

A CENTURY OF DOCTORATES: DATA ANALYSES OF GROWTH AND CHANGE pdf

1: www.enganchecubano.com - Survey of Earned Doctorates - NCSES - US National Science Foundation

Century of Doctorates Data Analyses of Growth and Change: U.S. PhD'S--Their Numbers, Origins, Characteristics, and the Institutions From Which They Come: a Report to the National Science Foundation, to the National Endowment for the Humanities, and to ().

Two millennia of mean surface temperatures according to different reconstructions from climate proxies, each smoothed on a decadal scale, with the instrumental temperature record overlaid in black. Multiple independently produced datasets confirm that from 1850 to the present, the global average land and ocean surface temperature increased by 0.8°C. The rest has melted ice and warmed the continents and the atmosphere. Regional effects of global warming and Cold blob North Atlantic Difference between average temperature in 1998 compared to the period, showing strong arctic amplification. Global warming refers to global averages. It is not uniform around the world: Although more greenhouse gases are emitted in the Northern than in the Southern Hemisphere, this does not contribute to the difference in warming because the major greenhouse gases persist long enough to diffuse within and between the two hemispheres. One climate commitment study concluded that if greenhouse gases were stabilized at year levels, surface temperatures would still increase by about 0.5°C. Some of this surface warming would be driven by past natural forcings which have not yet reached equilibrium in the climate system. Some climatologists have criticized the attention that the popular press gives to "warmest year" statistics. Attribution of recent climate change By itself, the climate system may generate random changes in global temperatures for years to decades at a time, but long-term changes emanate only from so-called external forcings. It was proposed by Joseph Fourier in 1824, discovered in 1827 by John Tyndall, [63] was first investigated quantitatively by Svante Arrhenius in 1896, [64] and the hypothesis was reported in the popular press as early as 1896. The rest of this increase is caused mostly by changes in land-use, particularly deforestation. According to professor Brian Hoskins, this is likely the first time CO2 levels have been this high for about 4 million years. Attributions of emissions due to land-use change are subject to considerable uncertainty. Atmospheric particles from these and other sources could have a large effect on climate through the aerosol indirect effect. They exert a cooling effect by increasing the reflection of incoming sunlight. Removal by clouds and precipitation gives tropospheric aerosols an atmospheric lifetime of only about a week, while stratospheric aerosols can remain for a few years. Carbon dioxide has a lifetime of a century or more, and as such, changes in aerosols will only delay climate changes due to carbon dioxide. Sulfate aerosols act as cloud condensation nuclei and thus lead to clouds that have more and smaller cloud droplets. These clouds reflect solar radiation more efficiently than clouds with fewer and larger droplets, a phenomenon known as the Twomey effect. Indirect effects of aerosols represent the largest uncertainty in radiative forcing. Atmospheric soot directly absorbs solar radiation, which heats the atmosphere and cools the surface. Contribution of natural factors and human activities to radiative forcing of climate change. Climate change feedback, Climate sensitivity, and Arctic amplification The dark ocean surface reflects only 6 percent of incoming solar radiation, whereas sea ice reflects 50 to 70 percent. Positive feedbacks increase the response of the climate system to an initial forcing, while negative feedbacks reduce it. Other factors being equal, a higher climate sensitivity means that more warming will occur for a given increase in greenhouse gas forcing. More research is needed to understand the role of clouds [1] and carbon cycle feedbacks in climate projections. Another study conducted by Harvard researchers suggests that increased water vapor injected into the stratosphere, due to rising temperatures, increases ozone depletion, subsequently raising the odds of skin cancer and damaging crops. Projected change in annual mean surface air temperature from the late 20th century to the middle 21st century, based on a medium emissions scenario SRES A1B. Global climate model A climate model is a representation of the physical, chemical and biological processes that affect the climate system. Instead the models predict how greenhouse gases will interact with radiative transfer and other physical processes. Warming or cooling is thus a result, not an assumption, of the models. Although these models do not unambiguously attribute the warming that occurred from approximately

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to to either natural variation or human effects, they do indicate that the warming since is dominated by anthropogenic greenhouse gas emissions. Observed Arctic shrinkage has been faster than that predicted. Effects of global warming Projections of global mean sea level rise by Parris and others. Map of the Earth with a six-meter sea level rise represented in red. Sparse records indicate that glaciers have been retreating since the early s. Biosphere Overall, it is expected that climate change will result in the extinction of many species and reduced diversity of ecosystems. Geological Survey projects that two-thirds of polar bears will disappear by Physical impacts of climate change and Climate change and ecosystems The environmental effects of global warming are broad and far reaching. They include the following diverse effects: Arctic sea ice decline , sea level rise , retreat of glaciers: Global warming has led to decades of shrinking and thinning in a warm climate that has put the Arctic sea ice in a precarious position, it is now vulnerable to atmospheric anomalies. Additionally, sea level rise has accelerated from to Data analysis of extreme events from until suggests that droughts and heat waves appear simultaneously with increased frequency. In terrestrial ecosystems , the earlier timing of spring events, as well as poleward and upward shifts in plant and animal ranges, have been linked with high confidence to recent warming. On the timescale of centuries to millennia, the magnitude of global warming will be determined primarily by anthropogenic CO₂ emissions. This could lead to landslides and increased seismic and volcanic activities. Tsunamis could be generated by submarine landslides caused by warmer ocean water thawing ocean-floor permafrost or releasing gas hydrates. Climate change could result in global, large-scale changes in natural and social systems. Examples of abrupt climate change are the rapid release of methane and carbon dioxide from permafrost , which would lead to amplified global warming. Another example is the possibility for the Atlantic Meridional Overturning Circulation to slow- or shutdown see also shutdown of thermohaline circulation. Effects of global warming on humans , Effects of global warming on human health , Climate change and national security , Climate refugee , Climate change adaptation , and Economics of global warming The effects of climate change on human systems , mostly due to warming or shifts in precipitation patterns, or both, have been detected worldwide. The future social impacts of climate change will be uneven across the world.

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2: ENVIRONMENT and SOCIETY: DATA SCIENCES for the 21st CENTURY (DS)

A Century of Doctorates. Data Analyses of Growth and Change. U.S. PhD's - Their Numbers, Origins, Characteristics, and the Institutions from Which They Come.

Like [Paul] Kennedy a generation ago, Piketty has emerged as a rock star of the policy-intellectual world. But make no mistake, his work richly deserves all the attention it is receiving. Piketty, in collaboration with others, has spent more than a decade mining huge quantities of data spanning centuries and many countries to document, absolutely conclusively, that the share of income and wealth going to those at the very top—the top 1 percent. Piketty provides an elegant framework for making sense of a complex reality. His theorizing is bold and simple and hugely important if correct. Whether or not his idea ultimately proves out, Piketty makes a major contribution by putting forth a theory of natural economic evolution under capitalism. Piketty writes in the epic philosophical mode of Keynes, Marx, or Adam Smith. By focusing attention on what has happened to a fortunate few among us, and by opening up for debate issues around the long-run functioning of our market system, *Capital in the Twenty-First Century* has made a profoundly important contribution. In part, this is because Piketty is offering something fresh in the discourse: Instead, he makes a very convincing case that the increasing size of the capital class—which expanded comfortably during the period of colonial expansion—created a hunger for wealth that turned the aristocracy on itself in a squabble over who got to loot the colonies, which was World War I. This is a crisis. That is itself quite a remarkable achievement, and perhaps the sort of achievement that might lead to the sort of political consciousness-raising Piketty is clearly keen to promote. In that, he really is an heir to a long-standing tradition of public intellectuals in French academic life since the Revolution. *Capital in the Twenty-first Century* does all these things. Piketty has written a book that nobody interested in a defining issue of our era can afford to ignore. Debates about the book have largely focused on inequality. But on any given page, there is data about the total level of private capital and the percentage of income paid out to labor in England from the 1800s onward, something that would have been impossible for early researchers. *Capital* reflects decades of work in collecting national income data across centuries, countries, and class, done in partnership with academics across the globe. But its implications extend beyond the realm of political economy. The book invites the re-examination of deeply held assumptions about the world. His most startling news is that the belief that inequality will eventually stabilize and subside on its own, a long-held tenet of free market capitalism, is wrong. Rather, the economic forces concentrating more and more wealth into the hands of the fortunate few are almost sure to prevail for a very long time. In the way it is written and the importance of the questions it asks, it is a book the classic authors of economics could have written if they lived today and had access to the vast empirical material Piketty and his colleagues collected. In a short review, it is impossible to do even partial justice to the wealth of information, data, analysis, and discussion contained in this book of almost 700 pages. The book is impressive in its wealth of information. The middle class is being hollowed out, even as fortunes continue to grow at the very top. Piketty shows that the economics of the postwar era—when the West enjoyed strong, widely-shared growth—was a historical exception. For our Western democracies, it was also a political necessity. Capitalism is facing an existential challenge; smart plutocrats will be part of the solution. Both men acknowledge the importance of market incentives and entrepreneurship and the evils of protectionism and all of that good conservative stuff, even as they rail against the plutocrats. Both think we can end or reduce inequality without giving up the benefits of capitalism. And both see the answer in a new tax on capital. This is beginning to sound sort of reasonable, both in its demands on people at the top and its generosity to those on the bottom. Open-minded readers will surely find themselves unable to ignore the evidence and arguments he has brought to bear. In its scale and sweep it brings us back to the founders of political economy. The result is a work of vast historical scope, grounded in exhaustive fact-based research, and suffused with literary references. It is both normative and political. Piketty rejects theorizing ungrounded in

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data. The book is built on a year program of empirical research conducted in conjunction with other scholars. Its result is a transformation of what we know about the evolution of income and wealth which he calls capital over the past three centuries in leading high-income countries. That makes it an enthralling economic, social and political history. The central premise is provocative and profoundly bleak. Piketty challenges one of the underpinnings of modern democracies—namely, that growth and productivity make each generation better off than the previous one. When joined to his magisterial command of the source material and his gift for synthesis, they disclose a history not of steady economic expansion but of stops and starts, with room for sudden departures from seemingly unbreakable patterns. In turn, he links this history to economic theory, demonstrating that there is no inherent drive in markets toward income equality. Its ambition is to shape debates about the next two centuries, not the past two. And in that it may succeed. From the banking crisis of to the Occupy movement of , this much has been intuited by ordinary people. This is why his book has crossed over into the mainstream—it says what many people have already been thinking. Unlike many economists he insists that economic thinking cannot be separated from history or politics. As poverty increases across the globe, everyone is being forced to listen to Piketty with great attention. But although his diagnosis is accurate and compelling, it is hard, almost impossible, to imagine that the cure he proposes—tax and more tax—will ever be implemented in a world where, from Beijing to Moscow to Washington, money, and those who have more of it than anyone else, still calls the shots. It is not, however, a politically sectarian argument; perhaps that explains why it has become a surprise bestseller. The strength of his thesis is that it is founded on evidence rather than ideology. Piketty has researched data over more than a century in order to derive his understanding of the dynamics of modern capitalism. He is able to point convincingly to a recent reversal of historical trends, so that the share of national income taken by the owners of capital has expanded over the past generation. What Piketty has done is provide a strong factual understanding for how modern capitalist economies diverge from the image of risk-taking and productive commercial activity. At the very least, the book effectively debunks the notion that there is an economic imperative for low tax rates and a smaller state. That investment gap poses a clear and present danger to American global economic leadership. Rising inequality exacerbates the problem by sapping the collective political will needed to address the problem. There seems to be no offsetting tendency for the aggregate share of capital to shrink; the tendency may be slightly in the opposite direction. This interpretation of the observed trend toward increasing inequality, and especially the phenomenon of the 1 percent, is not rooted in any failure of economic institutions; it rests primarily on the ability of the economy to absorb increasing amounts of capital without a substantial fall in the rate of return. This may be good news for the economy as a whole, but it is not good news for equity within the economy. There is yet another, also rather dark, implication of this account of underlying trends. Would that work for you? Armed with centuries of data, Piketty says the rich are going to continue to gobble up a greater share of income, and our current system will do nothing to reverse that trend. Piketty offers a timely and well-reasoned reminder that there is nothing inevitable about the dominance of human capital over financial capital, and that there is inherent in the dynamics of capitalism a natural and destabilizing tendency toward inequality of income, wealth and opportunity. Unless we act, inequality will grow much worse, eventually making a mockery of our democratic institutions. With wealth more and more concentrated, countries racing to cut taxes on capital, and inheritance coming to rival entrepreneurship as a source of riches, a new patrimonial elite may prove as inevitable as Tocqueville once believed democratic equality was. This forecast is based not on speculation but on facts assembled through prodigious research. Private wealth has reached new highs relative to national income and is approaching levels of concentration not seen since before. Piketty is rightly pessimistic about an immediate response. The influence of the wealthy on democratic politics and on how we think about merit and reward presents formidable obstacles. Perhaps with this magisterial book, the troubling realities Piketty unearths will become more visible and the rationalizations of the privileged that sustain them less dominant. Like Tocqueville, Piketty has given us a new image of ourselves. This mountain of data allows Piketty to tell a simple and compelling story. The database

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on which the book is built is formidable, and it is difficult to dispute his call for a new perspective on the modern economic era, whether or not one agrees with his policy recommendations. We are all used to sneering at communism because of its manifest failure to deliver the sustained rates of growth managed by market economies. Ultimately, those of us who would like to preserve the market system need to grapple with that sort of dynamic, in the context of the worrying numbers on inequality that Piketty presents. Many are also worried about rising inequality. Capital seems to offer an elegant way to explain both. He deserves huge credit for illuminating the distribution of income and wealth. It rewrites the mission of economics, discarding claims that the discipline is a super-science of human behavior or public policy. What you earn must be what you are contributing; otherwise, the market would step in to restore efficiency. Piketty reveals that these just-so stories have veiled urgent and inflammatory problems: Various crises cleared the ground, but the demands of labor, and an organized left more generally, were integral to building the comparatively egalitarian, high-wage world that came after the wars, with its strong public sector, self-assertive workers, and halfway tamed capital. But the significance of his contribution is already apparent in the breadth of his vision. That spirit of engagement is more radical, at this moment in history, than any other proposal. And his open, fluent style will guarantee him a wide readership. In contrast to much of what passes for orthodox economics, he is engaged with the problems of the real world. The discipline of economics, Piketty argues, remains trapped in a juvenile passion for mathematics, divorced from history and its sister social sciences. His work aims to change that. The book analyzes hundreds of years of tax records from France, the U. The rich really are getting richer. It trickles up. The stark historical consequences of unchecked inequality are at the heart of Capital. The problem, however, is that countering those forces requires public policies and institutions more like those of the era of shared prosperity than those of today. His book prompts the discerning person to evaluate anew the human and social costs of capitalism. The creative thinking of citizens is now required to combat the ills he has diagnosed. In detective-like fashion, he has collected the most complete historical series on distributions of income and wealth ever assembled, and this data allows him to articulate a penetrating and highly accessible account of the long evolution of inequality within advanced industrial nations. The findings are numerous and sobering, and nearly every page of the book rewards a careful reading with new insights and intriguing questions. The main finding of his investigation is that capital still matters. This book is significant for its findings, as well as for how Piketty arrives at them. It is much more difficult to argue about facts. Facts are what Piketty gives us, while pressing the reader to engage in the journey of sorting through their implications. Piketty has been hailed by many on the right as well as the left, for writing a highly significant book. Its strength rests on the fact that he has worked the sources in a way few economists have, analyzing actual data on earnings over decades to come up with some startling conclusions. We are entering a new age of capital, he argues; a time, similar to the early 19th century, when many will live off their money without the need for work. Meanwhile, those without capital will always struggle to keep ahead of debts. This is controversial, but what is not disputed is that inequality in income and wealth within each country has gotten much worse in the past three decades. The question is what do we do about it. For starters, we should read this excellent book. Specifically, after redistributive policies in the mid-century narrowed the income and wealth gap somewhat, the gap has widened again in the last few decades, approaching levels not seen since before World War I. The first is an unprecedented trove of historical economic data, which Piketty uses to demonstrate increasing inequality due to the long-term tendency of returns on capital to outpace economic growth. The second is a series of literary works, which Piketty uses to reveal the social and psychological consequences of this inequality in its erosion of human dignity. The depth and range of evidence Piketty marshals allows him to deliver a devastating blow to the confidence of many economists that capitalism is a tide that gradually lifts all boats. In the process, he mounts an effective critique of the tendency of economic writers on both left and right to rely on theories and formal systems. Capital is an arduous climb, but the subject is equally weighty, and it demands our best analyses, proposals and dialogues. Capital is an essential volume in the conversation. His paradigm-shifting thesis is, at its most basic, that late-stage capitalist

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economies foster inequality and create an ever-widening gap between rich and poor. Capital in the Twenty-First Century is already being hailed as a seminal work of economic thought, and with very good reason. At a point in time where slogans about the 1 per cent vs the 99pc abound, this book provides conclusive evidence in support of the idea that the modern-world economy is one that is inherently unjust and exploitative. Many have been waiting for such a comprehensive critique of capitalism. Much of the debate over inequality in recent years is the result of the work of Thomas Piketty and his fellow researchers. This book contains important lessons for economists. It is a perhaps unwelcome reminder that what they measure reflects political choices. And it reminds them of the rhetorical and explanatory power of simple comparisons of facts, once collected and arranged, relative to complex statistics and models. Despite the controversies surrounding it, the book throws much light upon one of the most important questions in economics: With an abundance of data and some simple and powerful theories, Piketty has made an immensely important contribution to the public debate.

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3: Commission on Human Resources (Author of A century of doctorates)

A Century of Doctorates: Data Analyses of Growth and Change: U. S. PhD's--Their Numbers, Origins, Characteristics, and the Institutions from Which They Come. National Research Council, Lindsey R. Harmon.

It is necessary to understand the past demographic and socioeconomic trends to better estimate the future size and characteristics of the older population as well as to forecast their demand for services and the extent to which those demands can be met. Analysis of the demographic and socioeconomic trends of the elderly population will also help identify data needed to make informed policy decisions related to the health of the future elderly population. The Changing Demographic Structure of the Population The distribution of the population in the United States has shifted rapidly in both the number and proportion of the population age 65 and over. This subgroup has grown faster than the rest of the population in recent decades, will continue to grow at a more rapid rate for the remainder of the twentieth century, and is expected to continue to increase well into the next century. Between and the population age 65 and older more than doubled, from During this year period, the percentage increase in the number of elderly was 74 percent larger than for the population under age 65—percent compared with 62 percent. For the oldest-old, age 85 and over, the rise was the largest, a percent increase from , in to 2. Population Forecasts The size of the elderly population today and in the near future is relatively simple to estimate: A small portion of the total elderly population is accounted for by net migration, which is not as accurately counted as births and deaths. These estimates are subject to increasing uncertainty as we move further into the future. Birth rates were relatively high in the early part of this century, low in —, high in the postwar years —, lower again in —, and slightly higher in more recent years. Throughout, there have been important variations by age of mother, birth order, and race. Death rates, meanwhile, have declined or remained level throughout the twentieth century, although at rates that varied by age, race, and sex. Declines in mortality rates have been consistently greater for women than for men and, since , almost as large for the oldest-old as for young-old ages 65—74 females. Current indications are that the declines in mortality rates are continuing National Center for Health Statistics, a. The future population has been estimated by the Bureau of the Census on the basis of a completed cohort fertility of 1. Should there be great advances in medical care or unpredictable epidemics, the estimated size of the elderly population might be considerably different. The middle series estimates a steady rise in the elderly age 65 and over , from The number of oldest-old will continue to grow rapidly in the next 50 years, from 2. The progression of the postwar baby-boom cohort, those born from to Siegel and Davidson, may be seen in the peak for the 65—74 age group in , for the 75—84 age group in , and those age 85 and over in The oldest-old population group was 1 percent of the total population and 9 percent of the elderly in ; by , this group is projected to increase to 5 percent of the total population and 24 percent of the elderly. The accelerated growth within the elderly population of those age 85 and over has shifted attention to this subgroup and its unique set of needs. The oldest-old are at risk for chronic illness, tend to be functionally dependent, and have greater needs for medical, social, and support services. Forecasts by Sex At birth, every cohort has a small excess of males but, owing to the higher death rates for the male population and the more rapid improvement in mortality for women, there is a large excess of women at older ages. In there were The Census Bureau population projections show that the sex ratio of the population age 65 and over will continue to fall in the next few decades, but more slowly than in the past, reaching 64 males per females in the year Siegel and Davidson, Subsequently, the trend will change, so that by the year the sex ratio of the elderly population will be 69 men per females. The sex ratio declines rapidly with increasing age: For the latter group, the ratio of men to women is projected to fall between and , from 44 men to 36 per women. Since the vast majority of the oldest-old are female, many of the health, social, and economic problems of this group are those of women. Forecasts by Race In , 12 percent of the white population was age 65 and older—a much larger proportion than the 8 percent of the black population Siegel and Davidson, The Census Bureau attributes the difference to higher fertility of the black

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population and secondarily to higher mortality at ages below 65. The Census Bureau projects that the black population of the future will continue to be a younger population than the white, although improvements in mortality rates for elderly blacks are expected. By 2030, 19 percent of the total white population compared with 12 percent of the black population is projected to be age 65 and over. U. Department of Health and Human Services, b. Geographic Distribution of the Elderly Population Older persons tend to move far less often than younger persons, remaining in the state, county, or local area where they settled during their adult years. Between 1970 and 1980, their rate of interstate migration was 3.1 percent. Between 1980 and 1990, the largest numerical increases in elderly people were in the states of Florida, California, and Texas. Growth of more than 50 percent in the number of elderly in that decade occurred in Arizona, Florida, Nevada, New Mexico, Alaska, and Hawaii. In 1990, almost half the elderly were living in eight states: Short-term population projections to the year 2030 by the Bureau of the Census show significant differences in rates of change in the population of the four regions of the United States. The West and South will be the fastest-growing regions from 1990 to 2030, increasing 45 percent and 31 percent, respectively. The North Central region is projected to lose population during the same period. The elderly population in all regions, however, is projected to rise, ranging from a 12 percent increase in the Northeast to a 60 percent increase in the South and West. Taeuber, These geographic data imply differential use of medical care services by region. For example, in the Northeast and North Central regions, the number of nursing home beds will need to increase by 44 percent. In the South and West, the number of nursing home beds will have to more than double to meet the needs of the projected elderly population. Rice, Marital Status and Living Arrangements Among the most important social characteristics affecting the welfare of the elderly are those that pertain to their marital status and living arrangements. Elderly men are most likely to be married; elderly women are most likely to be widowed. In 1990, 79 percent of elderly men and 39 percent of elderly women were married. For elderly women, the proportion of widows increases rapidly and remains at a high level: Marital status has a direct bearing on the living arrangements of the elderly. Among elderly men, 82 percent live in a family setting and more than 74 percent are married and living with their wives. A very different situation exists for elderly women; 55 percent live in a family setting and only 36 percent are married and living with their husbands. In short, women age 65 and older are more likely to be widowed than married and living alone rather than with husbands. The number of elderly women living alone has doubled in the last 15 years, and projections by the Census Bureau show a substantial increase up to 2030 in the proportion of households with an elderly female living alone or with nonrelatives. Siegel and Davidson, This trend has important implications for housing needs and the demand for institutional care. With the decline in the proportion of the elderly living with relatives likely to continue, there will probably be a greater need for the provision of social support and health services by the community or other public sources. Education The level of educational attainment of the elderly population is currently less than that of the younger population. This educational gap by age group has narrowed since 1970 and is expected to nearly close in the next decade, due to increased compulsory secondary school requirements, as well as educational opportunities made available by the GI Bill. A lower proportion of foreign-born in the future elderly population due to changes in immigration will also serve to increase the educational attainment of the elderly population. The greater education of the future elderly population implies a change in demand for services: Income The income of the elderly has improved over time. According to the Congressional Budget Office, "After accounting for inflation, the average cash income of families with elderly members increased by nearly 18 percent during the year period from 1970 to 1990, the latest year for which detailed data are available" while the average income of unrelated elderly individuals rose by 34 percent." Gordon, The income of younger families also rose in this period, but not as much as for the elderly. Average elderly family income was 68 percent of average nonelderly family income in 1970 and 78 percent in 1990. For unrelated individuals, the elderly-to-nonelderly income ratio was 50 percent in 1970 and 60 percent in 1990. The poverty rate among the elderly also declined in 1990, from 25 percent to 12 percent, but in 1990 an additional 9 percent of the elderly had incomes of not more than 25 percent above the poverty level. In 1990, 9 percent of elderly incomes were below the poverty level for 9 percent of elderly men, 15 percent of elderly women, and 36 percent of elderly black women. Social Security benefits are

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the largest single source of money income for the elderly nearly 40 percent, followed by earnings, property income, and private and public pensions. The most significant change in source of income for the elderly population since the 1950s has been a decline in the importance of earnings and an increased reliance on retirement income from Social Security, public and private pensions, and assets. Noncash benefits are estimated to be 10 percent of the income of the elderly, the most important ones being Medicare, Medicaid, food stamps, and publicly owned or subsidized housing. Although asset ownership including savings and home ownership is fairly common at the time of retirement, the value of assets owned by the elderly is low. Current expenditures by the elderly are highest for shelter, followed by food, transportation, and health care, which, surprisingly, uses less of the budget than transportation. These expenditures must be considered along with available economic resources in planning and developing public policies for the elderly. Labor Force Participation Sharp declines have occurred in the last few decades in the labor force participation of men age 65 and older: This trend is associated with an increase in voluntary early retirement and a drop in self-employment. With the growth in retirement programs, more older workers have been financially able to retire earlier. Projections by the Bureau of Labor Statistics BLS show a continued decline in labor force participation of elderly men at least up to Fullerton, The proportion of older women in the labor force has increased moderately since 1970, due to economic necessity, more education, changes in social roles, and increased divorce rates that result in more women heading their own households. BLS projections show a moderate decline in the labor force participation of women age 65 and older and a continued increase for women age 55-64 up to Siegel and Davidson, Part-time employment is now an increasingly important source of employment for the elderly: Age at retirement and labor force participation of the elderly have a direct effect on retirement programs and economic dependency. The age of eligibility for Social Security and other pension benefits will affect the age of retirement for many elderly, which in turn affects their level of income and economic dependency. The projected decline in labor force participation rates of older persons will lead to a continued rise in the ratio of older nonworkers to the working population and an associated increased dependency. The Social Security Act of 1983 advanced the age of retirement from 65 to 67 for payment of full benefits. The change is to be phased in from age 65 in 1990, to 66 in 1993, to 67 in 1996. It is uncertain what effect the law will have on actual age at retirement. Dependency Ratio The social support systems now in place reflect the current balance between the size of the working population and the retired. The trends for people to live longer and for families to have fewer children are changing the shape of the elderly dependency ratio—the population age 65 and over divided by the population ages 18-64, the working population. This ratio has risen steadily, from 11 per cent in 1950, and it is expected to reach 22 in 2020. The expected leveling off or slower increase in the next several decades will be followed by a sharp increase between 2020 and 2040, when the baby-boom cohorts will reach old age; the ratio is expected to be 29 per cent by 2040 and 37 per cent by 2060, Siegel and Davidson, At the same time, projected low fertility rates will result in fewer young persons and, thus, a declining young dependency ratio, defined as the population under age 18 divided by the working population, ages 18-64. The total dependency ratio, the sum of the young and elderly ratios, is a crude index of the total burden on the working population of its support of both old and young dependents. The total dependency ratio has declined since 1950, but it is expected to increase in the next century, and the increase in the elderly dependency ratio will be greater than the decline in the young dependency ratio. The elderly are primarily supported by publicly funded programs while, except for public education, mostly private. Since the elderly will be the most rapidly growing age group and more costly, the change in the dependency ratios will be a major policy issue for both Social Security and the hospital insurance programs under Medicare that are financed by payroll taxes Rice and Feldman, In addition to the unknown effects of advancing the age of retirement to 67 for payment of full benefits, fully effective in 1996, other social and legislative changes in the next 50 years may change the relationships between the working and the retired populations, significantly changing the elderly dependency ratio. Morbidity Patterns There is considerable conjecture and controversy regarding future morbidity patterns.

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4: Global warming - Wikipedia

A century of doctorates: data analyses of growth and change: U.S. PhD's--their numbers, origins, characteristics, and the institutions from which they come: a report to the National Science Foundation, to the National Endowment for the Humanities, and to the United States Office of Education from the Board on Human Resource Data and Analyses, Commission on Human Resources, National Research.

While some areas will experience greater increases than others, Figure 1 presents the average change that is projected to occur across the globe under the Reference and Mitigation scenarios. As shown, temperatures in the Mitigation scenario eventually stabilize, though due to the inertia of the climate system, stabilization is not reached until several decades after the peak in radiative forcing. The Reference scenario continues to warm, reaching a temperature increase of almost five times that of the Mitigation scenario by the end of the century. Temperature Change in the U. Under the Reference scenario, the largest increases in average temperature across the contiguous U. Some seasons are expected to warm faster than others, and the impacts of warming will also vary by season. For example, in some regions, greater levels of warming may occur in the winter, but warming in summer will matter most for changes in the frequency and intensity of heat waves. Figure 3 provides an illustrative example of the changes in average summertime temperature that select states may experience over time with and without global GHG mitigation. Under the Reference scenario, summertime temperatures in some northern states are projected to feel more like the present-day summertime conditions in southern states. However, under the Mitigation scenario, states are projected to experience substantially smaller changes. In addition to increasing average summertime temperatures, climate change is projected to result in an increase in extreme temperatures across most of the contiguous U. The maps are not perfect representations of projected climate, as other factors such as humidity are not included, but they do provide a way of visualizing the magnitude of possible changes in the summertime conditions of the future. However, the western U. Under the Mitigation scenario, a similar but less intense pattern of increasing precipitation is projected over much of the country, particularly in the central states. As projections of future precipitation vary across individual climate models, the CIRA analyses use outputs from additional climate models see the Levels of Certainty section of this report. The increase is particularly strong over the Northeast, Midwest, and Southeast. Global GHG mitigation is likely to greatly reduce the increase in intensity of extreme precipitation events, as shown in the right panel of Figure 2. Global mean sea levels are projected to rise about 56 inches by under the Reference and about 37 inches under the Mitigation scenario. As a result, it is not until the second half of the century that global GHG mitigation results in a reduction in sea level rise compared to the Reference. The projections for global sea level rise account for dynamic ice-sheet melting by estimating the rapid response of sea levels to atmospheric temperature change. Figure 2 shows projected relative sea level rise under the Reference scenario for select areas along the U. For each coastal area, global rates of sea level change under the two scenarios were adjusted to account for vertical land movement e. Coastline in Map shows projected relative to land sea level rise under the Reference scenario for select coastal counties in the contiguous U. Projections are based on global mean sea level rise in 56 inches , adjusted for local subsidence and uplift. Future emissions will be driven by population growth, economic growth, technology advancements, and decisions regarding climate and energy policy. Sensitivity analyses explore the uncertainty associated with varying levels of future GHG emissions under different policy scenarios. Future climate change depends on the response of the global climate system to rising GHG concentrations i. Different types of global-scale physical and statistical models are used to study aspects of past climate and develop projections of future change. The climate is very complex and is influenced by many uncertain factors; as a result, each model is different and produces different results. These complex models provide useful information both individually, by allowing the exploration of potential futures, and collectively, by providing insight on the level of agreement across models. While the effects of each source of uncertainty are not

described for each sectoral impact discussed in this report, some of the impacts described in the Sectors section explore the potential influence of these factors. Maps presented in this section are adapted from Monier et al. Future Temperature Change under Different Climate Sensitivities Increases in surface air temperature in mean under the Reference scenario relative to present-day mean. Some sectors in the report use the average result of the five initializations. As shown in Figure 5, there is better agreement across climate models with regards to temperature projections, and higher variability with regards to precipitation projections. Both have the same atmospheric and land components and similar biases over land. Model for Interdisciplinary Research on Climate version 3. This comparison helps to bound uncertainty in future changes in precipitation for the contiguous U. Climate Model Uncertainty for Future Projections Changes in temperature and precipitation in mean relative to present-day mean for different climate models. The contributions from different climate models and natural variability for temperature change are small in comparison. It is worth noting that the GHG emissions scenario is the only source of uncertainty that society has control over. Conversely, these same four sources of uncertainty contribute in roughly equal measure to projected changes in precipitation over the U. The analytical approach offers a number of advantages, including consistency in the use of socioeconomic and climate change scenarios across a wide range of sectoral impact and damage models, and exploration of the changes in impacts and damages across key sources of uncertainty. As with any study, there are some analytical boundaries of the CIRA project and its underlying analyses that are important to consider, several of which are described below. Limitations specific to the individual sectoral analyses are described in the Sectors section of this report, as well as in the scientific literature underlying the analyses. As described in the Levels of Certainty section, a large number of emissions and climate scenarios were developed under the CIRA project, reflecting various combinations of emissions scenarios, climate models, climate sensitivity, and climate model initializations. However, only some of these emissions and climate scenarios have been simulated across all sectoral analyses, primarily due to the level of effort necessary to run each scenario through the large number of sectoral models of the CIRA project. Analyzing results under the full set of scenarios would further characterize the range and potential likelihood of future risks. Coverage of Sectors and Impacts The analyses presented in this report cover a broad range of potential climate change impacts in the U. Examples of these impacts include changes in vector-borne disease, morbidity from poor air quality, impacts on specialty crops and livestock, and a large number of effects on ecosystems and species. Without information on these impacts, this report provides only partial insight into the potential risks of climate change, and therefore does not account for all potential benefits of mitigation. In addition, it is important to note that impacts are only partially valued economically in some sectors. For example, the Wildfire section presents estimated response and fuel management costs, but not other damages e. A more complete valuation approach would likely increase the damages described in this report. Finally, this report does not present results on the possibility of large-scale, abrupt changes that have wide-ranging and possibly catastrophic consequences, such as the intensification of tropical storms, or the rapid melting of the Greenland or West Antarctic ice sheets. Their inclusion would assist in better understanding the totality of risks posed by climate change and the potential for GHG mitigation to reduce or avoid these changes. Variability Across Climate Models The choice of climate model in an impact analysis can influence patterns of future climate change. However, not all sectoral impact models used pattern scaling in addition to the IGSM-CAM simulations, particularly for those impacts primarily driven by temperature, where there is generally more agreement across climate models. Finally, we note the limitation that pattern scaling is not a perfect representation of alternate models. While these models are complex analytical tools, the structure of the model, and how it may compare to the design of similar applications, can create important uncertainties that affect the estimation of impacts. The results presented in this report were developed with little or no interactions among the impact sectors. As a result, the estimated impacts may omit important and potentially unforeseen effects. For example, the wildfire projections presented in this report will likely generate meaningful increases in air pollution, a potentially important linkage for the air quality analysis. Improved

connectivity between CIRA sectoral models will aid in gaining a more complete understanding of climate change impacts across sectors in the U. Variability in Societal Characteristics The impacts of climate change will not affect Americans equally. In addition to regional differences in impacts, socioeconomic factors e. These issues are explored in the Coastal Property section, but the rest of the sectors do not analyze impacts across different levels of social vulnerability. Feedbacks The CIRA project uses a linear path from changes in socioeconomics and the climate system to impacts with consistent inputs across multiple models. The socioeconomic scenarios that drive the CIRA modeling analyses do not incorporate potential feedbacks from climate change impacts to the climate system e. Geographic Coverage The report does not examine impacts and damages occurring outside of U. Aside from their own relevance for policy-making, these impacts could affect the U. In addition, the primary geographic focus of this report is on the contiguous U. Finally, several sectoral analyses assess impacts in a limited set of major U. Use of Point Estimates Results in this report are primarily presented as point estimates. For some sectors, ranges are provided based on the design of the underlying modeling analysis i. Regarding the latter, the use of wetter and drier climate projections for sectors sensitive to changes in precipitation provides ranges of estimates bounding this uncertainty source. The uncertainties and limitations described in this section, along with others detailed throughout this report and in the underlying CIRA literature, signify that the estimates described in this report should not be interpreted as definitive predictions of future impacts at a particular place and time. The further exploration of these uncertainties, including the development of ranges for all impact projections, will further strengthen the CIRA results. Satellite image of a hurricane: National Oceanic and Atmospheric Administration Contact Us to ask a question, provide feedback, or report a problem. Climate Change Impacts and Risk Analysis.

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5: Works Cited | Modern Language Association

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Received Sep 16; Accepted Dec Abstract Land-use and land-cover change LULCC , especially those caused by human activities, is one of the most important components of global environmental change Jessen 3rd edition: In this study the effects of geographic and demographic factors on LULCC are analyzed in northeastern Latvia using official estimates from census and vital statistics data, and using remotely sensed satellite imagery Landsat Thematic Mapper acquired from and The remote sensing images, elevation data, in-situ ground truth and ground control data using GPS , census and vital statistics data were processed, integrated, and analyzed in a geographic information system GIS. Supervised classifications were performed on the Landsat images. Integration of population data and land-cover change data revealed key findings: Population density was found to be associated with most LULCC categories but the direction of effect was scale dependent. This paper shows how socio-demographic data can be integrated with satellite image data and cartographic data to analyze drivers of LULCC at multiple spatial scales. Land use, by contrast, describes activities that take place on the land and represent the current use of property. Examples include residential homes, shopping centers, tree nurseries, state parks, reservoirs, etc. In land change science, land cover and land use are often studied in conjunction with each other, especially in studies involving remote sensing, because satellite imagery and aerial photography can identify land-cover, however inferring land-use often requires more knowledge of the study region, and therefore some compromise is often made between identifying the variable of interest land use and the related proxy land cover. LULCC, especially those caused by human activities, is one of the most important components of global environmental change Jensen Land cover change also plays an important role in local and regional environmental change. LULCC is local and place-specific, and collectively these changes add up to global environmental change. These changes in turn affect other components of the earth - atmosphere system, often with adverse consequences such as biodiversity loss, desertification, and climate change. There are many ways to monitor or detect land cover change over time. As the size of the area of study gets bigger, these methods become very costly and time consuming. Remote sensing via satellite imagery is an excellent tool to study LULCC because images can cover large geographic extents and have a high temporal coverage. The major disadvantages of remote sensing include: Despite these disadvantages, remotely sensed satellite data have been used to identify changes in a variety of aquatic and terrestrial environments including coastal, agriculture, forested, and urban areas Berlanga and Ruiz This is particularly true for remote regions, which are often inaccessible and therefore not easy to obtain the needed data using traditional methods Roberts et al. LULCC researchers often use remotely sensed data to provide information on resource inventory and land use, and to identify, monitor and quantify changing patterns in the landscape. With the emergence of GIS in the past two decades, census data have been merged with biophysical data to better understand the drivers of LULCC at local, regional and global scales. For example, the combination of satellite classification and census data has been used to assess quality of life Lo and Faber , predict favorable wolf habitat in northern Wisconsin Mladenoff et al. The present research integrated land cover change data based on Landsat TM images from and and demographic data from the Latvian demographic censuses and inter-census estimates based on vital statistics data for and at the level of rural parishes in Latvia: Analysis of land-cover change across thirty six countries in Europe shows a slowing in the annual rate of changes in land-cover types from compared to the period EEA The EEA report also indicates that land-use specialization urbanization, agricultural intensification and abandonment plus natural afforestation is still a very strong trend and is expected to continue into the future, depending on many interactive drivers. Land marginalization and intensification are trends in Europe that have an impact on the

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European landscape that promote homogenization and polarization of rural landscape Antrop EEA report shows that forest creation and management was the largest land-cover change while arable land, permanent crop, pasture, open spaces and wetlands continue to decline in area. When landscapes change, living organisms must adapt to the changes, depending on whether the changes are sudden or over a long period of time. Thus it is important to measure out how quickly the landscape has changed, i. Eastern Europe experienced a period of rapid and radical changes of its political, institutional, demographic, and socioeconomic structures after the fall of the Iron Curtain in and the breakdown of the Soviet Union in which triggered widespread land use change, most notably the abandonment of vast areas of cropland in Latvia and other countries in the region Taff et al. According to Kuemmerle et al. Latvia has experienced several major transformations in land use over the course of the 20th century Nikodemus et al. During the Soviet period large areas were used for agriculture in the plains, while in marginal and hilly areas, forestry became the dominant land-use Peneze et al. After Latvia gained its independence from the Soviet Union in , the government decided to reinstate lands to private owners. This period also saw a change from a socialist economy to a capitalist economy which drove Latvia away from an agriculture-dominated economy, and many farms were abandoned Taff et al. From until the first half of , Latvia had the most rapidly developing economy in the European Union, with the GDP growth reaching There has been a net population decrease and also a drift, especially of younger people to the cities, resulting in an ageing and decreasing rural population. Studies regarding the impact of migration in land-use change especially in Europe are very limited Lopez et al. In rural Latvia this effect is very pronounced as many farms have been abandoned due to outmigration from rural areas to cities. This research uses statistical analyses to address the drivers of LULCC, using data from remote sensing images, topographic maps, and census data. Census data were then analyzed in conjunction with the LULCC results to understand associations between landscape changes and demographic and geographic variables. The specific research question this paper addresses is: Research has shown that agricultural abandonment in rural areas is often, though not always, associated with outmigration from a region Gellrich and Zimmermann Materials and methods Study area The study area is located in northeastern Latvia which covers an area of 18, Latvia lies on the Baltic coast, in the northern part of Eastern Europe. Latvia is one of three Baltic States situated on the east side of the Baltic Sea, the others being Estonia to the north and Lithuania to the south. The total land area of Latvia is The climate is wet with moderate winters for this latitude. Rural landscape in this region is characterized by matured forests, secondary forest, meadows, farmland, abandoned farmlands, lakes, rivers, hills, plains, villages and dispersed rural homesteads Bunkse

6: Using satellite data to monitor land-use land-cover change in North-eastern Latvia

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7: Capital in the Twenty-First Century – Thomas Piketty | Harvard University Press

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