DEMOGRAPHIC DESTINIES

Interviews with Presidents of the Population Association of America

Interview with Steven Ruggles
PAA President in 2015

This series of interviews with Past PAA Presidents was initiated by Anders Lunde (PAA Historian, 1973 to 1982)
And continued by Jean van der Tak (PAA Historian, 1982 to 1994)
And then by John R. Weeks (PAA Historian, 1994 to present)
With the collaboration of the following members of the PAA History Committee: David Heer (2004 to 2007), Paul Demeny (2004 to 2012), Dennis Hodgson (2004 to present), Deborah McFarlane (2004 to 2018; 2024 to present), Karen Hardee (2010 to present), Emily Merchant (2016 to present), and Win Brown (2018 to present)

STEVEN RUGGLES

PAA President in 2015 (No. 78). On January 15th, 2025, we were able to have a Zoom interview with Dr. Ruggles. The members of the PAA History Committee participating in the interview included John Weeks, Dennis Hodgson, Karen Hardee, Emily Merchant and Win Brown.

CAREER HIGHLIGHTS: Dr. Steven Ruggles is the Regents Professor of History and Population Studies and Director of the IPUMS Center for Data integration at the University of Minnesota. He was born in New Haven, Connecticut, where his parents were faculty members at Yale University. He received his BA in History from the University of Wisconsin in 1978, and his MA an PhD in History from the University of Pennsylvania in 1984. He completed a Post-Doc in Demography at the University of Wisconsin in 1985 before accepting a position as Assistant Professor History at the University of Minnesota. He was promoted to Associate Professor in 1988 and Professor in 1995. In 2000 he was awarded the Distinguished McKnight University Professorship and in 2008 he was named Regents Professor. He describes his professional life as follows (from his university website): "I have devoted substantial effort to developing integrated databases that allow analysis of long-run changes in population and health. My work has been continuously funded by the NIH since 1989 and by NSF since 1991. Under my leadership, IPUMS has become the world's largest and most widely used population database, with coverage of almost 100 countries and census data spanning over 200 years, as well as U.S. health, economic, and time-use survey data, and aggregate U.S. census data (National Historical Geographic Information System). I recently directed a project to seamlessly integrate IPUMS-International microdata with land-use, land-cover, and climate data (Terra Populus). I am also working on creating a database of all persons enumerated in the U.S. from 1790 to 1940, which will serve as the framework for an integrated system of longitudinal population data. In the past several years I have chaired an NSF Task Force on Public Access to Data; served on the Census Scientific Advisory Committee (CSAC), U.S. Census Bureau; served on a National Academies panel on Digital Data Curation; and served on the NSF Advisory Committee for the Social, Behavioral, and Economic Sciences. I was the 2015 President of the Population Association of America. My substantive research focuses on long run change in the living arrangements of older people and the impact of changing patterns of work, economic contexts, and demographic behavior on the living arrangements."

OUR INTERVIEW WITH DR. RUGGLES:

John Weeks: It is a pleasure for the History Committee of the Population Association of America to interview past PAA President Steven Ruggles, who is the Regents Professor of History and Population Studies at the University of Minnesota and was President of the Population Association in 2015. So, we are coming up, amazingly enough, on 10 years since your presidential address.

And, of course, I think, you know, we all understand that the PAA Presidency is actually a three-year term because you're the President-elect, and then you're the President, and then you're the Past President technically, for only a year, but realistically for the rest of your life.

Now, Steve, we sent you the interview guide, outlining the kinds of things that we would like to find out from you. But we always like to start off with a bit of personal demographics. Your Wikipedia page indicates that you were born in 1955 in New Haven, Connecticut. But then there's sort of a gap in what we know

until you graduated with your undergraduate degree in history from the University of Wisconsin. Do you want to tell us anything about what went on in the interim?

Steven Ruggles: Well, I grew up in New Haven. I was a faculty brat. My parents are, or were, economists. I was sent off to the George School in Bucks County, Pennsylvania, but they kicked me out after a semester. And so, I went to a high school in New Haven. After a year in Wilbur Cross High School, I went to a local public alternative high school called High School in the Community, which was run by New Haven Women's Liberation. That was great, but they didn't have any grades, and so I had a little bit of trouble getting into college. But the University of Wisconsin was kind enough to let me in, so I went to Wisconsin as an undergraduate.

John Weeks: So – so I assume that your parents were at Yale? Is that right?

Steven Ruggles: Yeah.

John Weeks: OK, they were two economists at Yale, but you then chose history.

Steven Ruggles: Yeah, well, I guess I was, uh, rebellious. Actually, my parents were, by the early 1970s, fairly disillusioned with the direction of the economics profession at that time.

John Weeks: Oh, wow.

Steven Ruggles: Uh, the rise of econometrics and whatnot…They were very empirically oriented, so it wasn't that much of a break, I suppose, but yeah…

I started out in computer science as an undergraduate, but that got a little boring, and I managed in 1975 to talk my way into a graduate seminar that was taught by Domenico Sella, on Early Modern European Economic History.

And so I was the only undergrad in the class, and there was this heated debate among the graduate students that went on for multiple sessions about the debate between Peter Laslett and Lutz Berkner: Peter Laslett, who said the Western family had always been nuclear, and Lutz Berkner said, "Well, you know, the evidence is cross-sectional and consistent with a stem family system." And so, I thought that was a really interesting topic, and then I figured I could maybe solve that.

And so, I ended up writing my senior paper on that, and then my Master's thesis, and my dissertation, and the book that got me tenure [Steven Ruggles. 1987. Prolonged Connections: the Rise of the Extended Family in Nineteenth Century England and America; Madison: University of Wisconsin Press], and a bunch of articles after that. And so, that proved to be a very productive class.

Dennis Hodgson: And that was your first history class?

Steven Ruggles: No, I took a couple of history classes before that. One, in particular, on Ancient Rome, and there was actually my first exposure to historical demography. There was an article on estimating Roman mortality from tombstone inscriptions. And I thought, "That sounds kind of cool." So I was already a little bit interested in historical demography before I got to Domenico Sella's class.

And then I figured I better learn about this demography if I'm gonna do this, and I went and I took a Demographic Techniques class from Jim Sweet at the Center for Demography and Ecology, and he introduced me to all kinds of demographic methods.

John Weeks: That's an amazing congruity over your entire career.

Steven Ruggles: Yeah.

John Weeks: Now, did things really get going there in your undergraduate years at Wisconsin, or was it when you got to Penn that things really…?

Steven Ruggles: No, as an undergraduate, I was able to join the Center for Demography and Ecology, for which Hal Winsborough had gotten only the second departmental computer in the United States. It was an IBM 360/135, and as a member of the Center for Demography and Ecology, I was given absolute rights to use it as long as nobody else wanted it, 'cause I was the lowest person on the totem pole. But that meant that I had to work at odd hours. But, I had collected some 9,000 cases from the 1871 census of Lancashire to try to analyze multigenerational families.

And, yeah, that IBM 360/135--it took 25 minutes just to make one table with a FORTRAN program running through those 9,000 punch cards. So it was kind of slow, but it was free, which was amazing in those days because, in those days there were all these barriers to getting access to computers, particularly for students. And, actually, after I went to graduate school, I had a girlfriend in the math department back at Wisconsin, and so I kept coming back over the summers, and when I could get a semester without classes or teaching. And they continued to let me use the computer throughout my graduate career at Wisconsin, even though I was a graduate student at Penn, where I had much more difficulty getting access to computer time.

Dennis Hodgson: [Laughs]

John Weeks: All right. And so, at Penn, with whom were you working most closely?

Steven Ruggles: Well, I went there to work on the Philadelphia Social History Project, which at that time was the biggest quantitative history project in the world. That didn't work out very well, and I was very fortunate that at the same time I showed up, Michael Katz, also showed up. He was a quantitatively oriented historian and just a terrific adviser, and that worked out great. And then, a year after I showed up, Sam Preston [PAA President in 1984] showed up at Penn, and he showed up bearing the preliminary version of the 1900 Public Use Sample, which was a godsend.

I scheduled a meeting in his office shortly after he showed up in 1979, and I walked out of the meeting with a 9-track tape, which had the preliminary version of the 1900 Public Use Sample on it, and, yeah, that became the mainstay of my dissertation.

John Weeks: Okay, very good. By the way, I went through the files and, as best as I can tell, you are the only PAA president who actually holds a doctorate in history.

Steven Ruggles: I think that may be true. Yes.

John Weeks: Emily also holds a doctorate in history, and she's on the committee, so maybe, Emily, you could tell me if I'm wrong about that.

Emily Merchant: No, I – I think you're right. I also hold a doctorate in history, and I will never be PAA president, [laughs] but yes, I think – I think Steve is the only one.

John Weeks: We don't know that. We don't know that.

Steven Ruggles: Yeah, you got plenty of time.

John Weeks: That's right, exactly. Yeah, okay, so then from Penn, after Sam Preston helped launch you, from there you went off to Minnesota, and you've been in Minnesota ever since?

Steven Ruggles: Well, I did a postdoc at Wisconsin, immediately after graduate school, and then I went to Minnesota.

John Weeks: Okay, so you are a Midwestern lover, are you?

Steven Ruggles: Yeah, well, um, uh, I mean, I like Madison and Minneapolis. I don't know about the rest of the Midwest. [Laughs]

John Weeks: I do love the fact that one of your more recent papers, that came out before this most recent election, I think had the title of "Mind Your Own Damn Business", and, as I recall, your governor used that term quite often. Are you on friendly terms with him?

Steven Ruggles: No, no. I've seen him at the state fair, but I – I've never actually talked to him.

John Weeks: Okay, okay, very good. All right, and, uh, so, Win, by the way, uh, welcome, I'm glad you were able to join us.

Steven Ruggles: Hi, Win.

John Weeks: I want to make sure that everybody understands we're opening up, uh, you know, everybody can ask questions, and, so Steve, should we just continue on with your career? Let's just do that. From the postdoc at Wisconsin, you got hired there at

the University of Minnesota and went through the ranks. And, now, I can't imagine there's anyone more prestigious than you within the entire university.

Steven Ruggles: I don't know about that. There's a lot of famous people here. [Laughs]

John Weeks: [Laughs] And, one of the things, of course, that got you going, as you were just saying, was your interest in family history. So, you are a classic family demographer, I think most of us were there for your speech here in San Diego, your presidential address in, you know, 2015--10 years ago.

Steven Ruggles: What a great venue that was, a great hotel.

John Weeks: Yeah, that's a popular spot for sure, right there by the bay. But at any rate, I went back and reread it, in preparation for our talk with you, and I sent it off to a lot of people just to tell them about it--particularly our oldest granddaughter, who got her master's degree from San Diego State here and works for a local health care insurance group.

But she keeps asking, "What's going on with young people today? It seems like you Boomers did everything and we're not getting everything." And I gave her a copy of your presidential address because, in fact, your research has helped us all understand what the hell's been going on in this country for the past 200 years, and all derived from your initial interest in those census data. And, of course, it seems like your whole career has been built around understanding how the world works and using census data to help us with that understanding. Am I correct in that description?

Steven Ruggles: Well, I like censuses a lot. [Laughs]

John Weeks: Yes, we can tell that. [Laughs]

Steven Ruggles: But, you know, as far as the Boomers are concerned, Easterlin [Richard Easterlin, PAA President in 1978] was kind of right that the Boomers didn't actually do that well because when they all hit the job market they competed against one another, and we had a four or five-decade stagnation in income for young people.

Dennis Hodgson: I remember that, being a Boomer.

Steven Ruggles: Yeah.

Dennis Hodgson: That accurately describes what happened, particularly if you were coming out with a PhD in 1976 into a job market where everyone could predict and see that the influx of high schoolers into college was over and was gonna be over for the next 15 or 20 years, it wasn't the ideal time to look for a job.

Steven Ruggles: Right?

Dennis Hodgson: Teaching. [Laughs]

John Weeks: Yeah.

Steven Ruggles: I had mentioned that I worked with Michael Katz as a graduate student, and he was an incredibly nice guy, but he actually had a bunch of. money, and he decided he was going to hire me to write a grant proposal, and the grant proposal was kind of IPUMS-like.

The idea was that we were going to go collect all of the 19th-century community studies that had been computerized by various different historians and make them compatible so that you could actually do a comparative analysis across the country of, well, mostly family structure is what we were talking about. You know, the general argument was that all of these community studies end up explaining the behavior in their particular community based on the local characteristics of their community, but they have an N of one.

So we should try to gather them all together. And I managed to get 15 or 20 different historians to agree to send us their data. So I wrote an NIH grant proposal, and it went in under Michael's name, and it didn't make it, but it got reasonably scored, so that was my main responsibility for that academic year. Well, he decided, "Well, why don't you do a resubmission for the next year?" And so, I spent another year as his research assistant rewriting the grant proposal. It didn't get funded either. But, I sure learned a huge amount about writing NIH proposals, and, that stood me in very good stead later on.

John Weeks: Well, yes, I mean, you've had a lot of NIH grants funded over the years, and including right now, right?

Steven Ruggles: Yep.

John Weeks: Looking at your CV, I see that there are current grants going out a few years down the road. So, uh, I'm guessing that you're not thinking of retiring anytime soon.

Steven Ruggles: Oh, I don't know. I'm kind of playing it by ear. I don't have a huge teaching load. I mean, it's a pretty damn good gig.

Dennis Hodgson: [Laughs]

John Weeks: Okay!

Steven Ruggles: And I finally feel like I'm beginning to get the hang of this teaching thing, It's kind of fun even. So I'll probably do it for a couple more years, but it would be nice to be able to, like, leave town in January 'cause it's kind of cold here.

John Weeks: [Laughs] Right. Yes.

Dennis Hodgson: Now, you did win the MacArthur grant, so there's a lot of money for the next five years, right?

Steven Ruggles: Yeah, yeah –

Dennis Hodgson: [Laughs] Enough to fire up your furnace.

Steven Ruggles: Yeah, no problem in covering the heating bill.

John Weeks: [Laughs] Okay, but – but also just thinking back, about you saying that you started out a computer science major, and that actually makes sense. That explains a lot to me about how much, with respect to IPUMS, has been done in terms of getting all of these files together so that people could use them. I mean, I've been a big user for a long time. I mean, when IPUMS came out, I thought, "Wow, this is the best thing I've ever seen in my life," and, uh, you know, it's only gotten bigger and better over time. And, obviously, the way your brain works on these things is a major factor, I'm guessing.

Steven Ruggles: Yeah, I got into it. I mean, I was in the right place at the right time. I was at Wisconsin as an undergrad when the 1940 and '50 project was just getting rolling. Then I went to Penn, just in time for getting 1900 and Sam Preston starting up the 1910 project, and then I came back to Wisconsin just in time for the completion of the 1940 and '50 census projects. And so I'd been around all these census projects, and then Sam Preston and Hal Winsborough decided they were done and they found these projects very frustrating.

So, I asked for their grant proposals, and they sent me their grant proposals. And so, I wrote up a grant to do a sample of the 1880 census, and then just went on from there. And then, in 1991, I realized every single one of these censuses was incompatible with one another, and we ought to make a compatible version, so I wrote an NSF proposal to do that.

Dennis Hodgson: I've got one question along these lines. From my point of view, now, I spent my entire career at a relatively small liberal arts college, and what was remarkable to me is IPUMS democratized access to data. It didn't matter where you were, you had access to this unbelievable set of data. And then, at the same time, sort of computer power was being developed significantly so that, with a relatively small investment of money, you could get a computer that can analyze all this accessible census data.

Now, I guess my question is, when you accomplished this, you sort of democratized this in such a way that anybody – and now with all the international data as well, is internationally available. What have you seen as sort of a consequence of giving this tremendous access to all this data to everyone who wants to go there and look at it?

Steven Ruggles: Well, the original proposal really didn't involve data access. It was just the harmonization. In the original proposal, I asked for money for 450 9-track tapes, 150 to import the data to Minnesota, 150 to create a transformed harmonized copy of it, and then another 150 tapes to send them to ICPSR so they could do the dissemination. We weren't gonna do the dissemination. I mean, that was crazy at the time, but then the internet came along.

And so, we never bought a tape. We originally set up an FTP site – an anonymous FTP site – so people could download it, but it still wasn't that accessible because a lot of these files were way too big for most people to download. And then I had this student, Todd Gardner, who's now at the Census Bureau, and he had developed a program for the IPUMS fantasy football league. It was interactive, and I'd never seen an interactive web program before. The idea was that you made selections of your players, and then you hit enter, and it would come back and would show you your players and stuff like that.

And I thought, "Wow, we could hook this up to the extract." We had an extract system, you know, for pulling samples from IPUMS. But we could hook that up and put it on the web, and people could do their own. And so, that was what really made it democratized was when we took the fantasy football program and hooked it up to the IPUMS FORTRAN program that did the data extracts and made it so that you could just make your choices and download a subset of data that you could put on your microcomputer and do your analysis on.

Again, the technology just came along at exactly the right moment, and that, of course, is what really made IPUMS popular. I mean, if it had been a bunch of, "You have to go get 150 tapes from ICPSR," it probably wouldn't have been as successful. And, at the time, people were mostly disseminating data on physical media. They were moving from 9-track tapes to CDs, but it seemed pretty clear that the internet was the way to go, and I think that was clearly the right decision.

Emily Merchant: I just wanted to add, so I teach with IPUMS data, and I love that you've now made it possible to extract data through the API, because now when I teach, I can just have students write R code to do the extraction and the analysis all from R, and that's just been a game changer in terms of teaching.

Steven Ruggles: Well, the APIs will be getting better and better. We're going to be investing more in those.

John Weeks: Okay, very good.

Dennis Hodgson: Now my question was, have you been surprised by the kinds of research that some people have done now that they had access to this?

Steven Ruggles: Oh, I've been totally surprised at how successful it has been in general, and yes – the things that people think of to do, I never anticipated that. I sort of figured that I was making a nice historical series that would, if I was really lucky, rank up there with the [Roger] Ransom and [Richard] Sutch, agricultural census files for the 19th century and, it turned out to be very popular.

Dennis Hodgson: And the international data has allowed nationals to actually study their own countries in a way that probably someone from the US – a US scholar wouldn't do. And now they can easily access their own data and analyze it, and it's, um – I think it's a remarkable accomplishment.

Steven Ruggles: Yeah, well, and that really is Bob McCaa's contribution. You know, in the '90s – the later '90s, when the IPUMS USA was just beginning to take off Bob just kept bugging me, and he said, "We've got to take this international. We've got to –" and I thought he was nuts because the US was really unique in the world in having public domain microdata. They had it – technically it existed in Canada, the UK, and a couple of other places, but you couldn't take it out of the country.

So, if you were a foreign national, you certainly couldn't use it--it was very restricted access. And then, there were a few countries where if you knew – like Brazil, if you knew the right people, you could get access, and that sort of thing. So, I thought that it was not going to be possible. And Bob went, and he got initially an agreement with, uh, Colombia, with DANE [Colombia's National Administrative Department of Statistics] and – and we started a project to harmonize the series of Colombian census microdata.

And, then he went out and got tentative agreements with a bunch of countries, and I wrote an NSF proposal, and we were off and running. And then he spent the next 15, 20 years running around the world getting agreements. And he's now retired, but, you know, it's a huge amount of effort to keep those relationships going with all different countries, and so we've got a few people who are spending a lot of time on the road going out and talking to all these national statistical offices.

But it's definitely worth it. I mean, for the most part, if it weren't for IPUMS, they wouldn't be available at all. This is unlike the US case, where you could still do it; you'd just have to do a lot more work.

John Weeks: Right.

Emily Merchant: Yeah, Steve, what were some of the biggest challenges that you faced with harmonization in the IPUMS project?

Steven Ruggles: Well, I think the key innovation of IPUMS, other than the internet, and the fantasy football extract system; the big innovation from the very beginning was that the harmonization is all based on metadata so that instead of writing a program, you know, with a bunch of 'if' statements or something like that, you have standardized metadata that show codes and labels in the original and in the harmonized version.

And so the staff, which, you know, in those days initially was just a bunch of graduate students, and now, well, it's a bunch of ex-graduate students. Well, we still have a few current graduate students, but, they manipulate metadata. They don't do a lot of programming, and it gives you kind of a visual. I don't think that it would be possible to maintain it if it were not all metadata-driven. And now, in the current generation, with all the metadata stored in a database, we have customized editing tools that make it easy. And so, I think that's the biggest innovation.

John Weeks: Win?

Win Brown: Yeah, my – my question is about the PU—public use--of the IPUMS acronym. Steve, I wonder, what does the word "public" mean to you? And, you know, is there a particular audience that encompasses "public"? And if you can talk to us about what public means, who they are, um, have you ever talked about achieving some kind of coverage goal that is about, you know, percent of public that actually uses data? So, I'm just thinking I want to hear your thoughts about public use.

Steve Ruggles: Well, first about the name of IPUMS. In 1980, the Census Bureau decided to call their microdata file a PUMS file, which was Public Use Microdata Sample. Previous to that, the 1960 and '70 they just called public use samples, but they still have the word public in there. And, I came up with the name IPUMS …I guess people were kind of used to what PUMS were, and so, just add an "I" and made it "series" instead of "sample" at the end, and that seemed to make sense.

But, yeah, I think that the public part of it is the amazing thing about it. That's what was amazing about the US compared to the rest of the world, was that we had this microdata, this incredible resource that was freely available, and it makes a huge difference. You know, the Census Bureau currently--their announced plan is get rid of the PUMS for the American Community Survey and replace it with synthetic microdata that won't be suitable for research.

And they said, "Well, you know, it'll be okay because we'll have a validation service where you can submit your code to the Census Bureau. We'll run it on the real data, then we will do disclosure control on the output and give you the output back, or you can go into the research data center." The reality is this is not going to work. This will not be public data anymore. And, students obviously won't be able to use it. Journalists, policy people, who need an answer right now are not going to be able to use this kind of data.

I just think that open access to data is hugely important, and the cool thing about this general-purpose microdata, where you've got, not just the 85 or 90 variables for each individual and household, but you've got the individuals nested into the households so that you know the relationship among all the people in the household. And then that means that you really have at your disposal hundreds of millions of possible variables that can be constructed from combinations of characteristics among people.

And this is incredibly rich, so I mean that's one reason why you get the surprising topics and strategies that people come up with, and it's partly because there's just a lot there. It's not like, the summary files, where you've only got characteristics of places.

Win Brown: It's not like STATcompiler.

Steven Ruggles: Yeah, I use it in teaching as well all the time, and the fact is that you have undergraduates make new discoveries that are actually good, and interesting new discoveries that nobody ever knew before. There aren't that many opportunities for undergraduates to do that, and this is one of them.

John Weeks: So, is the Census Bureau's concern the issue of data privacy? I know you've talked about that quite a bit in recent publications.

Steven Ruggles: Yeah, and I mean a lot of concern of the Census Bureau so far has been the disclosure control in Census 2000 for the summary files, for which they adopted formal privacy, based on some notion that people could break into the tabular data and find out information about individuals. And I think that it was hastily done. It was a bad decision, and the problem is that although there's been some turnover in the Census Bureau, and maybe things will improve, my big concern is that this is just going to wreck the microdata as well as the summary data. And, if you're going to drastically restrict access to the American Community Survey, it's going to undermine the rationale for having the data in the first place.

And, it's a very expensive proposition to go collect data on millions of people every year, and I think that we really have no evidence that there's a significant threat. And if there is a threat, it ought to be dealt with with targeted strategies. It's pretty clear that it's a small group of outliers that have the potential to be disclosed, and you could focus your disclosure control on a very tiny slice of the population, and it would be just as effective.

Dennis Hodgson: Now, Steve, in terms of your own research, from at least my point of view, what I find most interesting is your take on inter-generational mobility. Now, you've got a dataset there that you've constructed that allows you to follow individuals across censuses that allows you to actually address in a real way the question of intergenerational mobility. And then you have your major findings that raise big question marks about intergenerational mobility trends, that if anything, we haven't had this succession of great upward mobility at all. Would we have been able to make that empirical finding without being able to actually track individuals across censuses and link their data together?

Steven Ruggles: Yeah, I think that the linked data has certainly contributed to that literature, I also think the linked data is still pretty imperfect. I'm fairly convinced that, in terms of intergenerational economic mobility, there really is a decline over the last 150 years, but it's really hard to measure.

And, one of the problems is occupational structure. We have to base it on occupations which, you know, have shifted so dramatically over that period. In the 19th century, we had a bunch of farmers, and we don't really, at this point yet have a very good indication of their economic status because farmers can be anything. So, that's another complicating factor. I think that once we get the 19th century agricultural censuses digitized and linked to the population censuses, which will happen, that will be better.

And in terms of the other kind of mobility, the geographic mobility, I think that in addition to census data, we now have a whole bunch of other data sources that confirm that the geographic mobility has been declining for a very long time, probably since the middle of the 19th, century. I'm certainly not an expert on either of those topics, but I think they're really important.

John Weeks: No question about that.

Dennis Hodgson: I guess there is a big question that comes out of that has to do with, uh, you're a big data person, spent most of your career actually giving access to big data to people. What's your perception about the connection between data and policymaking? We would like to hope that having access to that amount of data that can actually address significant policy questions would – might have produced better policy. What do you think? Has it worked that way?

Steven Ruggles: Yeah, well, I think that having access to data has improved and does improve policy all the time. Including at the state and local levels where it doesn't necessarily derive from articles in the top economics journals. But it does derive from state and local policy analysts running the numbers on their places. You know, I think there's all kinds of levels of policy stuff.

But I think there's huge policy-relevant research based on these data. You know, stuff like the impact of early childhood education that has had policy outcomes where people have invested more in preschool. Also, there's a lot of policy in the world out there that's just terrible, and where they don't pay much attention to actual evidence, and that's too bad.–

Dennis Hodgson: That's great.

John Weeks: So, on that score, Steve, how do you see the whole field of demography having changed over time in your career? Much of what we've been talking about is how you have made huge contributions to the data that we can use and to the conclusions that we draw from those data, but more broadly, as you've been, you know, President of PAA and also President of the Association of Population Centers, how do you feel the whole field of demography has shifted over time?

Steven Ruggles: Well, one thing is if you look at PAA prior to the mid-1980s, there was a lot more interaction between the Census Bureau and other statistical agencies and the PAA. If you look at the presidents from the 1930s to the mid-1980s, a huge portion of them spent at least part of their career at the Census Bureau or in the National Office of Vital Statistics, and a bunch of others were, of course, in the early years, life insurance people.

Since the mid-1980s, it's almost exclusively academics that have been PAA presidents [Editor's note: the most recent PAA President working for a government agency when elected as President was Jacob Siegel in 1980, who was at the Census Bureau at the time]. And that also is the period in which the field has become dominated by the population centers. Originally, Princeton goes back to the beginning, but the big center grants started coming out in '70s and became the dominant locus of activity for the field in the late 1970s, and 1980s, I think.

And then you add the aging centers to the NICHD centers. I did a presentation; I should probably get it to you guys. I did a presentation when I was president of the Association of Population Centers that was the history of the Association of Population Centers, where I did a bunch of interviews with the past presidents of

the Association of Population Centers. The only real thing I have is the PowerPoint, but I have a whole bunch of quotes in there, and I should probably send that to you. But there's disagreement among the founders about what the purpose was and how it got founded, which I found interesting.

But, in reality, I think that the APC was fundamentally founded because of perceived threats to the center grant program and to Add Health in particular, and was founded to be an advocacy arm that would contribute to informing our government about what great stuff we do. So, obviously the field has thrived because of the centers but I think there's been kind of a shift from this sort of more involvement with federal statistical agencies, to being more focused on, obviously, on health. It makes perfect sense that the National Institutes of Health is interested in health. [Laughs]

John Weeks: Right.

Steven Ruggles: And what this has meant, though, particularly over the last two or three decades, is that demographers have become more focused on health. And, uh, you know, nothing wrong with health, [laughs] but the field is bigger and is not all health and shouldn't be all health, I think. There's perhaps a little bit of a danger of health coming to dominate too much.

Win Brown: Steve, I'm curious, have you ever volunteered to be a census enumerator?

Steven Ruggles: No, I have not. My daughter did--my eldest daughter, and I have a colleague here who has done it. I thought about it, but boy, you know, it seems pretty unpleasant, really. But, I mean, yes, I'm intrigued by the idea, and I think I should have done that. I feel guilty that I have not pursued that, but there's still time. 2030. [Laughs]

Karen Hardee: Can I ask about the sort of other end, and that is the students and their interest in studying demography and how you see that?

Steven Ruggles: Yeah, you know, I'm in history. Historical demography was highly fashionable when I started. Quantitative history was just the bee's knees, and starting in the '80s, but particularly in the '90s, quantification became extremely unfashionable in history. So, I had a lot more graduate students in the '90s, in the '80s and '90s than I do now. And right now, I have one. And so in history I think there's a resurgence, and maybe a little growth in interest in the field--in history departments.

But, for the most part, the big growth in historical demography has been in sociology and economics, in the last few decades. And there, I think, it has been quite striking. And I think partly it's grown because, the economists, a lot of them are not really interested in history. They just see, "Oh, there's a data set I could use," and it happens to be old, and so, at any rate, they end up doing history just because it's – it's not all cases, but in some cases just because it's convenient, and they can do some diff-in-diff.

Dennis Hodgson: I do have one question about the near future, the incoming administration.

Steven Ruggles: Yeah.

Dennis Hodgson: I think you spent a good chunk of your career putting together this wonderful institution. How resilient is it to the potential for funding cuts?

Steven Ruggles: We don't know. I mean, obviously, at this point IPUMS is still entirely a soft money type of operation and if either NIH or NSF loses interest in this general area – you know a few years ago, they tried to get rid of the political science program in NSF. The whole SBE program at NSF could be endangered. You know, the DOGE people might say, "Oh my God, there's half a billion dollars," and come after it.

Dennis Hodgson: So, it's scary?

Steven Ruggles: In which case, you know--we don't have a plan B, really. And we keep talking about trying to develop an organization kind of like ICPSR or like other digital archives, ITHAKA, and so on, that would be an institutional membership organization that would try to keep the lights on, particularly if things go south in the grant world, but we haven't really pulled the switch on that, but maybe one of these years we'll get to it.

John Weeks: That does get back to the issue that you were talking about earlier in terms of the PAA and the Association of Population Centers, which obviously are all linked through PAA having the advocacy programs with members of Congress.

Steven Ruggles: Yeah.

John Weeks: And that being obviously an important part of what the organization does, not so much individual members, but the organization, per se.

Steven Ruggles: Right.

John Weeks: And – and on that score, you came in as president when Danielle Staudt was hired as the Executive Director, and now she's leaving, or maybe she's even out of the office by now, I'm not sure.

Steven Ruggles: Right.

John Weeks: Did she just get recruited elsewhere?

Steven Ruggles: Yeah, that's my understanding.

John Weeks: – okay.

Steven Ruggles: I don't know the details, but she's just decided to move on.

John Weeks: Okay, and I assume there's a process going on. We haven't really heard much about it in terms of a search for a replacement there.

Steven Ruggles: Yeah.

John Weeks: Right.

Steven Ruggles: My understanding.

John Weeks: My – my sense was that she had done a very good job. Was that your sense as well?

Steven Ruggles: Yes.

John Weeks: Right. I take it this made her a good candidate for being recruited. [Laughs]

Steven Ruggles: Right.

John Weeks: Yeah, sadly enough. But Karen's question about students too, even at the undergraduate level, you know, within the APC is there discussion among the population centers about making sure that every educational institution of higher learning has a population program somewhere for undergraduates, or at least a class people can take?

Steven Ruggles: I have not heard discussion of that. I mean, there has been concern about the pipeline, and particularly trying to diversify the pipeline for graduate students in demography. They got an R25, I can't remember what the title is, but which has been circulating between population centers trying to get prospective undergraduates to come and see what it's like.

John Weeks: The NextGenPop?

Steven Ruggles: Yeah, the NextGenPop, right. And I had a student who did that, who is now enrolled here, in history to do historical demography.

John Weeks: Good. But that's relatively small, like, two dozen students or something like that if I recall.

Steven Ruggles: Very small. Yeah, no, I haven't heard anything else having to do with undergrads.

John Weeks: Okay, okay.

Steven Ruggles: But I think that sounds like a good idea.

John Weeks: Well, we've actually been talking about it amongst ourselves in terms of where exactly is the field going? Because, kind of as you say, much of the discussion now does seem to be, about health and some of the other issues like migration and how the age structure affects the economy, and even how, going back to your presidential address, how big changes in the economic structure of society change the family structure and change everything that's going on in society in ways that

really are connected. They're not just events that are happening, you know, willy-nilly out there.

Steven Ruggles: Yeah, so, you know, the last five years or so I've taught, an undergrad course on the history of population, that's just the title of it, and despite the fact that I offer it every year, it gets 30 to 40 kids each year, and they are very enthusiastic.

John Weeks: Yeah, well, it seems to me, I think if we go back through, you know, the interviews with past PAA presidents, a lot of people, including you, got interested in the field of demography as undergraduates. You know, things popped into your mind as an undergraduate that then later on blossomed into, you know, an important career.

Win Brown: Well, I want to take you back even prior to your undergraduate years, Steve. What can you think way back to your childhood, did you get from your parents? Love of, you know, quantitative analysis, and numbers? Were you encouraged to pursue math? Do you perceive yourself as, you know, having been a strong math student, and that took you in a particular direction? Can you remember sort of the components that gelled and got you in the path?

Steven Ruggles: Well, we discussed statistics and quantitative policy stuff and whatnot at the dinner table, and that was the norm. My parents were very involved with the initial development of microdata in the first place, and they worked a lot at the Census Bureau. In fact, the current federal statistical research data centers were initially set up to disseminate a longitudinal establishment database that they had developed in the 1970s. And, so, yeah, they sent me to learn PL/1 at the computer center, which was across the street.

I did a short course there, I think, in 1969. My parents, in 1955, the year I was born, bought a tenement house in New Haven, and they gutted it, and they set it up so that on the lower level there was an apartment for the programmers, and in the front of the lower level, we had the first interactive computing in a household, I think probably anywhere because they had a string of wire across the street to the computer center, uh, and we had a teletype machine.

In 1969 Yale got the CMS, the Cambridge Monitor System, which was developed at Harvard and MIT and allowed you to do interactive computing where you type in something into the teletype machine and it types back at you. And so, we had that installed right away. But, prior to that we had already had a bunch of keypunch machines, a line printer, and whatnot, in our house, and then in the back, we kept the programmers behind the computer room.

So, as I was growing up, there was a constant stream of programmers, most of whom were graduate students working on my parents' projects. I was, you know, always hanging out with them, smoking pot with the programmers, you know, that type of thing, when I was a teenager. And one of them was Ron Rivest, who later developed cryptography. He's one of the leading lights. At any rate, I had an unusual childhood in that respect.

Win Brown: You had an unusual childhood! I think we're all gonna pretty much agree.

Karen Hardee: There is pretty much no other no other word for that.

Win Brown: And by the way, I mean, a few of us on this call remember keypunch. Our first programs were on keypunch. I mean, those things weighed probably 2,000 pounds. I mean, to have that in your house, I mean, who carried it in? How did you not blow a fuse every half hour?

Steven Ruggles: Well, we had new wiring, you know. That was one of the things. In the old tenement house we had all new--a very modern inside by the time they were done with it.

John Weeks: But now, actually, we haven't talked about your own personal family life. Did you raise your children with those ideas of learning how to program everything?

Steven Ruggles: Yeah, one of my kids is an engineer – a software engineer--at Google, and the other one works for NORC in Chicago as a data analyst.

John Weeks: Well – well done. And then you – you married another historian, though, am I right?

Steven Ruggles: I did, and she's not quantitative at all.

John Weeks: [Laughs] Okay.

Steven Ruggles: But she puts up with it.

John Weeks: Well, that's good. Yeah, very good. Well, we've taken more than an hour of your time, but I don't want us to leave without making sure that there weren't other questions that either committee members had or that you thought we would ask and didn't and want to make sure that we have in here.

Steven Ruggles: Um, I can't really think of anything.

John Weeks: Emily, as the other historian on this Zoom interview, do you have anything that we should have mentioned and haven't?

Emily Merchant: No, I think we got to the intersection of demography from both sides, from the history side and the demography side, so yeah, I think we've covered it.

John Weeks: All right, very good. Okay, Win? Karen? Dennis?

Karen Hardee: We could have a whole other conversation about the international side of the data, but maybe another day. Yeah. Really interesting.

Win Brown: We could talk to Steve all day long.

Karen Hardee: [Laughs] I know.

Win Brown: And we're trying to hold ourselves back, you know?

John Weeks: No, no, no. That is really true because, we talked about this earlier when we were inviting you to the interview that we could talk about IPUMS forever because that is so important. I mean, whenever I want to know something about another country, I just go to your database and download the data. There it is. I mean, you know, it's an incredible resource. There's no question about that. And we and everyone in the world thanks you for that. You've done a hell of a job.

Karen Hardee: You made your parents proud.

Steven Ruggles: Yes.

John Weeks: Yes, I hope they got to know everything that you did, right? Your parents?

Steven Ruggles: Yeah, my father died in 2001. My mother died earlier, but she knew that I was going to get tenure by the time she died, [Laughs] but I hadn't done much with IPUMS by then.

John Weeks: Okay. Well, once again, thank you so much for taking the time to talk with us, and, we'll have a chance, of course, to relive the interview when we get the transcript back and the video recording back, and I will share that with all of us, and we'll make history from that point on.

Steven Ruggles: Great.

John Weeks: Okay.

Steven Ruggles: Well, thank you so much.

John Weeks: Thank you.

Emily Merchant: Thank you.

Karen Hardee: Thanks. Thanks so much.

John Weeks: Everybody, take care.

Win Brown: Thanks, everyone.

John Weeks: Bye-bye.

Dennis Hodgson: Bye-bye.

Transcription by GMR Transcription
Initial editing by John R. Weeks
Final edits by Steven Ruggles

Demography (2015) 52:1797–1823
DOI 10.1007/s13524-015-0440-z

Patriarchy, Power, and Pay: The Transformation of American Families, 1800–2015

Steven Ruggles[1]

Published online: 28 October 2015

Abstract This article proposes explanations for the transformation of American families over the past two centuries. I describe the impact on families of the rise of male wage labor beginning in the nineteenth century and the rise of female wage labor in the twentieth century. I then examine the effects of decline in wage labor opportunities for young men and women during the past four decades. I present new estimates of a precipitous decline in the relative income of young men and assess its implications for the decline for marriage. Finally, I discuss explanations for the deterioration of economic opportunity and speculate on the impact of technological change on the future of work and families.

Keywords Marriage · Family · Wage labor · Relative income

Introduction

Before the nineteenth century, most families were organized according to patriarchal tradition. Household heads owned and controlled the means of production, and their wives and children were obliged to provide the unpaid labor needed to sustain family enterprises. Masters of the household had a legal right to command the obedience of their wives and children—as well as any servants or slaves—and to use corporal punishment to correct disobedience (Coontz 2005; Cott 2009; Hartog 2000; Mintz and Kellogg 1988; Shammas 2002; Siegel 1996; Stanley 2002). Over the past two centuries, this patriarchal family system collapsed, as household heads lost control over their sons, wives, and servants.

✉ Steven Ruggles
ruggles@umn.edu

[1] Minnesota Population Center, University of Minnesota, 50 Wiley Hall, Minneapolis, MN 55455, USA

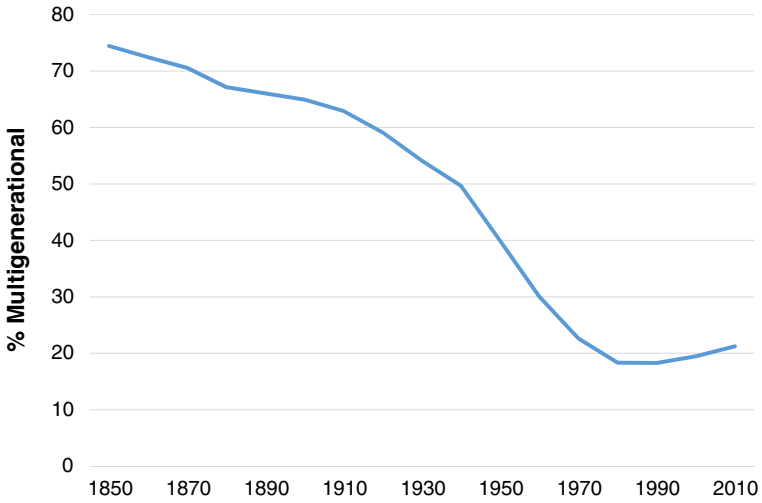

Fig. 1 Percentage of persons aged 65 or older residing in multigenerational families: United States, 1850–2013. Multigenerational families defined according to the IPUMS MULTGEN variable. *Source:* Ruggles et al. (2015)

The waning of patriarchy was accompanied by a shift toward simpler and more unstable families. Intergenerational coresidence, once a standard phase of the life course, is now rare (Ruggles 1994, 2007). As shown in Fig. 1, in the mid-nineteenth century, 74 % of persons aged 65 or older resided in multigenerational families. Coresidence declined continuously from 1850 to 1990, reaching a low point of 18 % before recovering slightly during the past few decades.[1] After the Civil War, divorce rates began to climb. Except for a temporary spike at the end of World War II, divorce has increased almost continuously for 150 years. New estimates controlling for age composition presented in Fig. 2 show that the standardized divorce rate leveled off only briefly in the early 1980s and has climbed rapidly since (Kennedy and Ruggles 2014).

In the past half-century, the long-run trend toward atomization of families has accelerated. A broad retreat from marriage began after 1960. It is likely that about one-third of persons now in their early 20s will never marry, and this trend shows no sign of slowing (Martin et al. 2014; Ruggles forthcoming).[2] This is unprecedented; as shown in Fig. 3, among all prior cohorts, at least 90 % of women married. Cohabitation is growing rapidly, and cohabiting unions are more unstable than marriages (Kennedy and Bumpass 2008; Kennedy and Ruggles 2015). Increasingly, however, young adults are forgoing partners altogether. In 2014, 54 % of persons aged 25 to 29 had no coresiding partner of any kind, up from 48 % in 2007 and about 23 % in 1970.[3]

[1] Except where otherwise specified, statistics in this article derive from the Integrated Public Use Microdata Series (Flood et al. 2015; Ruggles et al. 2015). In many cases, the analyses also appear in Ruggles (forthcoming), which includes additional documentation of sources and methods.

[2] Martin et al. (2014) projected that assuming current marriage rates remain unchanged, 31 % of women and 35 % of men born in 1990 will not have married by age 40.

[3] The 2014 and 2007 estimates come from the Current Population Survey (CPS), adjusted to account for group quarters (Flood et al. 2015). The 1970 estimate derives from the census microdata, adjusted to account for cohabitation (Fitch et al. 2005).

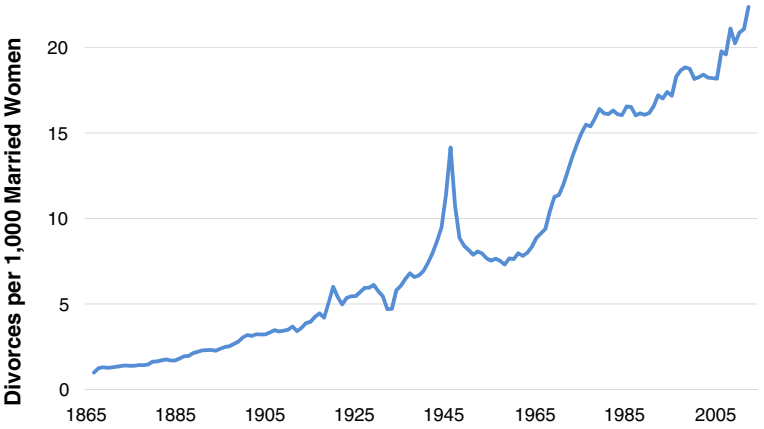

Fig. 2 Annual divorces per 1,000 married women, standardized by age: United States, 1867–2013. *Source:* Ruggles (forthcoming)

This article presents an interpretation of the transformation of American families over the past two centuries. I argue that more than anything else, the changes in families reflect changes in work. An upheaval in the economic organization of families had profound implications for gender and generational relations. The economic revolution was responsible for revolutions in family composition, divorce, and marriage.[4]

I begin with a broad overview of changes in family economies over the past 200 years. I then describe the rise of male wage labor beginning in the nineteenth century and the rise of female wage labor in the twentieth century, and examine the implications of those changes for family relations. The second half of this article explores a decline in wage labor opportunities for young men and women during the past four decades. I present new estimates of the precipitous decline in the relative income of young men and assess its implications for the decline of marriage. Finally, I discuss explanations for the deterioration of economic opportunity and speculate on the impact of technological change on the future of work and families.

Family Economies

For most of the nineteenth century, production was carried out by families. In 1800, three-quarters of the workforce was engaged in agricultural work, and a majority of the population lived on farms until 1850 (Ruggles et al. 2015; Weiss 1992). Farms could not operate without family labor; all family members who were old enough contributed to farm production. Among the one-quarter of the population who did not work on farms at the beginning of the nineteenth century, most still made their living through the family economy. Most nonfarm production was carried out by family businesses, with occupations such as shopkeeper, shoemaker, tailor, physician, or tavern keeper. In most such enterprises, the family resided on the same premises as the shop, and the whole

[4] This analysis is confined to the United States because it is presently the only country with a suitable long-run data series. Similar processes, however, occurred in Northern Europe and now seem to be occurring in some East Asian and Latin American countries (Ruggles 2009; Stanfors and Goldscheider 2015).

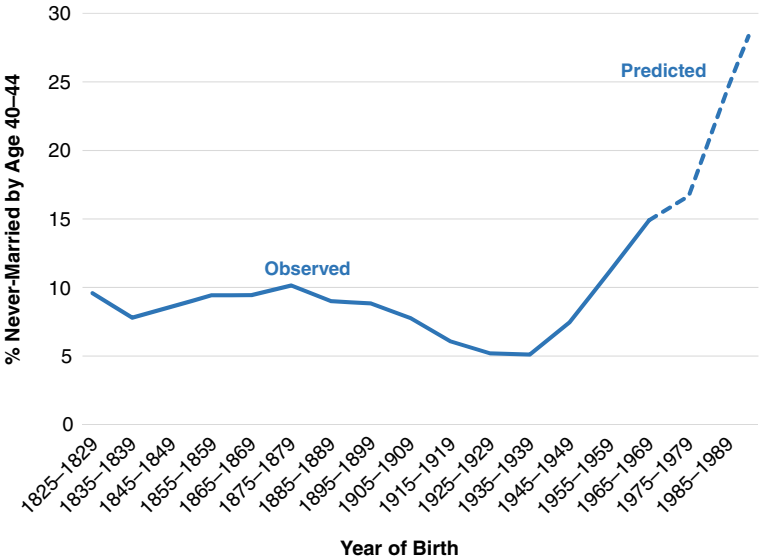

Fig. 3 Percentage of women never married by age 40–44 by birth cohort: U.S. women born 1825–1994. *Source:* Ruggles (forthcoming)

family worked for the business. Like farms, these family businesses were usually handed down from generation to generation.

Figure 4 describes the major transformations in the economic organization of married-couple households over the past two centuries.[5] In the nineteenth century, corporate families predominated. I define corporate families to include all married couple households with self-employed heads, except for those in which the wife had an occupation outside the family business. Most corporate families were farm families. In addition to kin, corporate families often included farmhands, servants, slaves, and sometimes apprentices. Corporate families were in the majority throughout the nineteenth century and remained important through the first half of the twentieth century.

Corporate families were replaced by male breadwinner families in the early twentieth century. Male breadwinner families are defined as those in which the husband works for wages or salary and the wife has no occupation listed in the census. By 1920, the number of male-breadwinner families exceeded the number of corporate families, and this percentage continued to grow until World War II. This change was driven by expanding wage labor opportunities for men. The male breadwinner category represented a majority of marriages for just four decades—from 1920 to 1960—reaching a peak of 57 % in 1940.

Male breadwinner families were replaced by dual-earner families in the mid-twentieth century. In the early decades of the twentieth century, the number of married women working for wages began to increase, and the pace of change accelerated in the middle decades of the century. Dual-earner families have now predominated for almost a half-century. Over the past several decades, female-breadwinner families—shown in

[5] This graph was inspired by a similar illustration that appears in Stanfors and Goldscheider (2015). The term "Corporate Family Economy" was coined by Ryan (1981), and my characterization of change was informed by Mintz (1998).

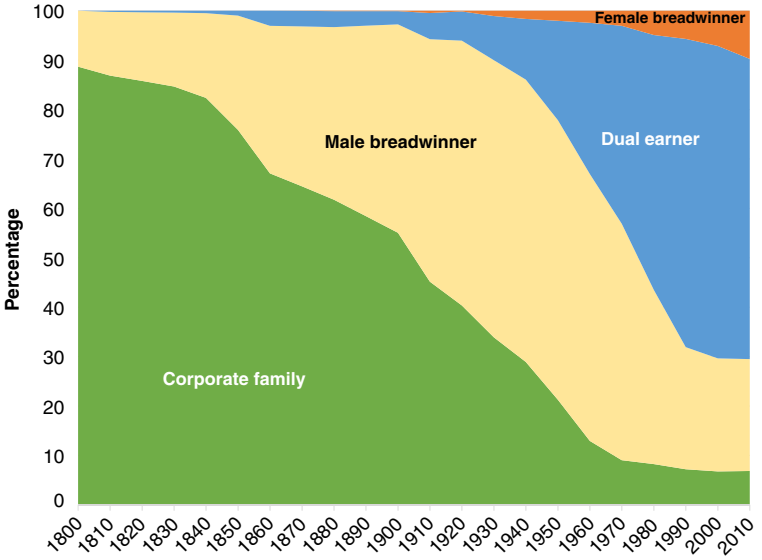

Fig. 4 Family economies of U.S. couples aged 18–64: United States, 1800–2010. *Source:* Ruggles (forthcoming)

the top right of Fig. 4—have emerged as a significant new form, and they now account for one-tenth of marriages.

The Rise of Male Wage Labor

> How to keep boys on the farm and induce them cheerfully to choose farming as their occupation for life is a question of deep interest to many parents. The stampede of young men from the country to cities and large towns is not an evil which finds its limit in the domestic circles which they leave, but is one which extends through society and makes its depressing influence felt everywhere. How to check this evil is a question of great importance and is well worthy of consideration. (Read 1884:848)

Corporate families predominated in the nineteenth century because before the Industrial Revolution, people did not have many other options. The earliest data showing the full male occupational distribution come from the 1850 census, when the transformation of the economy as already well underway. As shown in Fig. 5, wage labor jobs that paid enough to support a family were still scarce in 1850. At that time, about two-thirds of men were self-employed farmers or proprietors, unpaid sons on farms or in family businesses, or slaves. Another 15 % were unskilled workers, who were mostly farmhands and were paid mainly in the form of room and board. Such laborers usually did not get paid enough to get married. In 1850, the biggest groups of skilled workers and operatives were miners and sailors. They were paid better than farmhands, but most worked in places where there were few women available to marry.

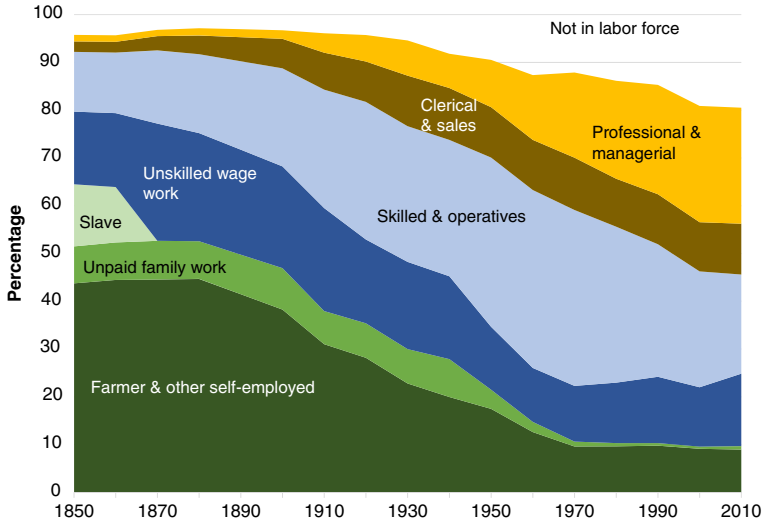

Fig. 5 Occupations of men aged 18–64: United States, 1850–2010. *Source:* Ruggles (forthcoming)

If a young man wanted to marry, his best prospect was still to inherit the family farm or business. Accordingly, in most families, one child remained in the parental household under the control of the patriarch, with the expectation of eventual succession.

As the century progressed, new high-paying opportunities arose in factories. The number of factory jobs grew 600 % between 1850 and 1900, and there were rapidly expanding opportunities in clerical, sales, and professional occupations (Lebergott 1984). The growth of well-paying wage labor jobs for men undermined the economic underpinnings of patriarchal authority. As young men took jobs off the farm, they moved away from home and out of the control of the patriarch. Figure 6 compares the percentage of men in agriculture with the

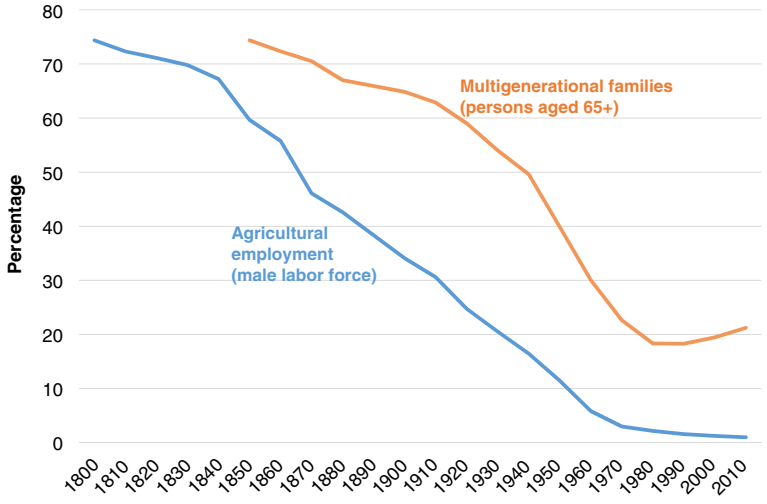

Fig. 6 Agricultural employment and multigenerational families: United States, 1800–2010. *Sources:* Ruggles et al. (2015) and Weiss (1992)

percentage of elderly residing in multigenerational families. A generation after agricultural employment began to decline, multigenerational coresidence followed suit.

The decline of multigenerational families occurred mainly because of increasing wage labor opportunities for the young (Ruggles 2003, 2007). When young men could obtain well-paying employment for wages, they no longer had as much incentive to remain at home under the control of their fathers. As wage earners grew old, the incentives for intergenerational coresidence declined further. Under the wage labor system, patriarchs no longer needed the labor that their sons and daughters once provided. Moreover, retired wage earners could no longer offer the younger generation employment and eventual inheritance of the family farm or business.

A second major consequence of the rise of well-paying male jobs was a long-run decline in marriage age, especially among men. Under the corporate family system, young men had to wait until they either inherited a farm or built up sufficient resources to establish an independent household. Under the wage labor system, men could achieve high earnings early in life. As jobs paying good wages began to open up in the late nineteenth and early twentieth centuries, men could increasingly afford to marry at an earlier age. Accordingly, between 1890 and 1960, median age at first marriage declined 3.6 years among men and 2.2 years among women (Ruggles forthcoming).

The rise of male-breadwinner families empowered young men, but it did not do much for women. Even though first-wave feminists obtained the vote in 1920, in most respects patriarchal gender norms remained firmly entrenched. In the mid-twentieth century, women still could not get a bank account or a loan without their husband's signature, husbands had the right to determine where the family lived, and patriarchal authority was still enforced through violence (Coontz 1992, 2005; May 1990).

In 1959, the *New York Mirror*—then the second-largest circulation newspaper in the nation—featured man-in-the street interviews asking the question, "If a woman needs it, should she be spanked?" All four of the men interviewed affirmed that the spanking of wives was necessary to enforce discipline. Teddy Gallei, a parking lot attendant, explained, "It teaches them who's boss. A lot of women tend to forget this is a man's world." William Davis, a toy factory owner, concurred: "Most of them have it coming to them anyway. If they don't it will remind them how well off they are . . . An ounce of prevention is worth a pound of cure" (Aidala 1959).

The Rise of Female Wage Labor

Patriarchal control over women began to erode with the rise of female wage labor. Wage labor opportunities for men were highly limited in the mid-nineteenth century, but the opportunities for women were virtually nonexistent (Kessler-Harris 1982). Figure 7 shows the occupational distribution for women since 1850.[6] In the mid-

[6] The white space at the top—labeled "Not in the labor force"—identifies women without identifiable economic activities, whose effort was probably devoted mainly to housework and childcare. Housework and childcare clearly have economic value (Folbre and Nelson 2000), but do not enable economic independence.

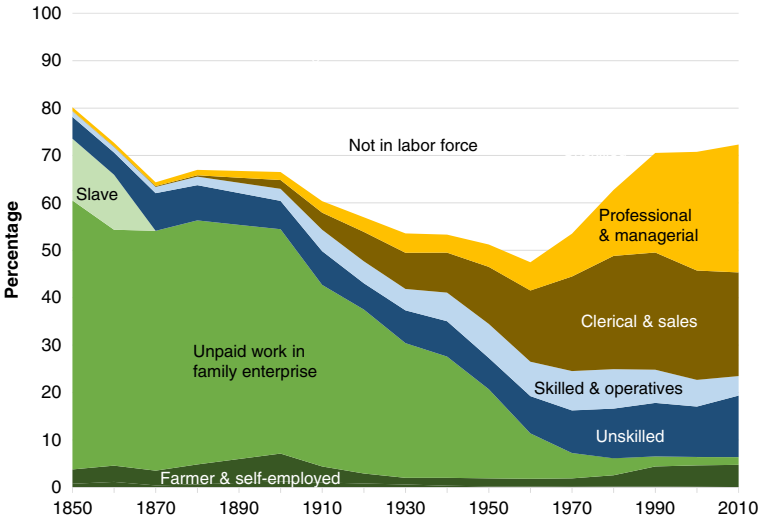

Fig. 7 Occupations of women aged 18–64: United States, 1850–1910. *Source:* Ruggles (forthcoming)

nineteenth century, the great majority of working women were unpaid workers in family enterprises, mostly farm wives and daughters and slaves. The next largest category—unskilled workers—was almost entirely domestic servants in 1850. The best jobs available for women were in factories, which employed 1.3 % of women. The tiny professional and managerial category—accounting for less than 1 % of adult women in the mid-nineteenth century—consisted almost entirely of teachers. The growth of better-paying jobs for women began around 1900 and expanded rapidly after World War II.

The long-run pattern of women's employment shown in Fig. 7 is U-shaped, and the low point of the U was at the peak period for male-breadwinner families (Goldin 1995). Although the great majority of women engaged in economically productive work in the nineteenth century, that economic role did not afford them independence or power. In all but a tiny fraction of cases, nineteenth-century women worked in corporate families under the direction and control of their husbands, fathers, or masters.

The twentieth-century rise of wage labor for women undermined the authority of husbands and fathers. New economic opportunities enabled some women to delay or forgo marriage, and the availability of paid work also provided a means of escape from bad marriages. From 1880 to 1990, there was a strong spatiotemporal association between the availability of jobs for women and the prevalence of divorce and separation (Ruggles 1997). In times and places where women had no means of subsistence outside corporate families, they usually remained married even if they were unhappy.

Figure 8 shows the wage labor participation rate for women aged 25–29, a group old enough that few were still in school, but they were still of marrying age. By 1920, most young single women had wage-paying jobs. The percentage of young married women with such jobs grew gradually from 1900 until 1962 and then took off.

Before the 1950s, women generally left wage labor employment when they married, partly because most employers barred married women from working for wages (Goldin

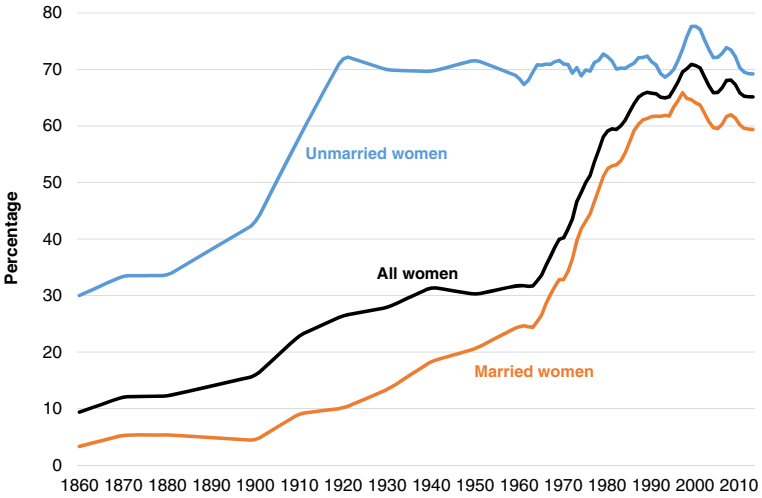

Fig. 8 Percentage of women aged 25–29 engaged in wage labor, by marital status: United States, 1860–2013. *Source:* Ruggles (forthcoming)

1991a). Despite the symbolic resonance of Rosie the Riveter, emergency work experience during World War II had little impact on employment after the war (Goldin 1991b). Most economic historians agree that the main reason for the sharp rise of married women's employment in the 1950s was the extraordinary demand for labor, which created pressure to overcome institutional barriers to change. The economy heated up just as the marriage boom reduced the supply of single women, so the rules against hiring married women disappeared (Costa 2000; Cotter et al. 2001; Goldin 1990; Oppenheimer 1970).

As more and more married women began to work for wages, the balance of power within marriages shifted. Many men and some women were alarmed by the rise of the dual-earner family. A 1958 *New York Mirror* man-in-the-street interview asked, "Is Father Losing his Place as Head of Family?" Charles Cogswell, a bank guard, responded:

> Yes. Too many wives are getting independent. They go to work and begin feeling they have more to say than the father. The old-fashioned way—when father was THE boss—kept families happier. Not so many divorces, separations, and juvenile delinquents, then.

Simon Golos, an attorney, agreed that there was a "confusion of authority" and "a gradual usurpation of power by the lady of the house." Two women were also queried by the *Mirror*. Harriett Weisman, a housewife, agreed with Cogswell and Golos, but felt that the decline in the power of the father was a good thing because the wife "copes with all the family problems." Only Mrs. Lillian Ciarvino—a housewife and secretary—disagreed, saying that "a majority [of fathers] are still heads of their homes." Even Ciarvino, however, recognized that a fundamental change in gender relations was underway, but she saw it as an issue of character: "The father who gives up his place as head is either weak or doesn't care to assume the responsibility" (Aidala 1958:27).

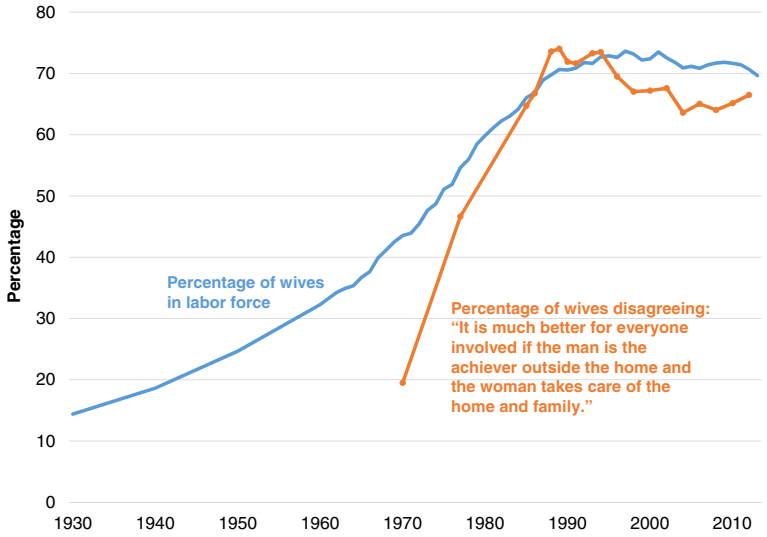

Fig. 9 Labor force participation and attitudes toward labor force participation for married women under age 45: United States, 1930–2013. *Sources:* Ruggles et al. (2015), Flood et al. (2015), Westoff and Ryder (n.d.), and Smith et al. (2013)

Attitudes

Attitudes toward married women's work shifted rapidly during the 1970s. The evidence on the timing of change suggests that the transformation of attitudes represented an accommodation to the new reality of married women's wage labor (Rinfduss et al. 1996). Figure 9 compares the percentage of married women who were in the labor force with the percentage of married women who disagreed with the idea that women should stay home. In 1970, when the series of attitudinal surveys began, 44 % of wives were already in the workforce, but less than 20 % of wives thought that women *should* work outside the home. Among working wives in 1970, 70 % thought that it would be "much better for everyone involved if the man is the achiever and the woman takes care of the home and family" (Westoff and Ryder n.d.). The great majority of working wives felt that wives ought to stay at home. The cognitive dissonance between behavior and attitudes was soon resolved, however. As married women flooded into the paid workforce, the stigma that had surrounded married women's participation in wage labor quickly disappeared. By 1980, most married women approved of married women's work (Smith et al. 2013).

When behavior changes, attitudes adjust. As divorce became more common, for example, it lost much of its stigma. This mechanism operates at the individual level; in a study of divorce in the Detroit area between 1962 and 1977, Thornton (1985) found that when people get divorced, they become much more accepting of divorce. Likewise, Axinn and Thornton (1993) found that young people's cohabitation experience in the Detroit Area Study had dramatic effects on their approval of cohabitation, and also positively affected their mothers' approval of cohabitation.

Changing attitudes are a crucial part of the process of family change. There is a feedback loop: as family attitudes shift, they allow still more family change (Axinn and Thornton

2000). Changing attitudes can have especially powerful effects on family behavior through their impact on institutional change (Bumpass 1990). Over the past 150 years, for example, shifting attitudes permitted progressive loosening of once-formidable legal barriers to divorce (Cherlin 2009; Hartog 2000; May 1980; Mintz 1998). Similarly, shifting attitudes helped eliminate legal barriers to contraception and abortion in the 1960s and early 1970s (May 2010). Women's control of their own fertility led to a marked decline in unplanned pregnancies, which in turn contributed to delayed marriage and childbearing, increased educational attainment among women, and rising female labor force participation (Akerlof et al. 1996; Bailey 2006; Goldin and Katz 2002; Myers 2012). Thus, attitudinal change enables institutional change, which in turn affects family behavior. The massive long-run changes in family behavior of the past 200 years could never have occurred without fundamental changes in attitudes about family behavior.

We should not, however, view attitudinal change as the initial stimulus of family change. For family change to occur, traditional values must be overcome. Attitudes are ordinarily a barrier to change, not a cause of change: there must be a source of exogenous pressure for people to reject the values with which they were raised. Between 1800 and 2000, that pressure was exerted by an economic revolution. The rise of wage labor, first among men and then among women, catalyzed family change by disrupting traditional patterns of authority. When families began to change, attitudes followed. The decline in multigenerational families occurred a generation after the rise of wage labor for men. The shift in attitudes about married women's work outside the family occurred significantly after the rapid ascent of married women's wage labor. In both cases, rise of wage labor undercut the economic control of the patriarch, shifting power from old to young and from men to women.[7]

Change in the U.S. Census reflected the transformation of family relations. In 1970, patriarchy was embedded in the census: the form asked each respondent to identify the household head, just as it had for the 18 previous censuses. The household head was always the man, and the spouse of the head was always the wife. Thanks to the coordinated efforts of feminist social scientists, by 1980 the household head was decapitated and replaced by the gender-neutral "householder" concept (Presser 1998). Either husband or wife could be listed as the householder, and either could be listed as the spouse of the householder (Ruggles and Brower 2003). Initially, all but a few respondents maintained the traditional order of enumeration even though the rules had changed; in 1980, just 4 % of married householders were female. That percentage has grown steadily, and by 2013, women represented 39 % of married householders (Ruggles et al. 2015).

The Decline of Marriage

The classification of family economies based on the economic activities of husbands and wives—corporate, male breadwinner, and dual-earner—makes sense for the nineteenth century and the first half of the twentieth century, when the great majority of households were headed by a married couple. In recent decades, however, the

[7] Some theorists argue the opposite, maintaining that that both family change and married women's employment resulted mainly from the rise of individualistic values (e.g., Lesthaeghe 1983, 2010; Van de Kaa 1987). I discuss this interpretation in Ruggles (forthcoming).

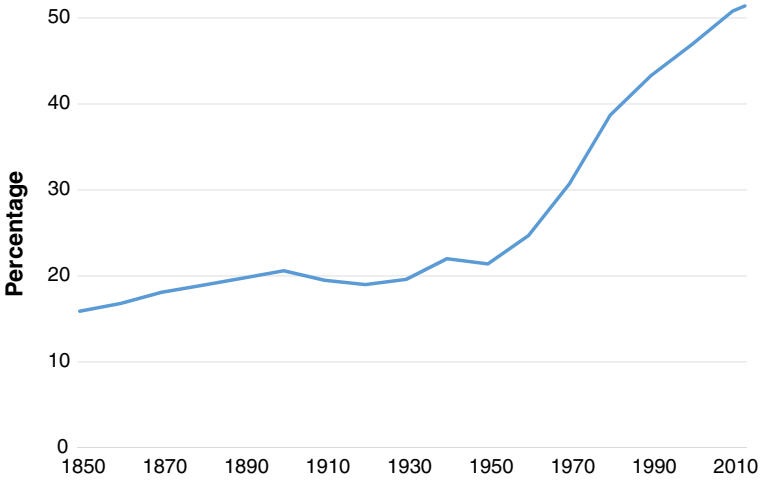

Fig. 10 Percentage of households without a married couple: United States, 1850–2013. *Source:* Ruggles et al. (2015)

dominance of the married-couple household has receded, and it makes less and less sense to classify family economies based on the economic activities of married couples. Figure 10 shows the percentage of households without a married couple from 1850 to 2013. For the first 100 years, the percentage of households with no married couple grew slowly, from 16 % in 1850 to 21 % in 1950. After 1960, young people began delaying or forgoing marriage, sometimes cohabiting but more often residing alone or with children but without a partner. Simultaneously, remarriage rates dropped, and the growing divorced and widowed populations increasingly opted for solitary residence. By 2012, the majority of households no longer included a married couple.[8]

Structural factors are responsible for the boom and bust of marriage. As shown in Fig. 11, age at first marriage declined steadily from 1890 to 1930 as well-paid male wage earners acquired the means to marry earlier in life. The Great Depression led to a slight uptick in marriage age between 1930 and 1940. After World War II, median age at marriage fell sharply to about 20 for women and 22 for men in 1960. During the past half-century, age at first marriage has increased rapidly, and today Americans are marrying at later ages than ever before. The marriage boom of the postwar period was fueled by the rapid expansion of men's wages, and the decline of young men's wages since 1975 is the main reason for the retreat from marriage in that period (Carbone and Cahn 2014; Cherlin 2014; Oppenheimer 1988, 1994).

The three decades after World War II were a golden age of wage labor for young men. The availability of labor was sharply constrained: immigration had been restricted since 1924, and fertility levels during the Great Depression were the lowest that had ever been recorded, meaning the new cohorts entering the labor force were small. The "Lucky Few" entering the labor force after the war saw a spectacular rise in wages (Carlson 2008). Figure 12 shows the median wages for 25- to 29-year-old men and women in 2013 dollars. The top panel shows the medians for full-time wage and salary workers; the lower panel is the same, but includes the entire population aged 25–29, not

[8] Rising cohabitation can account for less than one-fifth of this overall change; in 2013, 44 % of households included no couple at all, either married or cohabiting (Flood et al. 2015).

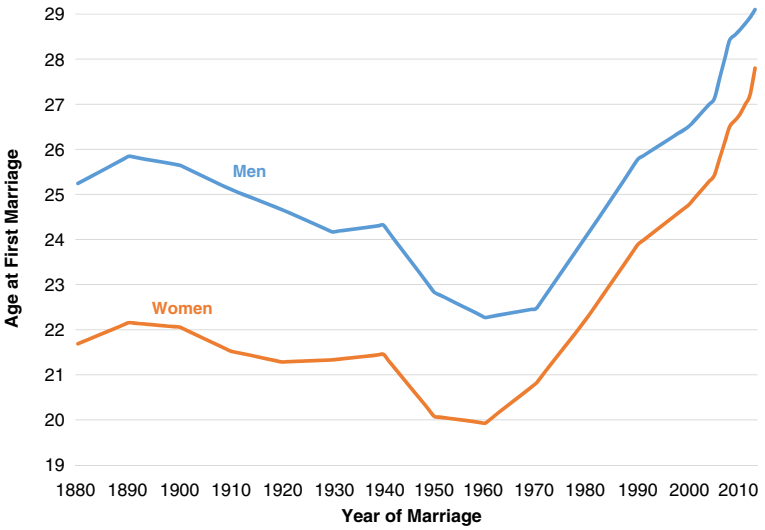

Fig. 11 Median age at first marriage, 1880–2013. *Source:* Ruggles (forthcoming)

just full-time wage earners. Median income for full-time employed young men more than doubled in the postwar era, to a peak of $48,500 in 1973. After that peak, young men's wages declined 26 % to $36,000 in 2013. Wages for full-time working women went up too, but not as rapidly. Women's wages peaked in 2004, but by 2013, they were lower than they were in 1973.[9]

Focusing on median wages for full-time wage and salary workers understates the decline in the earning power of young men. More and more young men are working part-time, and a growing percentage are not working at all. As a result, if we look at *all* men aged 25–29 shown in the lower panel of Fig. 12—not just the full-time wage earners—median wages declined 44 %, from a peak of $41,000 in 1973 to just $23,000 in 2013. Women do not register in the lower panel until 1968 because that was the first year that more than one-half of 25- to 29-year-old women were in the wage labor force. The median wages for all women age 25–29 peaked in 2001 and then fell 24 % over the next 12 years.

Young men's wages have been dropping rapidly for four decades. By comparison, during the Great Depression, wages declined for just a few years before they started heading back up. No such sustained decline in wages has previously occurred in the United States. The sharp decline of young men's wages provided strong incentives for married women to enter the workforce even after opportunities for women stagnated in

[9] Figures 12–14 are inflated to 2013 dollars using the Consumer Price Index Research Series (CPI-U-RS), which was designed to address concerns that the standard Consumer Price Index for all urban consumers (CPI-U) exaggerates inflation, especially in the late 1970s (Stewart and Reed 1999). If I had instead used CPI-U, the decline in young men's wages would have been even greater (32 % for full-time workers and 48 % for all men aged 25–29). Both CPI series, however, may actually understate inflation as experienced by young adults in the 1970s and 1980s: young adults spent a high proportion of their income on rent; and before 1987, the CPI seriously understated rent inflation (Crone et al. 2006; Gordon and Van Goethem 2007). CPI-U-RS is available only for the period from 1978 to the present; to inflate the earlier years, I calculated the ratio of CPI-U-RS to CPI-U in 1978, and used it to adjust the CPI-U from 1940 to 1977.

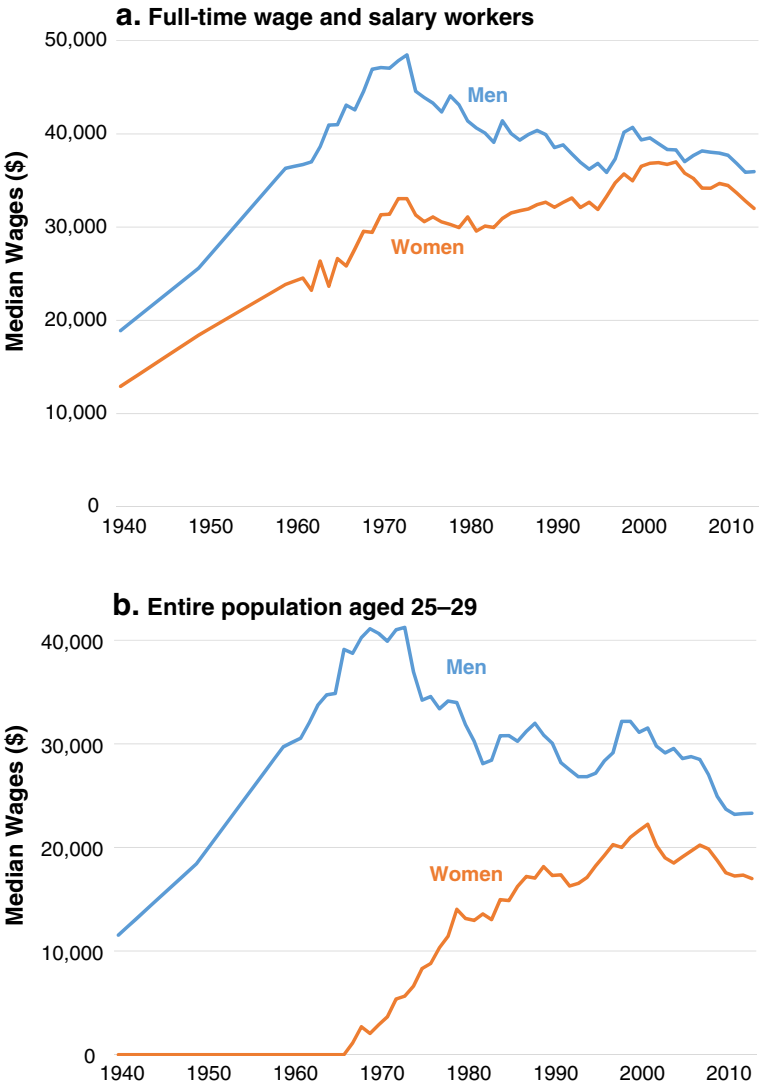

Fig. 12 Median wages for persons aged 25–29, 1940–2013. *Sources:* Ruggles et al. (2015) and Flood et al. (2015)

the mid-1970s: for many couples, two incomes were essential for economic survival (Bianchi 1995; Oppenheimer 1994).

Easterlin (1966, 1987) argued that the salient threshold in marriage decisions is not the absolute level of income but relative income, defined as the income of young men relative to expectations they formed in their parental home. Figure 13 provides a simple measure of relative income: income of young men relative to the income of men of about the same age a generation before. This number is calculated as the ratio of median total income of all men aged 25–29 to the median total income for the same age group 30 years earlier, when their fathers

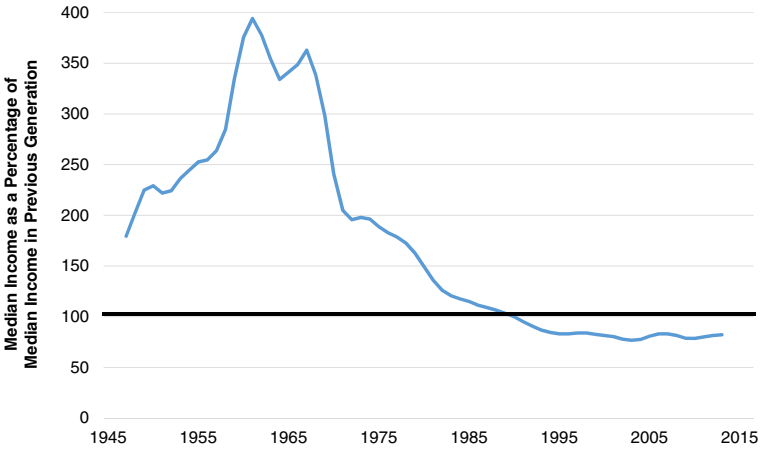

Fig. 13 Median income as a percentage of median income in the previous generation (30 years previously): U.S. men aged 25–29, 1945–2013. *Sources:* Ruggles et al. (2015), Flood et al. (2015), and Alvaredo et al. (2015)

were approximately aged 25–29.[10] The horizontal line at 100 in Fig. 13 shows the point at which the older and younger generations made the same amount. In 1961, young men were making four times what their fathers had made at about the same age. For the past three decades, the younger generation has consistently done *worse* than their fathers. Overall, generational relative income dropped a stunning 80 % since its peak in 1958.

We can also assess income of the young relative to the income of the affluent. Figure 14 compares the median income of young men with the average income of the top 1 % of the population. This measure peaked in 1970, when 25- to 29-year-old men were making about 12 % as much as the average income of the nation's elite; by 2013, this statistic was down to just 2.6 %.

Both of these measures of relative income fit the timing of the marriage boom well. In the 1950s and 1960s, when young men were doing exceptionally well in terms of relative income, marriage age was exceptionally young. For the past four decades, relative income has declined sharply, and marriage age has been rising at a record pace.

How much family change since 1960 might be explained by the drop in the relative income of young men? To address that question, I carried out a demographic decomposition, following the Das Gupta (1978) framework.[11] The dependent variable is the percentage of 25- to 29-year-old men who were currently married, with spouse present, between 1960 and 2013. This measure went from about 75 % of young men living with a spouse in 1960 down to 24 % in 2013—a drop of 50 percentage points. This dramatic change mainly reflects decisions to delay or forgo marriage, but it also is affected by the rise of divorce and separation and the decline of remarriage.

[10] Median generation length for men ranged from 27.8 in 1970 to 32.2 in 2013 (Ruggles et al. 2015). To estimate incomes before 1939, I assumed that annual changes in income for young men were proportional to annual changes in the mean income of the bottom 90 % of the population excluding capital gains, as estimated by Alvaredo et al. (2015). Accordingly, the early decades shown in Fig. 13 should be viewed as approximate.
[11] The analysis used the open-source DECOMP software (Ruggles 1989).

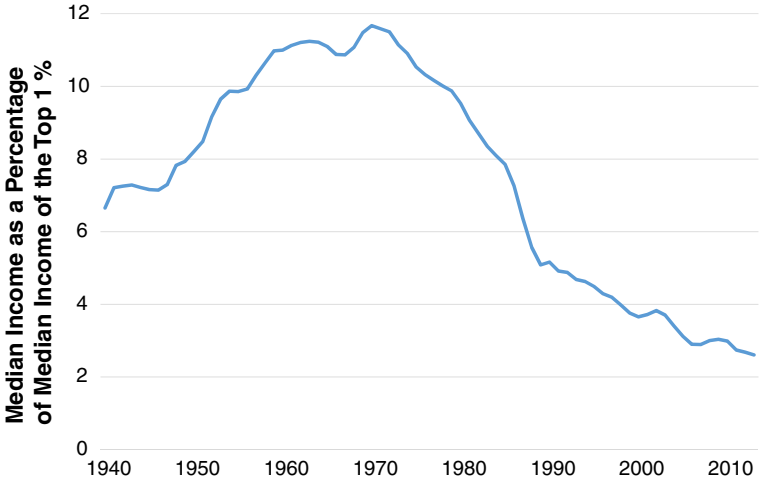

Fig. 14 Median income as a percentage of the income of the top 1 %: U.S. men aged 25–29, 1940–2013. *Sources:* Ruggles et al. (2015), Flood et al. (2015), and Alvaredo et al. (2015)

In the decomposition exercise, I analyzed four components of change, described in Table 1. The left two columns show the percentage of men aged 25–29 who were married in each category of each component. Foreign-born young men are excluded because the relative income measure is not valid for them.

The first component is relative income, defined as the income of men aged 25–29 divided by the median income of men the same age 30 years earlier. I pooled the 1960 and 2013 data sets, calculated relative income as a percentile, and classified each case into deciles of the combined data set. As shown in the left two columns of Table 1, there was a close linear association between decile of relative income and marriage in both periods, with more than four times as much marriage in the highest decile as in the lowest. The right two columns describe the sea change in the distribution of relative income during the past half-century.

The second component is occupation.[12] In both periods, the men with craft occupations were most often married. These jobs—carpenters, machinists, mechanics, painters, and plumbers—have declined dramatically since 1960. The occupational groups least often married in both periods were the service workers and laborers, and their frequency has almost doubled.

The third component is employment characteristics, combining information on class of worker and employment status. Self-employed young men were disproportionately likely to be married in both years, possibly because self-employment is still often a family enterprise. These jobs were already uncommon for young men in 1960, and by 2013, they were rare. Wage labor also declined substantially, and the percentage of young men not in the labor force—who usually were not married even in 1960—increased dramatically.

The final component is educational attainment. The relationship of education to marriage has shifted substantially (Torr 2011). In 1960, high school graduates were

[12] The occupational classification is based on the first digit of the OCC1950 variable in IPUMS; the decomposition categories correspond to OCC1950 codes 0–99; 100–399; 400–499; 500–599; 600–699; and 700–970 (Ruggles et al. 2015).

Table 1 Percentage currently married with spouse present and distribution of characteristics by selected factors: U.S.-born men aged 25–29, 1960 and 2013

	% Married		Population Distribution	
	1960	2013	1960	2013
Relative Income (percentiles of combined data sets)				
0–9	18.9	7.0	3.9	13.0
10–19	35.1	11.0	2.1	14.2
20–29	45.5	16.8	2.7	11.8
30–39	47.9	21.4	2.2	12.6
40–49	51.6	29.1	2.1	14.6
50–59	59.4	35.6	4.1	13.1
60–69	68.4	38.5	9.8	11.9
70–79	76.4	39.8	21.2	5.8
80–89	82.8	43.0	24.4	2.0
90–99	87.6	42.5	27.5	1.1
Occupation				
Professional, technical	74.2	29.7	14.2	18.4
Managers, clerical	76.4	24.0	16.7	21.2
Sales	77.2	22.7	6.0	6.0
Crafts	79.8	35.2	23.9	14.0
Operatives	79.4	27.2	22.7	11.3
Service and laborers	66.2	18.5	13.8	21.5
No occupation for 5+ years	10.6	4.9	2.6	7.7
Employment Characteristics				
Self-employed	83.3	32.7	6.6	3.0
Employed for wages	78.2	28.6	83.8	74.4
Unemployed	53.5	10.7	3.6	8.2
Not in the labor force	24.6	7.9	5.9	14.4
Education				
Less than high school	73.0	15.5	38.1	7.6
High school graduate	76.4	23.7	47.1	65.7
College graduate	73.9	26.7	8.9	21.1
Postgraduate	69.7	33.3	5.9	5.5
Total	74.5	24.2	100.0	100.0
Number of Men Aged 25–29 in Samples			46,708	74,095

more often married than any other group, and those with education beyond college were the least married. By 2013, the relationship between educational attainment and marriage was strong and positive.

The decomposition shows the amount of change in marriage between 1960 and 2013 that can be attributed to compositional changes in each component. It is based on a cross-classification of the percentage married for each combination of the four

Table 2 Components of change in the percentage married: U.S.-born men aged 25–29, 1960–2013

	Components of Change	Index of Change
Total Change in Marriage	50.3	100.0
Effects of Compositional Factors		
Relative income	20.4	40.6
Occupation	2.2	4.4
Employment characteristics	2.9	5.7
Education	1.6	3.2
Combined Effect of Factors	27.1	53.9
Rate Effect	23.2	46.1

components in each census year, a matrix of 2,240 cells. For each component, the analysis yields a composition effect representing how much of the change is attributable to changes in the distribution of that component, net of other components. The rate effect is the change in marriage that is unaccounted for by changes in all four components (Das Gupta 1978).

The results appear in Table 2. The total change in the crude percentage of 25- to 29-year-old men married was 50.3, reflecting the drop from 74.5 % married to 24.2 % married. The compositional effects for each component indicate how much of the change would disappear if the socioeconomic composition of the young adult population had not changed. The right column expresses the effects of each component as a percentage of total change.

The first component—relative income—is the important one. If that distribution is held constant over time, 40.6 % of the change disappears. Each of the other components accounts for about 5 % of the change. Summing them, this simple analysis of four economic components can account for 54 % of the overall decline in marriage.

This analysis omits many aspects of relative economic circumstances. For example, we know that job insecurity has been increasing (Kalleberg 2011), but the decomposition cannot capture that. We have information about current income and occupation, but nothing about the perceived future prospects of workers, which must be less bright for young men than they were 50 years ago. The census cannot tell whether young people are optimistic about their prospects or whether their jobs are insecure. Moreover, the decomposition analysis also does not account for the stagnating prospects of women during this period. Thus, the real impact of declining economic opportunity is probably even bigger than this decomposition implies. The evidence therefore suggests that Easterlin was broadly right about relative income: the decline of marriage since 1960 can be largely accounted for by the deteriorating circumstances of young men compared with the previous generation.[13]

[13] I conducted a series of decompositions using a similar approach to assess the difference in the percentage married between black and white men. The results suggest that at least one-half of race differences in marriage in the 1960–2013 period can be ascribed to race differences in the economic characteristics of young men, lending further support to a structural interpretation (e.g., Wilson and Neckerman 1987).

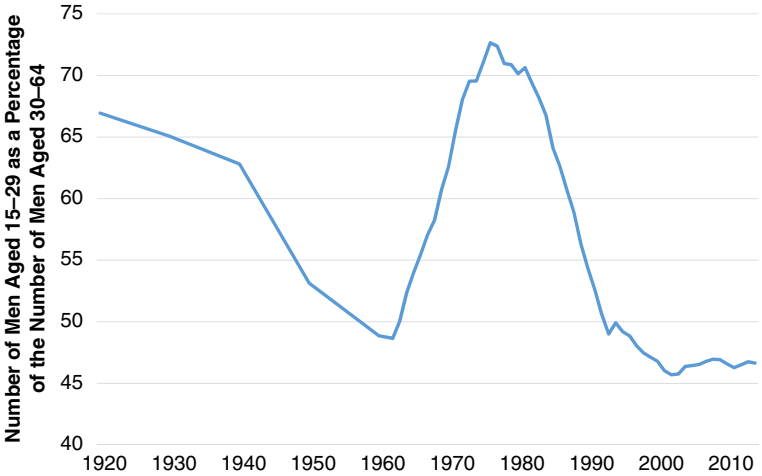

Fig. 15 Number of men age 15 to 29 as a percentage of the number of men age 30–64. *Sources:* Ruggles et al. (2015) and Flood et al. (2015)

The Decline of Wage Labor

Easterlin (1978, 1987) argued that the decline in relative wages for young men resulted from generational competition. Figure 15 recreates the key graph from his 1978 Presidential Address to the Population Association of America, showing the number of men aged 15–29 as a percentage of the number of men aged 30–64. Easterlin argued that young men's job prospects depended above all on how many of them were competing for those jobs. Thus, he argued, the huge boom in relative income after World War II occurred because young men were in short supply. As the Baby Boomers came of age, the number of young men entering the labor force exploded. With the abundance of workers, the golden age of postwar labor abruptly ended.

Easterlin's 1978 address came just after the peak of his graph. He could see that generational competition was going to drop just as quickly as it had risen. Accordingly, he predicted that a second golden age for young men's employment was just around the corner. By 1984, he argued, wages would be up, relative income would recover, marriage age would decline sharply, and there would be a new baby boom.

As it turned out, the second golden age did not materialize. Despite the smaller cohorts entering the job market after 1978, men's wages continued to decline. One factor was doubtless the mass entry of married women into the labor force, which partly compensated for the smaller size of the new cohorts. Political change also affected youth opportunities. Ronald Reagan was elected President in 1980, and America shifted to the right. The fading of labor unions, decline in the minimum wage, globalization, outsourcing, and stagnation of educational attainment all contributed to the dramatic decline of wages for young men entering the labor force and the long stagnation of wages for young women (Massey 1996; Piketty 2014; Stiglitz 2012; Weil 2014; Goldin and Katz 2010).

The largest source of decline of economic opportunity for young people, especially over the past two decades and in future decades, may be the automation of both manufacturing and services made possible by new technologies. The world's computing capacity is doubling every 18 months (Hilbert and López 2011). Because of innovations in artificial intelligence and sensing technology, robots are becoming increasingly flexible and easier to train, and their cost is dropping rapidly (Brynjolfsson and McAfee 2014). New technologies have eliminated millions of jobs over the past several decades, and they are on the verge of eliminating many more (Frey and Osborne 2013).

From the late eighteenth century to the late twentieth century, technological innovation created more jobs than it destroyed. Indeed, the rise of wage labor—the driving force of family change—was a direct consequence of technological innovation. When Henry Ford introduced the moving automobile assembly line in 1914, it doubled productivity (Ford and Crowther 1922). The assembly line threw a few carriage makers out of work as people shifted to cars, but overall employment surged. With prices declining steadily, car sales exploded. Employment at Ford's Detroit area plants went from 14,000 in 1914 to 100,000 by 1926 (Ford and Crowther 1922; Segal 2005). There were also hundreds of thousands of new jobs in automobile sales and service stations. This is a perfect example of creative destruction, and similar processes occurred again and again over the course of more than a century.

Today, mechanization seldom adds more jobs than it eliminates. Manufacturing employment in the United States peaked in 1979 and declined 37 % over the next four decades (U.S. Bureau of Labor Statistics 2015); during the same period, manufacturing output more than doubled (Board of Governors of the Federal Reserve System 2015). These trends are not confined to the United States. Owing to productivity improvements, employment in manufacturing is falling in most manufacturing countries, and worldwide manufacturing employment is probably declining (Levinson 2015).

The rise of intelligent machines is also eliminating service jobs. Travel agents, insurance agents, parking lot attendants, warehouse workers, and checkout clerks are being replaced by machines. Within the next few decades, driving will be automated (IEEE 2014). This will eliminate some 7 million working-class jobs—from taxi drivers to truck drivers—employing about 5 % of the nation's workforce. Frey and Osborne (2013) estimated that about one-half of the U.S. workforce is employed in jobs that are at high risk of automation within the next decade or two, and another one-fifth have a moderate risk of automation. They judged that only about one-third of jobs are reasonably safe. Eventually, perhaps, just a few percent of the population may be sufficient to produce all the goods and services society needs.

Figure 16 shows the percentage of men and women aged 18–64 who were employed for wages since 1800, with extrapolations into the future. Male wage work went up for 170 years, from 13 % in 1800 to a peak of 75 % in 1970. For the past four decades, the percentage has declined, to 64 % by 2013.[14] This decline is unprecedented. Suppose that

[14] Among the 36 % of working-age men who did not work for wages in 2013, 10 % were enrolled in school or college; 11 % were in institutions; 15 % were unemployed; 24 % were self-employed (down from 42 % in 1970); and 40 % were not in school, not employed, not institutionalized, and not looking for a job (Ruggles et al. 2015).

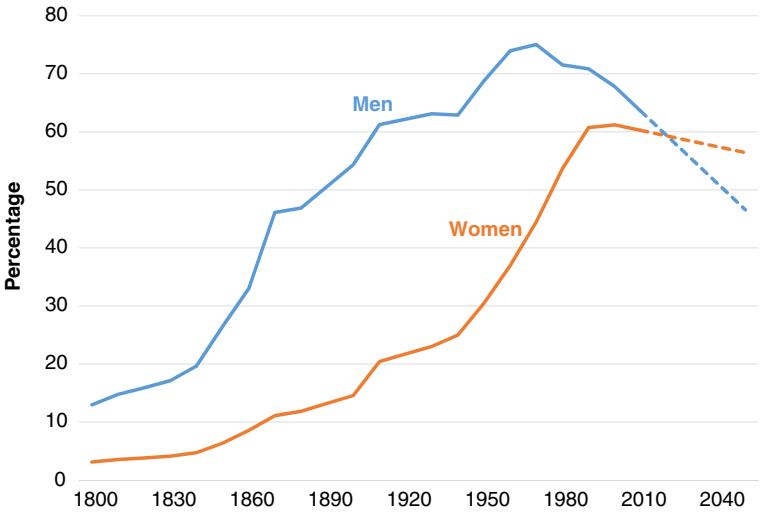

Fig. 16 The rise and fall of wage labor: Percentage of persons aged 18–64 engaged in wage and salary work, by sex: 1800–2050. *Source:* Ruggles et al. (2015)

current trends were to continue. The dashed line for men in Fig. 16 is simply a linear extrapolation of the current trend, which has been roughly the same for four decades. If the decline of male wage employment were to continue at the same pace over the next four decades, only 44 % working-age men would have wage jobs by 2050.

Among women, wage labor peaked in 2000. So far, the decline in wage labor has been slower for women than for men. Because male wage work is declining so rapidly, female wage employment will almost certainly exceed that of men within a few years. This is partly because young women entering the labor force are increasingly better educated than are young men (Goldin et al. 2006). In the long run, however, the disappearance of jobs will affect women as well as men, and women's employment will likely follow the same trajectory. If current trends continue, however, only 56 % of working-age women will work for wages by 2050.

For centuries, observers have been making dystopian predictions that technological innovation would create massive unemployment and inequality, predictions that proved to be false or at least premature (Mokyr et al. 2015). Is this time different? The past four decades of decline in the relative income of the young might be only a temporary setback. Easterlin could yet prove prescient: dramatic fertility decline across much of the globe is creating very small cohorts, which might finally improve the prospects of young workers. Perhaps some new technological innovation, as yet unimagined, will increase rather than reduce the need for labor. It is equally possible, however, that the opportunities are not coming back, and that we are witnessing the beginning of the end of the era of wage labor.

Wage Labor and Families

For thousands of years, corporate families provided the means of subsistence for most people. Then, for about 130 years, wage labor opportunities grew rapidly, first among

men and then among women. The tectonic shifts in the structure of the economy since the early nineteenth century transformed family relations. The transition from corporate families to male breadwinner families was a consequence of the rise of male wage labor in the Industrial Revolution. The transition from male breadwinner families to dual-earner families reflects the massive increase in wage labor among married women following World War II. The decline of corporate families led to a profound upheaval of generational relations as family patriarchs lost control over their wage-earning sons. The decline of male-breadwinner families led to an equally profound upheaval of gender relations as men lost control over their wage-earning wives and daughters. The two great transformations of family economies—from corporate to male breadwinner and from male breadwinner to dual earner—undermined the economic logic of patriarchal authority.

The dramatic retreat from marriage over the past half-century could never have occurred without the loss of patriarchal control and the shift in attitudes that accompanied it. But the proximate cause of the retreat from marriage since 1975 is a different structural change: the massive decline of relative earnings and falloff of wage labor participation among young men, combined with the long stagnation in earnings among young women.

With growing inequality, families are facing diverging destinies (McLanahan 2004). A minority of young people are faring well in the new economy, and young people with resources are continuing to form marital and cohabiting unions. Among the college-educated with good jobs, the impact of family change is muted. Marriage is still feasible; marital instability is declining; and cohabitation and single parenthood can be managed without hardship. For much of the population, however, the outlook is grim. Almost one-fifth of young adults live in poverty, more than double the percentage in 1973 (Ruggles et al. 2015). More than 10 % of young earners have their wages garnished because of debt, often for child support (Arnold and Kiel 2014). Many who have jobs are underemployed, taking unskilled and part-time jobs even if they have good qualifications. Among young people who lack resources, families are difficult to form or sustain: fewer and fewer young adults are marrying, and those who do are at increasing risk of divorce. For people without secure jobs that provide a living wage, cohabitating unions are highly unstable. Whether cohabiting or not, most unmarried mothers of infants are in poverty (Amato et al. 2014; Carbone and Cahn 2014; Cherlin 2014; Flood et al. 2015).

Despite these challenges, few would choose to return to the families of the past. Patriarchy has receded; today's families are far more humane and egalitarian than anything that came before. Corporal punishment of wives is universally condemned, and wife-beating is illegal in every state. Child-beating is still legal in the United States, but even in Texas, it is no longer acceptable to punish a child with a switch (Zinser 2014). Women are no longer legally subordinate to their husbands. Wives can work for wages, they can keep their earnings, and they no longer need their husband's permission to open a checking account or sign a contract. There is growing tolerance of new family forms, to the point where same-sex marriage is now legal throughout the United States. Time-use data show that families are becoming more and more egalitarian with respect to housework and childcare (Goldscheider et al. 2015).

If the era of ever-expanding wage labor is truly drawing to a close, that will create new challenges for families, but it will also create new opportunities. For the last

10,000 years, most of humanity has been forced to work long hours in repetitive and backbreaking toil just to earn basic subsistence. We are on the verge of being able to make everything we need, including all kinds of things unimagined by previous generations, without that kind of tedious and grueling drudgery—indeed, with hardly any work at all. Our silicon servants will have the potential to provide everyone with food, shelter, and all other necessities, freeing us to pursue our dreams and passions.

In 1930, John Maynard Keynes wrote an essay on "The Economic Possibilities for our Grandchildren." He predicted that the combination of technological innovation and capital accumulation will eventually solve the problem of material needs. Keynes argued that "the economic problem may be solved, or be at least within sight of solution, within a hundred years" (Keynes 1930:96). Eighty-five years after this prediction, I believe we are already within sight of solving the economic problem. We now must address what Keynes saw as the real problem: how "to live wisely and agreeably and well" (Keynes 1930:97).

To make families stronger, reduce family instability, enable young people to form marital or cohabiting unions, and eliminate child poverty, we must figure out how to share the bounty of the machines. Our biggest challenge is not how to produce wealth but how to distribute it: how to get money into the hands of people—especially young people—so that they can buy all those goods and services that the robots can produce with so little human effort.

Acknowledgments This article is a revised version of my Presidential Address to the Population Association of America, delivered in San Diego on May 1, 2015. Funding for data preparation was provided by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (R01HD43392, R01HD047283, and R24HD41023). I also had a lot of help from my friends. I presented versions of this article at 10 population center seminars and conferences, and at every venue received feedback that reshaped my thinking. Several people were extraordinarily generous, providing detailed critiques of multiple drafts: Philip Cohen, Stephanie Coontz, Cathy Fitch, Katie Genadek, Claudia Goldin, Fran Goldscheider, Miriam King, Steven Mintz, Phyllis Moen, Lisa Norling, Gina Rumore, Carole Shammas, and Matt Sobek. Two anonymous *Demography* reviewers also provided wise advice. My greatest debt is to the data creators, curators, integrators, and disseminators of the Minnesota Population Center, without whom it would be impossible to describe long-run family change.

References

Aidala, A. (1958, Feb. 27). Is father losing place as head of family? *New York Daily Mirror,* 27.

Aidala, A. (1959, Dec. 14). If a woman needs it, should she be spanked? *New York Daily Mirror,* 25.

Akerlof, G. A., Yellen, J. L., & Katz, M. L. (1996). An analysis of out-of-wedlock childbearing in the United States. *Quarterly Journal of Economics, 111,* 277–317.

Alvaredo, F., Atkinson, A. B., Saez, E., & Piketty, T. (2015). World top incomes database. Retrieved from http://topincomes.parisschoolofeconomics.eu/

Amato, P. R., Booth, A., McHale, S. M., & Van Hook, J. (Eds.). (2014). *Families in an era of increasing inequality: Diverging destinies*. Cham, Switzerland: Springer International Publishing.

Arnold, C., & Kiel, P. (Narrator). (2014, Sept. 14). Millions of Americans' wages seized over credit card and medical debt [Radio broadcast episode]. In *Morning Edition*. Washington, DC: National Public Radio. Retrieved from http://www.npr.org/2014/09/15/347957729/when-consumer-debts-go-unpaid-paychecks-can-take-a-big-hit

Axinn, W. G., & Thornton, A. (1993). Mothers, children, and cohabitation: The intergenerational effects of attitudes and behavior. *American Sociological Review, 58,* 233–246.

Axinn, W. G., & Thornton, A. (2000). The transformation in the meaning of marriage. In L. Waite, C. Bachrach, M. Hindin, E. Thomson, & A. Thornton (Eds.), *Ties that bind: Perspectives on marriage and cohabitation* (pp. 147–165). New Brunswick, NJ: Transaction.

Bailey, M. J. (2006). More power to the pill: The impact of contraceptive freedom on women's life cycle labor supply. *Quarterly Journal of Economics, 121,* 289–320.

Bianchi, S. M. (1995). Changing economic roles of women and men. In F. Reynolds (Ed.), *State of the union: America in the 1990s* (Vol. 1, pp. 107–154). New York, NY: Russell Sage Foundation.

Board of Governors of the Federal Reserve System. (2015). Industrial production: Manufacturing (NAICS) [IPMAN]. Retrieved from FRED, Federal Reserve Bank of St. Louis, https://research.stlouisfed.org/fred2/series/IPMAN/

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York, NY: Norton.

Bumpass, L. L. (1990). What's happening to the family? Interactions between demographic and institutional change. *Demography, 27,* 483–498.

Carbone, J., & Cahn, N. (2014). *Marriage markets: How inequality is remaking the American family*. New York, NY: Oxford University Press.

Carlson, W. (2008). *The lucky few: Between the greatest generation and the baby boom*. New York, NY: Springer.

Cherlin, A. J. (2009). *The marriage-go-round: The state of marriage and the family in America today*. New York, NY: Vintage.

Cherlin, A. J. (2014). *Labor's love lost: The rise and fall of the working-class family in America*. New York, NY: Russell Sage.

Coontz, S. (1992). *The way we never were: American families and the nostalgia trap*. New York, NY: Basic.

Coontz, S. (2005). *Marriage, a history: How love conquered marriage*. New York, NY: Penguin.

Costa, D. L. (2000). From mill town to board room: The rise of women's paid labor. *Journal of Economic Perspectives, 14,* 101–122.

Cott, N. (2009). *Public vows: A history of marriage and the nation*. Cambridge, MA: Harvard University Press.

Cotter, D. A., Hermsen, J. M., & Vanneman, R. (2001). Women's work and working women: The demand for female labor. *Gender & Society, 15,* 429–452.

Crone, T. M., Nakamura, L. I., & Voith, R. (2006). *The CPI for rents: A case of understated inflation* (Working Paper No. 06-7). Philadelphia, PA: Federal Reserve Bank of Philadelphia.

Das Gupta, P. (1978). A general method of decomposing a difference between two rates into several components. *Demography, 15,* 99–111.

Easterlin, R. A. (1966). On the relation of economic factors to recent and projected fertility changes. *Demography, 3,* 131–153.

Easterlin, R. A. (1978). What will 1984 be like? Socioeconomic implications of recent twists in age structure. *Demography, 15,* 397–432.

Easterlin, R. A. (1987). *Birth and fortune* (2nd ed.). Chicago, IL: University of Chicago Press.

Fitch, C., Goeken, R., & Ruggles, S. (2005). *The rise of cohabitation in the United States: New historical estimates* (MPC Working Paper No. 2005−03). Minneapolis: Minnesota Population Center. Retrieved from http://www.pop.umn.edu/sites/www.pop.umn.edu/files/cohabit_2005-03.pdf

Flood, S., King, M. L., Ruggles, S., & Warren, J. R. (2015). *Integrated public use microdata series, current population survey: Version 4.0* [Machine-readable database]. Minneapolis: University of Minnesota.

Folbre, N., & Nelson, J. A. (2000). For love or money—or both? *Journal of Economic Perspectives, 14,* 123–140.

Ford, H., & Crowther, S. (1922). *My life and work*. Garden City, NY: Garden City Publishing.

Frey, C. B., & Osborne, M. A. (2013). *The future of employment: How susceptible are jobs to computerization?* Oxford, UK: Oxford Martin School Study. Retrieved from http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

Goldin, C. (1990). *Understanding the gender gap: An economic history of American women*. New York, NY: Oxford University Press.

Goldin, C. (1991a). Marriage bars: Discrimination against married women workers from the 1920s to the 1950s. In P. Higonnet, D. S. Landes, & H. Rosovsky (Eds.), *Favorites of fortune: Technology, growth, and economic development since the Industrial Revolution* (pp. 511–536). Cambridge, MA: Harvard University Press.

Goldin, C. (1991b). The role of World War II in the rise of women's employment. *American Economic Review, 81,* 741–756.

Goldin, C. (1995). The U-shaped female labor force function in economic development and economic history. In T. P. Schultz (Ed.), *Investment in women's human capital and economic development* (pp. 61–90). Chicago, IL: University of Chicago Press.

Goldin, C., & Katz, L. F. (2002). The power of the pill: Oral contraceptives and women's career and marriage decisions. *Journal of Political Economy, 110,* 730–770.

Goldin, C., & Katz, L. F. (2010). *The race between education and technology*. Cambridge, MA: Harvard University Press.

Goldin, C., Katz, L. F., & Kuziemko, I. (2006). The homecoming of American college women: The reversal of the college gender gap. *Journal of Economic Perspectives, 20,* 133–156.

Goldscheider, F., Bernhardt, E., & Lappegård, T. (2015). A theoretical framework for understanding new family-demographic behavior: The two halves of the gender revolution. *Population and Development Review, 41,* 207–239.

Gordon, R. J., & van Goethem, T. (2007). A century of downward bias in the biggest CPI component: The case of rental shelter, 1914–2003. In E. Berndt & C. Hulten (Eds.), *Hard-to-measure goods and services: Essays in honor of Zvi Griliches* (pp. 153–195). Chicago, IL: University of Chicago Press.

Hartog, H. (2000). *Man and wife in America: A history*. Cambridge, MA: Harvard University Press.

Hilbert, M., & López, P. (2011). The world's technological capacity to store, communicate, and compute information. *Science, 332,* 60–65.

Institute of Electrical and Electronics Engineers (IEEE). (2014). *IEEE survey reveals cars will not have steering wheels, pedals, horns, or rearview mirrors by 2035*. Retrieved from http://electricvehicle.ieee.org/telematics/ieee-survey-reveals-mass-produced-cars-will-steering-wheels-gasbrake-pedals-horns-rearview-mirrors-2035/

Kalleberg, A. L. (2011). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s–2000s*. New York, NY: Russell Sage.

Kennedy, S., & Bumpass, L. (2008). Cohabitation and children's living arrangements: New estimates from the United States. *Demographic Research, 19*(article 47), 1663–1692. doi:10.4054.DemRes.2008.19.47

Kennedy, S., & Ruggles, S. (2014). Breaking up is hard to count: The rise of divorce in the United States, 1980–2010. *Demography, 51,* 587–598.

Kennedy, S., & Ruggles, S. (2015). *Trends in union instability in the United States, 1980s-2010s* (MPC Working Paper No. 2015-1). Minneapolis: Minnesota Population Center.

Kessler-Harris, A. (1982). *Out to work: A history of wage-earning women in the United States*. New York, NY: Oxford University Press.

Keynes, J. M. (1930). Economic possibilities for our grandchildren. *Nation and Athenaeum, 48,* 2:36–37, 3: 96–98.

Lebergott, S. (1984). *The Americans: An economic record*. New York, NY: W. W. Norton & Company.

Lesthaeghe, R. (1983). A century of demographic and cultural change in western Europe: An exploration of underlying dimensions. *Population and Development Review, 9,* 411–435.

Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review, 36,* 211–251.

Levinson, M. (2015). *U.S. manufacturing in international perspective* (CRS Report R42135). Washington, DC: Congressional Research Service.

Martin, S. P., Astone, N. M., & Peters, H. E. (2014). *Fewer marriages, more divergence: Marriage projections for Millennials to age 40*. Washington, DC: Urban Institute.

Massey, D. S. (1996). The age of extremes: Concentrated affluence and poverty in the twenty-first century. *Demography, 33,* 395–412.

May, E. T. (1980). *Great expectations: Marriage and divorce in post-Victorian America*. Chicago, IL: University of Chicago Press.

May, E. T. (1990). *Homeward bound: American families in the Cold War era*. New York, NY: Basic.

May, E. T. (2010). *America and the pill: A history of promise, peril, and liberation*. New York, NY: Basic.

McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography, 41,* 607–627.

Mintz, S. (1998). From patriarchy to androgyny and other myths: Placing men's family roles in historical perspective. In A. Booth & A. C. Crouter (Eds.), *Men in families: When do they get involved? What difference does it make?* (pp. 3–30). Florence, KY: Taylor and Francis.

Mintz, S., & Kellogg, S. (1988). *Domestic revolutions: A social history of American family life*. New York, NY: Free Press.

Mokyr, J., Vickers, C., & Ziebarth, N. I. (2015). The history of technological anxiety and the future of economic growth: Is this time different? *Journal of Economic Perspectives, 29,* 31–50.

Myers, C. K. (2012). *Power of the pill or power of abortion? Re-examining the effects of young women's access to reproductive control* (IZA Discussion Paper No. 6661). Bonn, Germany: Institute for the Study of Labor.

Oppenheimer, V. K. (1970). *The female labor force in the United States: Demographic and economic factors governing its growth and changing composition* (Population Monograph Series No. 5). Berkeley: University of California.

Oppenheimer, V. K. (1988). A theory of marriage timing. *American Journal of Sociology, 94,* 563–591.

Oppenheimer, V. K. (1994). Women's rising employment and the future of the family in industrialized societies. *Population and Development Review, 20,* 293–342.

Piketty, T. (2014). *Capital in the twenty-first century.* Cambridge, MA: Harvard University Press.

Presser, H. B. (1998). Decapitating the U.S. Census Bureau's head of household: Feminist mobilization in the 1970s. *Feminist Economics, 4,* 147–160.

Read, J. E. (1884). *Farming for profit: An encyclopedia of useful information and a practical assistant in the management of farm affairs. Devoted to agriculture and mechanics, fruit growing and gardening, live-stock, business principles, home life, and showing how to make money and secure health and happiness on the farm.* Philadelphia, PA: J.C. McCurdy.

Rinfduss, R. R., Brewster, K. L., & Kavee, A. L. (1996). Women, work, and children: Behavioral and attitudinal change in the United States. *Population and Development Review, 22,* 457–482.

Ruggles, S. (1989). DECOMP: A program for multiple standardization and demographic decomposition [Software]. Retrieved from http://www.umn.edu/~ruggles/DECOMP.html

Ruggles, S. (1994). The transformation of American family structure. *American Historical Review, 99,* 103–128.

Ruggles, S. (1997). The rise of divorce and separation in the United States, 1880–1990. *Demography, 34,* 455–466.

Ruggles, S. (2003). Multigenerational families in nineteenth-century America. *Continuity and Change, 18,* 139–165.

Ruggles, S. (2007). The decline of intergenerational coresidence in the United States, 1850–2000. *American Sociological Review, 72,* 962–989.

Ruggles, S. (2009). Reconsidering the northwest European family system: Living arrangements of the aged in comparative historical perspective. *Population and Development Review, 35,* 249–273.

Ruggles, S. (Forthcoming). Marriage, family systems, and economic opportunity in the United States since 1850. In S. M. McHale, V. V. King, J. J. Van Hook, & A. A. Booth (Eds.), *Gender and couple relationships*. Cham, Switzerland: Springer International Publishing.

Ruggles, S., & Brower, S. (2003). The measurement of family and household composition in the United States, 1850–1999. *Population and Development Review, 29,* 73–101.

Ruggles, S., Genadek, K., Goeken, R., Grover, J., & Sobek, M. (2015). *Integrated public use microdata series: Version 6.0* [Machine-readable database]. Minneapolis: University of Minnesota.

Ryan, M. P. (1981). *Cradle of the middle class. The family in Oneida County, New York, 1790–1865*. New York, NY: Cambridge University Press.

Segal, H. P. (2005). *Recasting the machine age: Henry Ford's village industries*. Amherst: University of Massachusetts Press.

Shammas, C. (2002). *A history of household government in America*. Charlottesville: University of Virginia Press.

Siegel, R. B. (1996). "The rule of love": Wife beating as prerogative and privacy. *Yale Law Journal, 105,* 2117–2207.

Smith, T. W., Hout, M., & Marsden, P. V. (2013). General Social Survey, 1972–2012 Cumulative File (ICPSR 34802-v1) [Data file]. Storrs, CT: Roper Center for Public Opinion Research, University of Connecticut / Ann Arbor, MI: Inter-university Consortium for Political and Social Research. doi:10.3886/ICPSR34802.v1

Stanfors, M., & Goldscheider, F. (2015). The forest and the trees: Industrialization, demographic change, and the ongoing gender revolution in Sweden and the United States, 1870–2010. *Stockholm Research Reports in Demography, 2015,* 18.

Stanley, A. D. (2002). Marriage, property, and class. In N. A. Hewitt (Ed.), *A companion to American women's history* (pp. 193–205). Oxford, UK: Blackwell Publishing.

Stewart, K. J., & Reed, S. B. (1999). CPI research series using current methods, 1978–98. *Monthly Labor Review, 1999*(June), 29–38.

Stiglitz, J. E. (2012). *The price of inequality.* New York, NY: Norton.

Thornton, A. (1985). Changing attitudes toward separation and divorce: Causes and consequences. *American Journal of Sociology, 90,* 856–872.

Torr, B. (2011). The changing relationship between education and marriage in the United States: 1940–2000. *Journal of Family History, 36,* 483–503.

U.S. Bureau of Labor Statistics. (2015). All employees: Manufacturing [MANEMP]. Retrieved from FRED, Federal Reserve Bank of St. Louis https://research.stlouisfed.org/fred2/series/MANEMP/

Van de Kaa, D. J. (1987). Europe's second demographic transition. *Population Bulletin, 42,* 1–59.

Weil, D. (2014). *The fissured workplace: Why work became so bad for so many and what can be done to improve it*. Cambridge, MA: Harvard University Press.

Weiss, T. (1992). U.S. labor force estimates and economic growth, 1800–1860. In R. E. Gallman & J. J. Wallis (Eds.), *American economic growth and standards of living before the Civil War* (pp. 19–75). Chicago, IL: University of Chicago Press.

Westoff, C. F., & Ryder, N. B. (n.d.). National Fertility Survey, 1970 (ICPSR20003-v1). Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. doi:10.3886/ICPSR20003.v1

Wilson, W. J., & Neckerman, K. (1987). Poverty and family structure: The widening gap between evidence and public policy issues. In W. J. Wilson (Ed.), *The truly disadvantaged: The inner city, the underclass, and public policy* (pp. 63–92). Chicago, IL: University of Chicago Press.

Zinser, L. (2014, Nov. 5). Adrian Peterson agrees to plea deal in child-abuse case. *New York Times,* B13.