items of wealth used and consumed by any jurisdictionally defined population of people (e.g., Americans, Peruvians, or Parisians) are spread across the world and routinely interact across national boundaries. Defined in terms of system components, relationships, and purposes, the observable economic system is the world economy as a whole.

National boundaries are not relationships in themselves; they are tools used by agents in the world economy to create and enforce relationships among economic agents. Functionally, they are very similar to computer passwords and door keys used by organizational leaders to limit access to certain categories of information and regulate access to various resources and sections

of a building. Economists focus on the use of national boundaries to structure trade relationships, but they also structure many other relationships in the Inclusive World Economy.

It is reasonable to assert that our lives now depend on a global economy. We may primarily identify with particular nations and localities, but as a practical matter, the world's people are knit together to such an extent that any reasonable definition of an economy forces us to conclude that we live in a global society that functions on the basis of a world economy.

The world economy of the 21st century is more than the aggregate of national economies; it is an economic system itself. Increasingly, professional papers and commentaries are appearing that address the global dimensions of our economic system and the global economic processes that produce change. But, the national economy is still the coin of the economists' realm.

The idea that the division of labor transcends national borders goes back at least to Adam Smith. Smith observed a minimally developed global division of labor in which nations tended to specialize in certain economic activities and engaged in trade relationships. He concluded that extending and deepening the division of labor by removing barriers to trade across national boundaries would increase the wealth of nations. In effect, Smith called for the global division of labor the world now has.

No External Economies

When Adam Smith wrote *The Wealth of Nations*, the concept of an externality, even though theoretically questionable even then, fit comfortably onto a world divided into hierarchies of capitalist and pre-capitalist societies, in which interactions across geopolitical and societal boundaries were quite limited, in which even national political systems were at least partly organized around royal families and feudal obligations, and in which understandings of the impact of human activities on the environment were almost nonexistent. It does not fit today's world economy. Everything has changed.

We now live on a globalized economy in which the concept of external resources, peoples and territories has little basis in reality. We are all connected together by a vast maze of communication and transportation technologies; we are more culturally similar than different; we live with the blessings and threats of a single global weather system and the energy income from a single sun; and, the content of our daily lives is derived from capital flows, information flows, and cargo shipments that cross jurisdictional boundaries day in and day out.

The World-System Concept

In the mid 1970s, Immanuel Wallerstein published a book in which he set forth the argument that capitalism has always been a social system and a single economy that encompasses multiple nations. He called this totality the capitalist world economy. In the 16th century, where Wallerstein locates the origins of the capitalist world economy, capitalism did not encompass the entire world, but it was, Wallerstein argues, an integrated system of economic and political relationships and activities that constituted a social totality that he called the modern world-system.⁶⁰

Wallerstein's modern world-system is a very different kind of social system, one that is much more suited to the study of the future of work. First, the concept of the modern world-system is built on the concept of a global division of labor, so it is fundamentally an economic system. Second, while it is conceptualized as a system, it is a system in which human agency can play a

role without violating theoretical premises. Third, it focuses our attention on global and historical processes of societal change.

Global Division of Labor: Supply Chains and Economic Processes

The operational components of the global division of labor are economic agents that finance, produce and distribute wealth and the relationships among them. The actual production of a good or service takes place through the movement of materials and services from agent to agent, with each taking their turn at modifying or packaging the item or service that has been passed to them from the previous agent. The wealth production processes of the world economy are embedded in these structures of agents, relationships, actions and flows.

Several terms are used to refer to these structures: supply chains, value chains and commodity chains. These terms are somewhat interchangeable, but not entirely. All capture the essential elements of a chain of agents, relationships, actions and flows, but each focuses on a particular aspect of the division of labor chain to serve a particular analytic purpose. The term supply chain is used in this book because it focuses attention on the role of one agent in a chain as the supplier of goods or services to the next agent in line.

Individual supply chains almost always cross jurisdictional boundaries within nations (e.g., city and county boundaries), but a large and growing number cross national borders as well. Transnational supply chains have grown so much and become so interconnected in recent decades that we can think of them as comprising a global division of labor that provides to most of the world's people not just discretionary goods and services, but the very means of life itself.⁶¹ They are the key production and distribution subsystems of an economic system we call the world economy.

Today, the life of almost every person on earth depends on goods and services that are transferred to them through chains of production and distribution relationships that cross multiple national boundaries. (Even tribal peoples will be found to possess clothing, tools, medicines, and household items manufactured in places beyond the boundaries of the nations in which their tribal territories are located).

The baskets of goods and services that make up life for the vast majority of the world's people, including most of the poorest, are diverse and the economic actors and activities that produce and distribute those diverse items are widely distributed across the nations of the world. The result is that a wealth outcome for almost any sizable population of people on earth will have been produced by a multiplicity of interconnected divisions of labor. This totality is a single world economy.

From World Economy to Inclusive World Economy

The concept of a world economy solves some analytic problems, but it is still not adequate for explaining the production and distribution of the items of wealth that humans need and want. The concept of the world economy as we use it carries forward the practice of excluding nature from the economic system that produces the world's wealth. This does not fit well with the realities of a world in which resource scarcities are threatening to harm wealth production, species are dying at a high rate, and human induced climate change is threatening wealth holdings and wellbeing around the world. Nor does it fit well with a growing awareness in the world that nature produces not only raw materials for human wealth production, but it produces wealth items

directly consumed or used by humans, such things as clean air, clean water, “wild caught” and “wild gathered” foods, enjoyable evenings breezes and starlit skies, and experiences with waterfalls, mountains, rivers, and other natural phenomena that add to the quality of life.

Some economists have begun to talk about natural capital and its relationship to traditional physical capital, suggesting that economic system-ness spans and incorporates both human and natural wealth production activities. The United Nations uses the term *inclusive wealth* to refer to the combined monetary value of natural, human and physical assets or capital.⁶² We need to go further.

A realistic concept of the world economic system must incorporate nature as a domain of activity in which wealth is produced and distributed that is intricately bound up with human wealth production activities. It cannot be excluded from analytic inquiries by labeling it an externality from which the means for producing wealth are extracted and where the waste from producing wealth is dumped. This view of our world is becoming more widely recognized and important conceptual and theoretical work is being done to implement this perspective in analytic work.⁶³

Nature in an Inclusive Division of Labor

Nature produces many goods and services that are in forms ready for human use (clean air and water, fertile soils, the gentle beauty of fall leaf colors and the rugged beauty of ragged mountain ranges, etc.) and many more in forms easily transformed into forms more suitable to our needs and wants (wood for firewood and building materials, fish stocks and wild game for making meals, etc.). All of nature’s production of wealth that humans use and enjoy immediately, as well as the production of resources that humans then transform into wealth for immediate use and enjoyment, must be included in the totality of wealth production. The constant renewing of land, water, and air quality that we contaminate with the byproducts of our activities must also be counted as wealth production.

Natural wealth production processes have always been essential to human welfare. In the millennia before the rise of fossil fueled capitalism, human production processes were largely direct extensions of natural production processes. Human activities transformed the products of nature only to a very limited degree. Early economists, known as physiocrats, acknowledge this with their claim that all real wealth came from the land.⁶⁴

For millennia, the evolution of human technologies and the growth of the human population slowly increased the ability of human activities to transform the products of nature. The most important limiting factor was the lack of technologies with which to convert one form of energy into other forms. Until the development of steam power, humans were almost completely dependent on the human and animal muscles to convert the potential energy in food into kinetic energy of muscles.

Steam engines and then internal combustion engines multiplied the conversion of potential energy into kinetic energy many times, not only to augment human and animal muscle power, but to completely replace it in many production processes. Humans have used these developments to transform the relationships between human production processes and natural production processes. Computers are now extending the role of fossil fuels into the realm of augmenting and displacing human brain power, thereby further transforming the relationships between human production processes and natural production processes.

A Single Inclusive World Economy

There are no true externalities, no inputs from outside the system (other than sunshine and the occasional space rock) and no outputs and outcomes that are ejected from the earth (other than radiated heat and the occasional human-made space probe).

In this world, the sources of inputs and the destinations of outputs are not external; they are internal to the economic system but distributed across politically defined territories, populations, and ecosystems. Depending on the analytic or political purposes, economists and political leaders label some input sources and output destinations as internal and others as external. But, these practices do not override the reality that the earth and everything animate and inanimate that resides in, on, and above it constitutes an Inclusive World Economy (or total earth economy).

Humans can neither add to nor subtract from this totality; we can only speed up or slow down the rate at which particular materials of the earth are processed from one form into another form (e.g., clay into pottery). We can change the transformation rate by mobilizing and demobilizing flows of energy into human production processes. We can also change material transformation rates in nature by diverting solar energy flows from natural production processes to human production processes and by altering habitats and ecosystems.

Unlike a system operating in a larger environment of things external to the system, a part of the Inclusive World Economy cannot be changed without some or many other parts of the system also changing. Internal materials can be moved from one use to another use, internal flows of energy can be redirected from one process to another. But, nothing can be added or thrown away.

The Inclusive World Economy concept counts all the material items on earth and the totality of energy flows from stored solar energy sources (fossil fuels), from geothermal sources, from nuclear sources, from gravitational sources (ocean tides) and from current solar energy flows (wind, photovoltaic, flowing water) as a single system that produces and distributes a vast array of goods and services we humans use and consume. This is a sum total of wealth, a wealth constant, if you will.

The System-ness of the Inclusive World Economy

The Inclusive World Economy concept defines a meaningful system boundary for the study of the future of work, a boundary rooted in system theory rather than in the geopolitical outcomes of the historical moment. That boundary brings transnational relationships and our interdependencies with nature to the fore in analytic work. This shift in perception calls forth new lines of inquiry, that will lead to new understandings and new insights into what the world's policy makers can and cannot do to increase human wellbeing.

The vast flows of goods, services, monies, ownership titles, forms of energy, and people provide pathways for the global distribution of the products of human activities and the products of nature; the vast flows of water and air that make up the rivers, ocean currents, and weather systems of the world distribute enormous amounts of materials and energy that originate in human activities as well in nature's activities. These interdependent production and distribution systems constitute a single system of wealth production.

Every supply chain ultimately originates in one or more natural production processes. Those processes include such short cycle processes as the daily production of milk by cows and the annual production of sap by maple trees, to the very long cycle production of deposits of oil and copper and useful land forms like prairies. Each of these natural production processes takes place through the activity of agents (e.g., cows, bacteria, trees, tectonic plates, air masses) using the laws of chemistry and physics to transform one kind of item into another kind, just as humans act as agents using those same laws to transform sand into glass containers and crude oil into gasoline and plastics. Thus, it is accurate to say that the roles in the production and distribution of goods and services are filled not only by humans but also by all other forms of life on earth and that the division of labor relationships must include the relationships among all life forms and their organizations, not just among humans and their organizations.

This Inclusive World Economy is a single global economic system consisting of agents and production processes in the human world economy and in nature. The only real input is the energy from the sun (discounting the miniscule meteorite contributions to the mass of the earth) and only energy leaves. Over long periods of time the flow of energy into earth systems is quite stable. We can process one form of wealth (say soil and water) into another form of wealth (crops), but we cannot make net additions to the earth's total store of wealth. It is this complex and dynamic system that develops through time. It has a developmental history and future developmental possibilities. This is the economic system that must be used in our efforts to look into the future of work.

Combining Humans and Nature

The prevailing practice of dividing the world into humans and nature, might suggest that the wealth producing activities of humans are one subsystem of the Inclusive World Economy and the wealth producing activities of nature are another. This is not the best way to think of these two arenas of activity. For the view developed here, referring to humans and nature should be seen as conversational tools, not analytic tools. The appropriate analytic tools are subsystems, relationships, agents, actions, and processes.

A subsystem boundary in the Inclusive World Economy should be defined in terms of an identifiable output and the totality of agents and activities that create that output. As we have seen, supply chains that produce wealth for humans originate in processes carried out by agents of nature and well as human agents. True subsystems of the Inclusive World Economy therefore include agents of both arenas of activities. It follows that we can rightly talk about human agents, human relationships, human actions, and processes carried out by humans, but not about the human economy or human economic subsystem.

Nonetheless, it is necessary to be able to talk separately about what humans do and what other agents in the Inclusive World Economy do. To facilitate this, human activities that produce elements of wealth are referred to using the term Human Economic Arena. Activities of non-human agents that produce elements of wealth are referred to using the term Natural Economic Arena.

Work in the Inclusive World Economy

In physics, work is done when a force is applied to an object and that object moves as a result. This definition of work is an energy based definition. Energy is used by some entity and

something is moved or changed. The definition of work used in this book starts with this energy based definition but adds a cultural component.

Work is any activity engaged in by a person, a machine, an animal, or any other entity that uses energy to produce something that has value for one or more people. We use the word wealth to refer to things that have value. We know that something has value if at least one person in the world will expend some of their own energy to get it.⁶⁵

The Global Work System

The key output of an economy from the perspective of humans is wealth (goods and services needed by and wanted by humans) and its pattern of distribution. In the Inclusive World Economy, this output is the totality of all wealth produced for and distributed to the entire human population. It is produced by the global work system.

The global work system is the totality of work done in the Inclusive World Economy to produce wealth used by humans, not just work done by humans. It includes work done by other species and by non living entities such as the wind. For this reason, the term global work system is used instead of Global Labor System.

In Part 3 of the book, the global work system is disaggregated into components that will be used to discuss the future of work in the Inclusive World Economy. These components are jurisdictional work systems and work control structures. A jurisdictional work system is the arrangement for the doing of work embedded in the laws and customs of a political jurisdiction (e.g., nation, province, or city). A work control structure is the set of relationships and practices that control the doing of work in a workplace.

⁴⁹ Planetary Boundaries Research Network, Website. Accessed June 18, 2016. <http://www.pb-net.org/about>

⁵⁰ Moore, Jason W. and colleagues, World-Ecology Research Network. Accessed online November 11, 2016. <https://worlddecologynetwork.wordpress.com/>.

⁵¹ Definition of Economy, Financial Times Lexicon. Accessed June 18, 2016. <http://lexicon.ft.com/Term?term=economy>.

⁵² The Wealth of Nations is available from many online sources. One source is Internet Archive, <https://archive.org/details/wealthofnations00smituoft>.

⁵³ Allodial title, Wikipedia. Accessed November 17, 2016. https://en.wikipedia.org/wiki/Allodial_title

⁵⁴ System Theory Webpage, University of Twente. Accessed June 26, 2016. http://www.utwente.nl/cw/theorieenoverzicht/Theory%20Clusters/Communication%20Processes/System_Theory/

A typical definition of a system is presented at Wikipedia. Accessed online November 9, 2016. <https://en.wikipedia.org/wiki/System>.

⁵⁵ Andy Denis, Microfoundations, Review of Political Economy, Volume 28, Issue 1, 2016, pages 134-152. Published online December 17 2015. Accessed online August 14, 2016. <http://www.tandfonline.com/doi/abs/10.1080/09538259.2016.1108132>.

⁵⁶ A brief summary of the life and work of Talcott Parsons can be found at New World Encyclopedia. Accessed online November 10, 2016. http://www.newworldencyclopedia.org/entry/Talcott_Parsons

⁵⁷ Etienne Ollion, Pierre Bourdieu entry, Oxford Bibliographies, last modified November 21, 2012. Accessed online November 18, 2016. <http://www.oxfordbibliographies.com/view/document/obo-9780199756384/obo-9780199756384-0083.xml>

Shaun McMann, Anthony Giddens: A biography, OpenLearn, Updated November 14, 2007. Accessed online November 18, 2016. <http://www.open.edu/openlearn/society/politics-policy-people/politics/anthony-giddens-biography>

⁵⁸ M. Henry Robison, Defining a Functional Economic Region, EMSI Resource Library. Accessed May 26, 2015. http://www.economicmodeling.com/wp-content/uploads/2007/10/wp_defining_functional_economic_region.pdf

⁵⁹ See the Division of Labor section in the entry for Emile Durkheim at New World Encyclopedia. Accessed online November 10, 2016. http://www.newworldencyclopedia.org/entry/Emile_Durkheim.

⁶⁰ For a brief summary see Summary of Wallerstein on World System Theory, Modern History Sourcebook, Fordham University. Accessed online November 10, 2016. <http://sourcebooks.fordham.edu/mod/Wallerstein.asp>

⁶¹ Timothy J. Sturgeo, Global Value Chains and Economic Globalization - Towards a New Measurement Framework, Report to Eurostat, May 2013. Accessed online October 13, 2015. http://ec.europa.eu/eurostat/statistics-explained/index.php/Global_value_chains

João Amador and Filippo di Mauro, editors, The Age of Global Value Chains: Maps and Policy Issues, Centre for Economic Policy Research, 2015. <http://voxeu.org/content/age-global-value-chains-maps-and-policy-issues>

⁶² Inclusive Wealth Report 2014, UN University – International Human Dimensions Programme. Accessed July 5, 2016. <http://sd.iisd.org/news/unu-unep-launch-2014-inclusive-wealth-report/>. Natural capital includes land, forests, fossil fuels, and minerals. Human capital is the population's education and skills. Physical capital is human made assets such things as machinery, buildings, and infrastructure.

⁶³ Jason W. Moore and colleagues, World-Ecology Research Network. Accessed online November 11, 2016. <https://worlddecologynetwork.wordpress.com/>

Socio-economics, Harte Research Institute. Accessed online November 11, 2016. <http://www.harteresearchinstitute.org/research/socio-economics>

⁶⁴ C.W. Who were the physiocrats?, Free Exchange Blog, The Economist, October 11, 2013. Access online November 18, 2016. <http://www.economist.com/blogs/freeexchange/2013/10/economic-history-0>

⁶⁵ The expenditure on one's own energy to get something is evidence of value. That expenditure may be as simple and easy as a command to the dog to fetch the newspaper; it may be as arduous and dangerous as spending years manually digging in a mine to find a diamond.

Chapter 2: Change from Within

The concept of an Inclusive World Economy calls for a theory of change suited to a hybrid economic system in which human and non-human agents participate in processes that produce and distribute wealth. In this hybrid system, some economic processes are guided by the laws of physics and chemistry while others are guided by human decision making. A suitable theory of change must incorporate both kinds of agents. System theory and system thinking make this possible.

System theory has been defined as “an interdisciplinary theory about the nature of complex systems in nature, society, and science, and is a framework by which one can investigate and/or describe any group of objects that work together to produce some result.”⁶⁶ It has been used in both the physical and the social sciences, so it is adaptable to a hybrid system like the Inclusive World Economy.

System thinking can be summarized as assuming at the beginning of an inquiry that the universe is composed of systems. Thus, the answer to a research question that has been posed will be found in the intellectual process of gaining an understanding of the system in which all the elements of the question are embedded. This approach guides the researcher to focus attention on dynamic connections among things and on the processes of change inherent in those dynamic connections.⁶⁷

Change is always happening in a system. Essentially, change is a law of the universe because energy constantly flows through everything in the universe. Wherever energy flows, processes are happening and things are changing. Change takes place through processes embedded in systems. System processes are the sequences of actions that transform materials and energy from one form into another. Not all processes in a system contribute to the primary outputs of the system as a whole or work in harmony or maintain the integrity of the system. Processes that change the system itself (system change processes) are also embedded in the system. Those processes change the agents, component functions, and relationships that make up the system. The system becomes something different; it is not the same at time B as it was at time A.

System Structure and Dynamics

The structure of a system is the combination of components in the system and the relationships among those components. Structure gives a system its coherence of purpose and its resistance to instability and change. It facilitates and coordinates the processes that produce system output. It also facilitates system change processes, even though it also facilitates system stabilizing processes.

Components, Constituent Functions, and Relationships

Components carry out system related functions (constituent functions) embedded in the relationships among components. System related functions contribute to system purposes in

some definable way. Thus, a system related function is defined by its purposes in relationship to other functions and to the purposes of the system as a whole. It is a position in the operative structure of a system. System related functions are thus inseparable from the relationships among all component functions.

A system related function is a conceptual element of a system, not an actual physical element. The physical elements that perform the functions that are the dynamic aspect of a system are called components in physical systems like an automobile engine; they are called agents in social systems. Components and agents use energy to produce work in a repetitive way. This repetitive work is called a process.

Components and agents usually come and go in the life of a system; system related functions endure while the system endures. To illustrate, in a gasoline engine the fuel injector function can be done by a fuel injector with part number FI2802 or by a replacement with part number FI4525. Similarly, in a social system, a teacher function can be done by Jose Sanchez or Irene Smith.

Physical Elements and Agency

Agency is the use of a flow of energy to processes materials, information, etc. to produce outcomes of a particular kind. It is capacity to act. An agent in a system has a capacity to act that is derived from both the characteristics of the agent and the relationships with other agents in the system. The qualities of agency play a large role in how systems change. The quality of agency varies both within and across systems. Again, using the fuel injector illustration, one fuel injector FI2802 may have a manufacturing defect that fuel injector FI4525 does not have, causing it to waste a bit more fuel. Whether or not this is the case, their efficiencies will be affected by how well the computer system that controls them is working.

System Change Processes

Systems change through the actions of the physical elements that make up the system. While performing a function (using energy to transform materials or change energy to different forms) that contributes to system output, a physical element also transforms energy and materials in other ways. Notably, in physical and living systems components produce waste heat and waste materials. They also produce unintended changes to the physical elements themselves, such as alterations to metal surfaces through frictional abrasion and cell mutations through imperfect replication.

Waste heat and waste materials generated by system processes are often quite apparent to us because we deal with them in our everyday lives. We have to routinely take a car to the shop to make sure the radiator has sufficient fluid to shunt the waste heat from the engine into the surrounding air. We end up with food scraps when making meals that we have to get rid of in some way (disposal, compost bin, garbage pickup).

Many non-functional change processes are not immediately noticeable and have no immediately observable effect on a system. Over time, however, small changes accumulate and change the system into a different kind of system. For example, in a woodworking shop the sawdust produced by one cut through a board is immediately noticeable but the microscopic dulling of the saw blade during that one cut is imperceptible.

Both types of non-functional change can produce changes that propagate change effects into relationships with other physical elements and to the physical elements themselves. One change process can multiply into many change processes that change the system itself. In the human body, for example, cumulative changes in veins and arteries will change many other parts of the human body. As those changes happen the human body as a system will become different – healthier or sicker.

From this example, we can see that all systems are changing in multiple ways all the time, and that incremental, even imperceptible differences can accumulate into a large scale (transformative) difference that changes the way the system works or even destroys it. Unless the saw is occasionally sharpened, the woodshop system will function differently (reduced cut quality). Unless the sawdust is routinely removed, the sawdust pile will become so large that it brings the woodshop system to a halt. The key points are that change is happening in a system whether or not we can see it and whether or not we can identify its source and those changes can produce many kinds of consequences.

Types of System Change

The question of whether this time is different requires us to conceptualize categories or types of change. Doing this is not easy. The debates in astronomy over whether Pluto is or is not a planet illustrate this. That decision was made on the basis of criteria that one can say are reasonable. But one can also say that they are ultimately a human convention. We also see the problem of typologies come up in the biological sciences when newly discovered species turn out to have characteristics from supposedly separate types or categories. Similarly, created categories of system change involves making judgement calls

Incremental Change

In the short term a system can appear to be unchanging. On a day to day basis, a family system may seem to stay the same, but as time passes we observe that members of the family change: they age, their activities, and their relationships to each other and family purposes change. Incrementally, a family becomes a different type of family, or not a family at all.

Incremental change can be developmental or deteriorative. The term development is widely used to refer to changes in organizations, economies, and other systems that is incremental or evolutionary. It is almost universally understood to be positive change, as illustrated in the definition for organizational change. Organizational change is change refers to change in which an organization is steadily improved, but not in radical ways.”⁶⁸

Systems don’t always change in an improvement direction; sometimes they lose performance quality and efficiency, they deteriorate. In fact, for many systems, deteriorative change is the usual direction of change. Wear and tear in mechanical systems, and the aging of a population in social systems, will gradually chip away at system performance.

When we know about and understand these incremental processes of change, we often design interventions to keep systems operating optimally. We replace worn parts in mechanical systems and we replace members of organizations whose performances are deteriorating due to aging or other factors. We also do incremental interventions to induce developmental improvements. We redesign mechanical parts to function better, and we change the powers and responsibilities of

positions in organizations with the aim of improving the contribution that position makes to the organization.

Disruptive Change

Disruption is an abrupt change to the functioning of the system. It is a condition in which things are broken apart, things are thrown into disorder, and activities cannot continue to take place in their usual way. Whether it's a case of the car engine starting to sputter and lose power or the stock market taking a massive nosedive or a major political party splintering into warring factions, disruption is unnerving for people. But it is not always fatal. A disrupted system can and is often restored to its previous state of operation through interventions that remove the disruptive factors. In some cases, though, disruption leads to system transformation, system replacement or permanent system death.

Disruptive change is frequently intentional. Mechanical systems are tested by operating them continuously until a disruptive process develops or by introducing a disruptive element into the system. New leaders of organizations often "clean house", meaning they disrupt the way the organization is working by changing organization positions, relationships, and personnel. People often induce disruption to their own body systems by going without sleep for long periods or engaging in extreme sports.

It should be noted that intentional disruptions can lead to system death rather than restoration. When mechanical/electrical systems are tested, system death is expected. Organizational leaders who make disruptive changes and people who push their bodies to their limits do not intend and do not expect system death. Yet, this can be the outcome.

System Transformation: A Special Case of Disruptive Change

Transformative system change arises out of disruptive change, but disruptive change does not have to produce transformative change. As noted above, disruptive change can lead to restoration or to system death rather than transformation. Transformative change takes place when restoring the system to a previous state is not possible and permanent system death is not inevitable. In that circumstance transformation is possible, but not guaranteed. Permanent death can happen if transformative interventions fail.

Transformative system change can be thought of as a kind of system rebirth. Much of the system will die; even its primary its purpose or most important process output may change. Function by function and physical entity by physical entity will die away but only as part of a replacement process. It's a process of accumulating local and momentary deaths and births that add up to massive system change.

Sources of System Change

Any number of factors can initiate a change sequence or process in a system. They can be events that intrude from outside the system, events in the system, or processes that contribute to the output of the system. All can generate incremental or disruptive change.

Whether initiated externally or internally, change processes are carried out by the physical elements acting in the system. Those elements can slow, manage, or accelerate the change process, depending on design features built into the system. No system can be designed to prevent change, but some system designs will hold up better than others. In some systems, an

internal or external event or an internal process can trigger changes that cascade toward system disruption. System disruption can then cascade into catastrophic system failure or radical transformation.

Externally Generated Change

All systems can be damaged, destroyed, or transformed by factors introduced from the outside because all systems (except the universe as a totality) exist in an environment. Things that happen in that environment can intrude into the system and initiate change. For examples, moisture in the air surrounding a machine can cause steel components in it to rust. A tornado can rip a store or home apart. In a household system minerals that originate in ground water can build up in a water heater and reduce its energy efficiency. A cultural system can be changed by the in-migration of people from other cultures. In each case, the change initially caused by an external factor will ripple through other aspects of the system as a whole. In the case of minerals in the water, the sequence of household system changes induced by the intrusion of minerals from outside would likely include higher electricity bills, followed by changes in water use or changes in income generating activities to avoid changes in water use.

Internally Generated Change

All systems inherently change themselves. A gasoline engine illustrates this. Mile after mile, gasoline is burned and physical movement of the automobile is achieved. However, we know that the parts in the engine are slowly wearing out due to friction. That is, the engine system is changing itself through its very activity. We can sometimes do things to slow down the internal change processes, but we cannot stop them.

The potential for incremental processes of change to generate disruptive change is inherent in every system. Internal change accumulates and at certain thresholds of change, the process of change can accelerate, slow down or become a different kind of change. Internally generated disruption can happen. Failure to maintain a system is the most obvious way in which inherent change processes can accumulate toward disruptive change. But, in many systems, maintenance strategies may not be possible because the maintenance activities themselves become sources of change.

System Change in the Inclusive World Economy

We can think of the Inclusive World Economy as a closed system. Energy flows in from the sun and energy radiates out into space. The flow of energy from the sun is quite stable over time. With the exception of the occasional massive meteor strike and the perturbations introduced by solar flares, all change originates within the Inclusive World Economy. All change is both initiated and carried out by the very agents that make up the system. Thus, change comes from within.

As explained in Chapter 1, the Inclusive World Economy is a hybrid economic system. It consists of both human and non-human agents and relationships both among and between human and non-human agents. The sources of change must be found in this complex and diverse system of agents and relationships. The processes of change must be found in the myriad and coordinated actions that produce and distribute the wealth used by the world's people.

Agents and Agency in the Inclusive World Economy

The Inclusive World Economy consists of both human and nonhuman agents. The population of these agents is enormous and quite varied. The range of agency capacities is very large, so too are the powers of agents to carry out their actions.

In the Human Economic Arena, agents include individuals, groups, and formal organizations. The Natural Economic Arena includes biological agents (e.g., plants, animals, and microbe colonies), atmospheric agents (gas molecules, clouds) and geologic agents (water molecules, crustal plates). Humans can be thoughtful and willful. We can change our capacities and actions quite fluidly. Some living agents other than humans (mammals in particular) appear to have some elements of thoughtful and willful action, but we assume that most are operating mostly on genetic autopilot. Non living agents such as rocks and water molecules are ruled by the laws of physics and chemistry.

We encounter and collaborate with or resist these agents everyday: coaxing milk from cows, fighting infestations of ants, helping a coworker finish a project on time, buying goods from business enterprises, sending planes to drop fire suppressants on wild fires, supporting candidates for elective government offices, and suing business competitors in court. Thus, the line between agents in the Human Economic Arena and agents in the Natural Economic Arena is much more of a cultural convenience of language than a physical reality.

Agents and Agency in the Human Economic Arena

Individuals are the primary agents in the Human Economic Arena. However, individuals universally organize themselves into multi-person agent entities that transcend the individual: families, friendship groups, tribes, and formal organizations such as clubs, political parties and corporations. We assign the power of agency to these collective agents (or relinquish the power of agency when coerced to). They become collective agents by combining and coordinating the actions of individuals to create a capacity for action not available to the individual.

Individuals and Groups

Groups are the organizational components of societies, not individuals, so participation in groups and experiencing personal situations are inextricably connected. What each of us understands to be our own personal situation and our own personal interests are, in fact, derived from our connections to other people. It follows that individuals are not primarily agents for themselves. To the extent that individuals act as agents, they do so in relation to group identities and group purposes.

Group involvement is both the source of motivations to act and the medium through which action is taken (whether buying a pen or overthrowing a government.) Every experience of every person gets conveyed to the group and is understood in ways created by the group. Symbolic interactions are embedded in particular group situations. (No one is born to want a red Corvette and no one is born with the life mission of designing a red Corvette.)

Governments

National governments are the most visible and most important governmental components of the Human Economic Arena. In the development of the Human Economic Arena, nation-state entities were formed through military campaigns that created centralized military establishments

with the capacity to defend a chunk of territory and the people living in that territory from other military establishments and to impose and enforce order on the people in that territory.

By the end of the 20th century, most but not all territorial boundaries were settled. International treaties, pragmatic acceptance, and impositions by the most powerful national governments through their foreign policies and military activities and alliances had created a fairly stable system of geopolitical boundaries that covers the entire earth and all people. However, military and paramilitary organizations still fight for control over national government institutions in many parts of the world.

Governments play major roles in structuring market relations. They enact and enforce market rules for transactions that take place within the nation and they negotiate rules for transactions that cross national boundaries. However, they do not have complete control over markets and transactions. Even in nations with totalitarian governments, government officials must negotiate with other powerful economic actors in other government agencies and outside governments.

Corporations and Other Economic Entities

Corporations and other large economic enterprises are the most numerous and most powerful agents in the Human Economic Arena. The owners and managers of many of those entities coordinate the actions of vast numbers of people and vast arrays of powerful machines around very specific economic and political processes. These entities are often more powerful than most governments. They have alliances with the most powerful of national governments and they control the means of war (money, resources, and technologies) available to even those most powerful governments.

Civil Society Organizations

Civil society organizations are neither government agencies nor businesses. They include global non-governmental organizations (NGOs) such as Oxfam and Doctors Without Borders, domestic non-profit organizations (NPOs) such as the local food bank, and the many other citizen based organizations created for religious, charitable, or social purposes. This population of organizations is sometimes referred to as the Third Sector of society.

In recent decades, the formal civil society organizations (NGOs and NPOs) have proliferated, becoming collectively a powerful economic and political force in society. Some are very large with global operations and influence on many governments and corporations. However, the powers of even the largest are more limited than those of corporations and governments because they are dependent on voluntary sources of income (donations from individuals and donations and contracts from foundations, corporations and governments). They have neither the income producing capacities and rights of business enterprises nor the tax collecting and law enforcement powers of governments.

Human Agency in the Human Economic Arena

Although people have the capacity to be thoughtful and willful, human agency is still highly constrained. Our actions are not as constrained as those of components in mechanical systems, but the constraints on our actions are powerful in relation to what we might wish to accomplish. Our actions are constrained by physical limits, by cultural definitions of appropriate ideas and

actions, and by tangible relationships with others who have power and influence over us. Thoughtfulness and willfulness do not create total freedom of action.

The physical constraints on human actions are the least important. We are very adept at contriving and using technologies to overcome physical constraints. At this very moment humans are working to develop technologies that will allow humans to live in the hostile environment of the planet Mars. The cultural and relational limits on action are far more important.

Human actions are almost always attached to social system purposes and constrained by the strength of habit and by responsibilities to others and expectations of others embedded in our relationships. Our habits of behavior are developed through our relationships with others, not in hermetic isolation. Our habits are inseparable from our relationships with others and our relationships with others are inextricably tied to the purposes of the social systems in which we and our relationships are embedded.

A relationship imposes a particular distribution of behavioral possibilities on a person. We can call these behavioral tendencies. In certain social-structural settings, such as a workplace and a family household, imposed behavioral tendencies are quite strong because they are reinforced by cultural definitions of appropriate behavior and by relationships with other agents who have the job of enforcing behavioral tendencies.

Resistance to these imposed tendencies does exist, but even the behaviors of resistance are usually facilitated by cultural definitions and relationships – to coworkers, family members, or neighbors who offer an acceptable justification, encouragement, and material assistance. The truly individualist act is very rare and when a person routinely engages in such noticeably individualistic behavior, we usually label them as misfits or crazy in some way.

Even thoughtfulness is constrained. Whether an idea about action is ‘thoughtful’ is culturally defined. It is only thoughtful if it is oriented toward particular organizational or societal purposes and does not violate culturally defined parameters of action. These constraints on thoughtfulness are learned through socialization processes and reinforced by our webs of relationships.

Agents and Agency in the Biological and Ecological Systems

Ecological systems are collections of processes in which large scale changes are usually held in check because the small scale changes generated by one process are handled by other processes in the ecosystem. For example, the water from a slow rain in a given area lasting several days will be absorbed by the soil and carried away by the streams and rivers. However, compress that same amount of rainfall covering that same area into a matter of minutes and the result is a destructive flood – other processes can’t handle the small changes in the amount of water on the ground when they accumulate at a very accelerated pace. Yet, over a longer period of time, soil and streams will clean away the flood waters and the damage to flora and fauna will be repaired by other processes.

Agency in Biological and Ecological Systems

Agency in biological and ecological systems is more constrained than is human agency in social systems. The degree of constraint varies considerably. Most species of life can alter their relationships with other agents in a system. We see this in the evolution of our relationships with

out cats and dogs. We work to train them to fit into our family systems in certain ways, but they continuously test those relationships and frequently alter them. Whether some animals can engage in thoughtful action is an open question. If they can, that capacity to evaluate before acting is much more limited than it is for humans.

We really don't know the extent to which non-human species act individually or collectively with some degree of deliberation and will. So far, the research into these issues has produced only tentative conclusions and many questions. We do know with certainty that animals learn and that even the simplest of organisms monitor their environments and respond to changes. We are reminded of this basic capacity when we move a houseplant and notice that it reorients its leaves in response to the changed direction of its light source.

Agents and Agency in the Physical Systems

Physical systems include the global weather system, plate tectonics, and water flow systems. In these systems such things as air, water, boulders, pieces of the earth's crust act as process agents that use and channel energy to change materials in and on the earth. Although we think of physical process agents as acting independently of humans and bio-agents, this is usually not the case. Humans, animals, insects and plants routinely rearrange physical materials in ways that transform them as agents. For example, when engineers build dams and levies to control the flow of a river, they do not stop the water from doing what water does; they only change the river as a process agent and change the outcomes of the river processes.

Sources of Internal Change

Almost all people and organizations are agents in multiple social systems, so agency in the Human Economic Arena can become problematic. This happens when the actions of various agents are not sufficiently aligned. A classic example is competitive harvesting of fish stocks. As a member of a family seeking a better life, commercial fisher will harvest as much fish as possible. But as a member of a community that depends on the fish stock over generations, the appropriate action is to limit the take to help sustain the fish stock.

Absolute coherence of purposes and harmony of actions is not achievable, not even in the Natural Economic Arena. At any given time, agents in the Inclusive World Economy, both human and non-human, are operating not only in cooperation with a grand collection of processes, but also as part of localized processes that are not fully in harmony with each other or even with the grand processes. These elements of disharmony contribute to the bump and grind of internal system change.

Process Disharmonies and Change in the Inclusive World Economy

The configuration of process disharmonies in the Inclusive World Economy that generate change is complex and virtually impossible to map in anything but the sketchiest of details. Some disharmonies are more powerful than others. In the Inclusive World Economy as a whole, the most obvious and powerful are the disharmonies between the wealth accumulation processes in the Human Economic Arena and the life creating processes in the Natural Economic Arena.

This source of change in the Inclusive World Economy is embedded in and amplified by disharmonic processes in the Natural Economic Arena and in the Human Economic Arena. In the Natural Economic Arena, for example, earthquakes, hurricanes, and other extreme events

disrupt species balances in ecosystems and habitats, including human communities. In the Human Economic Arena, an urban corridor is renewed at the cost of putting small family owned stores out of business; an airport is expanded to the detriment of multiple species of animals and plants and often to the detriment of an entire human community. These combined disharmonies contribute to change in the Inclusive World Economy.

While disharmonies between agents in the Natural Economic Arena and agents in the Human Economic Arena can originate in the Natural Economic Arena, agents in the Human Economic Arena have become the primary producers of the disharmonies that are now the main drivers of change in the Inclusive World Economy. The size of the human population, the powers of our technologies, and the number and scales of interventions into the life of the planet we now carry out have grown enormously over the last several centuries. Humans have changed the process of change and accelerated the speed at which change takes place in the Inclusive World Economy.

In theory, agents in the Human Economic Arena could change their actions to reduce the level of disharmony in the Inclusive World Economy. However disharmonies within the Human Economic Arena inhibit this. These disharmonies are rooted in inconsistent group affiliations. People tend to divide themselves by affiliations of family, class, social status, race, ethnicity and nation. These group affiliation differences create different understandings, motivations, and possibilities for action. Those differences make alignment of actions very difficult to achieve, however great the need for cooperation is.

The most important of these affiliation differences are those of nation and class. As with other affiliation differences, these affiliation differences are associated with differences in understandings and motivations. These nation and class differences matter more than others because they are strongly associated with differences in economic and political power. More powerful classes and more powerful nations can usually impose their will on less powerful classes and nations. This makes the more powerful classes and nations the most powerful agents in the Human Economic Arena. They have the greatest capacity to produce the disharmonies that change the Inclusive World Economy.

The Limits of Power in the Human Economic Arena

In the last several centuries, corporations and their government allies have generally held the greatest power to initiate change in the Human Economic Arena and to resist attempts at change that originate in communities of working people. However, the power of business-government alliances over the various parts of the Human Economic Arena has never been total and it has frequently been weakened by economic and political crises. During those times of weakness, popular movements often succeed in pressing governments to implement new policies and pressing business communities to abide by stricter rules of behavior. Sometimes they succeed in replacing governments.

Economic crises have two effects that tend to shift the balance of power between the business-government alliances and communities of working people. As profits fall and businesses fail in a crisis, business communities withdraw financial support from government allies by resisting government taxing authority. At the same time, falling standards of living in working communities produce anti-business movements that directly threaten particular businesses and industries and threaten to break the business-government alliance. To protect their interests,

business communities have to spend more on protection and more on pressing their government allies to do more to maintain the social order their business operations require.

These crosscutting pressures produce political instability in the form of political betrayals and defections, political partner shopping, violations of the accepted norms of political activity, and the emergence of new political groups and organizations. When the Human Economic Arena is experiencing chronic long-term economic instability, political instability develops across all nations and other political jurisdictions to varying degrees and in varying forms.

A multidimensional crisis develops. Disruptive agent actions become more common. Relationships that tie agents to system purposes weaken, so system supporting constraints on what can be thought of as appropriate action lose effectiveness. Other relationships can rise in importance to particular agents and redefine the parameters of action. In certain historical circumstances, those parameters can legitimize actions that radically disrupt the system and lead to its collapse or replacement.

Implications for Studying the Work World

The conceptualization of the appropriate economy to study and the theory of societal change explained above tell us that the future of human work must be studied as part of the future of all work in the Inclusive World Economy as a whole. They also tell us to consider the possibility the future will be created by transformative processes of change and to look for patterns and trends that might be increasing the probability that transformative change will happen. To the extent that our investigations lead us to conclude that the likelihood of transformative change is increasing, they lead us to ask what forms that transformative change might take and what new ways of living and doing things might emerge in the future.

That larger future of work will be produced by processes of change operating in and changing the Inclusive World Economy as a whole. Some are easily observable, like the many innovation industries that churn out ever newer production technologies to replace humans in production processes. Others, like the processes causing species extinctions and the processes of species evolution and adaptation, are less obvious and less well understood. The future of human work is embedded in these larger processes of change, so clues to that future will be found there.

⁶⁶ What is Systems Theory?, Environment and Ecology Website. Accessed June 26, 2016. <http://environment-ecology.com/general-systems-theory/137-what-is-systems-theory.html>.

⁶⁷ See the article by Ross D. Arnold and Jon P. Wade for a discussion of various definitions of system thinking. Ross D. Arnold and Jon P. Wade, A Definition of Systems Thinking: A Systems Approach, *Procedia Computer Science*, Volume 44, 2015, Pages 669-678. Accessed June 27, 2016. <http://www.sciencedirect.com/science/article/pii/S1877050915002860>.

⁶⁸ BusinessDictionary.com. Accessed January 15, 2016. <http://www.businessdictionary.com/definition/developmental-change.html>.

PART TWO

EMERGENCE OF A GLOBAL WEALTH ALLOCATION CRISIS

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Chapter 3: The Economic Growth Slowdown in the Human Economic Arena

We call the year to year increase in the wealth of a society economic growth. It gets a lot of attention from economists, business and political leaders, and most people because a high rate of economic growth has become the bedrock of our global society, the very foundation on which human welfare and societal stability rest. It is strongly associated with job creation, wage increases, the growth of the world's middle class, and with strategies for reducing global poverty⁶⁹ – everything associated with living a good life in a good society. Economic growth is so important to our way of life that promoting it is a primary concern of every one of the world's governments (at all jurisdictional levels).

How to promote economic growth is getting a lot more attention than usual because the world economy is stuck in slow economic growth rut. The usual government policy fixes haven't worked. Large numbers of people are experiencing limited employment choices, dashed home ownership and retirement hopes, and material hardships. Business and political leaders are under great pressure to fix the problem of economic growth. Economists are under great pressure to come up with an explanation that business and political leaders can use.

Economists tend to see economic growth a natural potential, so they focus attention on whether government policies unleash that potential or get in its way. An alternative premise is that the potential for economic growth is embedded in historical circumstances that can change with the passage of time. This premise tells us to look at wealth producing processes in the Inclusive World Economy and ask this question: have the underlying conditions for those processes changed in the last century? The answer offered here is that they have changed and the changes are now slowing the global rate of economic growth toward zero.

Core Processes Behind Economic Growth

In the millennia prior to the emergence of capitalism, groups and societies generated economic growth; they produced things they called wealth and accumulated them. That kind of economic growth, however, was not the same as the economic growth that emerged when capitalism took hold in Europe. For the most part, what was made in groups and societies stayed there. Trade was mostly an appendage to the production activities that increased wealth, so it played a minimal role in economic growth.

That changed with the rise of capitalism. Economic growth became a market based and market dependent phenomenon. Market growth and economic growth became one in the same. Over the next several centuries markets became a universal system in which a person's whole life could be created and lived. Wealth could not be accumulated except through market activity. Markets became the beating heart of modern society.

The identity of market growth with economic growth is built into the way economists measure economic growth. The conventional practice is use Gross Domestic Product (GDP) as the

measure of economic growth. Technically, however, GDP is not a measure of a change in wealth, but rather a measure of market activity. With a few exceptions, GDP is measured by summing the value of transactions in markets in a given jurisdiction during a defined time period. However, it is widely accepted that when GDP is increasing, material wealth is increasing and when GDP is falling, material wealth is decreasing. Thus, GDP is a measure of market growth that is interpreted as economic growth.

Given this meaning for economic growth, asking how markets grow is a key question. What are the historical factors that produce market growth? When and where do they arise? How are those factors changing at the present time?

Factors that Produce Market Growth

Market growth takes place when the amount of wealth traded in transactions in a given period of time and in a certain place increases. The question of how markets grow is the question of what causes more transactions to take place and/or more wealth to be traded in each transaction. It is a question about a specific aspect of historical change.

Economists identify three main drivers of economic growth over the course of time: accumulation of capital stock, increases in labor inputs, such as workers or hours worked, and technological advancement. The most important for long run economic growth is technological advancement.⁷⁰ Given the identity of economic growth with increasing market activity, these are the main drivers of market growth identified by economists. (From this point forward, the term market growth will be used when the focus of the discussion is specifically on increasing market activity and not on wealth. The term economic growth will be used when the focus is on increasing wealth.)

The technology effect on market growth is commonly explained in this way. Technological innovations reduce production costs by substituting efficiencies in the use of labor and capital for increases in the units of labor and capital. This creates savings that can be passed on as lower market prices for a given basket of goods, or as substitutions of higher quality (higher value) goods and services at the same prices (a form of lower prices), or as increases in wages and profits, which gives final consumers more money to spend. When the effect is through lower prices the consumer can buy more things or better things, increasing the number of transactions or the total value of transactions. When the effect is through wage and profit increases, final consumers can buy more goods and services or better goods and services, again generating market growth.

This delineation of the drivers of market growth, with technological advancement at the forefront, was crafted to fit the perceived development trajectories of nations in which established markets dominate in economic activities, machines do an historically large part of production and distribution work, and nature and the economic activities in other nations are external. It is a human-centric, nation-centric and fossil fuel-centric model of how wealth is produced and distributed that limits the range of possible drivers of market growth. The analytic focus is on changing volumes of value in already established markets, with no historical variables other than technological change, government policy change, and changes in investment activities.

The shift to an Inclusive World Economy perspective on the production and distribution of wealth brings a range of other historically variable drivers of market growth into view. It does

this in two ways. First, it emphasizes the role of relationships among agents in facilitating or inhibiting any kind of change, including market growth. This shift brings the factors that affect the formation and dissolution of market relationships into consideration along with the factors that increase the volume of value traded through existing market relationships. Second, it calls for examining a larger totality of system agents and relationships in relation to the growth of markets. Market growth is a process that is embedded in the entirety of the Inclusive World Economy, not just the Human Economic Arena.

In this light, market growth can be seen to consist of two sub processes: an extensive growth process (multiplication of market relationships) and an intensive growth process (increasing value of exchanges in established market relationships). Extensive market growth takes place through the formation of physical and institutional infrastructures; intensive market growth takes place through increases in the number transactions and/or increases in the value of transactions.

Putting the analytic focus on these two market growth processes gives rise to the key analytic questions to ask about the history of market growth. What conditions would have to prevail in the Inclusive World Economy to facilitate market growth? What conditions would inhibit market growth? In what ways have these conditions changed during the history of the Inclusive World Economy? What does the current state of these conditions tell us about the future of global economic growth? Answering these questions should help us determine whether this time is different.

Conditions for Intensive Market Growth

Intensive market growth takes place within existing market institutions. Market relationships, institutions, and technologies must exist before the value of economic transactions can increase. They must exist before changes in production and distribution technologies and changes in what people want can alter prices; they must exist before technologies can pack more exchanges into a given amount of time to increase the total value exchanged.

The role of existing market institutions can be illustrated with the classic wheat-for-wine exchange used by economists to illustrate how markets can materially improve lives. In the real world an exchange of wheat and wine can take place only after certain social relationships, institutional arrangements, and certain technologies have come into existence: the wheat farmer and the winemaker need a common language; they need to be within reasonable travelling distance of each other; they must have the means for transporting their wheat and wine; they need a meeting place; they need institutional arrangements for negotiating an agreement about how much wheat is worth how much wine. However, one exchange of wheat for wine is not the only exchange those conditions can facilitate.

Once in place, market relationships, institutions and technologies can facilitate intensive market growth. The wheat farmer and the winemaker can exchange more wheat and wine or exchange wheat and wine of higher quality, or exchange other products they produce. They can even invite others to make use of the physical and institutional market infrastructure they have created.

This is where the conditions necessary for intensive market growth come into play. First, a market infrastructure must already exist but be underutilized. Second, there must be producers who are ready to bring additional more items or higher quality items to that underutilized market. Third, there must be buyers also able to bring something of value to that same market and who

want the new or higher quality items being offered. These conditions create a potential for intensive market growth.

Factors That Can Limit Intensive Market Growth Potential

In most economic discussions, the factors that are identified as limiting intensive economic growth are too little income growth on the demand side and labor, capital, or resource bottlenecks on the supply side. Demand side income growth can become stalled when salaries and wages fail to rise or the population attached to market institutions does not grow. Supply side bottlenecks can arise when capital investment or technological advancement stalls. However, other factors may become important in certain historical circumstances.

One factor can be called the consumption rate boundary. Any one consumer has a very limited amount of time to devote to shopping and making purchases, to using the goods and services they have purchased, and to storing or discarding things no longer in use. The fact that people with lots of money can hire other people to help them consume more does not solve the problem because the hired person has less time to devote to their own consumption. Using new technologies to speed up the rate at which transactions can be processed also doesn't solve the problem. Faster buying does not add much to the amount of time available to a person for using all the additional goods and services they can purchase.

A second factor is a quality improvement boundary. For many products quality improvements have only status value. For example, middle income Americans can purchase stereo systems that produce sound with a quality level greater than the human ear can perceive; we can purchase cars with the ability to travel at far faster speeds than we can ever make use of. If a person can't make use of a product or service itself, then it is most likely being purchased for its status value. Unfortunately, status is a relative form of wealth, not an absolute form. People, groups, and nations can change their status positions relative to each other, but the Human Economic Arena cannot become more status wealthy. This zero-sum situation means product changes that offer only status value can create the illusion of intensive market growth, but cannot add to real wealth.

Conditions for Extensive market formation

A market relationship is initially formed when a person first enters into a relationship with another person that facilitates an ongoing exchange of things of value. For this to happen, the two people must not already be in a market relationship. This is the situation only when at least one of the persons has not already formed as many market relationships with others as is ordinarily feasible. Only a few categories of people can be counted as members of non-market populations: people living in tribal communities, people living in intentional non-market communities, and newborns. People who obtain most of what they need and want in exchange transactions with others are not available to form new market relationships. They can only replace one market relationship with another.

The potential for extensive market formation is a function of two factors: the size of the non-market population (people who participate in no market relationships or only in one or two market relationships in which exchanges are infrequent and involve things of trivial importance) and the rate at which non-market people are being incorporated into market systems. Thus, the historical conditions for extensive market formation are those that affect the rate at which non-

market people are incorporated into new markets and those that affect the rate at which the non-market population is replenished.

Several conditions are necessary for integrating non-market people into new markets: the existence of a non-market population; the existence of transportation, communication, and market technologies that can be used to create the infrastructures needed to move more people from non-market activities to market activities without displacing people already in market relations; the existence of production technologies that can increase the volume of goods and services supplied to an expanded network of market relationships; the existence of technologies and places for disposing of waste and byproducts that can accommodate an increase volumes of those outputs; and, when the non-market population to be incorporated is a community or society (i.e., an intentional self-sufficiency community or a self-sufficient tribe), a means for persuading them to abandon their non-market practices in favor of market relationships.

The replenishment of the non-market population is necessary for the extensive market formation to continue indefinitely. For the non market population to grow even while non-market people are being incorporated into markets, the global birth rate must exceed the global death rate. Several conditions determine how fast replenishment happens: the number of people in the child bearing age range; the rate of use for effective birth control technologies; and death rates. When there is a large population of young people who are having lots of babies and market participants are not being lost rapidly due to high death rates, the potential for extensive market formation is high.

Factors That Can Limit Extensive Market Formation Potential

Economists count technological innovation as a prime driver of economic growth, but in the case of extensive market growth, technological innovations can inhibit economic growth. Notably, innovations in birth control and medical technologies will slow the growth of non-market populations available for incorporation into markets. Innovations in technologies that facilitate the incorporation of non-market people into market relationships can slow extensive market formation when they are used too aggressively. People can become less willing to make the changeover, even hostile to markets.

Conditions in the Natural Economic Arena can also inhibit extensive market formation by overwhelming the capacity of human institutions to innovate ways for disposing of waste and byproducts. Even if the potential for extensive market growth is in place in the Human Economic Arena, negative feedback from agents in the Natural Economic Arena may effectively prevent the realization of that potential. Currently, climate change is playing this kind of inhibitive role.

The Era of Rapid Market Growth

The era of rapid market growth extended from the 16th century into the 20th century. This was the era in which capitalism began to flourish in Europe and then spread across the world. During this period, developments in Human Economic Arena coalesced with conditions in the Natural Economic Arena to facilitate the extensive market formation. High birth rates and falling death rates produced rapid population growth in Europe. The earth was still a vast and seemingly inexhaustible thing from which raw materials could be taken and onto which waste could be dumped with impunity. The external world of peoples and resources was enormous.

Using their technological advantages a few capitalist nations rapidly incorporated indigenous peoples and resources, fueling high rates of economic growth. New transportation and communication technologies extended the territorial reach of market relationships; new weapon systems made it easier for some Europeans to conquer other peoples in Europe and on other continents and incorporate them into markets as slaves, workers, and consumers; new machine technologies increased the volumes of goods and services produced.

The first period (roughly the 16th through the 18th centuries) was a startup period in which Europeans made slow but steady progress in the creation of a skeletal global market system. The primary factor limiting extensive market formation was dependence on crude solar energy technologies (e.g., sails, water wheels, windmills, humans and animals) and the lack of machines that could take full advantage of the energy that could be obtained from burning wood and fossil fuels. Only high value goods and services could be profitably traded, especially over long distances.

This was the period in which the enslavement of Africans became a growing source of energy for production for capitalist markets. One estimate is that 6.5 million immigrants survived crossing of the Atlantic to the Western Hemisphere between 1492 and 1776. Of those, only 1 million were Europeans; the remaining 5.5 million were enslaved Africans. On average, 80 percent of these enslaved Africans were put to work as field-workers.⁷¹ By the end of the slavery era, almost 12 million Africans were brought to the New World.⁷²

Slaves did not become consumers because they were not paid in money. However, the products of their work were sold on capitalist markets by the slave owners. Rapid income growth turned slave owners and ancillary shop keepers and craftsmen into consumers of goods produced in Europe and North America and into suppliers of the raw materials and food items that fueled the growing commercial centers of Europe and the Americas.

The development of the steam engine broke through the energy use limitations in human activities, ushering in the Industrial Revolution. New social and physical technologies began to transform the planet at an accelerating rate. At an unprecedented pace some humans enslaved, exploited, and manipulated other humans. They eradicated those in the way of their purposes. At an unprecedented pace they did the same with nature.

That period roughly coincided with the activities widely referred to with the terms colonialism and imperialism. Extensive market formation accelerated rapidly as capitalist nations created laws to push and pull more of their people into market relationships (e.g., English enclosure acts), and as their emissaries and armies fanned out across the world to conquer indigenous peoples and their territories and resources and incorporate them into the expanding system of nation-states and capitalist markets. Waves of new consumer demand were created as whole communities of people were moved away from producing goods and services for themselves to selling their time and skills to owners of productive property and buying goods and services in the marketplace (often from the very same property owners).

Most visibly, this was facilitated by bringing external peoples under the control of western nations through the imposition of colonial governments and later through the formation of dominant state—client state relationships. As is well documented, bribery, laws that enable deception and exploitation, intimidation, violence, and war played large parts in this history. Over and over, indigenous peoples were set to work transferring the materials of their own lands to the agents of imperialist nations in exchange for wages. Cut off from indigenous communities

and associated production practices, and with no time left over after performing wage work to engage in production for themselves, those peoples could only use their wages to buy the things they needed from the same or other agents of the imperialist nations. Thus, the monies paid to indigenous peoples pressed into wage work returned to the imperialist nations as new consumer demand (along side the new flows of indigenous resource wealth).

The role of technological advancements in this period of market growth was extraordinarily important, but not in the way one might think. Today, technological innovation is focused not only on more production per hour worked, but also on increasing the efficiency with which energy and materials are used. During the industrial revolution, wasting materials and energy was much less of a concern. The primary contribution of technological innovations during that period was to massively increase volumes of output per worker by massively increasing the volumes of fuel and resources used. Not only did ramping up energy use increase the flow of goods and services, it increased the kinetic power of machines that moved commodities from place to place. Volumes of wasted energy and materials grew rapidly, but output per worker, the main goal, was the reward.

Nineteenth century machines were more wasteful than human workers. The energy efficiency of steam engines did not reach 20 percent until after 1900.⁷³ By comparison, humans are fairly efficient energy users, exceeding the efficiency of modern cars for travel.⁷⁴ And, we can work very carefully to minimize material waste. But we are also slow and cannot work around the clock. Thus, the introduction of machines in the Industrial Revolution increased the value exchanged in markets mostly by increasing the volume of goods and services exchanged in markets. Energy and materials efficiencies were exchanged for speed and volume.

Yet, increasing the output of goods and services that made daily life easier and more enjoyable was not the most important contribution of the Industrial Revolution to market growth. The most important contribution was the output of goods and services that made controlling domestic populations and conquering other lands and people easier – weapons systems, incarceration technologies, transportation and communications systems that made it possible to deploy troops rapidly both domestically and around the world, and communications systems that facilitated control and management over longer distances. Those contributions were more fundamental because, as explained above, a market relationship must be established before market transactions can take place. The weapons systems, communications technologies, transportation technologies, and population control technologies were used to establish the market relationships that then allowed the vast quantities of goods and services produced by machines to be sold and bought. Markets grew rapidly.

Frequently, barriers to rapid market growth did arise during the era of extensive market formation, but they were localized and temporary barriers, even when severe. Examples of such barriers include reaching peak oil production in certain oil fields, crop failures in a region of the world suffering a drought and disruptions to supplies of raw materials and access to markets because of war. Such localized and temporary barriers were successfully addressed with policies that stimulated increased investment activity or pumped up consumer spending or stimulated the adoption of production and distribution efficiencies or removed tariff or political barriers to commerce, or integrated a new non-market population as workers and consumers.

The Transition to Slowing Market Growth

The 20th century was a transitional century in the history of the Inclusive World Economy. At the beginning of the century, insurmountable barriers to extensive market formation did not exist in practice or in theory. Input shortages, political upheavals, wars, and supply and demand imbalances did produce interruptions to market growth, but the worst case was (and seemingly would always be) a temporary and localized slowdown. Growing both the supply and demand sides of the world economy was assured. Untapped stocks and deposits of resources and populations of potential workers and consumers needed to restore the balance between expanding supply and expanding demand were just an explorer, a bribe, a military campaign, a technological advancement, or a state policy intervention away.

By the middle of the century the conditions that had facilitated rapid market growth were disappearing. However, high affluence governments made use of several market interventions (notably debt formation and wealth and income redistribution) to push extensive market formation as far as possible and to accelerate intensive market growth. This effort only worked well for a few decades. In the last half of the 20th century, key conditions that facilitated extensive market formation disappeared, with one minor exception – population growth through births. Intensive market growth became the dominant form of global market growth as. By the end of the 20th century, the era of extensive market formation was over and intensive market growth was pressing against severe institutional limits. A severe slowdown in global economic growth could no longer be postponed.

The Slowdown in Extensive Market Formation

At mid-century, the number of people not yet pushed or pulled into market relationships was dwindling fast. The global system of colonies had incorporated virtually every part of the earth into the developing nation-state system and pulled most of the world's peoples into market relationships to obtain at least part of what they needed. This source of growth in market relationships began to fade. The rate at which markets had been formed and expanded through the process of turning people into wage workers and buyers could no longer be sustained. The rapid pace of incorporating people external to markets that had prevailed in the 19th century became much more difficult to sustain.

Through wars of liberation, colonies were transformed into nation-states and the people living in those new nation-states who were tied only marginally into the global market system were slowly pushed and pulled into full participation in and complete dependence on markets. The number of nation-states increased from 127 in the United Nations in 1970 to close to 200 today. The Soviet Union collapsed, ending the only significant barrier to organizing the entirety of human economic activity around free market principles and under the control of North American and European corporations. By the end of the century, almost every square inch of the earth's surface and every resource deposit above, below and on the earth were under the control of a nation or an agreement among some set of nations; almost every person had to answer to a national government; and almost every person participated in markets directly or indirectly to obtain a livelihood.⁷⁵

To extend the era of extensive market formation for as long as possible, high affluence nations instituted foreign development aid programs to facilitate investments in parts of the world where the last populations of people still lived primarily through production for use. Through a variety

of mechanisms, indigenous lands and the small holdings of rural families were transferred to enterprises (often corporations of the high affluence nations providing the aid) that produced crops for export. By necessity, newly landless people were displaced to urban areas where more of the basics of life had to be obtained with money, and money had to be obtained through wage work or by making things to sell in informal markets or through criminal activities.

This effort quickly played out, leaving only global population growth as a driver of extensive market formation. But, birth rates were falling, especially in high affluence nations, so extensive market formation was becoming increasingly dependent on population growth in middle and low affluence nations. The world population growth rate has been dropping rapidly in the latter years of the 20th century (from the historical peak of about 2.1 percent in 1962 to 1.2 percent in 2010). In high affluence nations, the population growth rate dropped from 1.16 percent in 1960 to 0.41 percent in 2010.⁷⁶

The Brief Acceleration of Intensive Market Growth

Businesses and governments in high affluence nations began to institute programs to accelerate intensive market growth. This effort created the patterns of domestic and foreign policies that came to be seen as the hallmarks of high affluence liberal democracies: domestic programs designed to improve the lives of citizens and residents and development loans and charitable aid programs intended to increase consumption in middle and low affluence nations of goods produced in the high affluence nations.

A variety of wealth and income related policies that targeted domestic purchasing power pushed wages up in high affluence nations. They included minimum wage legislation, protections for union organizing, increased funding for public education and workforce training, investments in technological innovations that could be used to mechanize the home and the workplace, economic incentives for home ownership, and income supplements for people with inadequate earnings.

High and rising wages facilitated intensive market growth by making it possible for families to replace home production with purchased goods and services. It also created an incentive for women and teenagers to enter the labor force and thereby trade time spent producing goods and services for themselves and their families for time spent earning money and purchasing goods and services in markets. This process helped grow the service sector, as everything from meal preparation to manicures and haircuts to tax return preparation to entertainment were transferred from the home to the marketplace.

The ongoing mechanization of agriculture and the consolidation of small family farms into large corporate farms helped drive this process. Large numbers of people left farms where they had engaged in a substantial amount of home production (often supplemented with hunting) to become workers who buy everything and have only their time and skills to sell. Even the people who found a way to stay on the land shifted to producing only for sale and to buying almost every thing needed.

The importance of this source of intensive market growth is illustrated by a study of the contribution of home production to GDP in the U.S. from 1946 to 2004. Including home production in the calculation of GDP reduced the GDP growth rate from 7.1 percent to 6.8 percent. In other words, as women entered the labor market, they produced less for their families at home and bought more for their families in the market. Thus part of GDP growth was not a

real addition to the production of wealth, but only a shift of production from being uncounted (at home) to being counted (in the market).⁷⁷

The potential for intensive market growth in high affluence nations could only go so far. Once almost every household had a washer and dryer, dishwasher, air conditioning, all the food and clothes that could be consumed, and a car for every driver, the rate of intensive market growth had to slow. The other component of intensive market growth would have to be the growth of purchasing power in middle and low affluence parts of the world

The foreign development aid programs of high affluence nations that had pushed extensive market formation to its limits morphed into programs to push intensive market growth. The goals of the programs and the rhetoric behind them changed from bringing backward people into the modern world to moving the world's poor people out of poverty and growing the global middle class. This shift entailed dramatic changes in the transnational rules governing capital investments and trade between high affluence nations and middle and low affluence nations. Investments would have to create positive income flows into middle and low affluence nations and that could only be accomplished by giving access to existing markets (in high affluence nations) to emerging producers in middle and low affluence nations. Thus began the era of supply-side economics in high affluence nations, with its free trade agreements, outsourcing of production, and recruitment of skilled workers from other nations, particularly from middle affluence nations with expanding educational systems.

The brief success of this strategy for sustaining a high rate of intensive market growth was dependent on the purchasing power of people in high affluence nations. In the new era of globalization it could not be sustained. Wages and incomes in high affluence nations were eroded by the very activities designed to increased intensive market growth in middle and low affluence parts of the world. Growing the global middle class turned out to be little more than transferring purchasing power from people in high affluence nations to people in middle and low affluence nations.

This reality was obscured for a while by the expansion of government and consumer debt in high affluence nations. Current purchasing power was created out of future wage and income growth. But wage and income growth was stagnant, so there would be no extra household income in the future and very little in the way of assets to liquidate to pay off the mounting levels of debt. Debt would have to be repaid through reduced consumption – the very opposite of intensive market growth.

Some intensive market growth is still happening within a few middle affluence nations such as China.⁷⁸ Market relationships are already in place, but transportation and communication links and market institutions are not fully developed. Still, these remaining possibilities are not large in relation to the totality of global market institutions. Furthermore, market infrastructure and consumer purchasing power are being financed through debt growth. The impact on global economic growth can only be small and short lived.

The Development of Barriers to Economic Growth

Global conditions are now emerging that are slowing market growth. Eventually, economic growth will come to a halt. Cyclical variations in the rate of economic growth are inevitable, including periods of strong growth and periods of contraction. Over the long term, the world's economic growth rate will decline. Wealth losses in periods of economic contraction will

increasingly cancel out the gains in periods of growth. It is even possible that the global stock of real wealth will decline substantially below current levels.

The emerging conditions that function as barriers to economic growth include cultural, institutional, and geophysical conditions that inhibit market growth. The most important are the continued slowdown and eventual end to global population growth; the plateauing of service sector growth; limits to the volume of life the earth can support; and entropic limits to the accumulation of wealth. These conditions are global in scope and not temporary. They are more formidable and becoming more so with each passing year because they are resistant to policy interventions and less amenable to technological fixes.

The End of Global Human Population Growth

Technological advances and a cultural shift in childbearing practices is slowing global population growth toward zero. This is a new and intractable constraint on extensive market formation. With the era of geopolitical incorporation of new consumers into the Human Economic Arena ending and with population growth adding minimally to consumer demand, global economic growth is now much more dependent than in the past on increases in demand from existing populations of consumers. Eventually, the global human population will stop growing and begin to shrink. Already, several high affluence nations have birth rates so low that their populations can grow only through in-migration.

Service Sector Growth Plateau

The growth of service sector industries and jobs is an institutional change process that is pushing up against a practical limit: the service sector must stop growing at some point short of 100 percent of the Human Economic Arena because goods production must be some minimal portion of all human economic activity. Globally, service sector industries accounted for 68.5 percent of GDP in 2014, with the highest proportions in high affluence nations (e.g., 78 percent in the U.S.) and the lowest in low affluence nations.⁷⁹

In high affluence nations, services consumption has reached an effective saturation point. Almost everyone is buying as much as they have time to buy and use, often much more. Instead of net additions to services consumption, much service sector activity in high affluence nations consists of substituting one kind of service for another (e.g., texting for calling, ride sharing service for taxi service). Little room is left for intensive market growth.

In poorer nations, the growth of the service sector is inhibited by the necessity to allocate capital and income to basic physical needs and infrastructure. Moreover, personal and family income levels are so low that even rapid rates of income growth produce very little additional growth in demand for goods and services.

Limits to Debt Growth

Debt growth worked fairly well in high affluence parts of the world during the second half of the 20th century (while high rates of wealth accumulation prevailed and such rates seemed eternally achievable). That is no longer the case, as financial crisis of 2008 and its aftermath of lost wealth and stagnant household incomes so clearly demonstrated. As attractive as debt growth is to political leaders, it has no long term potential because debt growth is ultimately limited by real income growth. Sooner or later, debt growth without adequate income growth forces debt holders to foreclose on property (when possible) or write off large amounts of receivable assets.

This is a perverse outcome because a large part of debt growth is facilitated by the ownership of property that can serve as collateral (e.g., homes and cars). When consumers lose ownership of property, an important part of the foundation for debt growth is damaged. Thus, in times when consumer owned property becomes fully utilized as collateral, either because consumers have borrowed as much as possible or because property has been repossessed, debt growth can only be sustained by increasing levels of high risk debt creation. As of this writing, only eight years out from the financial crisis of 2008, many economists are warning that debt levels are again a threat to the global financial system.

The Earth's Life Support Limits

The totality of life on earth has an upper limit. Only so much physical space is available and the forms in which that space exists (oceans, lakes, fertile land) change very slowly; only so much solar energy strikes the earth each day; the rate at which living things can transform earth's materials and solar energy into more life changes very slowly. There may be room for some increase in the total volume of living things on earth, but we really can't know that there is. Almost certainly there is not enough room to accommodate the current populations of non-human life, add another few billion people, and simultaneously sustain the current standards of living experienced by the world's peoples.

Within this high level limit to the growth of life, specific species face much more constricting limits. Only certain parts of the earth provide suitable conditions for a particular species. The general rule for the earth is that one life form increases in population only by displacing other life forms that depend on the same local conditions (ecosystem conditions). Thus, while there is a global limit to the support for life, the limits that matter the most are ecosystem limits.

Humans are a special case. Even though we can only thrive where particular conditions exist, we have developed technologies that create suitable conditions in places on earth where those conditions do not exist. This advantage for humans has created a global species displacement dynamic: the Human Economic Arena grows at the expense of the Natural Economic Arena and the Natural Economic Arena grows at the expense of the Human Economic Arena (by reclaiming wealth and human life through rust, rot, disease, and natural disasters). This is the dynamic equilibrium that is creating certain intractable barriers to economic growth.

Resource Limits

Wealth production in the Human Economic Arena requires two kinds of resources: inputs that can be transformed into products and services and waste disposal spaces with varying kinds of characteristics. Resources on both sides of the wealth production equation are approaching or exceeding their use limits.

Maximum use limits arise from the rates at which stocks of various resources are being renewed relative to the rate at which they are being used or destroyed. The renewal processes for some resources, such as oil, take so long that the stock is effectively fixed. For some resources renewal time is only a matter of decades (e.g., trees sourced for wood). For others, renewal is annual (e.g. many food crops). A maximum use limit is thus reached when the rate of use or destruction is equal to the rate of renewal.

In the expansionist era of capitalism, explorers and armies (and religious missionaries) marched into not-yet-incorporated territories to discover and extract not-yet-exploited resources (virgin

hardwood forests, easily tapped mineral and fossil fuel deposits, uncultivated arable lands, unspoiled rivers and lakes, enormous populations of wildlife, indigenous labor power, plentiful places to dump waste and byproducts, etc.). That era is long over. The low-hanging fruit are gone and the Human Economic Arena's many agents are beginning to encounter resource use limits that are increasingly difficult to overcome.

We have now reached a point in time when the list of resources that are being exhausted from overuse and the list of resources that are being used at the maximum rate possible are getting quite long. The use rates for many more resources are approaching their limits. Among these resources are fossil fuels, fresh water, stocks of food fish, arable land, and water, land, air masses that can safely absorb and disperse the byproducts and waste of global affluence.

There is no viable solution to the use limits problem other than reducing total resource use. We may succeed in developing alternatives to resources currently in use as their volumes decline, but transitions from currently used resources to alternatives only moves the overuse problem around. This is illustrated by the effort to substitute ethanol for gasoline. A significant increase in ethanol use requires a significant increase in the amount of land devoted to producing crops to be converted to ethanol. Either land suitable for food production is lost or complex habitats are lost to monocrop production.

Even the much desired shift to organic farming presents the same dilemma. While the decline in chemical fertilizers and pesticides would reduce the rate at which oil stocks are being used, the increasing use of organic fertilizers and pest control techniques would increase the rate at which other resources are used. For example, one study found that the intensive use of solid organic matter such as composted manure increased down-leaching of nitrate into groundwater. Thus, the rate at which the groundwater resource is contaminated increases.⁸⁰

Recycling may appear to be a large part of a solution to the problem of resource use limits, but it is not. While it reduces demand for resources in existing economic activities, it adds new economic activities that add to the demand for resources. Without recycling, resources are only needed by the machines and people that make an item and transport it. With recycling in place, additional machines are required to collect worn out items and waste products and either reconstitute them as usable inputs into production activities or manage their storage. Thus, transitioning to a recycling economy requires building more machines that use more energy and add to the recycling streams as they are discarded.

Regardless of the world's technological inventiveness, resource use limits will prevail. This is because the rates at which resources are used or destroyed in the Human Economic Arena has much more to do with the size of the human population and the volume of wealth we produce for this population than with the ways in which we use and destroy resources. The only way to back away from resource use limits is to reduce total wealth production in the Human Economic Arena.

Entropic Constraints on Economic Growth

There is another kind of barrier to economic growth in addition to barriers to intensive and extensive market growth. It is an entropic barrier that grows in significance as wealth is accumulated. It shows up in the composition of market transactions.

Every form of wealth degrades as time passes. All of us have first hand knowledge of this. We know that the things we own rust, rot, malfunction, and disappear. We wear things out, break them by accident, throw them away, and lose them through carelessness, theft and vandalism. Much of our time on this earth is spent repairing and replacing the things we have and working for the money to pay others to repair and replace them.

The degradation of wealth is universal and unstoppable. It is a thermodynamic process that conforms to the Second Law of Thermodynamics, the general tendency in the universe for physical conditions (e.g., pressure, density, and temperature) to equalize over time, the tendency for the orderliness of the universe to decrease. A change in orderliness is referred to as a change in entropy. With regard to wealth, a form of orderliness that we impose on material things, the Second Law of Thermodynamics insures that the things we make, whether painted fingernails or spacecraft, slowly or rapidly lose the qualities of orderliness that make them useful to us. Hot coffee gets cold, paint flakes off our houses, our muscles lose strength, our fresh fruit rots when left to sit, and our houseplants die.

The necessity for entropy in the universe to increase is a barrier to unlimited economic growth in the Human Economic Arena.⁸¹ One way in which we encounter this barrier is in the necessity for allocating income to maintaining existing wealth. To avoid a decline in wealth in a given year, our incomes must be sufficient to repair and replace items of wealth that deteriorate during the year. To add to our stock of wealth, our incomes must be greater than needed for maintaining existing wealth. This is true at every level of societal organization, including the Human Economic Arena as a whole.

The proportion of our income that must be allocated to maintaining existing wealth is not a constant. It increases as we become more prosperous (accumulate more wealth) and as items in our stocks of wealth age. The more we own and are responsible for, the more income (and time) we must devote to repairing and replacing our items of wealth (two cars take more time and money to maintain than does one). In addition, as our items of wealth age, the cost of repairing and replacing them also grows. Thus, given a relatively fixed annual income and a growing stock of wealth, the proportion of income available for adding wealth declines over time. This is what has happened in the Human Economic Arena.

The stock of wealth in the Human Economic Arena has increased enormously in the last century. Most visible to us is the accumulation of manufactured wealth – hundreds of millions of automobiles, thousands of skyscrapers, endless miles of roads and bridges, billions of housing units, household appliances, and personal items, etc. Moreover, much of this material wealth is aging to the point of becoming unusable, and thus of value only as scrap. Maintaining this enormous stock of wealth and replacing the wealth that has reached the end of its useful life takes a very large and growing share of the world's annual income. Less and less is left to grow the stock of wealth per person.

Even in the U.S., a wealthy nation, insufficient wealth is being allocated to the maintenance of existing wealth. It is reported that the average age of fixed assets (22.8 years) in the U.S., is now the oldest recorded since 1925.⁸² One sees the reality of this aging process in block after block of aging, dilapidated, and abandoned homes and buildings in every U.S. city and many towns; in the growing number of older cars on the roads; and in the increasing number of infrastructure failures that strike our aging cities.

Wealth created by people is not the only kind of wealth that we must devote our income to maintaining, and possibly not the most costly to maintain. With each passing year, we are learning that the earth's atmosphere, oceans, ecosystems, and species are increasingly a part of the stock of global wealth that must be maintained. Human activity has become such an enormous source of "damage" to these parts of the earth system that we must now count these things as wealth and invest income in maintaining them. Even the world's most formidable mountain (Everest) now has maintenance costs because it has become an economic asset that is used and damaged by human activity.

Climate change is steadily driving up the wealth maintenance costs that must come out of the annual income of the Human Economic Arena. It is damaging agriculture, tourism, fishing, and other weather sensitive industries, forcing producers to invest in very costly efforts to move and/or modify productive activities. Developing limits to growth of flows of key productive resources and developing limits to the disposal of production wastes are adding to costs.⁸³

Recent evidence suggests that climate change is accelerating. As it does, the consequences of climate change will accumulate more rapidly and associated costs will rise more rapidly. In addition, business enterprises, civil society organizations, investors, homeowners and others will not only pay more to repair accumulating damage, they will have to proactively invest more to prepare for the additional threats from climate change that lie ahead.

With a growing share of annual wealth production (income) diverted to managing the damage inflicted by normal wear and tear plus the damaging impact of climate change, and the damages to the Natural Economic Arena inflicted by humans, a growing share of investments in new production facilities serve only to maintain the wealth we have. A shrinking share of annual wealth production is available for adding to the world's stock of wealth.

Societal Implications

During the era of rapid economic growth, a particular pattern of wealth allocation became institutionalized. As wealth was produced, some was allocated to producing more wealth, some was allocated to immediate consumption (e.g., food, clothing, entertainment), some was allocated to long term consumption (houses, educational institutions, libraries, hospitals, etc.) Within each broad allocation category, particular ways of using the allocated wealth developed and endured or developed and disappeared (gasoline powered cars, 8-track tapes, universal K-12 education, etc.) The pattern of wealth allocation that prevailed at the end of the 20th century depended on a steadily growing stock of wealth. So, the slowdown in economic growth that now characterizes the Human Economic Arena makes that pattern of wealth allocation unsustainable.

In the past, cyclical slowdowns and reversals in economic growth made the existing wealth allocation patterns unsustainable, but only temporarily. The conditions that caused the slowdowns, whether cyclical or structural, were amenable to change. Many of the conditions that are now forcing a slowdown in global economic growth are not amenable to change. In one way or another, they are rooted in the finiteness of the earth and the laws of the universe.

Our institutional arrangements for managing wealth (economic and political) are not suited to this kind of challenge. The consequences are already showing up in the form of instability in financial and political institutions. The economic growth slowdown has already persisted long enough to push investors and financial regulators into uncharted territory. A rapid pace of

financial instrument innovation and changing corporate investment strategies has dramatically increased risk and volatility in financial markets. In the world of domestic politics, new and unexpected demands and coalitional alignments have appeared in many parts of the world. In global politics, new kinds of hostilities have emerged.

To sum things up, the world has entered into a global wealth allocation crisis.

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⁷⁵ The only frontiers (territories not yet fully incorporated) left are parts of the arctic regions, the bottoms of the open seas, and outer space.

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⁷⁹ Services, etc., value added (% of GDP), World Bank. Accessed online September 28, 2016. <http://data.worldbank.org/indicator/NV.SRV.TETC.ZS>

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Chapter 4: The Creation of a Global Wealth Allocation Crisis in the Inclusive World Economy

Almost everyone agrees that the Human Economic Arena is in crisis. The prima fascia evidence is strong and growing. The Human Economic Arena is well past half a decade since the financial crisis of 2008 and the recovery is still very incomplete. Moreover, many economists are still quite apprehensive about prospects for full recovery within even another half decade. Others believe the recover, such as it is, is not very sound. For example, Christine LaGarde, Managing Director of the International Monetary Fund, wrote at the end of 2012 about the challenge of promoting growth in a Human Economic Arena that depends on rising debt to drive economic growth, but is already burdened by very high debt levels.⁸⁴

A concomitant crisis in the world's political institutions has also been developing. Both domestic politics and geopolitics are increasingly plagued by polarization and fragmentation. Institutional arrangements that seemed stable and dependable only a couple of decades ago have become fluid and capricious. They change quickly and in ways that are unexpected.

While agreed that the world economy is in crisis, various analysts are not agreed about how to characterize the crisis and how to explain it. The long period of economic growth stagnation that has endured far beyond the expectations of political and economic leaders has defied the usual characterizations offered by economists. It just doesn't look like a typical economic downturn and it isn't a classical economic depression.

In this chapter, the crisis is characterized as a **global wealth allocation crisis** that has arisen out of the development of constraints on global economic growth described in the previous chapter. There is not enough wealth being produced to fund everything now deemed essential to modern life. There is not enough wealth being produced to deliver the material betterment in one or two generations that almost every government promises.

The allocation of existing and newly produced wealth is being changed in ways that protect the wealth of some populations, increase the wealth of some populations, and decrease the wealth of others. The unequal allocation of new wealth and the biased processes for redistributing existing wealth are not new. What is new is that these processes must now produce a perennial net loss of wealth in the Human Economic Arena until the life producing capacity of the earth has stabilized.

Currently, economic losses are being imposed primarily on communities of people from the middle levels of wealth downward, with the greatest damage allocated to the most vulnerable peoples. This pattern is justified by leaders of wealthier communities with assertions about unfair competition from other racial, ethnic, gender, and jurisdictional communities. Any community is certain to reject this logic of allocation when it is used to justify imposing losses on it, so crises of raging political battles and escalations into violence are almost guaranteed.

The crisis is being created by the agents and relationships that make up the Inclusive World Economy. Both agents of the Natural Economic Arena and Human Economic Arena are creators

of the crisis of wealth allocation, but the size of the human population and the power of human technologies make human agents the first cause in the creation and growth of the crisis.

The Landscape of Agents and Relationships That Created the Crisis

The economic growth slowdown in the Human Economic Arena has generated a wide array of changes in the configuration of human and non-human process agents in the Inclusive World Economy. Some process agents have disappeared; new process agents have emerged. Relationships among agents have changed: relationships among agents in the Human Economic Arena, among agents in the Natural Economic Arena, and between human and natural agents. Some have grown stronger relative to others; some have lost power. As a result of these changes, the processes that make up the Inclusive World Economy have changed.

These changes in agents and processes go far beyond changing the production and distribution of wealth; they alter the way the Inclusive World Economy changes through time. They simultaneously shape the way the actions of process agents generate change processes and also shape the way process agents experience and respond to those processes. Cumulatively and collectively, the agent and process changes that have taken place have changed the developmental direction of the Inclusive World Economy.

A particular configuration is in place, but it is only temporary. The Inclusive World Economy has not stopped changing. It is becoming more different with each passing year. Moreover, the processes of change may well be accelerating. The next 50 years are likely to bring much more change than did the last 50 years, and multiple shifts in the direction of change.

The Changed and Changing Natural Economic Arena

Process agents in nature are changing rapidly. The air surrounding the earth is different than it was half a century ago: higher concentrations of methane and carbon dioxide; thinner ozone layer; higher mean temperatures. Ocean currents are shifting. Huge volumes of river water are being diverted and stored for human purposes. The populations of living species are substantially different. Some species have increased in population due to cultivation by humans or for evolutionary reasons. Others have dwindled in numbers. All are living differently in much changed and fast changing habitats.

The processes carried out by these and many other process agents in nature are now different than they were a century ago. An atmosphere with a different composition cannot do exactly what it did in the past. More acidic oceans cannot produce sea life in the way it did before. To successfully adapt to changes in ecological systems species must do some things differently. The earth's surface structure must behave differently where massive human projects have altered the configuration of stresses, as when earthquake activity increases where fracking is used to extract oil and gas from rock formations deep underground.

The entire configuration of agents, agent activities, processes, and outcomes in the Natural Economic Arena is changing rapidly. The interdependencies among species and between species and the physical features of the earth are producing cascading changes in which natural agents obtain and use energy to produce their particular outputs. The consequences of rapid change in the Natural Economic Arena for humans are enormous.

Shifting Relationships among Human and Natural Process Agents

Human agents and natural agents interact in very different ways than half a century ago. Changes in human activities and in natural systems have created different relationships between humans and the air, water, soils, and the numerous species of non-human life. Species which once lived apart from humans or even threatened humans are now dependent on humans for protected, manufactured, or recovered habitats. Some have become dependent on human institutions for survival. Others have adapted to ubiquitous human populations, learning to live and thrive in urban environments.⁸⁵

One of the most important dimensions of this change in human-nature relationships in the Inclusive World Economy is the tremendous increase in the power of human process agents in relation to natural process agents. Human institutions now have the capacity to transform nature on a massive scale: to transform or destroy entire species and entire ecosystems; to manage the make-up and evolution of entire ecosystems; or to destroy almost all life on the planet.

The growing power of human process agents is the story of humans. It developed slowly until the industrial revolution introduced a combination of energy flows and machine technologies that accelerated the acquisition of knowledge about natural systems and accelerated the creation of technologies capable of manipulating and overpowering natural process agents on a massive scale. Unprecedented amounts of energy were harnessed to human purposes, including efforts to keep the flow of energy into human purposes growing steadily. Today, humans use an estimated one quarter of all earth's production capacity.⁸⁶

Human process agents can and do overwhelm many non-human process agents in the Inclusive World Economy. The impact is enormous, growing, and potentially very dangerous for us. As we continue to grow the human population, alter habitats, alter and destroy animal and plant species, and move mountains of earth and oceans of water, we change the configuration of process agents and relationships that make up the Inclusive World Economy. We change the ways energy is used and what is produced by energy using processes. We change the direction of change.

We employ enormously powerful technologies to remake the earth in both intended and unintended ways. We interfere with even the most powerful natural process agents and processes. Cumulative dam construction has shifted the location of so much water in the mid latitudes of Northern and Southern hemispheres that the earth's rotation has changed.⁸⁷ The Three Gorges Dam constructed in China is so large that it could cause earth quakes because the massive body of water changes the stresses on two fault lines.⁸⁸ That humans could turn the earth into a dead rock circling the sun with only cockroaches, a few bugs, and a few simple plants as passengers is not in doubt.

Natural agents have not been passive in all this. Ecosystem agents and relationships are also changing, as they adapt to environmental circumstances imposed by human activities. They respond to human intrusions in ways that force us to modify our human purposes and our actions. For example, as humans have decimated wolf populations and transformed forests and farmland into human habitat, deer have become pests that ransack the decorative plants and gardens at our homes in their search for food and shelter.

Human actions and the responses from natural agents give rise to ongoing conflicts between humans and nature. Ranching and farming businesses are perennially engaged in battles with

animals that attack their herds and crops. Homeowners battle with animals and insects that destroy lawns, valued shade trees, and gardens. Everyone is becoming compelled to do battle with weather events that are nature's response to the human injection of massive volumes of greenhouse gasses into the atmosphere. These perennial conflicts have compelled humans to create animal control institutions, invest in research into invasive species, spend money on equipment and chemicals for personal and commercial property from marauding deer and wolves, insect invasions, invasive species, and changing weather events.

In a second phase response process, humans are now undertaking efforts to manage species and habitats in order to diminish and undo the harm done by other human activities. Government and industry leaders now routinely use phrases like sustainable development, fisheries management, and zero footprint, reflecting the development of a managerial view of the earth in which humans not only have the powers of gods but the ambitions of gods. Without blinking an eye, we talk of creating an earth on which nine to eleven billion people will live with most of us in the middle class, no one in abject poverty and all other species healthy and happy.

However ambitious our plans, it is worth remembering that what humans do or don't do is not a problem for the earth. The earth has never been intentionally human friendly, not even intentionally life friendly. Life forms, including human life, were produced by the physical process agents of the earth doing their work in accord with the laws of the universe. Humans became process agents along side the physical entities and the other life forms that make up the earth. We became part of the ever changing earth system and contributors to the evolution of that system, but we did not create the systemic coherence of the Inclusive World Economy and we cannot strengthen or weaken it, help or hinder it.

The source of systemic coherence for the Inclusive World Economy is something far beyond the reach of humans – the second law of thermodynamics. This law of nature imposes systemic coherence on the actions of human and non-human process agents alike. Whatever the composition of the Inclusive World Economy in terms of humans, species of animals and plants and other life forms, chemicals in the air, sizes and locations of bodies of water, they always work together to spread and dissipate matter and energy. Humans can direct some of the energy of the sun to particular processes and combine some of the materials of the earth in particular ways in order to achieve some human purposes, but we cannot impose a different form of system coherence on the Inclusive World Economy. We can only create and alter the coherence of our own actions in relation to our limited human purposes and within the inescapable constraints imposed on us by the universe.

The Changed and Changing Human Economic Arena

The configuration of agents and agent powers in the Human Economic Arena has changed dramatically in the last several decades. Those changes can be summarized as a larger population of human organizations, a greater diversity of organizations, a higher density of relationships among organizations, and a different distribution of economic and political powers among organizations. Many of these changes are familiar in broad strokes because of the attention that certain aspects of globalization have received in the media. Other changes are more obscure, but very important to this study.

A Larger and More Diverse Population of Economic and Political Agents

The populations of both formal and informal organizations have increased significantly. The Human Economic Arena now includes many more national governments, more transnational government affiliated organizations, more formal and informal business enterprises, more domestic and international civil society, and more kinship organizations (including nuclear families, extended families, and clans). Much of this growth can be attributed to a very big increase in the size of the world population of people. But, a substantial part of the growth must be attributed to the spread of forms of social organization developed in high affluence western nations to the rest of the world.

The increase in the number of kinship organizations is directly due to population growth. Kinship based organizations are universal and have very long histories, so replication of kinship organizations is a straightforward process of replication based on long-standing rules and rituals. Such entities as elected governments and legal forms that facilitate the relatively unfettered formation of business enterprises of various kinds and the relatively unfettered formation of political entities and social organizations, however, are quite new in human history, so the rapid growth in the number of those kinds of entities was driven not only by population growth but by other factors as well.

The global population grew from about 2.5 billion in 1950 to about 7.3 billion in 2015.⁸⁹ An estimate of the change in the number of kinship organizations is not needed for this study, but the large increase in the population of individuals demonstrates that the increase is large.

The change in the number of governments and governmental entities is just as impressive. The incorporation of people, land, and resources into nation-state jurisdictions undertaken by the West was all but completed in the second half of the 20th century. The number of nations in the United Nations increased from 127 in 1970 to close to 200 today. The world still has a fair number of people living in territories governed by governments that are not fully autonomous, but they are fully integrated into the global nation-state system (e.g., Puerto Rico, a territory of the United States that exercises only powers bestowed by the U.S. Congress).

The number of government related transnational organizations is small but it is growing. Among those established since 1945 are the United Nations (1945), the International Monetary Fund and World Bank (1945), the Council of Europe (1949), the Organization for Economic Cooperation and Development (1961), Mercosur (Latin American common market agreement, 1991), European Union (1993), the World Trade Organization (1995; built upon the General Agreement on Tariffs and Trade established in 1947), Asian Infrastructure Investment Bank (2015).

The number of business enterprises has also grown tremendously, if for no other reason than the large increase in the human population. Of more importance for the configuration of agents in the Human Economic Arena, multinational corporations have grown considerably in both number and size. According to data attributed to United Nations World Investment Reports, the number of multinational corporations increased from about 7,000 at the end of the 1960's to almost 80,000 in 2007.⁹⁰ The number may have fallen since 2008 through takeovers and mergers, but it is still tens of times larger than in the 1960's. Numerous multinational corporations have grown enormously in size, through steady growth and through takeovers and mergers. For example, Apple corporation is so large that it has cash on hand that exceeds the Gross Domestic Products of two-thirds of the world's countries.⁹¹

Another class of agents in the Human Economic Arena is also growing rapidly – NGOs or non-governmental organizations. One estimate is that there are over 10 million domestic and international NGOs in the world.⁹² The growth of international NGO's is a large part of the growth in total NGOs.⁹³

There also appears to be an increase in political movements and political change organizations. Many of these are anti-establishment movements and organizations. In the U.S. such movements and political change organizations include the Tea Party, Black Lives Matter, the Occupy movement, and the political mobilizations for the anti-establishment presidential candidates Donald Trump and Bernie Sanders. International movements and organizations include the anti-globalization movement, Islamic State, and an assortment of right wing, nationalist political parties in Europe.

Increasingly Dense Relationship Networks

The expanding infrastructures for communication and transportation, along with greater numbers of governments, organizations, and business enterprises, have facilitated a multiplication of actual and potential relationships in the Human Economic Arena. Large corporations now typically maintain relationships with multiple local and national governments and with many more intermediate and small business enterprises; most governments now maintain relationships not only with business enterprises headquartered in their jurisdictions but also with many enterprises headquartered in many other jurisdictions.

A much larger population of intermediate and small sized enterprises now operate transnationally, participating in more dense relationship networks. Many of these are supply chain relationships that link global corporations to informal sector enterprises. These supply chain relationships make it possible for high profile corporations to obtain low cost inputs from enterprises that skirt environmental and labor laws while maintaining a public image of responsible behavior.

The multiplication of relationships is reflected in the growth of international travel, international contacts via telephone and the Internet, by the global distributions of the production facilities of a growing number of business enterprises, and by the proliferation of transnational supply chain relationships. In period 2000 to 2015, global air travel increased from 1.67 billion to 3.44 billion passengers carried.⁹⁴ Between 2000 and 2015, global Internet usage increased from 400 million users to 3.2 billion users.⁹⁵ As an example of the global distribution of business operations, Ford Motor Company reports that it has assembly facilities in some eighteen countries (as of August 2016).⁹⁶ This kind of distribution is, of course, associated with the growth of transnational supply chains, which accelerated after 1970.⁹⁷

Changed Relationships among Economic and Political Agents

The growth in the population of organizations in the Human Economic Arena brought with it a dramatic shift in the relationships among those organizations. In general, kinship organizations have diminished importance as economic entities and much diminished powers relative to other categories of organizations. Their economic roles and powers have passed over to corporations and governments. Corporations, particularly transnational corporations have gained the most power. Governments have power relative to kinship organizations but have lost power to corporations.

These relationship changes were facilitated by advances in communication and transportation technologies. Those technologies extended the reach of person-to-person contact, reduced travel and communication times, expanded the volumes of goods and information that could be transported over long distances, and expanded the reach of mass communications. They facilitated the rapid expansion of the western nation-state system and the substitution of identification with nations and corporations for identification with kinship entities. They helped high affluence western governments promote political movements friendly to them in parts of the world not yet governed by the principles of representative government and freedom of association. Not infrequently, those technologies facilitated the use of force to bring peoples and territories into the western nation-state system fold.

Those technologies also helped business enterprises grow into enormous transnational organizations with a foot in many national and subnational jurisdictions without losing coherence of purpose. This dramatically enhanced the bargaining power of corporations by tying the economic fortunes and welfare of the constituents of every government to decisions of corporate owners and investors about where in the global multitude of jurisdictions to locate investments.

A Less Hierarchical Distribution of Power among Governments

Recent decades have brought about a proliferation of geopolitical actors in the world economy, including new nations, a rise in national autonomy for a number of nations (notably the nations that were formerly part of the Soviet Union), and new multinational governing organizations. In several federated nation-states subnational jurisdictional units (e.g., states and provinces) have gained more autonomy to act on economic matters. This growth has been accompanied by a shifting configuration of power relationships in which the most powerful nations (notably, the U.S. and Russia) have had to relinquish some capacity to set agendas for other nations.

For a few years after the collapse of the Soviet Union, it looked as though the U.S. would be in command of the entire Human Economic Arena. But, even the U.S. has had to adjust to the rising assertiveness of a recovered Russia and rapidly growing middle affluence nations (e.g., Brazil, India, and China). Those nations and many others have substantially changed their positions in the global nation-state system. Most importantly, China has expanded its claim to a greater role in world affairs by asserting military authority in the South China Sea and by organizing a rival to the International Monetary Fund.

At the highest level of global organization, the end of the Cold War opened up the world's geopolitical spaces, allowing less powerful nations to begin to assert their own agendas in ways not previously possible. The power of nations as actors in the Human Economic Arena began to give way to the growing power of global corporations, transnational institutions like the International Monetary Fund and World Trade Organization, and even to a growing tide of non-governmental organizations. Ideas about the proper order of human society have shifted.

The net effect has been a shifting geopolitical order in which old rules of engagement have lost their effectiveness, new rules of engagement have yet to be worked out, and global governing processes are in disarray. We have entered an era in which all governing agents must jockey for position in a world of weakened rules and more latitude in choosing actions to achieve desired ends. It is an era in which it is more difficult for the world's economic and political leaders to craft coherent policies for pursuing their own interests and for managing the Human Economic Arena as a whole.⁹⁸

A development that reflects and contributes to this shake-up in the global distribution of power among governments and to the incoherence of action that follows from that is increasing disregard for the Breton Woods agreement. That agreement, crafted after World War II, set rules for the world's monetary and financial system and established the International Monetary Fund and the International Bank for Reconstruction and Development. This system is being challenged by a new development bank established by Brazil, Russia, India, China, and South Africa and by a growing number of bilateral payment agreements that sidestep established payment arrangements.⁹⁹ In mid 2016, the Asian Infrastructure Investment Bank already had fifty-seven nation members, with many more expected to join.

Power Shift from Governments to Business Enterprises and Non-Profit Organizations

Significant aspects of governing powers have also been transferred from governments to other organizations, including both business enterprises and civil society organizations.¹⁰⁰ This has resulted in a substantial reduction in the power of governments to carry out policies that benefit their citizens and provide adequate revenues for their own operations. This is a particularly important development in a world that is increasing organized into nation-states controlled by elected governments. It diminishes the power of ordinary people to influence their own destinies individually and collectively.

The primary beneficiaries of this transfer of powers in the Human Economic Arena are the world's business enterprises. They have gained greater autonomy of action while also gaining greater power to influence how governments use their enormous capacities to do violence. Although civil society organizations have also become more influential in the global order, they lack the control over economic processes that business enterprises have, so they have much less leverage in domestic and international politics.

Some of this shift in power to business enterprises is due to the proliferation of nation-states and other jurisdictional entities in the Human Economic Arena in combination with major enhancements to global transportation and communication systems. The growing number of governmental actors in the world economy has increase the number and diversity of investment opportunities available to business owners and investors, while the increased economic clout of multinational corporations has increased their power to play off one jurisdictional government against another. In this intensified competitive environment, governments at all jurisdictional levels have become less willing to impose taxes, regulate business operations, or interfere with flows of capital and goods.¹⁰¹

Another factor that contributes to the power of business enterprises relative to governments is the dependence of most governments on the success of businesses both within their jurisdictions and beyond them. Most of the world's governments own or have large stakes in at least a few business enterprises. In the U.S., for example, many utility companies are owned by municipal governments. Almost all governments have investments in corporation stocks to cover employee retirement obligations. Many governments partially or completely own export oriented business enterprises such as oil companies.

These relationships between governments and business enterprises place government leaders in the tricky position of being dependent on the earnings of the businesses in their jurisdictions but not being in the position of preventing businesses from taking their earnings and jobs to some other jurisdiction. Government leaders are thus exposed to the slowdown in global economic

growth through the choices made by the business leaders in their jurisdictions. When business enterprises suffer failure, the values of government investments and tax revenues fall; when the most powerful business enterprises are not happy with government policies they can disrupt the flow of tax revenues on which governments depend.

At the same time, business enterprises continue to be dependent on governments for protection from aggressive competitors and from aggrieved workers and customers. Government leaders have powers related to the overall allocation of wealth that business leaders do not have or have only to a small degree. They can create favorable conditions for business enterprises by setting up legal frameworks that favor all or certain businesses, providing business friendly tax and fee systems, and offering subsidy programs that shift wealth into selected businesses. Most importantly, government leaders can back up decisions about the allocation of wealth with the use of force. They can coerce workers, consumers, and business investors to pay taxes and accept losses caused by government policies. They can use force to protect business property from angry workers, consumers, and competitors. Powerful national governments can even carry out these functions in other nations, when those nations lack economic and military power to resist such intrusions.

Numerous civil society organizations have also gained more power relative to governments and taken on new roles. Constraints on government revenues have compelled many people to create organizations to step in where government actions fall short of expectations. Many civil society organizations have taken on government-like functions such as monitoring compliance with environmental and human rights laws and mobilizing sanctions against businesses and governments that violate those laws. However, civil society organizations face enormous barriers to replacing activities that governments have reduced or abandoned.

Civil society organizations are funded by voluntary contributions and contracts from governments, businesses, foundations, and individuals, so their actions are always subject to review and rejection by funders. Most of the funding comes from governments that have lost power to business enterprises and from foundations that depend on investments in businesses for their resources, so this shift of power from governments to civil society organizations is also an increase in power for business enterprises.

Increased Centralization of Global Economic Control

Centralization of global economic control has increased through three factors: the increased concentration of the ownership of productive wealth by a small portion of the world's population; the expansion of networks of interlocking ownership of the world's corporations; and the increasing use of supply chain relationships by global corporations to impose control over separately owned production enterprises.¹⁰²

Global investors are rapidly implementing growing efficiencies in the use of markets to aggregate and centralize ownership of global wealth.¹⁰³ This result is well documented. Numerous studies have documented the extent to which wealth and income inequalities have increased within nations (including the U.S. and other high affluence nations) and in the Human Economic Arena as a whole in recent decades. One estimate is that that one percent of the world's people owns as much wealth as the other 99 percent of the world's people combined.¹⁰⁴ Another estimate reportedly from Crédit Suisse is that 0.7 percent of the world's population owns 41 percent of the total global wealth.¹⁰⁵

Closely associated with the concentration of ownerships is the growth of networks of interlocking ownership. Through the purchase of stocks on the many stock markets around the world, a single investor or financial institution with a large fund of capital to work with can take ownership of shares of stock in multiple corporations operating in different industries and in different parts of the world. Thus, a single very wealthy investor or financial institution can have great influence in a large part of the Human Economic Arena. Through extensive cooperation, a relatively few very wealthy investors and financial institutions can theoretically control all key parts of the Human Economic Arena and thereby have great influence over everything else.

Supply chains create hierarchical systems of control that cross jurisdictional boundaries, providing transnational avenues of influence and leverage. They provide the mechanisms through which the managers of global corporations can powerfully influence the destinies of production enterprise in which they have no ownership stake. Corporate managers have the mandate from investors to maximize profits and stock values, so managing supply chain relationships is a key responsibility.

Development of the Crisis

Essentially, encounters with limits and boundaries inherent in the Inclusive World Economy are forcing humans to make wealth allocation changes. Due to the ideological imperatives of modern life, most of the world's economists and leaders do not acknowledge the enormity of the stresses at work in our lives. Due to the geopolitically fragmented and competitive system of governance operating in the Human Economic Arena, these changes are being made with almost no high level deliberation and coordination. Responses are localized, competitive, vastly inconsistent, guided by assurances that the Human Economic Arena will soon be its old self again, and formulated by experts and power leaders at global, national, and local levels of governance who protect and even enhance their own living standards.

Collectively and cumulatively, these responses have transformed the slowdown in economic growth into a global wealth allocation crisis. This crisis has presented itself as a misallocation of wealth that is damaging the Human Economic Arena in multiple ways. The global middle class standard of living is being eroded through reductions in compensation, erosion of workplace rights, and neglect of roads, water systems, and other infrastructures. Hardships are increasing for the most vulnerable and least powerful people, while those at the top gain wealth at unprecedented rates. All of this adds up to a massive and multidimensional crisis in the Human Economic Arena.

These damaging outcomes can be characterized as the result of a combination of private and public failures in responding to the global economic growth slowdown. The world's business and government leaders are making decisions that turn a challenge for the world's people into an escalating disaster. Needless to say, the world's people are not happy with this situation. Popular discontent is showing up in heightened tensions between humans and other species; in tensions among communities of people organized along lines of race, ethnicity, gender, national identity, and jurisdictional place of residence. It is showing up in tensions between citizens and their governments.

This global wealth allocation crisis was instigated by humans but it has not been entirely of our making. Human responses to the economic growth slowdown have introduced system turbulence at a rapid rate and often on scales that impose rapid and far-reaching stresses on the

entire spectrum of process agents. But, all process agents in the Inclusive World Economy have played larger and smaller parts in making this crisis what it is.

All have been responding to the actions of all others, modifying stressors into their own actions and transmitting their own stressors through the entire system.

Stressors and Responses in the Human Economic Arena

The human contribution to the global wealth allocation crisis is an institutional phenomenon. Participants in institutions experience particular conditions as opportunities or stressors. Institutional leaders are charged with responding to these opportunities and stressors on behalf of their institutions. Their response actions then generate opportunities and stressors for other agents in the Inclusive World Economy. In a time of slowing global economic growth, conditions are imposing more stressors on the world's institutions than opportunities, so institutional responses are amplifying and transmitting waves of stressors through the system.

The Human Economic Arena is a particular kind of institutional arrangement. Humans and our organizations are embedded in webs of relationships in which some relationships are cooperative and others are competitive. In this kind of systemic environment, responses to incoming stresses are likely to serve narrowly understood survival goals rather than contribute to system level survival goals. In times of increasing stress, competitive relationships are very likely produce more destructive than constructive outcomes.

Institutional responses to new circumstances are slow and imperfect, at best. It takes time for emerging signals to be noticed and studied. It takes more time for the leaders of each institutional entity to figure out how the emerging signals apply to them in particular and to figure out whether they can formulate and implement adaptive changes alone or must work in concert with other institutional leaders. If they decide to work in concert (not a certainty) more time will be required for the leaders of affected institutions to work out arrangements for cooperating.

The slowing of economic growth in the Human Economic Arena plays out across a large, diverse, and global population of institutions, including global and local businesses, national and local governments, transnational organizations, and non governmental organizations/non-profit organizations (NGOs). All of them have been and will continue to encounter the lack of sufficient net wealth growth to go around. All institutions cannot simultaneously continue to implement their plans for growth.

Institutional encounters with constrained economic growth begin in economic enterprises. Those enterprises encounter challenges on the supply side and/or the demand side that are fundamentally rooted in the development of system level limits. In the pursuit of profits and survival, business leaders take steps to shift the costs of the crisis to competitors, suppliers, employees, governments, civil society organizations, and to the Natural Economic Arena.

This process sorts industries, businesses, political jurisdictions, ethnic groups, racial groups, gender groups, classes and communities of non-human life into winners and losers. The effects of the encounters spread. Investment opportunities disappear, businesses fail or are absorbed by other businesses, incomes stop growing, jobs and homes are lost, savings evaporate, public institutions become starved of funds. Responses from agents in the Natural Economic Arena become more extreme and more costly to manage. Things go from bad to worse. Core

relationships become unreliable and fail. Tensions rise and communities fragment. Ecosystems are starved of essential habitat and inputs (e.g., non-toxic water, adequate food sources, safe places to build nests and raise young). The word “crisis” comes to fit more and more situations and institutions and families more and more of the time.

Such encounters with economic troubles are not new to the communities that make up the Inclusive World Economy, but unlike past encounters, these bring challenges to human wealth production that cannot be readily overcome by applying the usual policy tools. And without a restoration of economic enterprises, the many social and political institutions that depend on the prosperity of those enterprises cannot be restored to good working order.

The trend is cumulative. As the world’s rate of economic growth declines, more and more of the world’s enterprises and communities struggle with economic troubles. As more and more economic enterprises experience economic troubles, their activities contribute less and less to global economic growth. The absolute volume of human economic activity (in and outside markets) continues to increase (if only because the global population keeps growing), but economic activity becomes less focused on producing new wealth and more on protecting and repairing existing wealth and on basic survival. More and more of the world’s communities of non-human life experience stressed habitats. Large numbers of human and non-human communities become less viable; some become unviable and die off. This is a “tragedy of the commons” played out at the largest scale possible.

The various categories of institutional actors in the world economy encounter the constrained rate of net economic growth in different ways, and they respond in different ways. Each institutional form has its own kind of exposure to this constraint and experiences it as particular forms of economic pressure. Each also has its own set of response options. However, the bulk of global wealth production takes place in business enterprises (both privately and publicly owned), the first order encounters and first order responses start in that sector of the world economy. Governments and other institutions mostly encounter and respond to economic pressures transmitted to them by the world’s business enterprises.

Business Sector Stressors and Responses

Business enterprises are directly exposed to constraints on the growth of markets, both on the supply side and on the demand side. They operate in an environment of competition for customers on the supply side and for the lowest cost materials, workers, and energy on the supply side. Changes on either or both sides of the business equation can boost or destroy profits.

Business owners and business advisors are often heard to say that a business must grow or die. This is not an idle statement, but recognition of the dynamics of a competitive business environment. A business owner may prefer to keep the same customer base and the same suppliers and the same workers and the same level of earnings, but routine business cycles do not allow this. Competing businesses do not cooperatively share market gains and market losses, so when market growth stalls and shrinks, businesses that routinely pursue more customers, better workers, and lower cost materials and energy are best positioned to shift the bulk of the losses to less growth oriented businesses. So, the norm in the business world is for business leaders to actively protect what they have and go after what their competitors have.

Business leaders are responding simultaneously to the inexorable slowdown in market growth and to the expanded field of competition. These two phenomena impose a particular combination of stressors on business enterprises and put constraints on the way business enterprises can respond. The stressors can be summarized as follows: rising costs for many production inputs, (although this can be offset to some extent by falling labor costs and (hidden and unhidden) government subsidies; increasing competition for workers with the relatively rare skills associate with cutting edge of production technologies; falling levels of market demand due to the degradation of the purchasing power of the world's middle classes in combination with a slowdown in the growth of the size of the global middle classes; and the exhaustion of governmental capacities to subsidize businesses with tax breaks and profitable contracts for building infrastructure and providing public services.

Business enterprises have responded to these stressors by institutionalizing new business practices and developing new models for doing business. This response is different from the kind of responses that are typical for a routine business downturn. Cyclical downturns are temporary, so business leaders find many ways to temporarily reduce costs – reducing overtime hours, putting workers on temporary layoff, postponing maintenance and new construction, and cutting back on optional spending on things like free coffee and early out on Friday. When the business cycle swings up again, they begin to undo those temporary adjustments. The constraints on economic growth, however, are structural, so business leaders are making permanent changes, even when they don't intend to.

Shedding and Restructuring Jobs

The logics of hiring and firing have changed. Facing higher production costs and more competition for customers, global corporations are focusing their investments in ways that reduce high compensation jobs and in building facilities that house more labor intensive operations in countries in which labor laws are weak and wages are low. They are shifting more and more work into the informal sectors of the world economy, seeking to maintain a façade of fairness and respectability while taking advantage of the lower costs available in locations in which there is extensive competition among employers and where labor laws and contract laws are weak and often not enforced. They are replacing workers with machines, not only on the production floor but in the offices where the evaluation and decision-making work is done.¹⁰⁶

Compensation Reductions

An indicator of compensation reductions in the Human Economic Arena is the wage share of income. The wage share of global income has fallen precipitously in the last three decades. In 1985 the global wage share was above 58 percent; it fell to between 56 and 57 percent in 2000, and then to just above 54 percent in 2007. By 2014 the global wage share had only recovered to just above 55 percent.¹⁰⁷

Most of this downward trend has taken place in high affluence nations in association with de-industrialization and outsourcing. Wage gains in middle and low affluence nations that have been “emerging” into the industrial world have been insufficient to offset more than a small part of the losses in the high affluent nations. In the U.S., labor share of income stayed close to 62 percent for decades, until 2001. Between 2001 and 2014 the labor share of income in the U.S. declined to about 56 percent.¹⁰⁸

Lobbying for Changes in Laws Governing Business Practices

Business lobbying has taken on new objectives and new strategies in recent decades. Corporations have traditionally opposed higher taxes and new regulations, but not with the level of vehemence and level of funding now in play. In Brussels lobbying is a billion euro business, employs some 30,000 lobbyists, and influences as much as 75 percent of European Union legislation.¹⁰⁹ In the U.S. corporations spend \$2.6 billion on lobbying, more than the funding for the U.S. House and U.S. Senate combined.¹¹⁰

In high affluence nations, the world's business enterprises and affiliated organizations are becoming more assertive in resisting the expansion of the representational and income rights that are part of the formal work model for organizing work. In many cases where rights associated with high compensation formal work have long been established, they are pushing governments to reduce those rights.

Around the world corporations have constructed competitions among governments for the investment funds they control in order to bid up tax breaks and subsidies and to get regulations relaxed. Business entrepreneurs attract investors by creating business models that slip through the regulatory cracks (e.g., Uber's creation of a taxi service not regulated by the taxi laws). Corporations lobby for trade agreements which, like the Trans Pacific Partnership, limit the rights of governments to implement laws that benefit their own people.¹¹¹

Restructuring Relationships with Consumers

Business leaders have instituted a number of changes in the relationships between businesses and consumers. Some changes are intended to increase the total number of consumers; others limit the rights of consumers to pursue grievances; and others are designed to increase per consumer purchases.

Locking in a Relationship with the Consumer

In the U.S. retail businesses are pursuing two key strategies to increase sales. One is to entice consumers into purchasing ongoing services; the other is to offer member discounts. The shift to selling services with a product included as part of a package creates consumer dependence on a particular business and a steady stream of revenues. In many cases a product is sold at a discount or even given away if the purchaser agrees to purchase supplies for the product from the same company. A good example of this is the way cell phones are given away when a consumer agrees to a contract for cell phone services. Licensing software instead of selling it is another example of this shift from selling a product to selling a service.

Perhaps the most important development is the growing practice of retailers to offer come-back coupons, member only discounts, and in-house credit cards. These practices tie consumers to particular retailers and, in the case of in-house credit cards, offer retailers the potential for interest earnings as well as profits on sales.

Limiting Consumer Rights

Businesses have also introduced changes in relationships with consumers to limit their rights when they have grievances. The most promising (assuming the law continues to allow them) are provisions in purchase agreements that force consumers to pursue grievances through binding arbitration and prevent them from joining class action lawsuits. This provision is particularly useful to businesses because it frees them up to take advantage of consumers in small ways that

most consumers will find not worth the effort to push into arbitration. Without the class action option, consumers can only complain to some government agency that is overworked and hope for some justice.

A less draconian, but effective, method used to limit consumer rights is to create barriers to access to persons in a company with the authority to make the relevant decision. This method can be as simple as placing one or more layers of automated telephone/email responses and customer service representatives between the consumer and the person who has authority to make decisions. By creating irrelevant automated questions and responses and training customer service representatives to work through an intentionally long list of questions and irrelevant resolution offers, all but the most persistent consumers with major grievances give up. Truly unscrupulous companies will eventually promise a persistent consumer an acceptable resolution to get them to give up, then not follow through on the promise.

Taken together, these changes constitute a shifting of costs to consumers in the forms of poor services and more time required to successfully complete a purchase. This strategy pays off because consumers are forced to be shortsighted in managing their money and have little political clout with which to confront these practices.

Pressuring Suppliers to Cut Costs

The growth of competition among businesses has made it possible for very large corporations to increase cost-cutting pressures on their suppliers. In the U.S., Walmart became well known for using this strategy to keep its prices low and profits high. The basic message to a supplier is cut your prices for the products we buy by a defined amount or we will go elsewhere. The result is that cost-cutting pressures moved down through the supply chain and drive workplace and product quality decisions that are harmful to workers, harmful to the environment, harmful to consumers, and sometimes illegal.

Tax and Regulation Evasion

Business tax rates, subsidies, and regulations vary considerably across the world's jurisdictions. Counting subnational jurisdictions (e.g., states, provinces, cities, counties, etc.) business leaders and investors typically have large numbers of choices for locating production and distribution facilities, even after taking into account access to suppliers and customer populations. Internet based retailers have this same advantage and Internet sales are growing. Obviously, business leaders and investors would choose jurisdictions that offer tax, subsidy, and regulation benefits that offset any losses from other locational factors.

Jurisdiction shopping is not limited to finding optimal locations for operational facilities. Business owners and managers also shop jurisdictions in search of places for corporation headquarters where profits can be declared at the lowest tax rate and with the least likelihood of close scrutiny. In recent years U.S. pharmaceutical companies have moved headquarters to Ireland for this reason.¹¹²

Government Sector Stressors and Responses

Governments mostly do not engage in market transactions to generate revenues. The success of a government or government agency is not measured by how much wealth it obtains and accumulates for private use, but by how well it accomplishes community-wide objectives assigned to it by its constituents (voters, taxpayers, business owners, and others affected by

government actions). Consequently, the slowdown in global economic growth produces stressors on government leaders that are different in form from those experienced by business leaders.

The stressors experienced by government leaders are political pressures as well as revenue losses. These pressures come from constituents who are directly experiencing economic gains and losses, who are encountering economic opportunities and barriers. Government leaders are pressured to not increase the wealth of government, but to use the powers of government to create particular economic advantages for particular constituents.

The economic threats to various constituencies of each government differ, so the government interventions and supports they want differ. In the context of slowing global economic growth, the demands being placed on governments cannot all be met simultaneously. Governments must allocate scarcity rather than distribute expanding wealth, so they must choose to disfavor some constituents harshly. In general, government leaders have done this by acquiescing to the demands of the most powerful constituents for favorable policies, business owners, investors, and the leaders of business associations.

In relation to other constituent groups, the business community has much greater power to limit the options available to government leaders for managing the collection of taxes and fees and allocating revenues. Consequently, most government leaders have accepted reductions in revenues and allocated revenue losses to their least powerful constituents, sometimes reluctantly, sometimes as partners to the business community. To make these adaptations to the global wealth allocation crisis, they have used much the same strategies as business leaders, including workforce reductions, outsourcing to low cost suppliers, shifts to online support, and reductions in service quality.

These actions reflect not only the choices of individual governments, but also the recommendations of the International Monetary Fund. A study of IMF consultations with European Union governments found a pattern of recommendations that called for “(1) a macroeconomic policy that focuses on reducing spending and shrinking the size of government, in many cases regardless of whether this is appropriate or necessary, or may even exacerbate an economic downturn; and (2) a focus on other policy issues that would tend to reduce social protections for broad sectors of the population (including public pensions, health care, and employment protections), reduce labor’s share of national income, and possibly increase poverty, social exclusion, and economic and social inequality as a result.”¹¹³ A European Commission study of government wages and labor markets observed that public sector wages are facing unprecedented restraints on growth and a loss of established bargaining practices in setting government wages.¹¹⁴

Government responses have changed wealth allocation across all nations, with consequences for 80 percent of the global population. The most affected have been people in high affluence nations.¹¹⁵ Among middle and low affluence nations, some governments have all but collapsed or have become incapable of containing unrest. Not surprisingly, constituent discontent is on the rise, adding another costly stressor to those plaguing the world’s governments, potential and actual confrontational and disruptive actions by distressed constituents.

Reallocating Tax Burdens to Favor Business Leaders

Many governments have shifted tax burdens away from businesses and high income classes to the middle and low income working families. In the U.S. many state governments have reduced taxes on businesses either directly through rate changes or indirectly by making more tax breaks and subsidies available. At the same time they have increased user fees that fall most heavily on working families. They have reduced tax deductions that primarily benefit middle income families. In Michigan, to give a specific example, the state reduced payments to local governments and school districts, forcing residents to either pay higher local taxes or suffer reduced services or less well funded schools.

In Europe, the average corporate tax rate in the EU declined from 35% to 23% between 1995 and 2009.¹¹⁶ Between 2006 and 2013, direct taxes on personal income grew from 9.0 percent of Gross Domestic Product for the European Union to 9.4 percent, while direct taxes on corporate income declined from 3.2 percent of EU GDP to 2.5 percent. The top statutory corporate income tax rate (including surcharges), averaged 35.0 percent for 28 European Union members in 1996, but only 22.8 percent in 2015.¹¹⁷

Enacting Laws to Enhance Corporate Power

Political leaders have been responding to changes in the world of work in a variety of ways, but a theme in those responses that is almost universal is defending the expanding power of corporations and other private sector entities to influence governmental policy making. In the United States, this theme can be found in many of the laws that have been passed by the federal and state governments in the last decade. The theme has been most glaringly expressed in the 2010 U.S. Supreme Court decision in *Citizens United v. FEC*, in which the constitution of the United States was used to extend the free speech rights of citizens to corporations. Similar shifting government roles have taken place in Spain, Greece, Ireland, and many other nations.

The declining value of the federal minimum wage in the U.S. also reflects a shift in laws to favor businesses. To the benefit of both businesses and governments, full time earnings at the federal minimum wage in the U.S. declined from more than the poverty line for a family of three in 1968 to less than that line for every year since then. In 2014, full time minimum wage earnings were below the poverty line for a family of two.¹¹⁸

Reducing Funding for Workplace Rights

In all parts of the world, governments are becoming less politically willing (and less financially able) to create, defend, and enforce workplace rights. Even in many of the nations that created or adopted the highest standards for formal work, some of those standards are being discarded. In the U.S. state governments have tightened eligibility requirements for unemployment insurance so much that only about 23 percent of unemployed workers actually receive UI payments.¹¹⁹ The U.S. federal government's program to assist workers dislocated by global competition received much less funding in the years 2011 – 2013 than in 2010 and has been of dubious benefit to the workers it is supposed to help.¹²⁰ Prosecuting employment discrimination cases has become more difficult under recent U.S. Supreme Court rulings.¹²¹

Enacting Policies to Support Expanded Use of Private Debt

Private debt creation was accelerated by changes in the regulation of financial and related institutions, changes that banks, credit unions, insurance companies and other economic institutions lobbied for and won. Owners of private sector enterprises and their investors put a

lot of pressure on governments to ease the regulation of consumer lending, deregulate the banking industry, and facilitate the creation of complicated debt instruments that obscure the extent to which promises of payment became redefined as secure collateral for other promises of payment.

The world's financial industries rapidly developed and implemented technologies and marketing strategies to facilitate the expansion of consumer and mortgage debt, while simultaneously creating financial instruments and risk sharing mechanisms that obscured the extent of "bad" debt being held by the investment community. In an atmosphere of greater freedom to take risks and relaxed enforcement of the rules that do exist, corporations of every kind, not just financial institutions got into the lending business. Department stores became credit card merchandizers, automobile manufacturers became auto loan suppliers, credit unions became banks and banks became pushers of dubious mortgages. The financial crisis of 2008 vividly exposed the weaknesses in this approach to sustaining market growth, yet governments have done very little to restrain the world's financial leaders from continuing to create unsustainable levels of debt.¹²²

Shifting Tax Burdens to Future Generations Through Public Borrowing

Government debt has been a straightforward means for maintaining or increasing the government contribution to market growth without increasing current tax burdens. This became increasingly important as the business community and middle income earners facing income stagnation increased political pressures on governments for lower tax burdens. Government borrowing increased enormously during the last half century and continues to increase even with some governments on the verge of defaulting on debt payments.

Ultimately, the books must balance. Either future taxpayers will make payments out of incomes no higher or possibly lower than the incomes of today's taxpayers, or lenders will forfeit much of the wealth they put at risk. Either way, current market demand made higher through government borrowing must reduce potential future market demand.

Reducing Assistance to the Poor and Public Services Funding

Government leaders may or may not prefer to shift revenue losses to the poorest in their jurisdictions, but it is almost always the easiest thing to do, and sometimes the only option consistent with political survival. With few exceptions, the poor are unable to mobilize the resources to fight calls for cuts to food and housing subsidies, basic job training programs, and other programs that assist the poor.

They are also usually unable to effectively fight the allocation of public service cuts to their neighborhoods. Middle and upper income voters will often trade some portion of public services for lower taxes because they can make up for the lost services through private purchases. When private alternatives are not available, middle and upper income voters insist that service cuts be directed to poorer communities.

Stressors and Responses in the Natural Economic Arena

With everything in the Inclusive World Economy connected, slowing economic growth in the Human Economic Arena is generating stress in the Natural Economic Arena. The stresses in the Natural Economic Arena originate primarily in the short-sighted response actions taken by business and government leaders. In general, business practices and governmental policies that

protect and restore aspects of the Natural Economic Arena increase operating costs for businesses and taxes for taxpayers. With economic growth slowing, incentives for using nature-damaging practices and for weakening enforcement of environmental laws are growing. Violations of environmental laws are increasing.

Job losses and the rising rates of poverty in the high affluence nations exacerbate this situation. Economically desperate people are not likely to understand the consequence of their actions for the Natural Economic Arena and will find it economically difficult to act differently when they do understand the consequences. Perhaps more importantly, as large corporations transfer costs downstream in their supply chains, they increase incentives for marginally viable businesses to engage in nature damaging activities, including illegal activities, because they are less costly.

The Expanding Dimensions of the Global Wealth Allocation Crisis

As a totality, nothing changes in the Inclusive World Economy that does not change everything else. The changes in agent populations and agent relationships have changed both the landscape of economic processes in the Human Economic Arena and the landscape of political processes. These changes constitute a change in developmental direction not only for the Human Economic Arena but for the Inclusive World Economy as a whole.

From the perspective of each agent in the Human Economic Arena, its responses to the slowdown in economic growth are necessary and rational. They are necessary and rational for governments because their mandate in recent times has been to cut taxes on businesses and the middle class; they are necessary and rational for business enterprises because their mandate is to maximize returns for their investors; they are necessary and rational for civil society organizations because they cannot fulfil their missions if they do not survive.

The responses are also seen to be constructive. Economic theory tells leaders, workers and consumers in every part of the Human Economic Arena that the general good aggregates from the separate and self-interested actions of individual agents. In the market places of the world, the self-interested actions of the many are transformed into the common good for the many. Concern with larger community, whether defined as local, national or global, is unnecessary. In extreme versions of the theory, acting on behalf of the common good rather than self-interest will introduce distortions into the market and actually do more harm than good.

For systems, this kind of theory makes little sense. Agents do not act separately; they primarily act in relation to other agents. Nor do the actions of agents aggregate as a simple amassed sum. Actions are taken as part of an interactive and iterative process embedded in relationships among actors. The result is not an aggregation but a summary process that produces the common purpose (common good) of the system. Thus, in the Inclusive World Economy, if a large number of agents or a few very powerful agents act in self-interested ways that are inconsistent with community level needs and objectives, a system wide crisis is likely to be generated. In the Human Economic Arena, such crises are expressed in the politics of institutions, the politics of nations, and the politics of the global nation-state system.

Of particular importance for the futures of the world's people, crises tend to accelerate change. As agents change their actions and their relationships with other agents in response to an

emerging crisis, they also change the constituent processes in the system. These changes then change the system as a whole, including the process of system change itself.

This is happening in the Human Economic Arena. The global wealth allocation crisis has generated enormous amounts of change in the world's domestic and global political processes. A far-reaching political crisis has developed as people have responded to their changing circumstances in predictable and unpredictable ways. Domestic and transnational political relationships have become fluid and every political institution has become vulnerable to challenge. As we work through this political crisis, everything about our lives will be transformed, including our work lives.

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Chapter 5: Escalation into a Global Political Crisis

A political system is a multidimensional space. It is a space fragmented into constituent groupings by class, race, gender, economic sector and other differences. It is a dynamic space in which the powers among various constituent groupings change, in which tensions rise and fall, in which constituent leaders will at times speak with one voice and at other times openly fight one another. In the best of times, it is a space held together by the power of a shared ideology and a working agreement among the leaders of the various constituent groupings.

When the leaders of constituent groupings in a society maintain an overarching coherence of purpose and also have the resources to meet the expectations of the more powerful constituents, avenues of expression and action are well controlled. Challenges to the fundamental ordering of society are kept out of the political discourse by keeping the costs of such actions too high for people with deep grievances. Less powerful constituents with grievances may wish to challenge prevailing institutional arrangements, but they are denied access to the usual avenues of expression and run up against the lawmaking and policing powers of the state when they attempt to circumvent the institutional arrangements for political discourse.

In such times, politics is about making policy choices within the context of a well defined and stable political space. Contentious disagreements over tax rates, entitlements, spending priorities, etc. are quite acceptable, but the ways in which power is distributed among various stakeholders in a nation and the basic procedures through which policy decisions are made remain off the table.

This is true for both democratic and non-democratic nations. Only the methods by which the questioning of fundamental arrangements is kept at bay differ. In non-democratic nations, of course, threats to wellbeing, including fines, confiscation of property, imprisonment and physical violence keep members of the nation in line.

In democracies, social pressures backed by limited institutional threats work just as effectively to prevent dissent from going too far. Cultural norms that stigmatize questioning of fundamental power and decision making arrangements are strongly promoted by those in power through substantial control over the media. People who are discontented with the fundamental allocation of power and the prevailing arrangements for making public policy are shunted aside with charges of being misguided, unpatriotic, or even sinister.

Through control of economic and political institutions those in power can also apply coercion in the form of loss of promotions, loss of employment, loss of funding for projects and political campaigns. Only rarely does a democratic government use its power over life and death to suppress dissent or enforce the will of governing officials.

From time to time in the history of a society the mechanisms for keeping challenges to fundamental principles at bay break down. The costs of challenging the prevailing institutional arrangements begin to fall when tensions among leaders of key constituent groupings, which are normally kept private, become visible to the general public. This typically happens when the

prevailing institutional order can no longer meet the expectations of all the key constituent groups. In the struggle among powerful constituents over limited resources, key constituent leaders make public statements of dissent and defect from key institutions. These actions undermine the institutional and ideological controls on political discourse. A shift in the balance of likely costs and likely gains from political action takes place, opening up the political space to less powerful constituent groupings. A challenge to the prevailing order of society can emerge and grow.

Things become very dynamic and the outcome is uncertain. The political upheaval may result in a reunification of the more powerful constituents and a very powerful backlash against the constituent groupings mounting a challenge. Or coherence of purpose among more powerful constituents could continue to unravel. When the latter happens, a full blown political crisis overwhelms society.

This kind of political crisis has transformational consequences in the Inclusive World Economy.

The Roots of Political Crisis

The roots of the political crisis are found in the responses of both private sector and public sector leaders to the global slowdown in economic growth. These responses must be characterized as failed responses because they have produced a multidimensional and global political crisis rather than a constructive process of necessary change. They have shifted the costs of the economic growth slowdown onto middle income and working people and onto public institutions that contribute to the quality of life. They have generated mounting tensions among people and between people and the Natural Economic Arena.

Virtually every part of life for the non-wealthy is deteriorating, from falling wages, benefits, and income to lost public services that enrich life and help people in need to diminished regulatory services that protect people from dishonest business practices and environmental threats to health. A broad array of burdens on working people and their families are spreading more widely and growing more intense. Income security is deteriorating for those who once had it, even for families that only a decade ago were considered solidly middle class; debt burdens are growing; the burdens of helping family members and friends who can't find work and earn enough money to be self-sufficient are growing; identities as hardworking, self-sufficient members of society are harder to achieve and harder to keep.

In the public arena, institution after institution has failed or is functioning very poorly. Institutions intended to distribute wealth equitably have failed. Institutions intended to produce enough goods and services to keep the middle class growing have failed. Institutions intended to maintain peace among nations have failed. Institutions in which our democratic practices are embedded are failing. The human, infrastructural, and institutional detritus of these failings is visible everywhere.

The bonds necessary to the functioning of a Human Economic Arena are now damaged. People have lost trust in the whole range of public institutions – government agencies, political parties, educational institutions, and much of the business world. They are responding to growing hardships and institutional failings in many ways, too often in ways that create and amplify tensions along lines of race and ethnicity, gender, nationality, and industry.

Rising Long-Term Unemployment and Underemployment

The unemployment rate in the European Union was still quite high seven years after the financial crisis of 2008 (over 9 percent). More importantly for many people in the affluent parts of the Human Economic Arena unemployment has become an almost permanent condition of life. They have been unemployed for years and chances are slim that they will go back to work any time soon. In the European Union the majority of the unemployed were unemployed for at least a year in 2015.¹²³ Even in the U.S. where the official unemployment rate had fallen to five percent by September 2016, the long-term unemployed (unemployed more than 27 weeks) were almost 24 percent of the 7.9 million unemployed workers.¹²⁴

In low affluence nations, and in many middle affluence nations, long term unemployment is an even greater problem. In Greece, Portugal, and Slovakia, less affluent members of the European Union, more than 80 percent of the unemployed were long-term.¹²⁵ For youth in sub-Saharan Africa long-term unemployment reached 48.1 per cent in 2014.¹²⁶

Underemployment was also a continuing problem in high affluence nations. At the beginning of October 2016, the underemployment rate (employed part time, but want to work full time plus the unemployed) was just under 13 percent in the U.S.¹²⁷ Another indicator of underemployment in the U.S. is that 51 percent of college graduates from the classes of 2014 and 2015 reported working in jobs that did not require their college degrees.¹²⁸ For Europe in 2015, underemployed part time workers equaled 87 percent of the potential additional labour force (part-time wanting more hours or seeking work but not immediately available or available for work but not seeking it).¹²⁹

Underemployment is likely to be a long-term problem for workers in nations with high rates of enrollment in higher education because too many of the jobs being created do not require higher education. In the United States, for example, three low-wage industries (food services, retail, and employment services) added 1.7 million jobs during a recent two year period of recovery from the Great Recession, fully 43 percent of net employment growth in that period. In those low wage industries, 76 percent of the new jobs were in low compensation occupations.¹³⁰

Diminished Economic Opportunities for the Young

Globally, upward mobility has become a possibility for fewer and fewer young people. Slow rates of economic growth and high unemployment rates among young people make it very difficult for them to move out of poverty, get more education, get better jobs, buy homes and cars, and save for the future. In the U.S. young people are less able to save and invest for retirement because their lifetime earnings, even for college graduates, will be lower.¹³¹ In low affluence nations, poverty reduction has slowed or stopped.

Opportunities to move up in the work world and gain better wages, benefits, and higher status came to be an expected part of living in high affluence nation or in affluent enclaves in middle and low affluence nations. In the decades following World War II, parents at all income levels in the U.S. and most European nations generally expected their children to do better than them economically. High rates of economic growth made it possible to spread rising incomes widely and young people found many opportunities to find and hold steady jobs, pursue careers, and become wealthier than their parents.

These expectations spread to other parts of the world in recent decades. Globalization spread job growth, western culture, and expectations for growing economic opportunities to more and more

of the world's peoples, particularly to young people in middle affluence nations with high rates of economic growth. The size of the global middle class was increasing, and millions of people were moving out of the direst levels of poverty.

Those circumstances no longer exist to the same extent, so expectations for upward mobility are no longer realistic for most of the world's people. The high rates of economic growth in the U.S. and Europe during the 1950s and 1960s were replaced by lower rates during the last decades of the 20th century. The more modest rates of economic growth began to cut into opportunities for upward economic mobility. One indicator of declining opportunities in the U.S., for example, is that intergenerational mobility was at its highest in the 1940 – 1960. Since then, intergenerational mobility slowed and stabilized.¹³² For Americans born into the second lowest income quintile in the 1980s, the probability of moving up into the top income quintile is lower than it was for those born into the second quintile at the beginning of the 1970s.¹³³

Since the financial crisis of 2008, rates of economic growth have fallen in almost all the world's nations. Job growth has slowed, youth unemployment is stuck at high levels, and earnings are stagnant in much of the world, cutting deeply into opportunities for individuals and families to improve their economic situations. Youth unemployment in Africa is very high.¹³⁴ Expectations have, of course, fallen, particularly in the nations that have been hardest hit by economic hard times.¹³⁵

Declining Household Incomes

Global real income is not growing at an adequate pace and that pace will decline over the coming years. Many households are experiencing losses of real income even though their nominal income is not falling and may even be rising. Many other households are not even able to maintain nominal income levels. More and more of the world's households will find themselves in these circumstances as the years pass.

In addition, individual and household income is increasingly being diverted away from discretionary uses by rising overall costs and rising repair and replacement costs. This change increases the economic vulnerability of large numbers of households with stable and growing incomes because discretionary income allows a household to handle such economic shocks as unexpected unemployment, medical emergencies, and uninsured property damage without cutting into core elements of their standard of living.

This decline is attributable to a number of assaults on wealth accumulation by the world's non-wealthy peoples: rising unemployment and underemployment; diminished economic opportunities; and rising cost of middle class lifestyles. The consequences for individuals and households is a one-two-three punch of declining wealth holdings, rising debt levels, and for individuals, loss of emotional wellbeing.

Diminishing Wealth Holdings

For many families, including a large number of middle class families, stagnant and diminished incomes have resulted in net losses of wealth. For those families, incomes are no longer sufficient to purchase basic necessities and also maintain all their items of wealth in good condition. The same holds true for business enterprises and government agencies.

This inability to maintain the value of wealth shows up in numerous ways. For one, in 2014, the average age for U.S. light vehicles was 11.4 years, a record.¹³⁶ More broadly, the average age of all U.S. fixed assets reached a record age of 22.8 years in 2015.¹³⁷

Equipment and infrastructure losses may appear to be indirect losses of wealth, but they almost always become direct losses to individuals, households, businesses and other enterprises. When roads and bridges are not maintained properly, vehicles sustain more damage to tires and suspension systems, and more accidents happen. Direct maintenance costs go up. Similarly, aging oil and gas pipelines are more likely to leak and rupture, causing loss of value to properties in the vicinity and increasing cleanup costs that will be passed on to consumers and taxpayers. When key government services, such as Veterans Administration medical services are not properly maintained, the result can be added cost to treat conditions not detected early, lost workdays or time with family, and even loss of life.

Increasing Debt Burdens

The efforts by working families to maintain standards of living have included taking on debt. In the U.S. and other high income nations, educational debt, credit card debt, and second mortgages and home equity loans have been a large part of this growing debt burden. As of the first quarter of 2016, U.S. household debt stood at \$12.25 trillion, although per person debt is declining.¹³⁸ By late 2016, the student debt burden had risen to around \$1.26 trillion, an increase of 350 percent since 2005. Sixteen percent of Americans with student debt are in long-term default.¹³⁹

In low affluence nations, both informal debt and formally sanctioned micro-loans have played a large role. The volume of micro-loans is estimated at \$60 to \$100 billion and 200 million clients.¹⁴⁰

Increasing Burden of Providing Safety-Net Services for Family Members

An increasing number of working families that have income and resources are being called upon to subsidize family members and close friends who have lost income sources and used up their savings. In the U.S. the number of young people in their late 20's who are living with parents or siblings has increased substantially in recent years. People who were once homeowners are now camping out with friends and relatives.

Damage to Social and Mental Wellbeing

Unemployment and economic hardship are associated with greater mental and physical health problems, higher mortality rates, detrimental changes in family relationship, damage to the psychological well-being of spouses and children.¹⁴¹ It is clear then that the economic hardships imposed on such large numbers of the world's working people in recent years has produced a significant decrease in social and mental wellbeing.

The damage to mental health shows up as destructive behavior changes and higher rates of morbidity and mortality. One recent study found that the death rate for U.S. white men and women ages 45 – 55 has increased in recent years. This increase is largely to drug and alcohol poisoning, suicide and liver disease. This is deemed a very alarming finding because it reverses another trend that was generally assumed to be irreversible. The study does not attempt to explain this shift, but one of the study principles suggested that limited access to unemployment and health care benefits may have contributed.¹⁴²

Other studies directly link damage to mental health to economic factors. One found that longer-term unemployment (greater than six months) is associated more strongly with negative emotions such as worry, sadness, and stress than short term unemployment.¹⁴³ Another found that increased competition for jobs from globalization has had negative mental health consequences: lower subjective well-being due to worsened labour market conditions, increased stress on the job, and gloomier expectations about the future.¹⁴⁴ Unemployment, particularly long-term unemployment, and poverty are also associated with social exclusion.¹⁴⁵

Shifting Political Attitudes

Not surprisingly, the changes in the way governments govern, the ways corporate leaders and investors relate to the world's people, and changes in opportunities for work and in conditions of work are giving rise to new political attitudes, new political interests, and new political movements. This is happening in a large number of nations, including some of the most affluent and democratically governed.

In general, people are losing confidence in their economic futures and the futures for their children. They feel a sense of betrayal, that the system has become unjust. They are losing confidence in their governments, in their economic institutions, and in global cooperation. They are increasingly asserting rights based on group identities (e.g., nation, ethnicity and race, religion, and class) and embracing confrontational politics.

These attitude changes have been developing for a long time; the political movements have burst onto the scene more recently because it usually takes a while for a change in attitudes to become a change in action. The movements are nascent and fragile, but they are unlikely to disappear. Some are already having profound effects on domestic politics in many parts of the world and on trade and political relationships among nations.

Loss of Confidence in Economic Prospects and Economic Fairness

Around the world people have become less optimistic about their economic prospects. The Pew Research Center found that public confidence has increased in only three of 12 European nations for which trend data are available.¹⁴⁶ More than 80 percent of people in Greece, Spain and France see their nation's economic situations as bad.¹⁴⁷

The increasing pessimism of people is coupled with a belief that there is something unfair in what is happening to them. More than half of people in a study of levels of optimism about the future say that success in life is determined by outside forces (51 percent in high affluence nations in the survey; 56 percent in middle and low affluence nations).¹⁴⁸ Sixty-four percent of Americans report that they do not believe the U.S. economy is equally fair to everyone, with an even greater proportion of those making less than \$50,000 per year saying this.¹⁴⁹

In the U.S., the movement of adjudication of consumer grievances out of the public court system into private arbitration proceedings has likely contributed to this sense of unfairness. Arbitration services are privately funded and largely unregulated by government agencies, so they are easily swayed to accept the arguments of corporations over those of consumers. It has become extremely difficult for consumers to obtain the dispute outcome they think is fair.

Declining Confidence in Governments and Political Leaders

Many of the world's peoples are withdrawing support from their governments in response to the large and growing burdens they are experiencing. It should therefore be seen as indicative of the extent to which alienation from governments in the world is increasing that many governments in high affluence nations are facing high levels of disapproval and opposition movements that are growing in size and number – both from the left and the right.

Government is increasingly seen as a primary cause of these burdens, or as an accomplice to the people and organizations that are the primary causes, or as incompetent and unresponsive. In high affluence nations this change is showing up in voting behavior and responses to surveys. In some middle and low affluence nations it is showing up as armed rebellion.

In the U.S., the approval rate for congress is at an all time low and the approval rate for the president has fallen. Fear of government corruption has been the number one fear for two years in a row.¹⁵⁰ In the 2016 presidential election both major U.S. parties were confronted with very forceful dissident movements. Dissidents in the Republican Party were strong enough to force the party establishment to accept an outsider as the party's candidate for president. The presidential candidates for both major political parties are held to be untrustworthy, even disdained.

In Europe favorable attitudes toward the European Union declined from 2004 to 2016 in the majority of key European countries.¹⁵¹ Trust in the European Commission and in the European Parliament declined from 2008 to 2014. Trust in national parliaments and governments also declined in roughly the same period.¹⁵²

Growing Distrust for Private Sector Institutions

Distrust is not limited to governments. A number of studies show that trust for or confidence in many private sector institutions, including corporations (especially banks), churches, schools and the media has been falling for decades. This is true across most high affluence nations.¹⁵³

Most people still hold favorable attitudes toward big business but the level of confidence has been falling. In June 2016, 38 percent of Americans surveyed reported very little or no confidence in big business compared to 24 percent in June 2000.¹⁵⁴ A 2015 survey found that in two-thirds of 27 nations surveyed, trust in business had dropped below 50 percent, the lowest since 2008.¹⁵⁵ Banks are particularly unpopular.

Most people endorse free trade and globalization in principle, but they also want the promised benefits and protection from its negative economic consequences. Support for free trade has declined in recent years, especially in high affluence nations, as large numbers of people have come to see it as a source of their economic losses. Skepticism about free trade has been especially high in France, Italy, Japan and the United States and support in the more economically successful middle affluence nations where it has been high has been waning a bit.¹⁵⁶ The New York Times reports that 61 percent of respondents in a U.S. poll want more restrictions on trade and that a majority of respondents to polls since 1988 have favored trade restrictions.¹⁵⁷ A global survey found that while people generally support globalization, they are concerned about its effects on inequality, their cultures, the environment, and immigration.¹⁵⁸ In Europe protests against free trade have emphasized threats to democracy, reduced food safety, and lower environmental and labor standards.¹⁵⁹

Rise of Confrontational Movements

Confrontational politics is on the rise. In many parts of the world, growing numbers of people have been provoking sharp disputes over government policies and engaging in actions that disrupt the smooth operation of government institutions. Subsets of mobilized people have turned to confrontational tactics, including acts of targeted and indiscriminate violence. Governments have responded with various efforts to contain, deflect, and/or repress dissent, but almost no government has succeeded in defusing the tensions that are giving rise to sharp disputes, disruptive confrontations, and violence.

The Tea Party movement in the U.S. has succeeded in becoming an obstacle to government policy making by preventing the Republican Party from cooperating with the Democratic Party in state legislatures and the U.S. Congress. Across Europe, populist parties are on the rise.¹⁶⁰ Austerity measures proposed and put into place after 2008 met with oppositional uprisings and large scale disturbances; massive cost overruns and widely expressed charges of rampant corruption plagued Russia's preparations for the 2014 Winter Olympics. Turmoil and confrontations have marked politics in Ukraine.

In South America a wave of left leaning governments came into power during the first decade of the 21st century. Now they are being successfully challenged by centrist and right leaning political movements and parties.¹⁶¹ Brazil's government faced mass opposition to its building program for the 2014 FIFA World Cup. Turmoil and confrontations have marked politics in Venezuela. A coup attempt against the leftist government of Venezuela failed in 2002, but opponents of the government are again threatening a coup attempt. The leftist president of Brazil was impeached and ousted in 2016. Argentina's voters have replaced a populist president with a president elected on a rightist platform.

In the international arena, tensions between China and Japan, China and India, and China and the U.S. have been building in importance as China becomes ever stronger economically and militarily. In the Americas, a number of nations have begun to challenge U.S. domination in more and more visible and significant ways. In the Arab world fundamentalist movements have roiled domestic politics in nation after nation, threatening the global interests and international positions of numerous powerful nations, especially the U.S. The Palestinian leadership has embarked on a path to nationhood that runs counter to Israeli and U.S. preferences. South Africa has given notice that it is leaving the International Criminal Court.

Transnational institutions are becoming less and less able to manage international tensions. The roles of the International Monetary Fund in managing global finances and the World Bank in managing economic development are increasingly challenged. Efforts by the World Trade Organization to craft a global trade environment and efforts by various international bodies to address climate change have largely failed in recent years. Efforts to improve relations between Russia and western nations have suffered a major setback with the rise of confrontations in Syria and Ukraine.

The evolving integration of European nations into the European Union has faltered, with Britain voting to exit the European Union. Other EU countries may follow, fracturing a system of economic cooperation and bringing in a new era of competition in Europe. Leaders in Scotland say they will reconsider their membership in the United Kingdom because they want to be in the EU.

U.S. leadership of the global nation-state system is being challenged. China is challenging U.S. leadership in Asian waters and in global finance (with the new China led investment bank). Many of the leftist governments that came to power in South America in the first decade of this century brought strong anti-American sentiments with them. The U.S. found it extremely difficult to get European nations and the United Nations to back its 2003 invasion of Iraq.

The Fight over Political Space

As people are become increasingly frustrated with the inability of their governments to enact effective policies or with the patterns of policies that are being enacted, they are moving into new dimensions of political action. They are transitioning from battles over policies to battles over control of the political institutions in which policies are made. The result is a new and fluid mix of far reaching demands on the world's leaders.

Willingness to raise fundamental questions is increasing. Militancy is rising in both domestic politics and international politics. Individuals and organizational leaders increasingly see legitimate purposes for greater force, including acts of violence, in political conflicts. Contentious arguments over policy options are giving way to contention over the fundamental arrangements by which policy decisions are being made.

More and more, conflicts over such fundamental issues as who is allowed to participate in the policy making process (laws and regulations affecting voting and the formation of political parties) and the extent to which policy discussions and decisions are assigned to courts, panels, commissions, and other bodies that are shielded from electoral politics (but not from the behind the scenes influence of economically and politically powerful people). We can refer to this new arena of political contention as contention over political space.

Two elements of this shift are particularly notable. The first is the rising calls for authoritarian leadership along with the weakening of the institutions of democracy. The second is the rise of secessionist sentiments and actions.

As contention over political space intensifies, popularly elected governments will find themselves in untenable situations – they will no longer be able to construct compromises that all powerful constituencies grudgingly accept as the preferable alternative to permanent high intensity conflict. For both economic leaders and many communities of working people, the stakes are becoming too high for compromise. Increasingly, government leaders will have to choose a side in battles over political space rather than over policy options.

For many observers, the emerging demands and the rising tide of militancy and conflict are irrational. They see the demands as unrealistic and the militancy as pointless, at best, because defeat is inevitable. The world's political systems may be going through turbulent times, but the sources of turbulence will be found and fixed and the most recent good order of things will be restored.

A very different reading of changes in the world's political systems is required by the assertion in this book that the rate of economic growth is declining toward zero and cannot be reversed. It is more plausible to argue that the growing level of conflicts in domestic and international politics and the emerging clashes among the various processes that make up the Inclusive World Economy are completely bound together. The political order of recent times is incapable of resolving these process clashes, so any restoration can be no more than fragile and temporary. In

the mid-range future (two to four decades out), we can expect to see a new political order begin to emerge from the seeming political chaos of now and move toward global dominance.

New Attacks on Democracy Institutions

The widespread institutionalization of democratic practices is perhaps the greatest achievement of the 20th century. Yet, numerous movements that advocate more authoritarian governments are gaining members, and efforts are underway to weaken the power of ordinary people in key areas of policy making. In the U.S., state governments have been creating legal hurdles for some groups of voters. In the 2016 U.S. presidential election there were reports of voter intimidation at polling places in minority communities. Internationally, a growing number of people have become effectively stateless because of wars, famines, disasters. They are completely excluded from participating in the decision-making processes that determine their fates. The government of Turkey has been imposing restrictions on freedom of expression and press freedom. In France laws have been enacted to restrict the freedom of Muslims to wear the clothing of their choice.

Secessionist Sentiments and Actions

Peoples in many parts of the world are concluding that removing themselves from the larger jurisdictional systems in which they participate will help solve their problems. In some cases, the goal is to form a new sovereign state. This is the case with the Kurds in Turkey and Iraq. In other cases (e.g. the British exit from the European Union) the goal is to reassert national or regional control. These developments coincide with the rising fragility of the nation-state system. The leaders of the higher level jurisdictional governments are less able to either acquiesce to demands (buy stability) or suppress secessionist sentiments and actions (impose stability). Both options are more costly now than in the past because of constraints on revenues and the unwillingness of dominant populations to give up benefits and privileges that are already being diminished.

An Acute Level of Global Anxiety

The level of anxiety about the political future has become acute. A growing number of observers are questioning the viability of democratic institutions. Others are questioning whether global institutions, already much too weak to solve major problems, will become completely irrelevant. Expectations that terrorist attacks will increase or that tensions between the U.S. and Russia will escalate into a war. Economists fear that national governments will embark on trade wars that not only heighten tensions but also induce a global recession or depression.

The Emergence of Crisis Politics

One definition of a crisis is that it is a time of major difficulties, turbulence, and dangers. For the course of a disease it is a time of changes that will lead either to recovery or death. Both fit the domestic and international political conditions we observe today. The world is plagued with lots of difficulties and lots of turmoil. Political attitudes are fluid; domestic and international political alliances are splintering, and political institutions are fragile and malfunctioning. In both domestic and international politics, the institutional arrangements we now have are proving inadequate to resolve the global wealth allocation crisis or to manage the tensions and conflict arising from that crisis.

A key dimension of this mounting record of failure is the growing fragility of states. The nation-state system is the core set of institutional arrangements that maintain order in the Human Economic Arena. The number of fragile states is increasing and others are moving toward fragility.¹⁶² Some of the states that have been the primary enforcers of global order (e.g., the U.S., European Union states, Russia) are experiencing political turbulence that weakens their global leadership effectiveness. As fragility in the nation-state system increases, the potential for a catastrophic breakdown in global order rises. It certainly seems that decisions made in the next few years by global, national and local leaders and by ordinary people are crisis level decisions. They will determine whether we develop a new and workable system of economic and political arrangements or lurch headlong into a period of cascading misery, strife and war.

For now, the shape of the new political order to come can't be discerned. It will likely take years of coalitional instability, with various interest groups forging and then dissolving political (domestic and geopolitical) coalitions and various coalitional groupings winning and losing battles in the war for the future. In the not too distant future, however directional political markers should begin to emerge.

Political Crisis and the Future of Work

The future organization of work in the world economy will almost certainly radically different from what it is today. Conflicts over political space almost always produce winners and losers, and the winners proceed to make extensive institutional changes. Over time, as conflicts are resolved one way or another, a global pattern of new institutional arrangements will emerge. Certain of those arrangements will become the prevailing paradigm for organizing society, just as the combination of commodity markets, government regulated wage labor, private enterprises, and representative democracy became the prevailing paradigm for organizing society during the expansion period of capitalism's history.

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PART THREE

WORK IN THE CRUCIBLE OF CHANGE

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Chapter 6: The Global Work System at the Beginning of the 21th Century

This chapter narrows the focus of analysis to work in the Inclusive World Economy and establishes a baseline description of the global work system at the end of the 20th century as a starting point for the predictive analyses presented in the last two chapters. This is accomplished by reviewing the history of work in relation to the historical circumstances that gave rise to an era of rapid economic growth and the changes that are bringing that era to a close. This review is facilitated by the use of descriptive terminology that aligns well with the concept of an Inclusive World Economy.

The **global work system** is the system for controlling the production and distribution of wealth in the Inclusive World Economy. It is part of the Human Economic Arena, but its control mechanisms reach into the Natural Economic Arena. It can be disaggregated into work subsystems defined in terms of the ways in which work processes and work outcomes are managed and controlled. Individual enterprises are the most basic units of work control. They employ particular ways of controlling work, referred to as Work Control Structures in this book. The multiple Work Control Structures operating in a jurisdiction are referred to as a jurisdictional work system. Some, but not all, work control structures in a jurisdictional work system are sanctioned by the government for that jurisdiction.

The global work system is the total system of Work Control Structures and jurisdictional work systems. Work Control Structures and jurisdictional work systems are connected together into a single global system through financial and production supply chains and the formal/legal relationships among the world's jurisdictions.

Work Control Structures

Work processes are controlled in specific ways in an enterprise or organization. In a Work Control Structure, relationships among people, animals, machines, and other work agents are set up to define and enforce a particular regime of work process control. Well known Work Control Structures are slavery, serfdom, guild work, at-will wage work, and family work.

For the purposes of this book, the population of work control structures is divided into three categories: formal work structures, informal work structures, and forced work structures. Both Formal and Informal work control structures are consensual. These categories can be related back to the global wealth allocation crisis because each category imposes different average per capital maintenance costs on the Inclusive World Economy. The ranges of costs do overlap, but the differences among averages are large enough to matter.

Formal work is work, usually wage work, which is performed under the purview of government. Both employer and employee have rights and obligations defined by law and, sometimes, by custom. It conforms to legal requirements regarding hiring, firing, control of the work process, wages and benefits, rights to organize, workplace conditions, and all other activities and

relationships that are part of labor markets and workplaces. By definition, formal work means that labor markets and workplaces are routinely scrutinized by government agents and those agents have the power to force changes in practices and relationships. Thus, government must be a powerful third party participant in labor markets and workplaces for the formal work label to apply.

However, formal work control structures are not totally dependent on government oversight. The interplay between law and culture is very complex, so the legal system of wage employment rules must be complimented by culturally defined wage employment rules. Over time, legal innovations can alter cultural norms and values, while shifting cultural norms and values can produce movements to change legal rules. Because of this cultural, elements of these systems can often be found in informal work control structures.

In the formal work structures of western nations, the majority of wage work is done in private sector industries. Wage work in government institutions and agencies is defined as ancillary and supplemental. In the western ideal of work structures, incomes are distributed on the basis individual economic merit (productive value at work), rather than on the basis of political, moral, or personal considerations.

Formal work is usually divided into two main subcategories: regular work and non-regular work. These subcategories are associated with different ways of hiring and firing workers, different ways of supervising work activities, different workplace conditions, and different levels of compensation. Regular formal work is full time, full year work that complies with laws and is counted in official records. Regular formal work jobs are associated with better pay and benefits, better treatment, and better working conditions. They are often referred to as good jobs.

The definition of non-regular work varies from country to country. Like regular work it complies with the laws and is counted in official records, but it is temporary, or part-time, or contractual. Generally, non-regular work pays less, has little in the way of benefits and workplace amenities, and offers no job security. Often non-regular work is only marginally formal because many features of formal work are missing or diluted.

Informal work is work that that is not monitored and counted by a government agency, so the conditions of work are not regulated and not officially known.¹⁶³ It can include self-employment, family employment, and work for a business that does not register with a government agency and report its revenues (but would otherwise be legal). It also includes explicitly illegal economic activities. The content of the work done informally may be completely legal (e.g., selling shoes) or illegal (e.g., selling prohibited drugs), but the way it is done is almost always proscribed by law. For example, in high affluence nations it is usually illegal for parents to have their 12 year old child work in the family shoe store during school hours. An Organization for Economic Cooperation and Development report notes that informal jobs too often involve low pay, bad working conditions, higher risk of injury or death, and too little social protection.¹⁶⁴

Informal work can be found in almost any size and type of business enterprise and organization. Even in large and well know corporations, some percentage of jobs may be informal. But, small businesses are more likely than large corporations to operate informally and offer informal work. Many microenterprise owners often choose informality as a way to avoid taxes and regulations.¹⁶⁵

Forced work refers to work performed by people who coerced or forced to do work, with or without compensation. The more familiar term is forced labor, which the International Labour Organization defines as work done because of threats of violence, intimidation and other forms of coercion. Business owners and managers can gain control over workers by creating indebtedness and demanding repayment, taking and retaining identity payments, or threatening to report workers without papers to immigration authorities.¹⁶⁶

Work Agents in Work Control Structures

Humans are the primary work agents in work controls structures, but not the only one. Animals and other species perform work along with humans in many work control structures. Draft animals come immediately to mind, along with honey bees in beehives manage by humans and bacteria used by humans in making cheese. In high affluence nations, the most important non-human work agents are, of course, machines.¹⁶⁷

Jurisdictional Work Systems

The jurisdictional system of national and sub-national governments with their domains of control over populations and territories is decisively important for the organization of work in the Inclusive World Economy. While a jurisdictional boundary is not the boundary of an economy it is the boundary of a system of work control, a jurisdictional work system. Jurisdictional governments (e.g., the governments of cities, provinces and nations) have varied powers to create and enforce rules about work processes and work process outcomes that cover multiple and varied enterprises. They establish the mix of work control structures that operate within their boundaries (to the extent the laws are successfully enforced). This is, in fact, one of their primary functions in the Inclusive World Economy.

National governments are the most powerful jurisdictional agents in the Inclusive World Economy, so they exercise the greatest power in creating jurisdictional work systems. In no case does a national government establish one set of standards for formal work. National laws routinely provide for categories of formal work with different legal requirements. Moreover, most national governments assign some powers over work to sub-national jurisdictions such as states, provinces and cities. More importantly, perhaps, even the most powerful national governments lack the resources to monitor all work and enforce work standards. So, every jurisdictional work system includes informal work and at least some forced work situations.

Most national governments also sign onto international agreements regarding human rights and work standards that theoretically limit what they can allow within their jurisdictions. However, such international standards are enforced only to the extent national governments enforce them. In practice, international standards influence national policies only to the extent that citizen groups and political parties use them as instruments for organizing and mobilizing political movements.

Hierarchical Organization of the Global Work System

The global work system and the jurisdictional work systems and work control structures that make up the global work system are organized hierarchically. The most powerful national governments routinely use their economic and military powers to limit the options available to weaker governments for creating and enforcing work control rules within their own jurisdictions.

In Immanuel Wallerstein's world-systems perspective, the global nation-state system is divided into core states, semi-peripheral states, and peripheral states. This categorization works well as a way to conceptualize the hierarchical organization of jurisdictional work systems and as a way to describe the global distribution of work control structures.

The thousands of governing institutions that make and enforce the rules of work vary greatly in their capacities to resist interference from global and domestic business leaders and from other governments: some are financially weak while others are financially strong; some have effective mechanisms for citizen input into policy decisions while others do not; some have very corrupt leaders while others are governed by men and women who are mostly honest public servants. The result is a global patchwork of laws, rules and enforcement efforts that vary widely, creating a complicated global distribution of formal, informal, and forced work control structures.

This patchwork of large and small, strong and weak jurisdictional work systems also facilitates the operation of a hierarchy of power to extract wealth from the totality of work that goes into any given product or service. In general, formal work enterprises, especially large corporations headquartered in high affluence nations, have the most power to extract wealth and create high compensation jobs. Smaller formal enterprises and informal enterprises are next in line. Forced work enterprises may make a few people wealthy, but the workers are systematically denied any share in the wealth realized. This hierarchy of power to extract wealth is embedded in the enormous web of financial relationships and supply chain relationships that facilitate the production and distribution of goods and services in the Human Economic Arena.

A note on the role of forced work in enriching the owners and workers of the world's major corporations is appropriate here. Formal sector enterprise owners and managers are not likely to openly include forced work in their supply chains, and most will not knowingly do so. However, it is easy for these owners and managers to not look beyond their immediate suppliers to the many other suppliers that provide inputs at various places in their supply chain networks. For this reason, forced work may well play a much larger role in keeping profits and wages high in the formal sector enterprises of the world than we know.

A Brief History of the Global Work System

The global work system developed as part of the development of the Inclusive World Economy during the last several centuries. It was shaped by the same historically temporary circumstances that gave rise to the era of rapid economic growth in the Human Economic Arena, so it has features that will have to be modified as the world moves deeper into the era of slowing economic growth.

For most of human history, work control structures were mainly organized on the basis of kinship, tribal authority systems, and brute force (slavery). Wage work can be found at various times and in various places, but not until the development of capitalism in Europe in the 16th century did formal wage work begin to emerge as a major structure of work control in a society. Formal work control structures arose with the development of the modern nation-state.

In the 1700's, a multitude of developments came together to facilitate the rise of large scale urban manufacturing, and with it, the growth of wage work control structures. Those developments included steam power, improving transportation systems, population growth that could not be absorbed into agricultural production, and the accumulations of money wealth that could be invested in new enterprises. Wage work was particularly attractive to those who owned

and controlled the production of manufactured goods because the logic of employment was very different for manufacturing facilities (including facilities for processing agricultural products) than for agricultural enterprises.

Manufacturing worked best at a transportation hub so raw materials of many kinds (minerals, metal ores, cattle, wheat, etc.) could flow in from many different directions and the manufactured products could flow out to buyers scattered in small towns in all directions. Agricultural enterprises required lots of space but only needed one transportation route to a major market, so they were located along the transportation routes that formed the spokes of the market/manufacturing center.

Workers in urban settings were more dependent on purchasing food and clothing than workers in rural settings, so manufacturers found it more necessary to pay for work with money wages than did agricultural employers. Part of the pay could be in the form of housing, but at least part had to be in money. Thus, as manufacturing sectors grew and town and city populations came to be made up more and more by workers in manufacturing, associated services and retail enterprises, wage work control structures grew in size and economic and political importance.

The Rise of Formal Work Control Structures

Today's Formal Work Control Structures are the result of a massive transformation in every aspect of the way work is done. In the beginning decades of the development of capitalism, almost all wage work was informal wage work, to use today's terminology. Standards for wage work were yet to be developed. The relationships between owners and workers and among workers were different. The organization of activities inside a workplace were very different. Labor markets were rudimentary and hiring and firing were done casually. Very little government regulation of workplaces and labor markets existed. Even the logic for where to locate workplaces was different.

As Western Europe and North America became populated with capitalist enterprises and pro-capitalist governments over the course of the 18th and 19th centuries, the brutality of unregulated wage employment became increasingly apparent and gained the attention of writers, researchers, and political leaders. Communities of workers formed organizations to fight for better pay and working conditions. Political parties took up the cause. Theoretical and ideological work by Marx, Engels, and others attempted to wrest control of work from the rising capitalist class and assign it to a rising working class.

During the 19th and 20th centuries, the high affluence nations of Europe and North America created a formal system of government regulated wage work that became a model for the rest of the world. From the end of World War II until the present, this formal system of wage employment was adopted on paper and, to varying degrees, in practice, by a growing number of the world's nations. It continued to be developed and refined through various civil rights movements of indigenous peoples, racial and ethnic minorities, women, LGBTQ people, and other groups denied full access to work opportunities and full protection of law. Even now – November, 2016, some state and local governments in the U.S. are considering and enacting legislation to extend workplace protections to LGBTQ people. Employment discrimination against a person based on race, gender, sexual orientation, religion or belief, disability, and age are prohibited in European Union nations. Transgender and intersex people are not yet officially protected from workplace discrimination.¹⁶⁸

Political pressures on governments to intervene in the capitalist workplace expanded during the 19th and 20th centuries and to varying degrees overcame the resistance from owners. Under these pressures, governments set about constructing bureaucratic systems for regulating wage work. The greatest challenge for proponents of formal wage work structures was pushing those work control structures into agricultural production (where slavery and serfdom were the preferred work control structures). Great upheavals and tragedies are associated with the history of that effort, including the U.S. Civil War. Slavery became illegal in most of Europe and most of the Americas by the end of the 19th century. It was still not illegal in a few places in the world at the beginning of the 21st century, although the 1948 United Nations Universal Declaration of Human Rights prohibited slavery.¹⁶⁹ Serfdom became illegal in most countries by the end of the 19th century, but, it persisted into the 20th century in some places. In 1959 Tibet became the last place to officially abolish serfdom.¹⁷⁰

The Role of Formal Work in Stabilizing Society

Formal work control structures play a key role in maintaining societal stability by routinizing the distribution of societal income and seemingly guaranteeing a fair share of wealth for working people. They establish expectations that are embedded in the culture and institutional mechanisms by which workers who believe they have been treated unfairly can seek a restoration of fairness.

As formal work control structures displace other work control structures and as they encompass more distributional rights and become more reliable, they become relief valves for the frustrations and anger that other work control structures breed. Workers in informal and forced work settings can perceive that escaping into a formal work control structure is an alternative to direct rebellion. This works especially well in jurisdictional work systems where formal work control structures are growing and competition for obtaining formal work is perceived to be fair.

The Income Distribution Function

Formal work structures impose rules on the distribution of revenues that flow into enterprises through the sale of goods and services.¹⁷¹ The rules of work in each organization define the way in which those revenues are divided among owners and workers. Formal work control structures institutionalize parameters for the distribution of shares of revenues to workers. Strong and well enforced formal work structures force employers to distribute a larger share of revenues to workers than they would prefer to.¹⁷²

The income distribution function covers the distribution enterprise revenues in various forms, not just as wages. Other distributional requirements can include employer expenditures on workplace conditions and on such programs as retirement pensions, health insurance, unemployment insurance, and other benefits. The income distribution function grows with the degree to which work becomes formalized.

Perhaps the best known examples of formal work control structures are those of Germany, and Sweden. These nations developed very strong roles for organizations of workers in determining national economic growth policies and created the very extensive packages of rights to substantial shares of national income through high wages, comprehensive benefits, government income supplements, and safe and comfortable workplaces.

The Implicit Income Share Guarantee

Very importantly for societal stability, formal work control structures offer working people an implicit guarantee that workers get a fair share of national income. Typically, fairness is not defined as a particular percent of national income, but as generally accepted levels of unemployment, poverty, and the ease with which middle class lifestyles can be achieved through upward mobility and improved through growing incomes insulated from the negative effects of inflation and economic downturns

This guarantee is necessarily implicit because to make it explicit would require imposing enormous constraints on the owners and managers of business enterprises. Public policy would have to define the primary and overriding obligation of the private sector to be providing employment or income to all working people rather than providing income to investors.

Consolidation and Spread of Formal Work Control Structures

The development and spread of Formal Work Control Structures cannot be separated from the development of the modern nation-state system. Formal Work Control Structures initially became key institutional parts of jurisdictional work systems in a few European nations. They spread to the rest of the world as the institutions of capitalism – markets and the nation-state system – spread to the rest of the world. As part of this process, Formal Work Control Structures changed, and diversified, along with other work control structures to create the vast array of jurisdictional work systems that now make up the global work system.

The expansion of the nation-state system and capitalist markets across the world required the development of elaborate institutional arrangements for managing market transactions: a monitored and protected money supply; enforceable and enforced contracts (of which money is the most ubiquitous type) ; direct or regulatory control over key infrastructural items such as bridges, roads, power lines, waterways, and communication facilities; and governmental policy making institutions that include a greater percent of people brought into the market system. It also required the development of elaborate institutional arrangements for managing people and territories: rules of engagement for national governments; rules for managing the movement of people; rules for control over shared resources (e.g., rivers that cross jurisdictional boundaries); rules for participation in government policy making; etc. Along side these rules, the policing powers to enforce them had to be developed.

The development of Formal Work Control Structures was part of this larger process of change. They are embedded in and interdependent with this larger array of institutional arrangements we call the nation-state system. They cannot operate well without the institutional infrastructure of this system. The same governing powers designed to enforce the rules of market transactions are the ones necessary to enforce the rules of work. The same representative institutions that facilitate broad participation in rule making for markets and for managing people and territories also facilitate broad participation in rule making for work control structures.

Working people in the broadest sense of the phrase (peasants, slaves, wage workers, shop owners, enterprise owners) played a large part in creating the Formal Work Control Structures. They were the participants in the waves of political upheaval and revolutionary tumult that swept across Europe in the 19th and 20th centuries. Those upheavals and revolutions forced governments to give working people a greater voice in policy making, to regulate industries and work, and to make slavery and serfdom illegal. Some of the revolutions succeeded in throwing off many of the shackles of colonialism and imperialism to create new nations with the power to

create their own standards of work. The contemporary civil rights struggles in Europe, North America, Africa, and almost everywhere else in the world are part of this history of spreading formal work control structures and associated institutions of representative democracy to every jurisdiction.

The Persistence of Other Work Control Structures in Jurisdictional Work Systems

One of the most remarkable things about this history is how little of the world's human work activities have been organized into formal work control structures. In most of the world, informal work is still dominant. Even in high affluence nations where formal work is well institutionalized, a great deal of nominally formal work has most of the characteristics of informal work. In many parts of the world forms of forced work are still not rare.

Part of the persistence of informal and forced work is due to lax enforcement of existing laws. This is a major problem in poorer nations because they lack the economic and institutional resources needed for effective enforcement, but it is a problem in high affluence nations as well. However, lax enforcement is not entirely due to resource limits. As explained above, the various work control structures are connected, with informal and forced work contributing to high levels of compensation in formal work control structures. Thus, the persistence of informal and forced work control structures is facilitated by, if not intended by, those who make the government policies regarding work control structures in jurisdictional work systems.

This state of things is reflected in the jurisdictional work systems of high affluence nations where the laws that create and regulate formal work, encourage and facilitate informal work. They do this by excluding many workers from coverage by selected rights and protections of formal work. For example, in the U.S., federal minimum wage laws exempt certain companies and categories of workers (as of 2014). Small businesses that are completely local (no business across state lines) and have gross annual revenues of \$500,000 or less are exempt. Categories of exempt workers include teenage trainees, tipped workers, family members of agricultural employers, people who work for seasonal businesses, and others. Companies can apply to exempt certain disabled workers.¹⁷³

Other well established rules of formal work are also not enjoyed by many workers in the U.S. State unemployment insurance laws in the U.S. also exclude large percentages of workers. Between 1977 and 2014, the unemployment insurance reciprocity rate never exceeded 40 percent of unemployed workers, but it has fallen over the years, reaching a low of 23.1 percent in December 2014.¹⁷⁴ Many states do not adequately enforce the right to union representation in the workplace, even though the right to organize a union is officially protected in the law.

The Role of Energy Supply in the History of the Global Work System

A growing flow of energy and resources into human production activities was essential to the development and spread of Formal Work Control Structures. These structures are very costly to create and maintain, so the history of improvements in wages and benefits, workplace safety, labor market rules, etc. is part of the history of how increasing flows of energy were allocated to human activities.

High volumes of energy use are essential to several parts of formal work control structures: the minimal demand for human energy in physical work processes; the additional energy used to make workplaces safe, healthy and comfortable for workers; the extensive use of machines to

monitor work facilities and work processes; and the extensive infrastructure of government agencies that monitor and regulate workplaces, work processes, and labor markets. To a very large extent, the energy for these elements of formal work comes from the use of fossil fuels. Thus, today's formal work control structures are deeply part of the fossil fuel era of economic growth that is now coming to an end.

Adding Fossil and Nuclear Fuels to the Energy Mix

The use of fossil and nuclear fuels to power a significant amount of economic activity in the Human Economic Arena is a very recent development. For most of human history, the sources of energy in both the Human Economic Arena and the Natural Economic Arena were current flows of solar energy (such as wood, wind, and moving water) and the gravitational interaction between the earth and its moon (tidal energy). The use of peat and coal as fuels by humans dates back thousands of years, but not until the 19th century did the use of fossil fuels substantially change the energy mix in the Human Economic Arena.

The industrial revolution brought fossil fuels into workplaces at an expanding pace, but dependence on human and animal workers, particularly human workers, continued to grow. Factory owners still needed the raw power of human workers and their ready adaptability to many kinds of work activities. The human worker was still essential to every type of work activity involved in producing wealth: moving, lifting, sorting, sifting, turning, pouring, molding, stacking, loading, unloading, etc. From harvesting wood and mining coal to assembling wood and iron into shovels and carriages, the power of the human worker was primary, with the power of animals and machines supplementing that power.

With the energy of human workers so essential to the production of wealth during those times, and with labor costs rising as workers and their allies demanded and won higher pay and better working conditions, finding ways to increase the productivity of human workers became a primary management goal. Perhaps the most widely known early example of the growing efforts to increase human labor productivity is the scientific management approach that was developed and named by Fred W. Taylor (widely referred to as Taylorism). His ideas about creating efficient work flows became widely adopted in the 20th century and are fully incorporated into contemporary management strategies.

It took centuries for advancements in machine technologies and the expanding supplies of fossil fuels (and later nuclear energy) to significantly displace humans, animals, wood, flowing water, and wind in the production and distribution of wealth in the Human Economic Arena. Yet, despite the enormously impressive advances in technology and the global distribution of machines, humans, animals, moving water, and wind still provide much of the work energy used up and down the world's economic supply chains. And much of that work energy goes uncounted by those national and international agencies that attempt to keep an accounting of energy use.

The Rise of Machines as a Motive Force in the Human Economic Arena

The strong relationship between human energy and economic growth changed enormously over the course of the 20th century. The energy expended in producing wealth came more and more from fossil fuels rather than food calories and the motive activities in the production of wealth were carried out more and more by machines powered by those fossil fuels. The role of the

human worker shifted decidedly away from using calories for motive purposes to using calories for thinking and decision-making.

Over the course of the 19th century, the steam engine, then the internal combustion engine and the electric motor began to transform the role of human energy in the production of wealth. As technologies improved and as supplies of fossil fuels increased and as workers improved their living standards through workplace and political organizing, the cost of fossil fuel energy fell relative to the cost of human energy. Moreover, fossil fueled machines could be used in ways that humans could not be used.

The demand for humans in the production of material wealth dropped off dramatically, displacing enormous numbers of workers and preventing new workers from finding jobs. Wealthier nations were able to shift wealth into public and private services, creating a massive workforce of workers who primarily provide business, social, and personal services: workers who collect taxes and distribute collected tax money through government programs; workers who move wealth from one area of investment to another and from one enterprise to another; workers who mold the consumer behavior of people; workers who provide enhancements to personal comfort and self-esteem (e.g., beauty salon workers, workers in auto detailing shops, avant-garde architects, interior design consultants, etc.) In low affluence countries, urban populations of displaced and never-to-work people grew into enormous cities within cities (favelas, shanty towns, ghettos, etc.)¹⁷⁵

By the second half of the 20th century, the diminishing role of human energy in producing goods and services in formal work control systems was becoming abundantly clear. Investments in fossil fuels and nuclear energy soared and no end to increasing the flow of energy into human activities was acknowledged. Governments around the world, international organizations, and a multitude of think tanks and research organizations joined together in the pursuit of the goal of attaching every kind of work to an array of machines.

The Rise of Machines as a Decision-Making Force

Today, the brain work of highly skilled workers is steadily being taken over by powerful computers, arrays of sensors that mimic the five senses of humans, mechanisms that can mimic and surpass the best of human fine motor control, and very complex decision making algorithms. These humanoid machines in all their variations consume vast amounts of electrical energy rather than food energy. That electrical energy is derived from multiple sources – fossil fuels, wind and water power, nuclear fission, and solar panels. Thus, we are now in a world in which machines may soon be able to do almost every kind of work done in the Human Economic Arena.

This is a world in which measuring changes in labor productivity is an almost meaningless activity. Wealth production is no longer a function of raw material inputs and human energy inputs, but a function of raw material inputs and machine energy inputs. In recent decades, measures of multi-factor productivity have come into use. As used by the U.S. Bureau of Labor Statistics, multifactor indexes for manufacturing industries measure sector output per combined unit of capital and labor, energy, materials, and purchased business services input. For other sectors, only capital and labor inputs are included.¹⁷⁶

This productivity measure is closer to capturing the range of inputs required to produce an item of wealth, but the output is still limited to the value of what a business sells as a product, leaving

waste products out of the calculation. Most of that domain of waste and consequences is managed by services paid for by taxpayers rather than the businesses that create the waste and consequences. The fact that waste has little to no market value makes government services appear to be very inefficient.

The Global Work System in a State of Turbulence

At the end of the 20th century, the era of fossil fuel use was beginning to become seriously problematic for the welfare of humans and the accumulation of wealth was beginning to slow. The global work system, dependent as it has been on robust economic growth, was reaching the end of a period desirable development trends. Those seemingly reliable trends were beginning to falter and a new phase of unexpected change was setting in. The global work system is now in a state of turbulence, changing rapidly and in unexpected ways.

The Changing Landscape of Work Control Structures and Jurisdictional Work Systems

The landscape of work control structures and jurisdictional work systems in the Inclusive World Economy is complex and changing. The turbulence of our times runs through the global work system, so it is already becoming different. Almost everything about work is in a state of change: job security, workplace safety, workplace rights, the use of coercion, wages and benefits, supervisory practices, governmental policies, the relationships between workers and machines, and everything else about work control structures and jurisdictional work systems.

While formal work control structures were developed as part of the development of capitalism, they did not supersede and eliminate other work control structures. Informal work still overshadows formal work in the world, accounting for most of the work in low affluence nations and for significant amounts of work in many high affluence nations. Family work is still ubiquitous and forced work, even though much of it is illegal in most nations, is still a significant part of the global work system.

Jurisdictional work systems are changing. In some parts of the world, notably the more high affluence nations, formal work control systems are shrinking and regulatory agencies are losing the power to enforce rules of work. In the middle affluence nations in which affluence has been increasing efforts to formalize work are growing. In response to weakening government regulation in high affluence nations and the lack of regulation in low affluence nations, people are establishing private sector monitoring and oversight organizations and enterprise owners and investors are setting up systems of self-regulation. Overall, the roles played by jurisdictional work systems in the management of the global work system are changing. So too is the hierarchical arrangement of jurisdictional work systems.

Changing Landscape of Formal Work

Much is changing about formal work structures and the role of formal work in the Human Economic Arena. Formal work has become bifurcated into high compensation and low compensation jobs and the proportions are shifting toward low compensation jobs. Beyond this, the distribution of the world's jobs along the spectrum from very formal to very informal is shifting decidedly toward the very informal.

The evidence for this shift includes a falling formal labor force participation rate and an increasing number of not-for-profit jobs in the formal work sector. Factors contributing to this shift include the de-unionization of formal work, the deskilling and deprofessionalization of high compensation formal work, and the weakening of governmental monitoring and regulation of work.

These changes are associated with an overall decline in the conditions and standards for formal work. In high affluence nations, the standards for formal work are deteriorating. Conditions of work are almost certainly falling in middle and low affluence nations, but it is possible that standards for work are being improved in some middle affluence nations.¹⁷⁷ They are also associated with a major change in the role of formal work in the Human Economic Arena. It now plays a smaller role in distributing income to the world's working people.

A Bifurcated Formal Work Sector

Formal work has become split into two levels of working conditions. Segmented labor market, primary and secondary labor market, and regular and non-regular work are terms commonly used to refer to various aspects of this phenomenon. Compensation and working conditions in the primary labor market sector are much better than in the secondary sector. The workers in the primary sector are the high compensation or elite workers in society; those in the secondary sector the common workers.

This split in the formal work control structure is not new, but it is now more pronounced in high affluence nations. Over the last several decades the economic and social distances between elite work and common work has grown larger. Some high compensation workers have gained at the expense of other high compensation workers. This has shown up in the much studied and discussed increase in inequality in high affluence nations and the associated "hollowing out" of the middle class.¹⁷⁸

In the past, many observers noted that the global middle class was growing in size and that global poverty was falling. This suggested that the growing gap between the high compensation workers and low compensation workers that has developed in high affluence nations might not be happening for the Human Economic Arena as a whole. However, changes to global work and income patterns in recent years suggest that the gap is a global phenomenon.

A 2014 International Labour Organization study found that the working middle class is continuing to grow, but at a slower pace than in the period 2000 -2013. It also found that global poverty reduction has slowed substantially, unemployment has increased, and the growth of what the report calls decent jobs has dropped off dramatically.¹⁷⁹ For the world as a whole only one in four adults (1.3 billion) worked full time in 2013 according to Gallup. In 2011 the Gallup Payroll to Population rate was 27%. In 2013 it was 26%.¹⁸⁰

Two factors are contributing to this growing gap between high compensation jobs and low compensation jobs. One is a substantial slowdown in the creation of formal jobs by business enterprises and government agencies. This is forcing increasing numbers of working age people to find other ways to make a living. The second is that many formal sector businesses and government agencies are using their bargaining positions to reduce contractual obligations to workers. This affects low compensation workers the most, so it is pushing the bottom of the formal work spectrum farther away from the top.

A Much Reduced Labor Force Participation Rate

The global labor force participation rate has been declining for decades. The World Bank reports that the world labor force participation rate in 2012 was 63.6. That is slightly up from the 2010 rate of 63.4, but down from the 2004 rate of 64.8.¹⁸¹

Some labor force participation decline is attributable to the aging of workforces in high affluence nations, but this is not the whole story. In the U.S. evidence suggests that many older workers will continue to work if appropriate employment opportunities are available. For younger workers the likely factor is growing competition among workers for the limited number of good jobs that are available. Many prime working age people are choosing to go to school; others with supportive families may be choosing to withdraw from the labor force until more good jobs are available.

Growth of Work in Civil Society Organizations

One of the biggest changes in the formal work sector has been the increase in the amount of work done in civil society organizations, particularly in human service organizations. This has been happening in nations at all affluence levels.¹⁸² This trend has contributed to a decline in the conditions of work because pay, benefits, and some conditions of work in the civil society sector are typically inferior to those in the business and government sectors. Benefits, such as health insurance subsidies are usually less generous and office furniture and equipment are usually lower in quality. Thus, as people move from business or government work to civil society work, the overall standards and conditions of work decline.

De-Unionization of Workplaces

Union representation is one of the characteristics of highly formal work control structures. This has been disappearing in many of the world's formally organized workplaces. This moves work in the direction of informality because unions play a significant role in enforcing the legal requirements for formal work and in expanding the rights and obligations associated with formal work. When workers lose union representation, they lose a key avenue of representation in the making of public policy and become vulnerable to management decisions that skirt the law or directly violate it.

The union membership losses in high affluence nations are substantial. In the U.S., union membership declined from nearly 25 percent of employed workers in 1973 to 11.1 percent in 2014.¹⁸³ State governments have been making it harder for workers to organize into unions. Since 2000 four more states (Oklahoma, Indiana, Michigan, and Wisconsin) joined the many other states which prohibit unions from negotiating closed shop contracts in which an eligible employee must belong to the union. Notably, Michigan and Wisconsin were traditionally pro-union states.

Unions in Western Europe have been going through a similar process of decline, with membership falling over the last three decades.¹⁸⁴ Trade union membership in 19 European Union nations fell by about a sixth from 1993 to 2003.¹⁸⁵

Deskilled and Deprofessionalized Work

Skilled work (e.g., operating a lathe, welding, responding to medical emergencies) is typically associated with good pay and benefits, safe and comfortable working conditions, moderate to

high status in society, and more job performance autonomy. Professional workers (e.g., corporation managers, doctors, law clerks, and teachers) have the same conditions of work, usually more and better.

In recent decades skill requirements for many kinds of skilled work in high affluence nations have declined. Those areas of work have become deskilled. Conditions of work have deteriorated in some areas of professional work and they have lost some of their prestige. This kind of change is referred to as deprofessionalization.¹⁸⁶ Professional standards and prestige have eroded to some extent in such fields as law, education, and human services in recent decades.¹⁸⁷ Evidence suggests that the proportion of young people coming out of college who work in cognitive occupations is declining.¹⁸⁸ These processes are likely to be contributing to that decline.

Several changes in business and industry practices are generating these trends. One of the most important is the rapid replacement of skilled and professional workers with machines. Virtually overnight, a worker with welding skills, research skills, or diagnostic skills becomes classified as less skilled or unskilled; the work becomes less prestigious. The worker did not become less smart, less well trained, less experienced, or less professional in demeanor; the qualities of the worker had not declined, the value of the worker to an employer had.¹⁸⁹

A second and related change is the increased use of machines for “thinking” work. Both private enterprises and governments are beginning to use these new artificial intelligence (AI) computers and connected devices to replace humans who do evaluation and decision-making work. This development puts public and private service sector jobs, many of them professional, right in the sights of managers of businesses, civil society organizations, and government agencies seeking to cut costs. Perhaps the best known examples of the use of AI machines are driverless cars, the use of flying drones to deliver packages, and smartphones that can answer spoken questions.

A third change is the much reduced level of investment in training people for jobs. This includes funding for technical skill training and for college education. Both government investment and private sector investment are much lower than a couple of decades ago. Federal funding for employment and job training programs has been cut by Congress by more than \$1 billion since 2010.¹⁹⁰ Students who seek two and four year higher education degrees must shoulder much more of the cost themselves because total funding per full time equivalent student has declined since the Great Recession.¹⁹¹

This decline in funding is partly due to the extent of deskilling and deprofessionalization of work and partly due to the ability of companies to outsource skilled work (e.g., customer service and technical support) to skilled workers in other countries and import skilled and professional workers (e.g., engineers, doctors) from other countries.

Weakened Monitoring and Regulation of Work

In general, monitoring and regulation of work is becoming less effective, as funding for government agencies falls further behind the level of need. As an example of weakening government regulation of work, the definition of an employment relationship has become somewhat ambiguous in the United States. Employers have shifted the boundary between an employment relationship and a contractual relationship or an internship relationship with very little interference from government agencies.¹⁹² These changes have lowered costs for businesses, but also lowered the standards of work, particularly for low compensation workers.

To some extent, private institutions have been developed to make up for the shortcomings of ineffective government monitoring and regulation in middle and low affluence nations.¹⁹³ Such efforts include consumer organizations that monitor the quality of goods and services and report findings to subscribers, industry based organizations that monitor compliance with industry standards (e.g., organizations that certify foods to be free of genetically modified organisms), and media watchdogs who publicize the most egregious violations of standards and law. These efforts cannot, however be as effective as government agencies because they lack the revenue generation and enforcement powers government agencies have.

Lower Standards in Formal Work Sectors

The higher end standards for formal wage employment were developed in the high affluence nations of the world. Those standards are now diminishing. The Economic Policy Institute reported that hourly wages for most American workers stayed flat or fell between 2007 and 2014. Even going back to 1979 there has been no real growth in hourly wages.¹⁹⁴ In Europe, women are highly affected by diminished standards of work. Most of the recent job growth for women workers has consisted of part-time work and temporary work. Holding multiple jobs has also increased.¹⁹⁵

Diminishing Role in Income Distribution

The role of formal work control structures in distributing income has been declining in recent years. Several shifts contribute to this change: the stagnation of formal wage growth in high affluence nations; the growth of government income transfer programs (cash payments, food assistance, housing subsidies, etc.); and the rise of informal and illegal work as sources of income. In addition, stock ownership has become a source of income for large numbers of older middle class people in high affluence nations. As middle class people retire, they claim their investment based pension funds.

Increasingly, national governments are using income redistribution programs to shift income from production activities to citizens. Such programs include food assistance, housing subsidies, cash payments, publicly funded child care. The state of Alaska in the U.S. has long made an annual payment to citizens of Alaska from the revenues obtained from oil production. The U.S. and other nations pay some working people directly to compensate for low annual earnings due to low wages, seasonal employment, or part-time work. In the U.S. the program is called the Earned Income Tax Credit. At the federal level and in certain states the Earned Income Tax Credit makes a payment to an earner when the credit is greater than the taxes owed and the earner meets certain other criteria.

Moving further into the realm of income distribution by other means than formal work, some nations and other jurisdictions are considering annual minimum incomes for all citizens. This type of policy was recently put up for a vote Switzerland. It lost, but the fact of the vote illustrates the seriousness with which alternative mechanisms for distributing income are being considered.

Changing Landscape of Informal Work

The role of informal work in the Human Economic Arena is expanding and changing in new directions. As explained in the above section on formal work, work control structures are shifting toward more informality. Specifically, the number of people engaged in unpaid or

minimally paid work for formal enterprises, family work, self-employment work, paid work for informal enterprises, and illegal trades are increasing. Again, accurate data is not available, so we cannot say how much or how rapidly this is happening. But, anecdotal evidence, survey findings, and some country studies do point to growth.

One of the more interesting developments is the expanding web of connections between formal and informal enterprises. As the global work system shifts toward more informality, formal organizations are becoming more dependent on informal work structures. One dimension of this shift is the integration of more informal sector enterprises into the supply chains that feed inputs into highly formal global corporations. A second is the emergence of sharing economy companies. These companies operate as formal enterprises, but their business is to facilitate informal work. A third is the use of non-regular work contracts and interns who receive little or no pay by corporations and other formal businesses.

Family Work and Individual Self-employment

Working in a family business is a ubiquitous kind of informal work. Around the world, family businesses account for two-thirds of all businesses and 50-80 percent of jobs in most countries.¹⁹⁶ In Europe, more than 60 percent of businesses are family businesses.¹⁹⁷ Many of these businesses are very large, even global businesses that operate formally. Most, however, are small and operate informally or operate formally but employ family members informally.

Individual self-employment is also quite common and increasing. Self-employment in the U.S. increased considerably in the years 2000 – 2009.¹⁹⁸ In the years since the 2008 financial crisis, some evidence suggests that self-employment declined and is only now beginning to recover.

Family members often work in circumstances (e.g., long hours, dangerous activities) and for pay rates that do not comply with the laws covering employees. This is often the case not only in informal businesses but in formal businesses that comply with all work laws that apply to non-family workers. It must be noted here also, that the work laws usually exempt family member workers from some requirements.

The situation with self-employed workers is similar. The working conditions for self-employed people are informal, whether good or bad. He or she has few of the protections and benefits prescribed in the law for employees. A self-employed person may abide by all applicable laws, pay him/herself a good wage, work in a well equipped and safe workplace, and purchase insurance to cover accidents at work and lost work time. Or he or she may only do some or these things, creating a work situation as dangerous and onerous as any found in the informal sector.

Corporate Subcontracting to the Informal Sector

Informal work is the majority of work done in the Human Economic Arena and there is some evidence the connections with the formal sector are substantial. In one study, 76% of waste pickers reported that formal businesses were their main buyers.¹⁹⁹ It is almost certainly the case that the cost savings realized by formal sector enterprises and the cost of living savings realized by middle income people in high affluence nations realized through these connections is enormous. Without the connections between the formal sector and the informal work sector and the forced work sector, wages in the formal sector would have to be much lower and the cost of goods and services for the world's middle class people would have to be much higher.²⁰⁰

Major corporations reduce costs by contracting out parts of their operations to companies that have lower wage ranges and provide fewer benefits. On the subcontractor side, winning contracts with major corporations can be the route to business success, so subcontractors have considerable incentive to operate informally so they can underbid competitors. Two points are important here: 1) the scale of the system as a whole puts it in the same class as global corporations, and 2) because so many businesses interface through the Internet, these informal business arrangements easily become low-cost inputs to formal businesses, lowering operating costs but allowing the formal business to maintain a desirable public image. The net effect is that the formal and informal business sectors and formal and informal work relate to each other symbiotically.

Informal Work in the Sharing Economy

The sharing economy is a new form in which large numbers of people can work informally. Sharing economy enterprises provide mechanisms for entrepreneurs to offer services outside the purview of regulatory agencies and to “hire” people without taking on the responsibilities of a formal employer. Legal regulation of taxi services, housing services, and many industries predates the development of the Internet into a full blown business platform, so the rise of business models like those of Uber and Airbnb has generated considerable controversy and litigation.

To illustrate, Uber is a taxi-like transportation service in which the drivers are defined to be independent contractors, so they are not entitled to benefits. Yet they make use of the Uber app that connects them to riders and Uber sets the rate charged to passengers.²⁰¹ As employees they would be entitled to substantial compensation rights and legal protections. Moreover, if they were classified as taxi drivers, they would be subject to licensing requirements in many places greater than those they have to meet as independent contractors.

Similarly, the services of Airbnb and other companies that match people wanting a place to stay with homeowners who want to earn extra income provide services that match those of hotels, rooming houses, and other temporary housing services without taking on the burden of taxes and regulations that apply to the traditional temporary housing businesses. Housing services provided by home owners and small time operators and marketed through Internet based services easily operate under the radar of regulatory and taxing agencies.²⁰²

This kind of informal work is spreading as the slowdown in global economic growth and a weakening of governmental powers in relation to other organizational entities continues. This is especially the case in more affluent parts of the world where middle class people who have personal property such as cars, pickup trucks, large homes, and various kinds of home care equipment that can be converted to business uses are finding ways to respond to the deterioration of formal employment. Both entrepreneurs and consumers are active participants in these efforts are pursuing various experiments at sidestepping regulatory rules and the costs associated with them.²⁰³

Some governments are moving toward regulation of sharing economy enterprises.²⁰⁴ However, the question is whether the effort to regulate these new businesses will become widespread enough and comprehensive enough to transform workers in these businesses into formal workers. Growing losses of income in the world’s middle class are pushing people to

compensate by finding ways to reduce their costs of living. The informality of sharing economy businesses help with that, so formalizing the sharing economy seems unlikely to happen.

Unpaid Work in the Formal Sector

Unpaid work in the formal sector is not always legal, but it can be. When properly used, unpaid internships are legal. However, they do not meet the definition of formal work. They typically lack health coverage, workplace rights, job security, and other benefits associated with formal work. In effect, informal work takes place right along side formal work in many formal enterprises.

The corporate use of unpaid internships has been growing rapidly and has become common in many parts of the world, including the U.S., European nations, India, and China.²⁰⁵ In the U.S. an estimated two-thirds of college graduates for the 2013 class had done internships before entering the work world and about 48 percent of the 63 percent of seniors who were hired while still undergraduates had done unpaid internships.²⁰⁶ Some governments are discovering a lot of improper use of interns and are increasing enforcement of labor laws.²⁰⁷

Informality and Alternate Payment Arrangements

A practice often found in and among informal work structures is the use of alternative payment arrangements. These alternatives include written and verbal IOU's, in-kind payments, barter exchanges, unofficial money (script, coupons, tokens), and unrecorded (under the table) cash payments in official money. The reasons can be varied, from lack of access to official money, for convenience, or to avoid taxes or reduce costs in other ways (in-kind payments often do this).

At times, entire communities may shift to a substantial use of alternative payment arrangements. This is likely when a community suffers a loss of sources for formal money (e.g., closing of a factory that was the biggest employer). So that people can continue to do business together, small groups and even whole communities will use alternative payment arrangements to some extent.

Changing Landscape of Forced Work

Forced work control structures are much more prevalent in the Inclusive World Economy than most people in high affluence nations realize and more of it is legal than people realize. These structures take two main forms: captivity by private individuals and enterprises and prison labor.

The International Labour Organization reports that almost 21 million people are victims of forced work – 11.4 million women and girls and 9.5 million men and boys. Almost 19 million victims are exploited by private individuals or enterprises and over 2 million by a state or rebel group. Forced work in the private economy generates US\$ 150 billion in illegal profits per year.²⁰⁸ Forced work does not exist in isolation. It is embedded in supply chains that connect enterprises across the globe. It is found on remote farms in Africa and in supermarkets in the U.S. and Europe.²⁰⁹

Prison labor is clearly non-standard work because it is for substandard wages and benefits. But, it must be classified as forced work because the fundamental reality is that work is being done under duress and without adequate workplace protections. Prison workers in the U.S. are not even counted in standard labor surveys, but the number of working inmates, at 870,000, is

roughly equal to the number of workers in the states of Vermont and Rhode Island combined.²¹⁰ The total number of prison workers in the world as a whole is unknown, but it is very large.²¹¹

As of 2013, the Federal Bureau of Prisons reported that federal inmates earn 12 cents to 40 cents per hour for jobs serving the prison, and 23 cents to \$1.15 per hour in Federal Prison Industries factories. Moreover, prisoners often pay significant prison related fees out of their pay. Increasingly, prisoners are working for the benefit of private companies.²¹² This practice further undermines formal work because formally organized businesses and their workers cannot compete with companies that benefit from coerced and underpaid prison labor.

The Future of the Global Work System

The description of the global work system presented in this chapter is no more than a snapshot of a changing configuration of institutional arrangements. With the global wealth allocation crisis far from being resolved, the agents and relationships that make up the global work system are highly fluid. Much is changing and much more will change as efforts to resolve the global wealth allocation crisis will continue and expand. Eventually, the crisis will be resolved in some way and the next global work system will be part of that resolution. That next global work system will be very different from the one described above.

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¹⁷² In a very direct way, formal work structures are the institutional backbone of middle class prosperity in the world economy. Strong formal work structures are associated with limiting and even reducing income and wealth inequalities in those nations that have them.

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Chapter 7: Elements of the Next Global Work System

At the most fundamental level of possibilities, the future of human work is inseparable from the future of all work in the Inclusive World Economy. Changes we make to human work processes will both drive changes in work processes in the Natural Economic Arena and be driven by those changes. Within this fundamental context, however, the primary determinant for the future of human work is how we resolve the global wealth allocation crisis.

Previous chapters argued that constraints on the growth of wealth in the Human Economic Arena have produced a global wealth allocation crisis and an array of responses to that crisis. As discussed previously, those responses include making significant changes in the global work system to reduce the amount of wealth allocated to it. The wealth allocation crisis is not a temporary phenomenon, so reductions to the flow of wealth into the global work system will continue into the future, producing much more change to the ways in which we organize and do work than has already happened. The global work system will be transformed in major ways, ways so big and fundamental that at some point people will recognize that a new global work system has come into being.

The next global work system is not predetermined. It will be invented over many years through countless decisions and changes at every level of societal organization and in every institution. The features of that new global work system cannot be guessed at with certainty, but certain elements of the global wealth allocation crisis and our responses to it make certain transformation tendencies in the global work system more likely to continue or emerge than not.

The global work system will change as part of the processes that resolve the global wealth allocation crisis. This will be a long and very contentious political process with global and domestic dimensions. For now, the invention of the new global work system is not likely to happen primarily through democratic processes. In numerous nations democratic institutions are not well developed; in those nations that have long had democratic institutions, democratic institutions are being weakened. Some observers are concluding that opportunities for the majority of the world's people are losing opportunities to shape their own futures through democratic processes.²¹³

Those who now hold power in economic enterprises and in government agencies are likely to dominate the process of transforming the global work system for a very long time. However, the current distribution of power is not stable and could become highly fluid very quickly. The currently prevailing distribution of power will certainly change. One possibility is that movements for greater democracy grow and make the process of transformation much more democratic than it can currently be. However, even a very democratic process must reduce the flow of wealth into the global work system and leave behind much of what we now think of as desirable and achievable.

Work Related Elements of the Wealth Allocation Crisis

The global work system is a major part of the Human Economic Arena, so many elements of the global wealth allocation crisis and the ways in which the world's leaders are responding to it have direct and indirect consequences for how the global work system will change. These elements define a configuration of constraints and opportunities that give us some insight into likely high level outcomes. Again, nothing is certain, but some things are likely.

Much of this discussion will not be surprising. With only couple of exceptions, the elements identified below are well known. Government agencies and private policy organizations are already assessing the impact on society of many of these elements, particularly the impact of the end of the fossil fuel era, climate change, population growth, and political and economic conflict.²¹⁴ The analytic perspective used in this book gives these elements different roles in creating the future of work.

Declining Stock of Wealth

The production and allocation of wealth in the Human Economic Arena will decline until a sustainable production rate is achieved. As this is happening, the existing per capita stock of wealth in the Human Economic Arena will grow smaller as population growth and wealth deterioration outpace wealth production. The global works system will have to absorb a share of this loss.

Increasing Supply of Human Energy

The potential supply of human energy available to the Global Work system will continue to increase for decades into the future. Population growth will contribute the most to this, but a reversal of retirement and educational practices that have exempted people from doing work in high affluence nations will also part of this potential supply.

Fewer people will age out of the global work system as western style retirements systems receive lower allocations of wealth. In much of the world, older people work until they are no longer physically able to do so. This will become much more common in high affluence nations. In the U.S. already, the age at which a person is eligible for social security has been rising and the percent of people who keep working beyond the social security retirement age is increasing.²¹⁵

The cost of maintaining institutions devoted exclusively to education will become increasingly unacceptable. Education will have to be reintegrated into the workplace. Even now in the U.S., education institutions are being called upon to do more to prepare people for skilled work and to contribute more to material prosperity by doing more research with practical use to businesses.

Declining Role for Fossil Fuels

Fossil fuel energy will steadily decrease as a proportion of the global energy supply; solar and possibly nuclear energy will steadily increase. The total volume of fossil fuel energy may continue to rise for several decades because the human demand for energy will continue to rise faster than the supply from solar energy facilities will increase. On the other hand, climate change and habitat destruction may produce so much damage to human welfare that a reduction in the use of fossil fuels may be forced upon us much sooner than expected.

Increasing Material Use Efficiencies

Efforts to use materials more efficiently are already underway in many parts of the Human Economic Arena. Those efforts include recycling, production methods that waste less material, and the conversion of waste materials in one production process into inputs into other production processes. The continuing growth of the world population and the limited availability of many resources ensure that efforts to use materials more efficiently will increase. Recycling will spread into every corner of the Human Economic Arena and recycled materials will steadily increase as a proportion of global materials supply.

Increasingly Inhospitable Natural Economic Arena Processes

With global warming and climate change and continued human intrusions into the Natural Economic Arena, actual environmental conditions will become increasingly different from those environmental conditions in which humans readily thrive.²¹⁶ The demands on income and wealth will change accordingly, becoming both greater than they currently are and different. Current estimates for protecting coastal populations from rising sea levels are in the billions per year. One study found that adaptation investments sufficient to keep flood probabilities constant, sea level rise would still increase global flood losses to \$60-63 billion per year.²¹⁷ Hurricane Sandy cost the U.S. an estimated \$65 billion.²¹⁸

Distributional Constraints

The pattern of wealth allocation reductions that will be imposed on the global work system is somewhat predictable because it is constrained by two factors. First, the bulk of the reductions will have to be imposed on Work Control Structures and jurisdictional work systems that have high maintenance costs. Sizable reductions cannot come out of work control systems that are already operating at the margin of viability. Second, the unequal distribution of persuasive and coercive powers among human agents in the Human Economic Arena will produce inequalities within and among work control structures and jurisdictional work systems that reflect those inequalities.

Greater Costs for Managing Tensions and Conflict

Domestic and international conflicts over wealth allocation will become more widespread and threatening to existing regimes of governance. The Human Economic Arena is organized around the principles of competition, so in the context of constrained and declining opportunities for gaining wealth, competitive aggressiveness is almost inevitable. Every community, institution, and nation will incur greater costs for asserting their interests in the competitive struggle and for protecting themselves from the competitive aggressiveness of others. For all governments, maintaining domestic order and stability will require greater investments in law enforcement institutions; for national governments defending national interests will require greater investments in war making capabilities.

The global costs for enforcing the global order are already quite high. In the U.S. proposed fiscal year 2017 discretionary funding for the Department of Homeland Security is \$40.6 billion.²¹⁹ At the end of 2014, the direct cost to the U.S. alone for the Iraq and Afghanistan Wars was estimated at \$1.6 trillion by the Congressional Budget Office, but adding in such real costs as long term medical care for soldiers, disability compensation, and payments to families, etc.

pushes the total cost up to \$4 trillion to \$6 trillion.²²⁰ Many other nations, of course, have incurred costs for those wars, so the total cost is much larger. Those wars continue, so the total and final costs will not be known for generations.

Increasingly More Perplexing Challenges to Human Welfare

The Inclusive World Economy is becoming more complicated as the populations of humans and organizations grow, as the various peoples of the world become more connected through communication and economic transaction technologies, and as the power of human activities to change the Natural Economic Arena increase. In this context, discovering the sources of our troubles is becoming more difficult because the possible process pathways through which troubles can develop and be delivered to our doors have multiplied many times and designing “safe” interventions intended to fix our troubles has become more difficult because that same multiplicity of process pathways can produce a large array of unintended consequences, many of which are difficult to foresee.

Our sciences are very powerful tools for building knowledge about the Inclusive World Economy. But, even with all we know, we do not know enough about how the Inclusive World Economy changes and the slow process of scientific knowledge building may well be falling behind the rate at which the Inclusive World Economy is changing. It may well be the case that change has been so fast and far-reaching in the last century, that we actually have a less serviceable knowledge of our world than did peoples who lived centuries ago.

The High Cost of Formal Work Structures

Formal work control structures have the highest maintenance costs. Wages and benefits are higher than in other work control structures, but as explained in the section on formal work and energy supply above, other high costs are associated with formal work: the cost of government oversight and regulation, the cost of equipping high compensation workplaces, and government expenditures to maintain demand for high compensation workers. To illustrate, a study for the U.S. Small Business Administration found that regulations in general add \$10,585 in costs per employee.²²¹

Some of the costs of democratic institutions can also be assigned to formal work structures. Formal work structures are strongly associated with democratic decision-making processes. In particular, working people expect to have a say in choosing policies and procedures that affect their work circumstances. The institutional arrangements that make this possible are inseparable from the features associated with formal work structures.

High cost formal work structures also increase costs for informal work in the same nation. The effects can be quite large in nations with large formal work sectors because the possibility of moving from informal work to formal work helps informal workers bid up wages, benefits and working condition quality. This is the situation in most high affluence nations.

These cumulative high costs render high affluence nations vulnerable to economic competition from nations with smaller formal work sectors. In times of robust economic growth, this may be of little consequence, but in periods of economic slowdown, the jurisdictional work systems in high affluence nations become very vulnerable to funding cuts. This, in turn, creates vulnerability to political upheaval. With the rate of global economic growth now slowing, these vulnerabilities have become acute.

Large Scale Tendencies in the Global Work System

The work related elements of the global wealth allocation crisis operate as an interface between the slowdown in global economic growth and the conditions of work. These elements suggest some ways in which the allocations of wealth to jurisdictional work systems and to work control structures are likely to change. They facilitate some scenarios of change in the global work system and undermine others. Over time, of course, these historical elements themselves will be changed. As that happens, the possible scenarios for change in the global work system will also change.

Many scenarios of change in the global work system and many different specific outcomes are possible. But, three large scale directions of change are highly probable. The amount of human energy involved in work will increase; the kinds of industries in which work is done will change; and the configuration of work control structures and jurisdictional work systems that organize and control work will be quite different.

An Expanding Role for Human Energy

One of the biggest changes in the global work system will be an increase in the role of human energy. This expectation runs counter to current thinking about the transition to a solar energy based sustainable world economy. In the popular image of this transition there is no loss of global economic growth momentum as fossil fuels are phased out. Wealth in the Human Economic Arena will continue to increase, moving more and more people out of poverty and growing the global middle class.

The Inclusive World Economy concept makes this transition scenario unrealistic because the energy barrier to continued global economic growth is not simply a problem of the energy sources we use. The enormous volume of energy used by humans has its own inevitable, unintended, and destructive consequences, just as each energy source has.

The transition to a solar future is necessary and inevitable, but solar energy can power economic growth in the Human Economic Arena only to the extent that it can be diverted from the Natural Economic Arena. There is a limit to solar energy diversion, just as there is a limit to the volume of fish we can catch and consume and a limit to the amount of waste we can dump into rivers and lakes.

Covering vast expanses of desert with solar panels, populating thousands of square miles of farm land with wind turbines, and dotting miles of coastal waters with massive machinery to harness tidal energy cannot be inconsequential for the Natural Economic Arena. Such vast and expanding changes to the earth will have multiple unintended consequences, many unforeseeable and highly problematic. The existential threat from fossil fuels may go away, but another form of existential threat will emerge to take its place.

To help limit the diversion of solar energy from biological and physical agents and processes, the solar energy future must include human energy. The billions of humans who populate the earth consume a vast quantity of food produced by both the Human Economic Arena and the Natural Economic Arena using solar energy. This is an enormous and growing source of usable solar energy that must be a large part of the solar powered future just as it was a large part of the solar powered past.

A New Configuration of Key Global Industries

The global wealth allocation crisis is forcing a massive change in the configuration of industries that make up the Human Economic Arena. Investment priorities will shift to funding industries that produce goods and services needed to insure the survival of global society in general and the prosperity of shrinking but still powerful middle class. This massive change in industries will bring with it a massive change in the global work system as well as the massive changes in lifestyles that resolving the wealth allocation crisis requires. Major changes to the kinds of work humans do will happen. We will produce very different goods and services. We will work in new research fields, with new technologies and new skill sets, in workplaces organized in new ways, and with different benefits and workplace amenities.

The industries that will dominate the next global work system will almost certainly include population management, wealth protection (policing and surveillance), wealth maintenance, conflict management, food production management, and earth systems management. Their growth and development will require very large and growing infusions of income and wealth. In the context of slowing economic growth, these bigger investments of income and wealth must be offset in part by decreasing investments in other industries. Almost certainly, some industries that produce discretionary goods and services will contract or disappear. It will be difficult to maintain high production levels of goods and services that are deemed trivial, non-essential, or environmentally damaging.

Industry shifts are not new. The gas light fixtures industry disappeared with the advent of the electric light bulb. What is new here is the assertion that the industry shifts that are beginning now will not add to the stock of wealth in the Human Economic Arena as did earlier industry shifts. They will not grow the global middle class or enhance middle class living standards. Instead, they will primarily help us adapt to the global slowing of economic growth and protect ourselves from the destructive consequences of our own behavior.

Population Management

The global wealth allocation crisis will not be resolved without large investments in managing the growth of the human population and its territorial distribution. In the immediate future, large numbers of people will have to be relocated as climate change makes some coastal areas too costly to inhabit, as it transforms the global map of agricultural production possibilities, and as it relocates the supplies of fresh water provided by rainfall and snowfall. Large numbers of people displaced from urban areas by wars will also have to be managed. In the not too distant future, global population growth must be curtailed and eventually reduced to bring the wealth demands of humans in line with the carrying capacity of the earth. New industries and much larger shares of wealth will have to be allocated to these population management challenges.

Physical and Mental Health Maintenance

Physical injuries, disabilities, and mental health issues impose burdensome costs on families and public and private institutions. These burdensome costs will grow tremendously as levels of tension and conflict in the Human Economic Arena rise and as the number of unsafe and stressful workplaces increases in the coming years.

Our understanding of how people become physically injured and disabled is much better than our knowledge of how people develop mental health issues. Similarly, our knowledge of the costs

associated with caring for and rehabilitating people with physical injuries and disabilities is better. However, our understanding of mental health and mental illness has improved greatly in recent years. We know that wars and violence (including the street violence so common in our cities) produce mental health problems such as Post Traumatic Stress Syndrome (PTSD) that are costly to treat and associated behavior changes that are costly to manage. Even the stress of losing a job, working in a hostile work environment, or coping with angry neighbors can take a toll on mental health.

It is inevitable, therefore, that the physical and mental health care industries will grow. A growing number of the world's workers will work in hospitals, physical rehab centers, mental health centers, counseling centers, insurance company offices, pharmaceutical research facilities, herbal medicine factories and shops, alternative healing trades, and healing industries not yet developed.

Armed Conflict Management

The end of fossil fueled economic growth is not wanted. Nor is the continued transformation of the Natural Economic Arena into a degraded system than cannot adequately support human life. Many of the world's human communities, if not most, must be assigned wealth reductions. Decisions that have already been made have fomented conflict. Those conflicts will escalate and come to include higher level conflicts – conflicts over who gets to make the relevant decisions.

The institutional capacities necessary for preventing economic and political conflicts from escalating into armed conflicts are not in place. Nor are there sufficient institutional capacities for closing down armed conflicts once they are underway. The long and evolving conflicts in Afghanistan, Iraq, and especially Syria illustrate this lack of institutional capacity. Massive increases in institutional capacity building will take place, drawing deeply from the income and wealth of the Human Economic Arena.

At the same time, militarization will almost certainly continue for decades. This is very costly to the Human Economic Arena because the production of modern weapons is extraordinarily technical and using these weapons requires high levels of technical competency and specialized skills. The most powerful agents in the Human Economic Arena are already shifting large amounts of income and wealth to military and policing activities and to related industries.

Crime Prevention, Policing, and Surveillance

Investments in domestic surveillance and policing operations will very likely increase because of rising levels of interpersonal and intergroup conflict. Ordinary people in many places on earth already now have access to manufactured weapons with massive destructive power and to materials and equipment than can be transformed into powerful weapons. The global wealth allocation crisis almost insures that tensions will rise.

Some of the investments will go into institutional capacities for preventing and reducing tensions, but most will go into the capacities for observing human activities in important places, capturing and prosecuting suspects, and incarcerating those who are convicted. The militarization of policing operations will continue, blurring the lines between police operations and military operations. All of this will be done at great and growing cost to the Human Economic Arena.

Physical Wealth Maintenance

As investment funds are withdrawn from the development of new consumer goods and services and from the production of non-essential goods and services, maintenance and repair industries will increase. The recycling industry will expand as more of the world's people are required to recycle everything they are no longer using. And, the industry will shift away from scrapping almost everything to refurbishing whatever can be refurbished.

A growing emphasis on maintaining existing wealth will limit the number of people working in stores that sell new items of wealth such as new office equipment, new homes and buildings, new kitchen equipment, and new automobiles; it will limit the number of people working in factories that produce new items of wealth. More people will work in factories that produce parts and components for repairing things and in such trades as plumbing, small machine repair, furnace repair, home and building repair, and auto repair.

Earth Systems Monitoring and Management

Larger investments in industries dedicated to monitoring the full range of earth systems and in protecting and managing ecosystems are unavoidable. Large human settlements are now located in places that are highly vulnerable to earth system events like hurricanes, tornadoes, tsunamis, earth quakes, and wildfires. Elaborate monitoring systems are required to give sufficient warning to prevent hundreds, even thousands of people from being injured and killed. Much more monitoring is also required to assess whether changes to earth systems portend damaging consequences for humans.

The development of industries of this type is beginning under the name "earth systems engineering and management". This area of expertise is defined as engagement in designing and managing human-natural systems in an integrated fashion.²²²

Food Use Management

The challenge of food availability is now greater than it has ever been before. There are several parts to this challenge: Natural Economic Arena food production limits, the massive energy flows required by the food production technologies used in the Human Economic Arena, food waste and distributional inefficiencies, and damage to food production systems by climate change and habitat destruction. Only part of the earth's annual production of organic material each year is consumed by humans and the ability of the earth to produce our preferred items of food on its own is maxed out. We have augmented the food production capacity of the earth by steadily increasing the use of fossil fuel based technologies, but at the ironic cost of inducing climate changes and species extinctions that are damaging our food production systems.

The food industry is likely to change in multiple ways. Three that loom large are a change in food distribution (particularly, a shift to more local production of food), a major reduction in food waste, and the development of food items from plants and animals that have not been acceptable in high affluence nations. The beginnings of these shifts are already visible. In the U.S., numerous organizations have undertaken to salvage food that no longer has retail value from farms, factories, and grocery stores. New kinds of fish, seafood, plants and animals are showing up on grocery store shelves. Radio programs are hosting experts to talk about how to prepare and eat certain worms and bugs.

Less Formal Work, More Informal and Forced Work

As reported before, reliable data on informal work activities is difficult to obtain because are not monitored. Nonetheless, a few things can be said. At present informal work is estimated to account for 60 percent of the world's 3 billion workers.²²³ There are many reasons to expect the proportion of workers engaged in informal work to rise while the proportion of workers in formal work declines.

First, technological innovation will continue to push people out of jobs in government, in business enterprises, and in civil society organizations. Evidence suggests that increases in labor productivity (which come from technological innovations) reduce demand for workers in the formal sector and, thus, lead to an increase in informal work. Labor market theory suggests that as machines displace more workers in the formal sector, many workers will moved into the informal sector.²²⁴

In hard times, when formal jobs are difficult to obtain, informal work increases. For example, during the Great Depression the ratio of home production to measured GDP in the U.S. was 85 percent, while it was only 43 percent in the midst of WWII (1943).²²⁵ In the current economic environment, displaced formal sector workers often move into the informal sector, starting home based businesses or going to work for small business owners, as was done in past recessions. This time, however, formal work opportunities are very unlikely to return. Most displaced workers will remain engaged in informal work for the long term.

Second, formal sector enterprises and organizations will outsource more work to informal sector enterprises to lower the costs of labor, materials and supplies. In addition, many small and marginal enterprises will move into the informal sector as governments increase fees and taxes on the politically weakest people and organizations in their jurisdictions.

Third, as household incomes in high affluence nations continue to stagnate and decline, non-working household members will have to find work and already working household members will have to take on second and third jobs. Those jobs are more likely to be found in or be created in the informal sector where lower skill and part-time and temporary jobs are more abundant and one person businesses are easier to start.

In addition to an increase in informal work, there will also very likely be an increase in illegal and forced work. As work in the informal sector increases, competition among informal businesses and among informal workers will intensify. Many more informal workers will become economically desperate and vulnerable to being enticed into illegal activities and/or coerced to work in various ways. Many informal business owners will also become desperate and more likely to turn to illegal trades and to using intimidation and threats to maintain control over workers.

This shift from formal work to informal, illegal and forced work is facilitated by the weakening of the world's governments. In general, governments are becoming less capable of enforcing formal work standards and less capable of bringing informal workplaces into the formal sector. They are also becoming less capable of preventing the spread of illegal and forced work. Most governments are very unlikely to regain control over their revenue sources and rebuild their oversight and regulatory powers, so these trends are almost certain to continue.

Lower Quality Work Environments

Work environments will almost certainly become less pleasant for most of the world's workers as the flow of wealth into the global work system declines. Wages, salaries and benefits will continue to deteriorate in the formal work sector and never arrive in the informal work sector; workplaces will become less safe and injury and death rates in workplaces will increase²²⁶; the quality of tools and equipment will decline; workspace amenities will disappear; workplace relationships will become less friendly as management decisions regarding hiring, firing, work procedures, compensation, and work schedules become more arbitrary.

More Physical Exertion at Work

A very likely change in quality of work environments will be an increase in the role of physical exertion across most work control structures. As explained above, human energy must be part of the solar energy future. Even though many people, especially in high affluence parts of the world, may realize health benefits from the increased level physical activity at work, this change is still part of the deterioration in a conditions of work. The absence of physical exertion at work is associated with higher status, higher pay and the other perks of high compensation formal work. By prevailing cultural standards, an increase in physical exertion at work is a decrease in the quality of the workplace.

In the Human Economic Arena as a whole, the amount of human energy allocated to food production will increase substantially, reversing the trend in using more machine energy in food production that marked the 20th century. Some of this shift will show up in the form of more home and community garden food production. However, most of it will take the form of a gradual reintroduction of agricultural workers into food production in high affluence nations where mechanized food production has been pushed farthest.

Rebuilding the role of human energy in the production of goods and services will entail refitting our many workplaces with machines that are manually powered. We will have to invent new ways for human energy to help power the Human Economic Arena. In the past we have put small generators on bicycles to convert human energy into electricity to power the lights on a bicycle. To create the human energy centered workplace of the future, thousands of innovations and thousands of changes in human work activity will be required.

Fewer Workplace Amenities

Many formal workplaces in high affluence nations and high affluence areas of other nations offer workers a range of amenities such as free coffee, subsidized meals, well equipped break rooms, exercise equipment and walking paths, help with tuition costs, and flexible work hours. The increased costs to a business or organization are justified as helpful in retaining high quality workers and keeping workplace morale high. But, in hard times these amenities are expendable.

In the high affluence nations of Europe and North America, these kinds of amenities are already disappearing in many formal workplaces. As global economic growth continues to slow and the global wealth allocation crisis becomes more severe, many more businesses, government agencies, and civil society organizations will be forced to eliminate amenities. Even though workers may accept that such changes are necessary, they will still make the work environment less pleasant.

Greater Use of Machines to Manage Work and Workers

Even while the incorporation of machines into the production and distribution of wealth slows down and the use of human energy ramps up, machine use for certain purposes will almost certainly continue to grow in the world's workplaces. One workplace activity in which the use of machines will likely increase is managing work and workers. Management machines offer several advantages over management workers that can lower costs.

Supervisors and managers are relatively high cost workers in several ways. They receive higher levels of compensation, they make mistakes that cost money to correct, their work efficiency is often reduced by having to deal with problems from home, they get into disagreements with coworkers that lower efficiency, and they inevitably harbor various kinds of biases (race, gender, family ties, etc.) that contaminate their actions and can lead to costly negotiations and court proceedings. In many cases the use of machines to monitor and manage work flows and workers can eliminate these costs.

Machines are now becoming capable of very flexible interactions with people, so they have the potential for performing many management tasks, such as monitoring work flows, evaluating worker performance, and making pay and promotion decisions better than people. They can monitor work flow and workers much less intrusively than human supervisors and managers, so many production interrupting disagreements on the shop floor can be avoided; they can evaluate job applicants and worker performance without bias; and they only make the mistakes they were programmed to make.

The trend in this direction is already well established, with companies monitoring presence at a workstation and keystrokes on the computer. Guards and postal workers scan barcodes with machines that transmit time and location to a central office as they make their rounds. As the global wealth allocation crisis forces businesses and organizations to make decisions about how to use energy and machines, this use is very likely to be assigned high priority.

While owners and managers will find this use of machines cost effective, workers will likely experience this kind of supervision and management as indifferent and unresponsive. As consumers, we already get a taste of this kind of indifferent and unresponsive treatment when we call a business with a problem or grievance and have to interact with a menu of canned responses. No matter how soothing and friendly the technologies make the voice sound and no matter how well the computer can carry on what sounds like a real world conversation, the inflexible responses tell us our concerns are not important enough to be handled by a real person.

Fewer Work Participation Services

The availability and quality of services that support participation in the workforce will also decline. Child care services, whether provided by employers or by governments, will deteriorate in quality or disappear. Public transportation services will become less reliable or unavailable to many workers. More travel to and from work will be done on foot, by bicycle, and by hitchhiking rides. Training programs will become less and less affordable. Very few workers will be able to qualify for unemployment insurance and workers compensation payments. The loss of some work related services and the greater difficulty of qualifying for others will add to the loss of work life quality that most working people will experience.

More Authoritarianism

The slowing of global economic growth will continue to make the global wealth allocation crisis more severe for many years to come, creating ever more discontent and political turmoil. Also, the current distribution of powers among agents in the Human Economic Arena is very likely to persist, so the most powerful business owners and investors and their government allies will be in the strongest position to dominate policy making. They can be expected to use every means available to defend their interests and expand their power, including authoritarian measures more severe than the ones already being implemented.

The general trend is likely to be an increase in corporate domination of the global work system. Management of the global work system will become more centralized, with corporation dominated civil society organizations playing greater roles while governments lose regulatory powers and labor unions lose representational power. The result will be a more authoritarian global work system than we have today.

More Authoritarian Workplaces

Business owners and managers are pushing work control structures in the direction of more authoritarian control in response to the global wealth allocation crisis. The number of authoritarian workplaces in the global work system and the intensity of authoritarianism can be expected to increase as both government agencies and labor unions continue to relinquish power over jurisdictional work systems and work control structures. Most workers are likely to find themselves in more authoritarian workplaces. They will have less work autonomy, have much less input into management decisions, and experience a greater number of arbitrary management decisions.

Work control structures will increasingly be formed and controlled by corporations and large civil society organizations acting individually and in combinations based most often on supply chain relationships. Some third party oversight operations will exist, but they will most likely be carried out by private organizations funded primarily by corporations and foundations. They will no doubt have benevolent sounding names like “International Organization for Workplace Integrity”. Compared to the oversight operations of strong governments third party organizations will have little incentive to reject corporate positions and even less enforcement power when they do side with workers.

The number of authoritarian workplaces will also increase because more and more workplaces will be informal. As governments relinquish monitoring and regulatory functions, more work will be done informally and in forced work conditions. Informal work is done outside the purview of governments, so informal workers are much more likely than formal workers to be subjected to authoritarian management styles. Forced work is, of course, done under authoritarian and worse conditions.

More Limits on Labor Unions in Designing and Enforcing Work Rules

Labor unions can serve the interests of working people only when governments define and defend the organizing and negotiating rights of workers. Owners and investors fight continuously to eliminate unions and undermine union organizing efforts, so governments must have both the will and the revenues to create and defend a political space for unions. As government revenues shrink and as corporations gain greater and greater control over elections

and government policy-making, the political spaces for union activities will shrink and disappear. Inevitably union membership will continue to decline and unions will disappear from many workplaces.

Unions that survive are likely to be those that do not retain their independence. Corporations and large civil society organizations will try to win over union leaders, transforming them into extensions of management. Having little power with which to resist, many union leaders are likely to take the offer. Assertive representation of worker interests will decline. In effect, many unions will become in-house providers of owner friendly arbitration services.

More Authoritarian Jurisdictional Work Systems

Workers are also likely to find themselves up against more authoritarian jurisdictional work systems in which dictates about labor market and workplace rights are handed down by government agencies with little opportunity for input and few ways to protest. Government agencies that monitor and regulate labor markets and workplaces will continue to lose funding. Governments will become less trustworthy as evenhanded arbitrators of disputes between workers and employers as corporations increase their power over them and bring them into alignment with business priorities.

The governing priorities for business owners and investors include defending territories and markets, protecting property and property owners, maintaining infrastructure essential to business operations, and keeping a lid on citizen discontent. As discontent continues to grow, governments will become more militaristic and more authoritarian. They will deal more harshly with domestic dissidents. This is just as likely in high affluence nations as in the middle and low affluence nations we typically associate with authoritarianism. Governments in high affluence nations can also be expected to expand military institutions to protect corporate property spread across the world.

Emergence of a New Story of Work

The coupling of science to fossil fuels not only gave rise to the revolutionary industrial machine world and the global work system we now have, but also to the story of work in which we came to believe. Much of this story will not endure into the new era. The massive changes that are taking place in the Human Economic Arena will force us to create a new story of work, one that better aligns with the work conditions and practices in the new global work system. Whether that story is a joyful and hopeful one, or one filled with sorrow and rage will depend on who controls the process of inventing the new global work system and what kind of system they invent. At the moment, prevailing tendencies do not point to a joyful and hopeful new story of work. But, tendencies can be changed by determined and well organized people.

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Chapter 8: A Desirable and Plausible Work Future

The conceptualization of the crisis in the Human Economic Arena presented in this book points to the necessity for two essential and related requirements for the next global work system. First and foremost, it must substantially reduce the redirection of materials and energy from uses in the Natural Economic Arena. Secondly, it must make much greater use of solar energy in all its forms, including its human energy form. Making the changes to meet these requirements is not optional; they are imposed by the limits and barriers to economic growth discussed in a previous chapter. But, how we make the changes is not predefined. Nor are the specific qualities of the global work system that we create to conform to these requirements.

These unavoidable global work system changes will take place as part of the process of resolving the global wealth allocation crisis. This crisis can be resolved in at least three different ways: we can continue pressing beyond the carrying capacity of the earth until the laws of nature impose catastrophic destruction on human activities and life; we can acquiesce to an authoritarian and militaristic solution in which the world's high affluence minority imposes massive losses of income and wealth on the majority of people (and perhaps massive losses of human life); or we can use democratic institutions to broadly distribute the losses of income and wealth required to resolve the global wealth allocation crisis. For most of us, this last option is the most desirable.

If the political forces for democratic change processes can prevail, it will be possible to create a new global work system that not only conforms to the requirements defined above, but which is also democratic, egalitarian, universally accessible, and aligned with the carrying capacity of the earth. In keeping with the concept of an Inclusive World Economy, let's call this kind of next global work system an Inclusive global work system.

At the moment, prospects for a democratic resolution of the global wealth allocation crisis, and thus for the creation of an Inclusive global work system, are not good. Most people are not ready to fully embrace big and painful changes to their lives, so they are not ready to participate in a transformative change process. They still want business and government leaders who assure them that the good life created in the high affluence nations can keep getting better and better and that more and more of the world's people can live these good lives. Those leaders cannot deliver on their promises; all they can do is push more and more people out of the running for the good life by labeling them as unfit and unworthy. In other words, at the moment, the world's most privileged peoples are drifting and sometimes lunging toward a global authoritarian withdrawal of wealth from billions of people to protect their own wealth as the global wealth allocation crisis deepens.

It probably doesn't need to be said that if a good number of very strong and moderately strong nations fully embrace authoritarian wealth grabbing, a global war or a torrent of local wars is inevitable. Other peoples and nations will resist; they will not peacefully hand over wealth they think they have a right to. Winners and losers will be determined by military power. Massive destruction and a great loss of life would be the almost certain outcome.

Despite this gloomy assessment, a democratic resolution to the global wealth allocation crisis is still possible. The political obstacles are daunting, but possible to overcome. Some societal conditions are favorable and many groups and organizations are already pushing back against authoritarian tendencies and working to build and support democratic change processes. Whether success is achieved depends on how much determination and energy these groups and organizations can bring to the work of bringing the many potential political coalition partners together and to developing and implementing strategies to take advantage of the societal conditions that are favorable to success. Thus, developing democratic change processes is the first priority for groups and organizations that want to create an Inclusive global work system.

Building a More Democratic Global Change Process

The first priority in the work of creating an Inclusive global work system must be building democratic change processes everywhere possible. This is absolutely necessary because democratic change processes can facilitate responsiveness to the needs and interests of others and generate widespread acceptance of the painful changes to how we work and live required to create an Inclusive global work system. This democracy building work involves redistributing power, changing the purposes for which power is used, and changing the ways in which power is exercised. We must change the kinds of powers corporations and governments have, change how corporations and governments obtain their powers, and change what corporations and governments do with their powers.

Change making work in other areas cannot be postponed, but it should be aligned with progress in changing the distribution and uses of power. This is necessary because the existing distribution of power and the ways in which it is used are the primary barriers to achieving changes in the global work system that are required. The distribution of power and its uses must change first so that powerful people and institutions do not block change work toward other goals and so that powerful people and institutions will accommodate the changes that our work brings about. (Too often now, promising models for democratic workplaces are starved of resources or intentionally destroyed by those with power.)

Changes in how power in the Human Economic Arena is distributed and used will have to be made at every level of government and across the spectrum of society. Most importantly, democratic institutions will have to become more inclusive and much more capable of directing change in all economic and political institutions in the Human Economic Arena; democratically controlled global and national governing agencies will have to gain much more power to regulate the activities of business enterprises; agencies responsible for maintaining social order will have to be realigned away from priority training on use of force to priority training on using dialog and de-escalation techniques to maintain order.

Different forms of democratic participation will be required for different decision-making tasks. For small communities, participatory democracy processes can be developed. Where populations are too large for participatory democracy to be practical, representative institutions must be structured so that elected representatives are primarily accountable to the peoples who voted for and against them. This will require represented populations to be small enough for regular contact between a representative and their constituents to be practical.

For global institutions such as the United Nations, the World Trade Organization, and the World Bank there is no reason that direct election of representatives cannot be implemented.

Coordinating global elections is not more technically challenging than managing globally distributed work teams that are designing and manufacturing an airplane with millions of parts.

Qualities for an Inclusive Global Work System

The vision of an Inclusive global work system gives rise to many questions. How much must humans ‘give back’ to the Natural Economic Arena so that human work is aligned with the carrying capacity of the earth? What are the features of a good job in an era of steady-state wealth? How should the use of machines in the workplace be structured? What will be the role of unions in an era in which the pursuit of higher wages and benefits and more luxurious working conditions can make things worse? Is decentralized and uncoordinated policy making (by national governments, local governments, and enterprises) counterproductive? Much work will have to be done to answer these questions, work that involves research, experimentation, and evaluation.

A Closer Alignment of Human Work with Work in the Natural Economic Arena

In his book, *Half Earth*, Edward O. Wilson proposes that humans set aside half the earth as a preserve for non-human life. This proposal stands out as ambitious, but thinking about our challenge in this way misses a key part of the challenge. The goal cannot be defined as setting aside some of nature for nature and protecting it as if humans and nature are separate. This is not possible because in the Inclusive World Economy, everything is connected. Whatever we do in those areas of the world that we have taken for ourselves will generate changes in the supposedly protected areas. Our vision must be much more inclusive and holistic. The goal must be to harmonize human work with all other work in the Inclusive World Economy.

A Larger Role for Human Energy

The core of the challenge for an Inclusive global work system is finding ways to build in constraints on the consumption of resources by work structures that are widely embraced and, therefore, easily enforced. This challenge has two parts: 1) identifying relationships and practices that can constrain consumption of resources by work structures, and 2) creating a participatory decision-making process that facilitates the widest possible buy-in when policies are adopted.

Rebuilding the role of human energy in the Human Economic Arena will also require a number of changes in what is done in our economic enterprises and how work is organized. A slowdown in the overall rate of material transformations involved in the production of goods and services for human use and consumption will certainly be needed. To accomplish this, quantity of output will have to give way to quality of output so product life cycles become much longer. Work organization changes might include having fewer organization levels so a higher percentage of people in an organization contribute energy to production and distribution activities and using machines to augment human work rather than to replace human workers.

Universal Standards for Work

In the era of economic growth, the goals for changing work standards were to increase the minimum standards applicable in a jurisdictional work system, spread those standards to

jurisdictions with lower standards, and push the standards for well compensated, high quality jobs even higher. This approach is no longer applicable.

A few key elements of these standards can be stated up front: an absolute ban on forced work; a much smaller range of compensation levels. Other very desirable elements would include an emphasis on large energy and materials efficiencies; participation in decision-making in the workplace; work schedule flexibility; skills appropriate to simpler and well proven technologies; and comradery in the workplace.

An Equitable Distribution of Work Opportunities

The interactions among all the human and non-human agents in the Inclusive World Economy create optimal locations and time frames that vary across the global work system. This is the primary reason that an equitable distribution of work opportunities cannot be achieved by only setting universal standards and pushing investment from high investment areas to low investment areas of the world. To achieve an optimal distribution of opportunities for work, two other institutional mechanisms are needed.

First, every person must be guaranteed access to a point of entry or reentry into the global work system. Entry points could take many forms – government subsidized basic jobs, no-cost training programs with stipends for living expenses, for examples. Second, people must have much greater freedom to move about, from nation to nation, from organization to organization, and from workplace to workplace within organizations. These changes are critical for achieving the efficiencies that will be required to transition out of the era of economic growth with the least losses of wealth and with equitably shared sacrifices.

Much Greater Global Coordination of Human Actions

The Inclusive World Economy is a system whether we want it to be or not. And, it's a system in which the totality of human actions is an enormously powerful and often destructive force. In this age of very destructive high tech warfare, climate change and extreme weather events, fracking induced earthquakes, and global ecosystem destruction, Joseph Schumpeter's famous statement that the essential fact of capitalism is "creative destruction" takes on new meaning.

Without coordination of human activities across the Human Economic Arena, the Inclusive World Economy cannot become stable and sustainable. We are no longer in a world in which a high level of global coordination is not necessary. Global transportation and communications technologies and global supply chains have produced a complex and powerful network of global economic, social, and political connections that we cannot undo. We cannot put an end to global connectedness, or to global trade, or to global business enterprises and global governing institutions, or to territorial governments with very strong enforcement powers. But, we have to manage them differently to protect our wellbeing.

If the technologies and institutions of our global world make global coordination of human action necessary, they also make it possible. We can use these technologies and institutions to significantly enhance global coordination of human actions. We can use these technologies and institutions to facilitate a global democracy, to enforce universal standards of work, and to restore and protect the Natural Economic Arena – all of which are essential to an Inclusive global work system.

A New Culture of Work

Human work has always focused primarily on producing the necessities of daily life and secondarily on producing the nice extras. In our western world of affluence, that basic function of work has become obscured. A new culture of work must bring this function back to the fore. This shift must be coupled with other cultural shifts: a restoration of the appreciation for the physical in work; a much greater awareness of the similarities between human work and the work done by other species; a renewed appreciation of the massive power of natural cycles; an appreciation for the totality of processes that sustain us; and an understanding of our place in the Inclusive World Economy as one of modest visions rather than unbridled visions that drive a global quest to subordinate and dominate everyone and everything.

Potential for an Inclusive Political Coalition

A few current trends in political interests and political agency provide cause for optimism that a progressive resolution of the struggle over political space will eventually emerge. Although changing political interests have produced lots of fragmentation, and misguided and even dangerous public policies, other trends suggest that a shift toward convergence is a strong possibility. Collectively, these trends provide opportunities for bringing various communities of people together around a new vision of work and into a movement to implement that vision.

Simplification of Distinctions among Work and Workers

Distinctions among working people based on skill levels and conditions of work have long undermined political unity among people who are not major owners of productive property or financial capital. In the 20th century, these distinctions increased in importance as rising levels of affluence facilitated the rise of new and more clearly defined categories of workers. Some workers obtained more education than others; some but not others became invested in the stock and bond markets; some but not others obtained jobs with large, high profit corporations and worked in premium workplaces; some but not others became union members.

For a couple of reasons, the power of these differences among working people are now slipping away. First, many of the biggest differences among working people can be summarized as differences in income and wealth. We have already seen that business and government leaders are targeting workers with high compensation levels for reductions. So, differences of income and wealth are shrinking. Second, as productive technologies transform more skilled workers into computer screen watchers, which are little more than high tech assembly line workers, differences in the meanings and satisfactions associated with work are shrinking.

As distinctions between lines of work become less salient, differences in political interests related to work should diminish. It should become easier to forge wider circles of agreement on political agendas and larger coalitions of working communities. This kind of shift in politics would substantially alter the balances of power in both domestic and transnational politics.

This shift does not have to result in a democratic coalition of working people. Astute moderate and conservative leaders can harness this widening convergence of interests to authoritarianism. They can promise improvements based on denying that the slowdown in economic growth is happening, they can promise to take back what has been taken. In the longer run, though, the potential is greater for a democratic coalition because the slowing rate of economic growth will

not allow moderate and conservative leaders to deliver on their promises. The experiences of being mislead and continuing to lose economic ground can give rise to openness to the ideas of alternative leaders who emphasize democratic and inclusive approaches to managing and resolving the global wealth allocation crisis.

Shifting Social and Political Connections among Communities of Working People

Global communications are making it easier for communities of workers separated by large distances to develop understandings of how many communities are facing large and costly disruptions to life because of climate change and ecosystem collapses. They are also able to share experiences about how well their governments are assisting them and see that the allocation of wealth to restore damaged communities almost universally favors the rich and powerful over working people. To use the jargon of the 1960's and 1970's, consciousness raising could become an accelerating phenomenon.

Organizations that can facilitate the growth of a global political consensus are already being developed. According to Carroll and Sapinski, transnational alternative policy groups (TAPGs) have emerged as a component of global civil society. They are developing visions and strategies for a globalization from below. Importantly, the authors contend that TAPGs are well placed as agents for global democratic transformation.²²⁷

Expanding Space for Political Organizing

Political space takes many forms, both institutional and cultural. It expands when institutional and cultural constraints on political activities and experimentation weaken. This has been happening on a global scale, as fiscally and institutionally weakened governments become less able to interfere with worker associations and organizations. Laws may be in place and more laws may be added, but enforcing them has become more difficult. Just as businesses can now experiment with new practices with less fear of governmental enforcement of regulations, so too can communities of people experiment with new modes of political confrontation. There is also more cultural space for political organizing because distrust of government agencies and big businesses has become more widespread. Of course, a larger political space is open to everyone. Other movements cannot be prevented from taking advantage of this space. It is contested terrain.

A Potential Constituency for an Inclusive Global Work System

As the world's working people lose economic and political ground, they are becoming increasingly open to new ideas about work. Many are becoming aware of and connected to alternative work arrangements (whether by choice or by necessity). Many are developing new ideas about work, markets, and the responsibilities of governments and corporations. They constitute a growing constituency for creating new work control structures and new jurisdictional work systems. Many of them will embrace a democratic process of change and the vision of an inclusive global work system.

The key groups that are part of this potential constituency are people who have long engaged in informal work, people who have been displaced from formal sector jobs and less desirable work, and formal sector workers who are seeing the quality of their formal work environments

deteriorate. A majority of the people in this potential constituency are informal workers who reside in middle and low affluence nations. However, widespread changes in high affluence nations have produced large numbers of current and former formal sector workers who can be included.

Informal Sector Workers

Most people who do informal work do not earn living wages, do not work in democratically organized and safe workplaces, and do not have work security. At present, organizations of informal workers and their supporters try to change these conditions by pressing their governments to formalize their work, that is, to bring their work under the same regulations that apply to formal work and provide the same level of monitoring and regulation enforcement that applies to formal sector work. Individually, informal workers make efforts to improve their own situations by looking for work in businesses where work is already formalized.

For the vast majority of informal workers, these efforts will fail because success depends on an expanding supply of governmental services (especially economic safety-net services) and government enforcement of personal property rights, work place wage and benefit standards, and contract enforcement, among other things. In the context of slowing economic growth, this can happen only in certain nations at certain times and only temporarily. In most of the world, formal sector opportunities will not materialize. Workers will become discouraged and more open to alternative possibilities.

Informal sector workers will have little choice but to accept their circumstances or develop alternative ways of working. Those who do not simply give up will be amenable to the alternatives offered by the many cooperative work control structures. They are also likely to experiment with their own community and family based solutions to the challenges of overcoming the hardships and dangers of informal work. Many will be open to contributing to the work of creating an inclusive global work system.

Displaced and Threatened Formal Sector Workers

Formal sector workers are confronted not only with displacement into non-regular work, informal work or long term unemployment, but also with deteriorating conditions in their formal work environments. As increasing numbers of formal sector workers encounter displacement and declining quality of formal work, they will lose hope that they will someday see more opportunities to work in high quality formal work settings. They will incorporate this view of things into their cultural knowledge; they will change the ways they think about their present work situations and different possibilities.

Emotional and intellectual attachments to formal work will fade. New motivations and new personal and institutional goals will emerge. And, as these changes develop, the politics of working people will become less and less focused on defending or pursuing formal work and increasingly focused on gaining support for the work activities their lives are coming to depend on. They will begin to acknowledge that western middle class affluence is not ecologically sustainable. Many will look about them for work settings that offer better conditions than informal and non-regular work now offer. The number of people who are aware of and have experience with such alternative work arrangements as worker cooperatives, B corporations, and civil society organizations will grow. An increasing number of people will become open to participating in the creation of the institutions for an Inclusive global work system.

Limits to Movements Based on Race and Nationality

Some of the movements that have developed in recent years and attracted working people use race and nationality differences mobilization tools. However, the growth potential for such movements is very limited because the only real choice the members of such movements have is for social self-segregation. Economic segregation has become virtually impossible except through the mechanism of economic self-sufficiency. And the only models we have for this form of separation do not offer much promise.

North Korea's leaders have done much to isolate North Korea from other nations in the Human Economic Arena, but almost no one in the rest of the world sees that as a useful exercise. One can find isolated tribal communities and intentional self-sufficiency communes here and there, but again, they do not offer scalable alternatives to full participation in the Inclusive World Economy.

In the end, movements that wish to strengthen racial and/or national identity boundaries will produce disappointment. The fluidity with which large corporations move factories from nation to nation and move workers for those factories from nation to nation increases cognitive dissonance for workers who strongly believe their value to employers and their rights as workers come to them through their membership in particular national and ethnic groups. Rather than increasing their welfare, such movements waste resources on conflicts that only deepen the global wealth allocation crisis. Sooner or later, working people who are now drawn to such movements will confront these realities and begin to look elsewhere.

Growth of Institutionalized Work on Alternative and Sustainable Economic Models

Many communities of workers are being forced to explore and try alternative ways for organizing work, employment, and markets for exchanging goods and services. Others are finding opportunities to expand alternative systems of work and employment and alternative market arrangements in which they have long been engaged.

The world economy is entering a long period of enormous fluidity in how work is organized. By necessity, the world's workers are examining a wide range of possibilities for improving their work life situations. At the same time, large numbers of organizing entrepreneurs are offering up a variety of strategies, from coops to unions, to political parties, to disengagement and resistance.

The Strengthening Connection between Democracy and Survival

The historical conditions in which we now live and the changes in those conditions that are taking place lead to a very sobering but hopeful conclusion: fairness and human survival are now inextricably connected. Without fairness in the resolution of the global wealth allocation crisis, our fate will be massive extinctions not only of animals, plants and insects but of whole human communities as well.

It is becoming increasingly clear that the great inequalities of wealth and power enable a small portion of the world's people to pursue strategies of shifting the detrimental consequences of the global wealth allocation crisis to others while continuing to enrich themselves. Within their physically parochial and protected worlds of unending affluence, they have great difficulty becoming aware of how enormous the threats to human survival have become. They are confident that whatever comes to everyone else, the Human Economic Arena will continue to provide them with safety, affluence, and satisfying lives.

That world view powerfully influences responses to the global wealth allocation crisis because the very people who have that world view are the ones who dominate the response decisions. The result is a pattern of policy making around the world that is failing to slow the ongoing destruction of the Natural Economic Arena. A counterbalance must come from the inclusion in policy making of the peoples of the world who are in the direct paths of the destructive forces of change. Without that counterbalancing political force, global catastrophe is much more possible.

Potential Leaders for Building an Inclusive Global Work System

Building an inclusive global work system will require a global movement fueled by the energies of many democratic change organizations steered by visionary and effective leaders. Potential leaders must be able to articulate a democratic and life-sustaining new vision that does not depend on more economic growth. Only certain groups are likely to produce leaders who can do this.

Numerous individuals, groups and organizations around the world envision and work to create workplaces that are democratically controlled, safe, fair, and sustainable. They work for global investment and trade policies that would align with the growth of these kinds of workplaces. They press their governments to make changes that expand opportunities to experiment and press the owners and managers of business enterprises to change their practices. Many organizations, networks, practices, and ideas are associated with these efforts: Social and Solidarity Economy; fair trade, Solidarity Economy Network, worker cooperatives, B corporations, microfinance, peer-to-peer financing, community currencies, sustainable development, and many others.²²⁸ A search of the Web using these terms will produce a massive amount of information about such efforts

These organizations and activities lay part of the groundwork for a transition to an inclusive global work system, but not all of it. Much of this work does not yet take the end of the era of economic growth fully into account. Many of the plans for institutional change rest on the optimistic assumptions about economic growth that currently prevail, so they have to be reformulated without these assumptions. The understanding that the era of economic growth is coming to an end must move to the forefront of every organized effort to change the conditions of work, whether the effort is focused on the work control structure in a particular company, on the laws and customs of a jurisdictional work system, or on the global work system as a whole. This is the challenge of leadership.

Leadership in reformulating goals and strategies is likely to come from certain constituencies and organizations. Potential leaders will likely come from some organizations of informal workers, workers and leaders associated with the world's cooperatives movements, some trade unions, communities in which displacements from work have had large consequences, some business leaders in the sustainable development movement, and other organizations committed to alternative economic models that promise greater economic equality and fairness.

Community Leaders

Communities with large informal sectors and communities where losses of formal work and threats to the quality of formal work are high have the potential for developing the appropriate kind of leadership. Communities with a substantial worker cooperatives presence are even more promising. In time, as more formal sector workers gain a better understanding of the global

wealth allocation crisis and the kinds of changes in the Human Economic Arena that demands, some more affluent and stable communities may produce new leaders.

Cooperatives Movement Leaders

The Cooperatives movement may be the most fertile source of leaders and activists for building an inclusive global work system. Cooperative enterprises are present in every nation and their participants have relevant expertise for organizing work control structures that are democratic, energy efficient, and fair to all workers. Global membership in cooperatives is estimated at around one billion; cooperatives directly or indirectly employ 250 million people.²²⁹

Cooperatives are already governed in most cases using democratic principles and practices and coop members already embrace sustainability goals.²³⁰ Those characteristics can facilitate discussion, planning, and implementation of transitions to workplace practices that require less machine energy and reduce inputs of wealth.

Adaptable Leaders in the Sustainable Business Movement

The sustainable business movement is problematic because many of its leaders believe new technologies will make it possible for humans to continue to accumulate wealth while not interfering with nature. Others, however, know from their work with ecosystems and from learning from the scientific community that technology cannot increase the carrying capacity of the earth. They already see that humans have to live and work differently to achieve a life-sustaining resolution of the global wealth allocation crisis.

Adaptable Labor Union Leaders

Many labor unions represent the high compensation formal workers whose wages and working conditions have been most damaged by the slowdown in global economic growth. For the most part, the leaders in those unions have joined with the owners and investors in companies and industries to defend existing operations and labor-management arrangements as a strategy for slowing the loss of high compensation jobs. So, for the most part, trade unions that represent high compensation workers do not promise to produce the kind of leadership we need. This will change to some extent.

With membership in independent unions at such low levels worldwide, with laws governing worker rights and labor organizing becoming more hostile to unions in the high affluence nations and already hostile to unions in much of the rest of the world, and with global competition among populations of well educated and skilled workers continuing to expand, the strategy of joining forces with industry and company leaders is becoming less viable for many trade unions. Some trade union leaders and member activists will come to see greater possibilities in working with others to create new models of work organization and work security. Many are already embracing sustainability goals.

Community Based Business Owners

Owners of businesses who live in the communities in which their businesses operate are more likely than absentee business owners to become agents for new ways to organize work and provide work security. Their business interests and their personal interests are directly tied to the economic and social wellbeing of their friends and neighbors in their communities. Some of these business owners may want to grow their businesses into major corporations with operations

spread across multiple jurisdictions, but that path is open to only a few. Most will eventually accept the limits to their own achievements and when they do they are likely to become amenable to supporting efforts to create new models of work organization and work security.

It Has to be Done

It is probably true to say that most of the world's working people do not think of themselves as experimenters and do not want the burden of inventing a future for the global work system. In low affluence parts of the world where the formal work structures have always been more promise than reality, most people probably want their governments to make access to work in formal work structures attainable where they are and in their lifetimes. In the high affluence parts of the world, most working people who have lost wages and benefits and job security still believe in the return to "normal" scenarios promised by mainstream economists and policy experts.

The world's working families may not wish to be the inventors of a new world of work, but our other options are not good ones: nostalgically clinging to the past as it slips away (as it must) or psychologically acquiescing to the imposition of most losses on our communities and surviving by any means possible. Working for a desirable global work system is really the only option to choose and it is a plausible option.

New models for work control structures that are humane, egalitarian, and earth sustaining can emerge. Achieving that kind of transformation will require a massive effort on the part of the world's working people. We will have to invent that future through active experimentation and democratic processes that grapple with difficult issues. Otherwise, the future will be invented for us.

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Index

A

Affluent Nations · 2

C

civil society organizations · 41, 63, 74, 75, 78

E

economic theory · 22, 25
ecosystem · 21, 42, 60, 148, 150
ecosystems · 13, 31, 44, 63, 69, 137, 154
energy · 28, 30, 31, 32, 33, 34, 35, 36, 39, 43, 54, 55, 60, 62, 69, 70, 79, 115, 116, 117, 131, 133, 134, 135, 137, 139, 140, 141, 144, 145, 147, 154
entropy · 62, 65
environment · 13, 21, 28, 31, 39, 42, 46, 74, 77, 79, 81, 97, 98, 136, 138, 140, 175
environmental · vii, 2, 21, 69, 72, 75, 85, 92, 98, 132

F

forced work · 4, 6, 7, 9, 107, 109, 110, 112, 114, 118, 123, 125, 126, 139, 142, 147
Forced work · 6, 109, 110, 125

G

Global Work System · 33, 107, 110, 113, 115, 117, 118, 126, 130, 131, 132, 134, 139, 141, 143, 153, 155
Great Recession · 1, 3, 10, 11, 15, 93, 121

H

habitat · 70, 78, 132, 138
habitats · 31, 44, 61, 68, 69, 70, 78
high affluence nations · vii, x, xi, 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 57, 58, 59, 76, 83, 93, 97, 108, 109, 110, 112, 114, 118, 119, 120, 121, 122, 123, 131, 134, 138, 139, 144, 145, 150, 154
Human Economic Arena · 40, 41, 42, 43, 44, 45, 52, 53, 60, 62, 63, 67, 68, 71, 73, 74, 76, 77, 78, 101, 131, 134, 135, 136, 137, 144, 146, 147, 148, 152

Human World Economy · 5, 32, 51, 59, 60, 61, 62, 63, 64, 67, 68, 70, 71, 72, 73, 74, 76, 77, 85, 92, 107, 110, 111, 116, 118, 119, 122, 123, 130, 131, 132, 134, 135, 136, 138, 153, 154

I

Inclusive global work system · 145, 146, 147, 148, 150, 151, 153, 154
informal work · 5, 109, 114, 122, 123, 124, 125, 138, 139, 144, 151

L

low affluence nations · x, xi, 1, 3, 4, 7, 8, 57, 58, 59, 93, 97, 150

M

middle affluence nations · x, xi, 2, 3, 4, 8, 11, 58, 73, 93

N

nation-state system · 13, 56, 71, 73, 86, 99, 100, 101, 110, 113, 114
Natural Economic Arena · 40, 43, 44, 53, 60, 63, 67, 68, 85, 92, 107, 132, 134, 135, 136, 144, 146, 147, 148

S

second law of thermodynamics · 70
supply chain · 27, 29, 32, 72, 76, 81, 110, 142
supply chains · 29, 32, 72, 85, 107, 110, 116, 122, 125, 148

T

technologies · 1, 7, 10, 28, 30, 41, 42, 44, 45, 51, 52, 53, 54, 55, 60, 68, 69, 73, 79, 84, 116, 133, 135, 137, 141, 147, 148, 149, 154
technology · 50, 116, 154

W

work · v, vii, viii, ix, x, xi, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 16, 17, 21, 22, 23, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36, 43, 45, 50, 54, 55, 57, 70, 76, 77, 80, 81, 83, 84, 86, 91, 92, 93, 96, 101, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 128, 130, 131, 132, 133, 134, 135, 136, 137,

138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 160, 162, 165, 172, 173

workplace · 4, 6, 7, 9, 10, 16, 27, 33, 42, 57, 77, 81, 84, 108, 111, 112, 113, 115, 116, 117, 123, 124, 125, 131, 135, 139, 140, 142, 146, 147, 148, 154, 170

workplaces · 1, 6, 7, 8, 10, 108, 111, 113, 115, 120, 133, 135, 136, 139, 140, 141, 142, 146, 149, 151, 153

World-Ecology · ix