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ORIGINAL ARTICLE

Union Membership Peaks in Midlife

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Abstract

Using data from 68 countries on over eight million respondents over 40 years we show union membership peaks in midlife — usually around workers' late 40s or early 50s. In doing so we extend Blanchflower's earlier study, incorporating a further 39 countries and another decade or so of data. We show the age peak in union membership is apparent across birth cohorts, and that the introduction of cohort dummies makes little difference to the age at which membership peaks. In Europe we show the peak coincides with the age point at which exit rates from union membership rise. We show that, among those aged 50 and over, retirement rates are higher among ex-members than among those who have never been union members, suggesting the increased prevalence of non-membership among workers later in life is due to union members retiring earlier, as one might expect given their pension entitlements. The age at which union membership peaks increases only very slightly over time in the United States but rises markedly in the United Kingdom. Since unions are democratic organizations, the implication is that unions in the United Kingdom may shift what they do to maximize the utility of an ageing membership.

1 | INTRODUCTION

Trades unions are democratic organizations. Decision making on important issues, such as strike action, or the setting of union dues, is often based on majority votes of members or their representatives. And it is often assumed that, when aggregating the preferences of the members who they seek to represent, a median voter model is a good approximation (Booth 1994). The

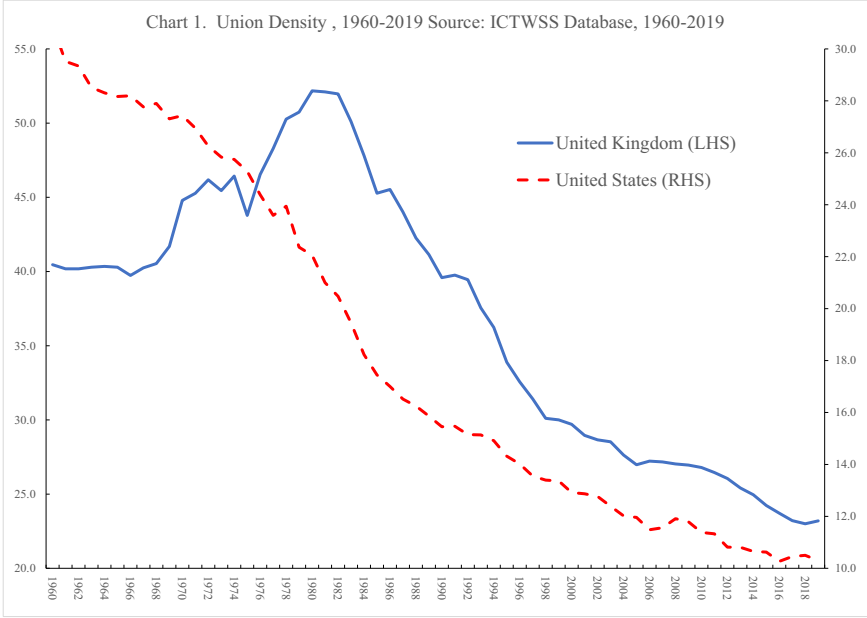

Chart 1 Union Density, 1960–2019.
Source: ICTWSS Database, 1960–2019.
[Colour figure can be viewed at wileyonlinelibrary.com]

implication is that, to the extent that unions operate in a democratic fashion, they will seek to maximize what they perceive to be the utility of the median voter. If we are to understand what unions do, and how that changes over time, it is important to have regard to who that median voter is, since this is likely to guide unions in their decision making. The fact that women now constitute the majority of union members in many countries has prompted researchers to consider whether this has influenced union behaviour. For example, Bryson *et al.* (2020) examine whether, in keeping with a median voter model, the gender shift in union membership has resulted in differential wage returns to unionization among men and women in Britain and Norway. They conclude that unions in Britain continue to adopt a paternalistic attitude to representing their membership, whereas Norwegian unions adopt a more progressive approach.

It is possible that union membership has shifted along other dimensions too, including the age of union members. The literature on the decline in union membership — apparent in many parts of the world and illustrated for the United States and the United Kingdom in Chart 1, has tended to focus on younger workers' attachment to unionization. Analysts suggest that the failure of younger workers to join unions has played an important part in declining union density, in part because falling membership has a snowball effect by reducing the likelihood of new entrants to the labour market experiencing the value of union membership, resulting in a rise in 'never-membership' which has been observed in the UK (Bryson and Gomez 2005) and the United States (Booth *et al.* 2010). Thus, although inter-generational transmission of unionization is still apparent (Bryson and Davies 2019), young workers are less likely to join unions because their parents were less likely to be members than their parents.

There has been speculation that there has been a shift away from collectivist values that underpin the provision of public goods through union solidarity towards individualist values which

reduce young workers' perceived value of joining a union[1] although the evidence — at least for English-speaking economies — appears to run counter to this argument (Bryson *et al.* 2005; Waddington and Kerr 2002). More broadly, concern has been expressed about unions' ability to 'speak' to the concerns of young workers and the difficulties unions have faced in devising strategies to engage younger workers (Hodder and Kretsos 2015).

One possible implication of this stream of research is that the average age of union members has been rising, as older cohorts with a greater propensity for unionization age, and new cohorts entering the labour market remain non-union. If this is the case, then it is conceivable that unions will focus on the concerns and interests of a median voter who is ageing towards retirement age, with potential implications for unions' priorities. And yet the relationship between individuals' age and their propensity for union membership has attracted little attention. It was covered in a single sentence in Claus Schnabel's chapter on the correlates of union membership for the International Handbook on Trade Unions published in 2003. He stated:

> Research results on the relationship between age or, more appropriately, years of work experience and membership are somewhat mixed, with many estimated coefficients not being statistically significant, but in general this relationship tends to be positive or concave (increasing at a decreasing rate and possibly falling at the end). (Schnabel 2003)

This changed in 2007 when, in a paper published in this journal, Blanchflower (2007) showed union membership followed an inverted U-shaped — or hump-shaped — pattern in age, peaking in midlife. Using micro data files for 34 countries Blanchflower (2007) found that, prior to 2005, union density rates peaked in midlife maximizing in the mid to late 40s.[2,3] The probability of being a union member peaked in midlife even when controlling for other variables. This hump-shaped pattern was also found subsequently for Norway by Nergaard and Stokke (2007) and Posthuma (2009) in the World Values Survey (WVS), 1999–2002.

What might account for the age profile of union membership? There are various reasons why one might expect union membership to peak in middle age. First, as is apparent from Table 1 earlier cohorts had a higher propensity to unionize. More recent cohorts, on the other hand, are more likely to be 'never-members' (Bryson and Gomez 2005). As these earlier cohorts age, this may show up as a peak in union membership in middle age. Furthermore, the peak in age may shift right with the ageing of those older cohorts.

[1] For a discussion of the shift to a more consumer-oriented culture and its implications for the 'taste' for trade unionism see Bryson et al. (2010).

[2] The data used were the European Social Survey (ESS) 1998–1994 and 2001; the Eurobarometers of 1988–1994 and 2001; the International Social Survey Programme (ISSP) 2000—2002; the UK Labour Force Surveys (LFSs) of 1993—2004; the General Household Survey of 1983; the MORG files of the CPS for 1984–2002 and the Canadian Labor Force Surveys of 1997–December 2005.

[3] The 34 countries were Australia*, Austria, Bangladesh*, Belgium, Bulgaria, Canada, Chile, Czech Republic, Denmark, Estonia*, Finland, France, Germany, Greece*, Hungary, Ireland, Israel, Japan, Italy, Luxembourg, Mexico*, the Netherlands, New Zealand, Norway, Poland, Portugal, Russia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the United States. The five marked as a * above were not found here so the inverted U-shape has been found for a total of 73 countries.

TABLE 1 Union Membership Rates in the United States and the United Kingdom in the 2000s, by Birth Cohort

	USA	UK
1940–49	15.0	26.3
1950–59	16.0	31.7
1960–69	13.7	28.9
1970–79	11.6	23.1
1980–89	8.0	15.7
1990+	5.1	9.5
Total	11.8	24.0
N	3,397,409	888,600

Note: US data obtained from the MORG files of the Current Population Survey, 2000–2019 and in the UK from the Labour Force Surveys, 2000–2019.

As background we should note that in the UK the proportion of workers who were members of unions rose between 2018 and 2019 from 20.8 per cent to 21.0 per cent.[4] The numbers who were members has risen in each of the last three years 2017–2019 from a low in 2016.[5] In the USA for the first time since 2008 the union density rate rose in 2020 to 10.8 per cent — up 0.5 percentage points from 2019.[6] However, the number of workers belonging to unions, at 14.3 million, was down 321,000.

Part A of Table 2 presents union membership rates for the UK by age for 2016 and 2019. Notable is the sharp rise in density rates for ages 20–34 and ages 55 and over and the fall for the prime age groups 35–54. Part B presents the most recent data on union density by age for the USA. The distribution by age has changed somewhat with the peak moving from age 55–64 group in 2019 to 45–54 in 2020.

Blanchflower (2007) partially explored the impact of cohort effects using the Merged Outgoing Rotation Groups (MORG) files of the Current Population Survey (CPS) for the United States over the period 1983–2002. Cohort dummies for decade of birth were added as additional controls in a union membership equation, and collectively they were significant, showing that there are cohort effects in union membership. Decade of birth reduced the size of coefficients on the age variables that were included as five-year bands, and they lowered the peak age. For example, in Blanchflower (2007; Table 8, column 3), with state dummies, the age maximum goes from 55–59 to the 35–39 category. Cohort effects were also found for the United Kingdom using the LFSs of 1992–2004. Once the cohort dummies are included, the age paths are much flatter than without them.

The relationship occasioned little comment at the time from either the academic community or from employment relations practitioners. Although the paper has been Google cited 157 times subsequently, few of those papers focus on the relationship between age and trade union membership. Nevertheless, Jelle Visser — a leading authority on union density around the world — even argued recently as follows:

[4] Trade union membership, UK 1995–2019: Statistical Bulletin, Department for Business, Energy & Industrial Strategy, 27 May 2020https://www.gov.uk/government/statistics/trade-union-statistics-2019

[5] In the UK in thousands union membership was 2016 = 6,230; 2017 = 6,247; 2018 = 6,350 and 2019 = 6,440.

[6] www.unionstats.com — all wage and salary workers and Union members 2020, BLS, 22 January 2021. https://www.bls.gov/news.release/pdf/union2.pdf

TABLE 2 Union Density by Age

(A) UK		
	2016	**2019**
All employees	23.5	23.5
16 to 19	3.5	3.3
20 to 24	10.2	10.4
25 to 29	17.9	18.5
30 to 34	20.1	21.0
35 to 39	24.1	23.3
40 to 44	26.8	25.3
45 to 49	28.6	28.5
50 to 54	33.8	31.1
55 to 59	31.5	32.5
60 to 64	28.5	30.0
65 to 69	18.1	19.5
Over 70	9.2	15.3
(B) USA		
	2019	**2020**
Age 16–24	4.4	5.2
25–34	8.8	11.0
35–44	11.8	13.5
45–54	12.6	14.7
55–64	12.7	14.5
65+	9.7	10.1
All	10.3	10.8

> Union density rates tend to increase with age in almost all countries. The issue here is that the differences between young and old have increased. The higher density rates of older workers are the result of higher density rates of past generations — in other words, of decisions made some thirty to forty years ago. Workers tend to join the union when they are young, most often when they have landed their first stable job and begun establishing a family. (Visser, 2019)

We revisit the issue in this article and show that Visser is partially right — cohort effects do matter for union density, in that they are statistically significant when added as controls, but they have small effects. What we do show is that the age at which unionization maximizes in both the United States and the United Kingdom does not vary much when one introduces cohort dummies, casting doubt on the hypothesis that it is cohort effects that drive the maximization of unionization probabilities in the middle age.

A second factor behind the midlife peak in unionization may be the initial slope upwards in unionization with age which captures the increased returns to union membership once workers enter their 'career' jobs, or those jobs they expect to be in for some time. The returns to the insurance component of the union good — whereby unions seek to protect their members against arbitrary and unfair employer behaviours — rise at this point because the costliness of losing a

'career' job is higher than the cost of losing a non-career job. In addition, membership probabilities will rise with labour market experience because union membership is an experience good (Bryson *et al.* 2005).

However, these factors do not explain why union membership probabilities decline after midlife. This might be due, instead, to the increased propensity of previously unionized workers to leave the labour market later in life, when compared with their non-union counterparts. This will occur, for example, if unionized workers are more likely than non-union workers to receive deferred compensation such as a good pension, when compared to non-union workers. It is rational for workers to quit unionized employment once they have maximized the pension they can receive through life-time contributions into a plan. According to Lazear (1990) this occurs, typically, in one's mid-50s.[7] Non-union workers, on the other hand, may continue working later in life in the absence of such entitlements. This will show up in cross-sectional data as a rise in the proportion of workers who are non-union late in life due to the early departure of unionized workers.

We examine this issue by comparing the labour market status of union ex-members and union never-members aged 50 and above. If the ex-members are more likely than their never-member counterparts to be in retirement, this is consistent with the proposition that they have left membership because they have left the workforce for retirement, to benefit from their pension entitlements. Alternatively, it may be that unionized workers faced harsher working conditions in their working lives, whereupon they have had to leave employment for illness or sickness benefits more quickly than non-union counterparts. We also consider this possibility.

An alternative hypothesis might be that unionization rates should continue to rise into older age among workers reflecting the increased value of the insurance component of the union good in later life. The higher value of insurance arises if older workers' costs of job loss are greater, as is the case where older job seekers face lower job offer arrival rates than younger job seekers (Addison *et al.* 2004). All else equal, this proposition would run counter to union membership being hump-shaped in age.

If we assume workers' union status reflects the net benefits of unionization, and a key element in those benefits is the wage premium unions negotiate on behalf of their members, we might expect union joining propensities to reflect the life-cycle profile of that wage premium. Perhaps contrary to what one might anticipate given the seniority rules that underpin wage progression in many union environments, our earlier research suggests the wage returns to unionization are greatest early in life (Blanchflower and Bryson 2003, 2004). If this was the dominant feature in terms of the union good, then one could, conceivably, imagine unionization probabilities declining with age in line with a falling union wage premium.

The discussion above is predicated on the assumption that the age profile of union membership is liable to reflect the net costs and benefits of membership over the life-cycle. In fact, union representation is not always available to those who want it due to the supply side problems unions face in offering the union good. This can lead to what some have referred to as a 'representation gap' (Towers 2007) with the demand for unionization being unmet. This 'gap' has an age component because union availability is a function of union presence at the workplace. Research for Britain has indicated that there is a strong cohort effect to the probability of workplaces being unionized: older workplaces are considerably more likely to be unionized than younger workplaces (Millward *et al.* 2000). Furthermore, young (old) workers tend to sort into young (old) workplaces

[7] Even if workers can continue to accrue additional pension entitlements as they age, this must be offset against the diminishing time they will have to enjoy the pension entitlements they have already accrued.

(Machin 2000) such that the gap between union demand and supply is greatest among the young. We revisit this issue using linked employer–employee data to establish whether the hump shape in union membership is apparent within workplaces. If so, the implication is that it is not driven by workplace cohort effects on the availability of the union good.

In the next section of the article, we revisit Blanchflower (2007), extending the earlier work beyond 2004, which was the cut-off for his empirical work, and undertake the analysis for countries not previously covered in Blanchflower (2007) which may not exhibit a hump-shaped association between age and union membership. We show that union membership peaks in midlife across the world. We begin with the United States, followed by the United Kingdom, before turning to Europe and then the rest of the world. We find hump shapes for 68 countries. For the United States and the United Kingdom, we show that the hump-shaped age effect is apparent when one controls for cohort effects, so this is not what lies behind the hump shape. However, we go further by examining these age effects across time. We show that in the two countries for which we have the longest time series the peak gradually creeps upwards in the United States from age 46 to age 49 between 1983 and 2018 but rises more quickly in the United Kingdom from age 46 in 1992 to age 53 in 2019.

Blanchflower (2007) enumerates possible reasons as to why union membership peaks in midlife, briefly speculating about possible answers to the question. We take this analysis further by examining age effects across time having conditioned on cohort effects, considering exit rates from unionization across the life-cycle, examining the labour market status of those aged 50 and over who left membership compared to those who never became members and by investigating the age pattern in union membership within workplaces. In our concluding section, we discuss the implications of our findings and address some of the reasons as to why we find union membership peaking in midlife.

2 | EMPIRICAL RESULTS

In this section, we present estimates of a midlife peak in union membership probabilities in 68 countries using data on just over eight million respondents, maximizing around age 50.[8] We examine several of the same data files examined by Blanchflower (2007) and extend them all to the present, including the MORG files for the United States (1983–2019) and the LFS files for the United Kingdom (1992–2019) and the ESSs (2002–2018). We also examine the WVSs (1981–2019); all four of these surveys allow us to examine the role of cohort effects in a subset of countries. In addition, we examine cross-section data from the 2015 ISSP and Gallup World Poll data for Asia and the South Pacific (2010–2013). It turns out that the inclusion of cohort dummies has little impact on the age peak and neither does the addition of personal controls such as education and labour force status measures such as measures of self-employment or underemployment (part-time wants full-time). In every case we restrict our samples to *workers only*.

[8] We find an inverted U-shape *with* cohort dummies for 50 countries — Andorra; Austria; Azerbaijan; Belarus; Belgium; Bolivia; Bulgaria; Canada; Chile; China; Cyprus; Czech Republic; Denmark; Ecuador; Finland; France; Germany; Hungary; Iceland; India; Ireland; Israel; Italy; Japan; Kyrgyzstan; Lebanon; Luxembourg; Malaysia; Montenegro; Netherlands; Nigeria; Norway; Poland; Portugal; Romania; Russia; Singapore; Slovakia; Slovenia; South Africa; Spain; Sweden; Switzerland; Taiwan; Tanzania; Turkey; Ukraine; United Kingdom; USA and Vietnam. We find it for eighteen others *without* cohort controls: Armenia; Bosnia; Brazil; Cambodia; Croatia; Georgia; Hong Kong; Macau SA; Mali; Nepal; New Zealand: Palestine; Rwanda; South Korea; Suriname; Tunisia; Uruguay and Yugoslavia.

2.1 | United States

In Table 3, we examine the hump-shaped unionization rate in age for the United States in three micro datasets. The first four columns use the MORG files of the CPS from 1983–2019 provided by the NBER.[9] In column 1, with 6.3 million observations, with controls for gender, race, state, year and month of interview (and a private-sector dummy in columns 1 and 2), age is negative, and age squared is positive, both with *t*-statistics of around 200, implying an inverted U-shape. We differentiate with respect to age and solve and calculate an age maximum of 49. Column 2 adds decade of birth cohort dummies which are statistically significant but have little impact on the age variables, such that the age maximum rises to 50. Blanchflower (2007: table 5) used the same MORG files and found a maximum of 48 for 1984–1991 and 49 for 1992–2002.[10]

Columns 3 and 4 for the public and private sectors are similar, with cohort dummies,[11] with maxima of 50 and 45, respectively. However, the fact that the age maximum is five years younger among those in the public sector is notable. It might conceivably be linked to better pensions for unionized public-sector workers, compared to those available in the private sector, which might induce public-sector unionized workers to retire early compared with others. We return to the issue of early retirement later.

Column 5 uses the Gallup United States Daily Tracker Poll (GUSDTP)[12] for 2008–2017 with 1.4 million observations, with the same controls including cohort, and finds union membership probabilities are highest at age 50, as they are in column 2 using the MORG. The final column uses the much smaller General Social Survey[13] that has a longer time run back to 1973 with the same controls and essentially identical results.

The quadratic age term imposes a functional form on the association with age, so in Chart 2, we simply rerun column 2 for the MORGs and column 5 for GUDSTP replacing the two age terms with a full set of year-specific age dummies. We do this rather than plot the raw means, so we can take out the time and area effects. We take the coefficients from this regression, add the constant and plot the numbers. The two scatter plots have clear and similar hump shapes with maxima around age 50, confirming the quadratic specifications, albeit with a flat tail after around age 70.

In Table 4, we run similar estimates to those in columns 1 and 2 of Table 1 but this time split the analysis by time period to see what happens to the peak in age for union membership over time. The answer is: very little. The peak age for membership is around 48 years old across the four periods beginning in the early 1980s and ending in 2020, whether one conditions on cohort dummies or not (see the bottom row of Table 4).

In Table 5, we explore whether this pattern holds *within* states of the United States. We classify states according to whether they have passed Right-to-Work (RTW) laws which prohibit union security agreements between employers and labour unions. Under these laws, employees in unionized workplaces are banned from negotiating contracts which require all members who benefit from the union contract to contribute to the costs of union representation. The

[9] https://data.nber.org/morg/annual/

[10] Blanchflower (2007) included controls for industry as well as for education. They have little impact here so for simplicity and to be comparable across data files we just use parsimonious specifications.

[11] Whilst jointly statistically significant in both the public and private sectors, the cohort dummies are not as large in the public sector. What's more, the cohort effects rise in the private sector from 1990, suggesting an increased propensity for unionization in these younger cohorts, whereas the opposite happens in the public sector.

[12] https://www.gallup.com/174155/gallup-daily-tracking-methodology.aspx

[13] https://gss.norc.org/get-the-data

TABLE 3 OLS Union Membership Equations in the United States

	All	All	Private	Public	GUSDT	GSS
Age	0.0119 (226.11)	0.0123 (166.46)	0.0101 (142.98)	0.0289 (107.22)	0.0068 (26.09)	0.0104 (5.63)
Age^2×100	−0.0122 (197.70)	−0.0128 (180.57)	−0.0102 (149.87)	−0.0320 (123.02)	−0.0068 (26.83)	−0.0104 (5.79)
Male	0.0556 (217.47)	0.0556 (216.28)	0.0621 (251.32)	0.0203 (23.85)	0.0099 (19.42)	0.0430 (7.57)
White	0.0051 (12.72)	0.0050 (12.57)	−0.0061 (15.94)	0.0432 (30.03)	−0.0097 (12.84)	0.0109 (1.09)
Black	0.0567 (99.25)	0.0568 (99.44)	0.0498 (89.32)	0.0835 (44.79)	0.0332 (27.10)	0.0584 (4.77)
Private	−0.2578 (751.55)	−0.2572 (740.21)			−0.2561 (377.91)	−0.2278 (30.63)
Cohort dummies	No	Yes	Yes	Yes	Yes	Yes
Constant	0.1276	0.0677	−0.1476	−0.2018	0.3528	0.0536
Adjusted R^2	0.1384	0.1391	0.0558	0.1591	0.1262	0.1098
N	6,334,650	6,334,650	5,241,881	1,092,769	1,430,077	12,605
Age maximum	48.8	50.0	49.5	45.2	50.0	50.0

Note: Columns 1–4 MORG, 1983–2019; column 5 GUSDT, 2008–2017; column 6, GSS 1972–2018.
Models in columns 1–5 include state, month and year dummies. For GSS 8 region dummies included. Workers only excluded category born before 1920.

TABLE 4 OLS Union Membership Equations in the United States, MORG 1983–2020

	1983–1991		1992–2008		2009–2019		2020
Age	0.0176 (148.80)	0.0168 (66.68)	0.0114 (146.26)	0.0122 (86.11)	0.0075 (85.56)	0.0084 (43.97)	0.0068 (18.64)
Age^2×100	−0.0186 (128.99)	−0.0176 (50.95)	−0.0112 (126.51)	−0.0130 (84.23)	−0.0077 (76.94)	−0.0086 (41.96)	−0.0072 (17.61)
Male	0.0877 (157.49)	0.0877 (157.42)	0.0541 (144.30)	0.0542 (144.58)	0.0293 (67.65)	0.0294 (67.79)	0.0226 (12.32)
White	−0.0122 (11.53)	−0.0123 (11.59)	0.0067 (11.41)	0.0064 (10.94)	0.0142 (23.39)	0.0141 (23.11)	0.00.0270 (7.94)
Black	0.0709 (50.87)	0.0711 (50.95)	0.0572 (68.23)	0.0572 (68.28)	0.0408 (44.76)	0.0406 (44.59)	0.0460 (10.33)
Private	−.2144 (290.48)	−.2144 (290.53)	−.2706 (536.23)	−.2700 (5350.01)	−.2748 (469.58)	−.2747 (469.49)	−.2644 (107.3)
Cohort	No	Yes	No	Yes	No	Yes	No
Constant	−0.00.0128	−0.0369	.1017	.1152	.1639	.1939	.1133
Adjusted R^2	.1205	.1245	.1428	.1434	.1475	.1477	.1397
N	1,618,551	1,618,551	2,903,796	2,903,796	1,812,303	1,812,303	98,906
Age max	47.3	47.7	50.9	46.9	48.7	48.8	47.5

Note: All equations include state, month and year dummies. 2020 includes January to October.

TABLE 5 Age Zeniths in Union Membership in US States by Right-to-Work Laws, 1983–2019

Non-switchers:					
RTW			**Non RTW**		
Alabama	47	81,073	Alaska	47	83,657
Arizona	49	72,823	California	51	487,287
Arkansas	46	75714	Colorado	52	104,994
Florida	47	257,848	Connecticut	48	95,990
Georgia	43	110,301	DC	53	78,269
Iowa	46	100,439	Delaware	46	78,749
Kansas	47	89,013	Hawaii	48	78,805
Louisiana	44	72,942	Illinois	48	235,237
Mississippi	47	71,109	Maine	48	82,423
Nebraska	49	93,958	Maryland	47	108,300
Nevada	49	86,772	Massachusetts	47	172,477
North Carolina	44	179,258	Minnesota	49	115,903
North Dakota	45	86,935	Missouri	47	92,958
South Carolina	41	80,471	Montana	48	75,994
South Dakota	46	92,111	New Hampshire	42	96,459
Tennessee	48	84,887	New Jersey	48	193,739
Texas	46	310,550	New Mexico	45	69,279
Utah	49	85,728	New York	51	335,053
Virginia	49	120,057	Ohio	49	225,806
Wyoming	50	76,296	Oregon	49	78,830
Switchers:			Pennsylvania	47	235,534
Idaho	50	79,275	Rhode Island	52	81,044
Indiana	47	98,460	Vermont	54	78,177
Kentucky	47	78,551	Washington	52	94,464
Michigan	54	78,061			
Oklahoma	44	78,660			
West Virginia	50	74,894			
Wisconsin	44	111,486			

Note: The dates for the seven states that switched from non-RTW to RTW were as follows Idaho = 1985; Indiana = 2012; Kentucky = 2017; Michigan = 2012; Oklahoma = 2001; West Virginia = 2016 and Wisconsin = 2015. Controls year, gender, education, race, month and year dummies. Right-hand columns report unweighted sample sizes.

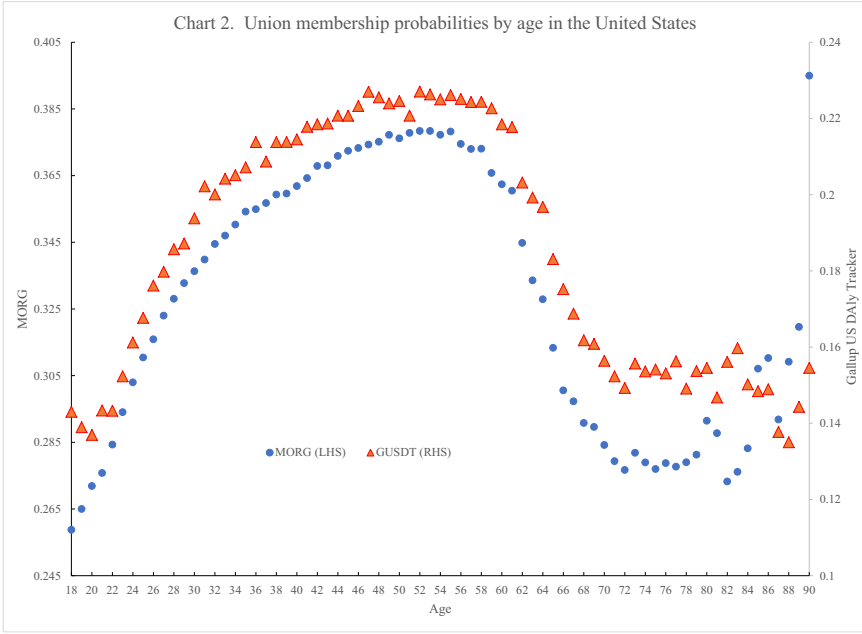

Chart 2 Union Membership Probabilities by Age in the United States. [Colour figure can be viewed at wileyonlinelibrary.com]

institutional settings in these two sets of states are very different, with RTW states being more hostile to union organizing than non-RTW states. Over the period in question, seven states implemented RTW laws — Idaho, Indiana, Kentucky, Michigan, Oklahoma, West Virginia and Wisconsin.

We include the same controls as in Tables 3 and 4, namely age and its square, gender, private sector and two race dummies plus cohort, month and year dummies. In every case, there is a peak in union membership in midlife. It varies little by RTW status: the peak in RTW states was 47 and 48 in non-RTW states. The minimum was 42 in Georgia (an RTW state) and the maximum was in Vermont at 54 (a non-RTW state). Among the seven states that switched to RTW the peak ranged between 44 (Wisconsin) and 50 (Idaho and West Virginia). Whilst the RTW institution matters for many union-related matters, it has little impact on the age at which union membership peaks.

2.2 | The United Kingdom

In the United Kingdom, the Office of National Statistics provides data on union membership.[14] As in the United States, union density rates have been gradually declining for some decades (although it has actually risen in the last three years as noted above). Membership rates among employees have fallen for every age range over time, except among those aged 60–64, where they have been stable, and those aged 65+, where they have risen. Chart 3 shows that membership rates peak in

[14] Data are available, three of the twelve monthly surveys each year: in September, October and November for 1992-2005 and in October to December 2005-2019. In four years, 2011, 2012, 2016 and 2017 there are a few cases for January. https://data.gov.uk/dataset/2139dde9-cb3a-43c3-9c93-dc98b91d448e/trade-union-membership

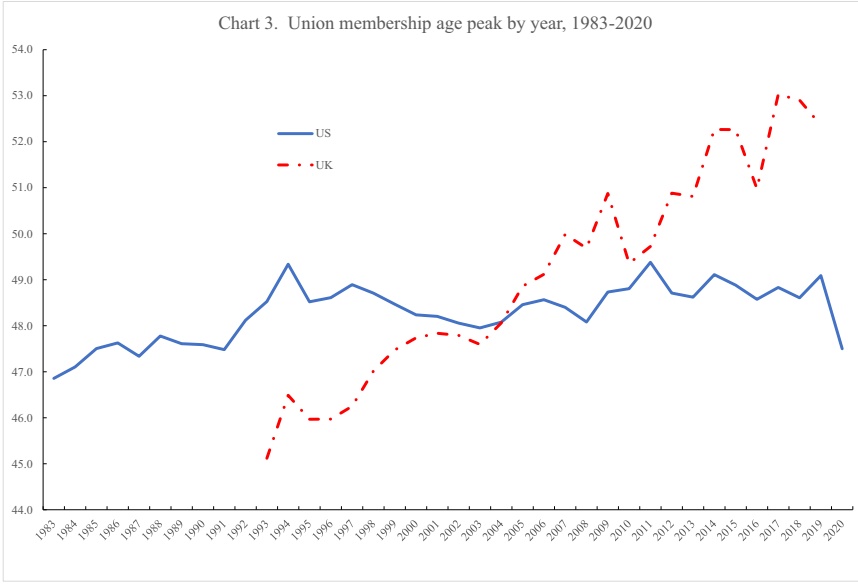

Chart 3 Union Membership Age Peak by Year, 1983–2020. [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 6 OLS Union Membership Equations in the UK

	All	All	Private	Public
Age	0.0209 (134.62)	0.0187 (81.24)	0.0141 (60.28)	0.00.0369 (62.61)
Age^2×100	−0.0215 (116.78)	−0.0187 (80.15)	−0.0132 (56.14)	−0.0397 (65.38)
Male	0.0484 (680.09)	0.0486 (68.42)	0.0573 (76.79)	0.0337 (20.75)
Self-employed	−.1327 (125.52)	−.1323 (125.23)	−.1264 (130.94)	−.2603 (42.54)
Training program	−.1394 (22.38)	−.1434 (23.00)	−0.0626 (9.79)	−.3487 (24.0)
Private	−.3419 (425.01)	−.3418 (425.11)		
Cohort dummies	No	Yes	Yes	Yes
Adjusted R^2	.1887	.1893	0.0503	0.0571
N	1,320,385	1,320,385	934,191	386,194
Age maximum	48.8	50.0	53.4	46.5

Note: LFS 1992–2019. Private-sector variable available from 1993. All equations include 10 region dummies and 27-year dummies.

midlife but, unlike in the United States, the peak has moved upwards from around 45 years old in the early 1990s to 52 years old in the last few years.

Examining data on union membership using the UK LFSs of 1993—2004, Blanchflower (2007) found union probabilities maximized at age 48. Table 6 makes use of the same LFS data but now from 1992 to 2019, and the specifications are equivalent to those above for the United States. The inverted-U shape is apparent in all four estimates presented. In column 1 for the whole economy and in the absence of cohort controls, union membership reaches a peak in midlife at age 49. The inclusion of cohort dummies in column 2 makes barely any difference, with membership now peaking at age 50. There are inverted U-shapes also in the private and public sectors (columns 3 and 4, respectively). However, as in the United States, membership maximizes earlier in the

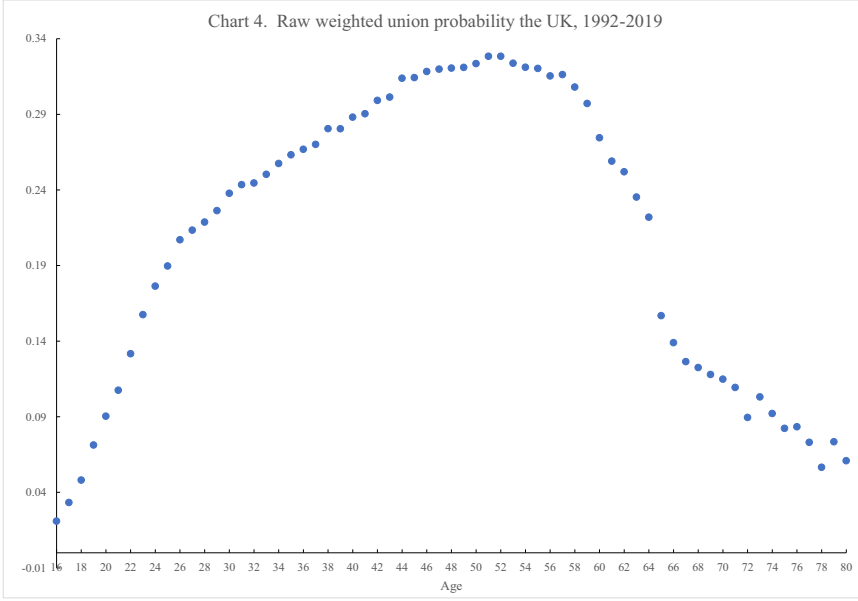

Chart 4 Raw Weighted Union Probability the UK, 1992–2019. [Colour figure can be viewed at wileyonlinelibrary.com]

public sector (age 47) than in the private sector (age 53) which, as noted earlier, may reflect higher retirement propensities among ex-members in the public sector induced by better pension entitlements.

The hump or hill-shape is also apparent in each of the nine English regions as well as Wales, Scotland and Northern Ireland, with the highest in London at age 56, with the others close to age 50. Chart 4 plots the raw data for the UK showing an inverted U-shape rather than the single year of age plots from a regression to make it clear that there is a big drop in membership rates at age 65.

Table 7 runs similar estimates to Table 6, but this time splits the sample into three time periods. In each time period models are run with and without cohort dummies. Again, union membership peaks in midlife but, as shown in Chart 3, we see the age maximum rising over time. It does so whether we incorporate cohort dummies or not, but the increase is a little more pronounced without the cohort dummies.

2.3 | Europe

In Table 8, we switch focus to examine ESS data[15] for 2002–2018 for the EU28 plus ten other European countries extending the 2002 and 2004 data used by Blanchflower (2007). Column 1 estimates the probability of union membership with a fully flexible age specification. The single year coefficients are plotted in Chart 5. There is an inverted U-shape in age with an age maximum of 58. The table also reports maxima for 28 of the 38 countries in the sample controlling for gender, years of

[15] The countries are Albania; Austria; Belgium; Bulgaria; Croatia; Cyprus; Czechia; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Kosovo; Latvia; Lithuania; Luxembourg; Montenegro; Nether-

TABLE 7 OLS Union Membership Equations in the UK

	1993—1999		2000–2008		2009–2019	
Age	0.0238 (83.31)	0.0229 (34.71)	0.0225 (86.66)	0.0218 (36.87)	0.0174 (64.85)	0.0179 (31.47)
Age^2×100	−0.0257 (74.05)	−0.0243 (30.99)	−0.0233 (74.98)	−0.0222 (33.19)	−0.0170 (55.17)	−0.0177 (28.94)
Male	0.0846 (66.56)	0.0845 (66.41)	0.0504 (42.37)	0.0507 (42.60)	0.0085 (6.91)	0.0089 (7.27)
Self-employed	−.1682 (87.64)	−.1684 (87.61)	−.1304 (71.99)	−.1294 (71.34)	−.1035 (59.05)	−.1018 (57.99)
Training program	−.1619 (20.05)	−.1597 (19.68)	−0.0953 (7.84)	−0.0997 (8.19)	−.1382 (7.36)	−.1406 (7.49)
Private	−.3420 (236.73)	−.3418 (236.54)	−.3466 (258.09)	−.3465 (258.06)	−.3332 (240.18)	−.3333 (240.31)
Cohort dummies	No	Yes	No	Yes	No	Yes
Adjusted R^2	.1917	.1919	.1905	.1911	.1838	.1818
N	433,297	433,297	475,614	475,614	411,474	411,474
Age maximum	46.3	47.1	48.3	49.1	51.2	50.6

Note: LFS 1992–2019. Private sector variable available from 1993. All equations include 20 region dummies and 27-year dummies.

TABLE 8 European Social Survey OLS Union Membership and Ex-membership Equations 2002–2018, Age 15–70

	All	Ex-union
Male	−0.0191 (10.15)	0.0391 (12.83)
Years education	0.0071 (26.27)	−0.0057 (13.15)
15	Excluded	−0.0751 (0.25)
16	−0.0267 (0.31)	−.2672 (2.17)
17	−0.0198 (0.24)	−.3384 (3.72)
18	0.0009 (0.01)	−.3873 (5.76)
19	−0.0204 (0.26)	−.3609 (7.13)
20	0.0279 (0.35)	−.3728 (8.06)
21	0.0495 (0.63)	−.3778 (8.58)
22	0.0620 (0.79)	−.3227 (7.66)
23	0.0682 (0.86)	−.3266 (7.89)
24	0.0705 (0.89)	−.3080 (7.57)
25	0.0832 (1.05)	−.3345 (8.33)
26	0.0974 (1.23)	−.3385 (8.52)
27	.1012 (1.28)	−.3137 (7.98)
28	.1201 (1.52)	−.3103 (7.94)
29	.1233 (1.56)	−.3021 (7.76)
30	.1267 (1.60)	−.3063 (7.89)
31	.1275 (1.61)	−.2932 (7.59)
32	.1440 (1.82)	−.2974 (7.71)
33	.1492 (1.89)	−.2836 (7.37)
34	.1494 (1.89)	−.2732 (7.12)
35	.1559 (1.97)	−.2700 (7.05)
36	.1573 (1.99)	−.2633 (6.87)
37	.1507 (1.91)	−.2462 (6.44)
38	.1639 (2.08)	−.2534 (6.64)
39	.1672 (2.12)	−.2383 (6.25)
40	.1752 (2.22)	−.2451 (6.45)
41	.1814 (2.30)	−.2508 (6.59)
42	.1851 (2.35)	−.2355 (6.20)
43	.1972 (2.50)	−.2418 (6.37)
44	.1947 (2.47)	−.2242 (5.91)
45	.1952 (2.47)	−.2258 (5.96)
46	.2111 (2.67)	−.2298 (6.07)
47	.2077 (2.63)	−.2176 (5.75)
48	.2162 (2.74)	−.2233 (5.90)
49	.2096 (2.65)	−.2182 (5.76)
50	.2280 (2.89)	−.2218 (5.87)
51	.2238 (2.83)	−.2127 (5.62)
52	.2371 (3.00)	−.2370 (6.27)
53	.2220 (2.81)	−.2058 (5.44)

(Continues)

TABLE 8 (Continued)

	All	Ex-union
54	.2293 (2.90)	−.2227 (5.88)
55	.2327 (2.95)	−.2211 (5.85)
56	.2307 (2.92)	−.2014 (5.32)
57	.2296 (2.91)	−.2058 (5.42)
58	.2426 (3.07)	−.2232 (5.87)
59	.2350 (2.98)	−.2016 (5.29)
60	.2208 (2.79)	−.1877 (4.91)
61	.2117 (2.67)	−.1859 (4.80)
62	.2038 (2.57)	−.1897 (4.87)
63	.1829 (2.30)	−.1669 (4.21)
64	.1728 (2.17)	−.1464 (3.66)
65	.1283 (1.61)	−0.0966 (2.34)
66	.1274 (1.59)	−0.0740 (1.72)
67	.1055 (1.31)	−0.0400 (0.90)
68	0.0905 (1.11)	−0.0644 (1.36)
69	0.0641 (0.78)	−0.0369 (0.73)
70	0.0879 (1.07)	Excluded
Constant	0.0663	.5719
Adjusted R^2	.2421	.2205
N	178,208	79,751

	Max	*N*		Max	*N*
All	52	179,272	Lithuania	60	3,847
Austria	55	5,614	Luxembourg	51	1,369
Belgium	52	7,792	Netherlands	67	7,347
Bulgaria	55	3,380	Norway	62	8,049
Czech Republic	55	7,500	Poland	57	6,493
Croatia	54	1,069	Portugal	62	6,274
Cyprus	51	2,212	Romania	44	1,596
Denmark	46	5,888	Russia	57	6,551
Finland	46	8,112	Slovakia	55	4,007
France	58	7,306	Slovenia	52	4,609
Germany	53	11,295	Spain	68	6460
Greece	60	4,174	Sweden	47	8,220
Hungary	50	5,993	Switzerland	51	7,711
Iceland	37	1,307	Turkey	48	1,073
Ireland	57	8,899	UK	54	8,592
Israel	60	6,889	Ukraine	70	3,827
Italy	65	2,178			

All equations include sweep and country dummies. Workers only. Column 2 consists of those ever in a union where 1 is ex member and 0 is a current member. Individual country results below with controls as in column 1 — gender, years education and wave dummies where both age and age squared t statistics > 1.5.

Age maxima for union membership by Country in the 2002–2018 European Social Survey; workers only all ages. Not found in Estonia (n = 7,035).

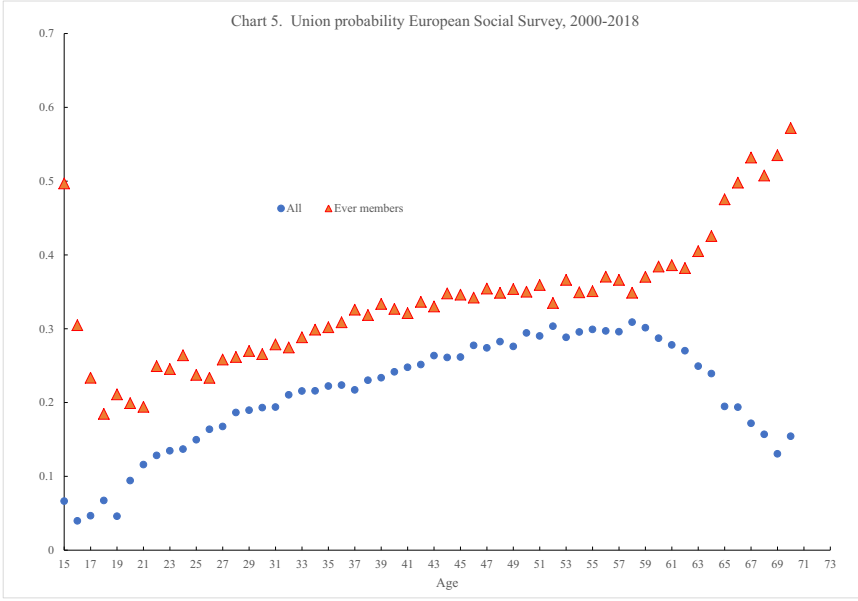

Chart 5 Union Probability European Social Survey, 2000–2018. [Colour figure can be viewed at wileyonlinelibrary.com]

education and wave dummies. We found membership was an inverted U-shape in age for all the major European countries.[16]

Column 2 of Table 8 runs an ex-membership model among ever-members (having dropped those who said they had never been union members) with fully flexible age dummies where age 70 is the reference category. The ex-membership rate is gradually rising over most of the life course but it jumps quite dramatically in one's late 50s, around the time that the membership rate drops (see Chart 5).

We thus now have a running total of hump shapes in 29 countries with cohort controls — Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, Ukraine and the USA.[17]

lands; Norway; Poland; Portugal; Romania; Russian Federation; Serbia; Slovakia; Slovenia; Spain; Sweden; Switzerland; Turkey; Ukraine; United Kingdom; see https://www.europeansocialsurvey.org/data/

[16] We didn't find the inverted U-shape for Albania; Croatia; Estonia; Greece; Kosovo; Latvia; Lithuania; Montenegro; Serbia or Turkey.

[17] Following Blanchflower's (2007) original study Schnabel and Wagner (2012) challenged the assertion that union membership peaked in midlife in Germany. However, analysis for Germany confirms union membership probabilities maximize at age fifty-three in Germany using ESS data (see the lower half of Table 7), a finding that persists when replacing the age quadratic terms with a fully flexible specification of age dummies. Fuller details of the German analysis are presented in Blanchflower and Bryson (2020a).-

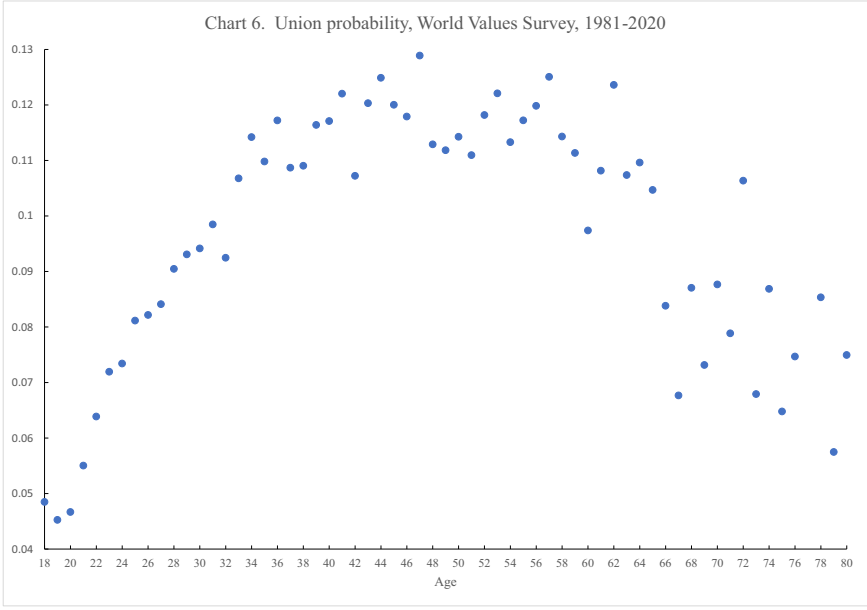

Chart 6 Union Probability, World Values Survey, 1981–2020. [Colour figure can be viewed at wileyonlinelibrary.com]

2.4 | The World

So far, our analyses have been confined to the United States and European countries. But we have data for other parts of the world too. Table 9 uses data from a pooled sample of seven sweeps of the WVS with 200,000 observations to estimate union membership equations across 101 countries.[18] In column 1 with only the age and gender variables, there is another inverted U-shape for union membership by age with a maximum at age 45. Adding wave and country dummies, as well as contractual status, in column 2 increased the age maximum to age 47 and adding the cohort dummies in column 3 raises the maximum to age 49. Chart 6 plots the single year of age coefficients using the specification in column 3 with cohort dummies and the hump shape is apparent again. We fitted a quadratic to the single year of age plots (which takes the form −0.1065 Constant + 0.009Age −0.00009Age^2) which maximizes at age 50.

Table 9 also reports results for 32 countries including some advanced countries — Canada, Japan, Sweden and the USA but also several developing countries including China (where membership has been rising), India, Azerbaijan, Kyrgyzstan, Malaysia, Nigeria, Taiwan, Tanzania and Vietnam. We report results for countries for whom both the age and age squared coefficients, respectively, were positive and negative with both having *t*-statistics of >1.65 with models including cohort dummies. The overall midpoint is age 45 which is also the mean of the country-level estimates. This adds another 21 countries to the list taking the total to 50 — Andorra, Azerbaijan, Belarus, Bolivia, Canada, Chile, China, Ecuador, India, Japan, Kyrgyzstan, Lebanon, Malaysia, Montenegro, Nigeria, Singapore, South Africa, Taiwan, Tanzania, Turkey and Vietnam.

[18] The WVS sweeps are 1981–1984 (6,081); 1989–1993 (10,294); 1994–1998 (39,543); 1999–2004 (20,285); 2005–2009 (40,794); 2010–2014 (45,208) and 2017–2019 (40,771) and all (202,976) with # observations in parentheses.

TABLE 9 World Values Survey OLS Union Membership Equations Sweeps 1–7 Workers

Age	**0.0087 (24.13)**	**0.0061 (17.71)**	**0.0073 (15.39)**
Age^2×100	−0.0097 (22.86)	−0.0065 (16.02)	−0.0074 (15.36)
Male	−0.0046 (2.92)	0.0052 (3.35)	0.0050 (3.23)
Part-time		−0.0271 (12.21)	−0.0274 (12.36)
Self-employed		−0.0584 (10.12)	−0.0584 (28.62)
Wave/country dummies	No	Yes	Yes
Cohort dummies	No	No	Yes
Constant	−0.0283	0.0273	−0.0358
Adjusted R^2	0.0031	.1227	.1231
N	200,380	200,380	200,380
Age maximum	45	47	49

	Max	**N**		**Max**	**N**
All	45	200,380	Nigeria	39	2,929
Andorra	40	1,713	Romania	57	2,521
Azerbaijan	37	1,817	Russia	37	6,263
Belarus	50	2,141	Singapore	44	2,006
Bolivia	32	1,037	Slovakia	45	631
Canada	54	3,291	Slovenia	42	1,538
Chile	44	3,734	South Africa	41	5,489
China	55	7,697	Spain	45	2,702
Cyprus	57	1,735	Sweden	40	3,367
Czech Republic	31	606	Switzerland	48	2,322
Ecuador	39	1,329	Taiwan	47	2,891
India	44	4,494	Tanzania	36	608
Japan	50	5,911	Turkey	45	3,781
Kyrgyzstan	43	2,305	Ukraine	59	2,869
Lebanon	52	1,436	USA	50	7,770
Malaysia	40	2,664	Vietnam	60	1,950
Montenegro	46	621			

Age maxima for union membership from country level results using column 3 specification with cohort dummies

Many of these countries had few observations and often only a single wave of data so we reran the estimation excluding the cohort variables and found hump shapes for a further 18 countries — Armenia, Bosnia, Brazil, Bulgaria, Croatia, Finland, Hong Kong, Italy, Macau SA, Mali, New Zealand, Norway, Palestine, Rwanda, South Korea, Tunisia, Uruguay, Yugoslavia. Of these 13 were new — Armenia, Bosnia, Brazil, Croatia, Hong Kong, Macau SA, Mali, Palestine, Rwanda, South Korea, Tunisia, Uruguay and Yugoslavia. This takes the total to 63 countries.

We now move to a cross-section data file, the 2015 ISSP on 37 countries with just under 27,000 observations. Table 10 reports once again there are inverted U-shapes in age for union membership which maximize around age 50 once country dummies are added. We re-estimated by country using the specification in column 2 and found significant hump shapes — with *t*-statistics on the age and age squared variable both >1.65. The fact that we do not have enough time series variation to include cohort effects is unlikely to be a major problem given we have shown how small an effect their inclusion has in Tables 3, 5 and 6. The sample sizes are small, mostly with under 1,000 observations, but we still found hump shapes in 15 countries, including in two new countries — Suriname and Georgia with cohort dummies. Now we have 65 countries.

2.5 | South Asia and South Pacific

In Table 11, we report union membership equations using the Gallup World Poll for 2010, 2012 and 2013 on 21 developing countries — Afghanistan, Bangladesh, Bhutan, Cambodia, China, Hong Kong, India, Indonesia, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam, plus the three main developed countries from the region — Australia, Japan and New Zealand. There are inverted U-shapes in age once more with a maximum at age 55 in column 3.

We find significant hump shapes in nine countries including in three new ones — Cambodia, Nepal and New Zealand taking us to 68 countries in total.

2.6 | Does Workplace Age Play a Role in Explaining the Peak in Unionization in Midlife?

As noted earlier in the introduction, a possible explanation for the decline seen in union membership rates after midlife is the well-known correlation between the age of workers and the age of the workplaces that employ them. Studies find older (younger) workers tend to sort into, or are hired by, older (younger) workplaces.

Machin (2000) argues that it is the age of the workplace that is the crucial age-based factor behind union decline. Its omission from the social surveys we examine may lead to omitted variables bias, with age potentially proxying age of workplace. However, as Machin (2000) makes clear, the workplace effect is really a cohort effect, with workplaces in the early post-war period having a higher likelihood of being unionized. This effect, previously documented by Millward *et al.* (2000), has subsequently received great attention in the worker voice literature, with newer workplaces switching away from union-based voice towards non-union direct forms of voice such as team briefings (Bryson *et al.* 2019). However, since most of the estimates presented in this article contain cohort effects, these are liable to account for Machin's (2000) point.

A stronger test of the role played by worker sorting into older and younger workplaces or industries is to estimate the association between worker age and union membership *within* the

TABLE 10 ISSP 2015 OLS Union Membership Equations — Workers Age < 70

Age	**−0.0198 (27.10)**	**0.0150 (12.00)**	**0.0141 (11.39)**
Age^2×100	0.0025 (27.54)	−0.0147 (10.12)	−0.0125 (8.68)
Male	−0.0132 (6.10)	0.0128 (2.84)	−0.0013 (0.29)
Self no employees			−.1581 (20.64)
Self with employees			−.1664 (15.09)
Family's business			−.1712 (10.31)
N/a lf status			−0.0617 (3.99)
Education dummies	No	No	Yes
Country dummies	No	Yes	Yes
Constant	.5941	−.1035	−.2068
Adjusted R^2	0.0283	.2645	.2870
N	27,071	27, 071	27071
Age maximum	39	51	56
Mean	.244		

	Age Max	***N***		**Age Max**	***N***
All	56	27,071	Japan	36	897
Belgium	47	1,200	Lithuania	45	568
Chile	47	636	New Zealand	54	417
China	54	970	Slovenia	59	482
Czechia	51	760	Spain	49	870
Finland	57	654	Suriname	52	650
Georgia	57	431	Sweden	51	672
Israel	55	588	Taiwan	57	1,267

Notes: sample consists of those currently working

Age maxima for union membership from country level results using column 2 specification

Note: Countries (37) are — Australia; Austria; Belgium; Chile; China; Taiwan; Croatia; Chechia; Denmark; Estonia; Finland; France; Georgia; Germany; Hungary; Iceland; India; Israel; Japan; Latvia; Lithuania; Mexico; New Zealand; Norway; Philippines; Poland; Russia; Slovakia; Slovenia; South Africa; Spain; Suriname; Sweden; Switzerland; UK; USA and Venezuela.

TABLE 11 Asia and South Pacific — Gallup World Poll, 2010, 2012, 2013 — Workers

Age		**0.0072 (12.15)**		**0.0069 (11.66)**	**0.0068 (11.56)**
Age^2×100		−0.0081 (11.92)		−0.0065 (9.71)	−0.0062 (9.25)
Male		0.0114 (3.72)		0.0050 (1.64)	0.0029 (0.91)
Self-employed				−0.0889 (26.90)	−0.0881 (25.92)
PT wants FT				−0.0787 (15.97)	−0.0761 (15.40)
Education dummies		No		Yes	Yes
Country/year dummies		No		No	No
Constant		−0.0347		−0.0359	−0.0897
Adjusted R^2		0.0031		0.0405	0.0612
N		46,071		46,071	46,071
Age maximum		44		53	55
	Age Max	***N***		**Age Max**	***N***
All	55	46,071	Japan	41	2,149
Australia	52	8,803	Nepal	43	1,602
Cambodia	39	1,919	New Zealand	54	1,503
China	55	9,675	Singapore	50	1,200
India	51	8,984	Taiwan	73	1,073

Note: Excluded category employees. Country-level results using column 3 specification.

Note: Countries are — Afghanistan; Australia; Bangladesh; Bhutan; Cambodia; China; Hong Kong; India; Indonesia; Japan; Laos; Malaysia; Mongolia; Myanmar; Nepal; New Zealand; Pakistan; Philippines; Singapore; South Korea; Sri Lanka; Taiwan; Thailand and Vietnam.

workplace. In order to examine this phenomenon, we turn to an analysis of an establishment level survey, the British Workplace Employment Relations Survey (WERS).[19] We pooled the linked employer–employee data from the 2004 and 2011 surveys and run simple linear regression estimates on the probability of being a union member and workplace fixed effects on 44,432 employees in 3,056 workplaces. The adjusted *R*-squared with the workplace fixed effects is 0.40. In both the ordinary least squares (OLS) and workplace fixed effects models, membership rises with age, peaking when employees are in their 50s before declining from age 60 onwards. This is the case when one runs raw correlations (with a year dummy only), and if one adds controls for sex, education and region. The fact that union membership peaks in midlife before declining *within* workplaces, at least in Britain, indicates that the pattern is not accounted for by selection into different types of workplace.[20]

2.7 | Does Union Membership Decline After Midlife Due to Union Members' Increased Propensity to Leave Employment?

We have shown in Table 8 and Chart 5 that the rate at which members leave unionization (the ex-membership rate) begins to rise around the age at which unionization rates peak, clearly indicating that the decline in the unionization rate occurs because older workers are more likely to exit unionization than workers earlier in their careers. One potential reason for this is that

[19] For full details on this survey go to https://www.wers2011.info/home and van Wanrooy *et al.* (2013).

[20] Results available on request from the authors.

TABLE 12 Economic Activity for Over 50s, by Union Membership Status (Column Percentages)

	Current Member	Ex-member	Never-member
Paid Work	63.3	20.4	28.5
Education	0.3	0.1	0.3
Unemployed, looking for job	1.6	1.7	2.2
Unemployed, not looking for job	1.1	1.1	1.5
Permanently sick or disabled	2.7	3.6	3.6
Retired	27.1	67.2	49.0
Community or military service	0.0	0.9	0.1
Housework, looking after children	3.1	5.3	13.8
Other	0.8	0.6	1.1
Unweighted *N*	27,027	64,873	74, 216

Source: European Social Survey, 2002—2018.

members are more likely to leave the labour force later in life than their non-union counterparts. Table 12 explores this possibility in the ESS by comparing the labour market status of ex-members aged 50 and over with similarly aged workers who never joined a trade union and current members. We see that ex-members have a much higher probability of being retired — two-thirds are in this category compared with half of never-members and a quarter of current members.

This is consistent with the idea that union members are more likely to quit employment for retirement because they have better pension entitlements than their non-union counterparts. Early retirement may also explain why the peak age for unionization is lower in the public than the private sector in both the United States and the United Kingdom. The only other major labour market activity for ex-members is current paid work, undertaken by one-fifth of them. Although this is a considerably lower employment rate than current and never-members, it is nevertheless an indication that some of have left membership but remained in employment.

This might be because they have switched to jobs in later life that are not traditionally unionized, such as management positions, or because they have switched out of their unionized career jobs to less demanding employment which, perhaps, they combine with the pension obtained whilst and employee. Since there are no differences in the percentage being sick or disabled by union status, we can dismiss the proposition that ex-membership peaks in midlife due to higher sickness or disability rates among members engaged in demanding or hazardous work.

3 | CONCLUSION

We have reported inverted U-shapes in age in union membership equations in 68 countries from around the world including the vast majority of EU countries plus the United States, the United Kingdom, Canada, Japan, China, India and New Zealand.[21] We make use of eight major survey

[21] The full list is: Andorra; Armenia; Austria; Azerbaijan; Belarus; Belgium; Bolivia; Bosnia; Brazil; Bulgaria; Cambodia; Canada; Chile; China; Croatia; Cyprus; Czech Republic; Denmark; Ecuador; Finland; France; Georgia; Germany; Hong Kong; Hungary; Iceland; India; Ireland; Israel; Italy; Japan; Kyrgyzstan; Lebanon; Luxembourg; Macau SA; Malaysia; Mali; Montenegro; Nepal; Netherlands; New Zealand; Nigeria; Norway; Palestine; Poland; Portugal; Romania; Russia; Rwanda; Singapore; Slovakia; Slovenia; South Africa; South Korea; Spain; Suriname; Sweden; Switzerland; Taiwan; Tanzania; Tunisia; Turkey; Ukraine; United Kingdom; Uruguay; USA; Vietnam and Yugoslavia.

series and, in six of these, we use several sweeps of the same data. We found the association in all 50 states in the United States plus the District of Columbia, in both RTW law states and those with no such laws. We even found membership peaked in midlife in seven states that switched RTW status, both before and after the switch. The fact that this empirical regularity exists across so many countries and within the states of the United States is perhaps all the more surprising given the different institutional contexts in which unions operate, and the fact that trade unions are very heterogeneous across countries in terms of their organizational structures and bargaining arrangements.

This empirical regularity matters because the age peak in membership captures the median voter among union members. Assuming unions, as democratic organizations, aggregate their members based on the median voter, we know this worker is in his or her late 40s or early 50s. We have shown that in the United States the age at which unionization peaks has remained roughly constant over time at around 48–50 years old. In the United Kingdom, on the other hand, the peak has increased by roughly seven years in the last few decades to around age 51, so the median voter among unionized workers is ageing in the United Kingdom, a factor that may affect decision making in trades unions if they have regard to the median 'voter'.

Previous studies clearly established the decline in union membership due to birth cohort effects, with more recent generations less likely to join trade unions, resulting in a rise in never-membership. But this article confirms a life-cycle effect that changes little with the introduction of cohort dummies: union membership probabilities peak in midlife regardless of which birth cohort workers belong to.

We have shown that this age peak in union membership coincides with a substantial increase in the rate at which union members leave the union. Further analysis suggests this is due, in part, to union members leaving for retirement earlier than their non-union counterparts, as might be expected given the better pension entitlements they accrue as union members. It is no surprise to discover new online services targeted at ex-union workers, such as those in the police force, looking for a new life, often involving paid work in a non-union environment.[22]

It is sometimes contended that job satisfaction is a reasonable indicator of the utility workers derive from paid employment. Job satisfaction is U-shaped in age, reaching its low point in workers' late 20s or early 30s — so a little earlier than the high point in union membership (Blanchflower and Bryson 2020b). It may be that workers stick with trade unions in their late 20s and 30s when their job satisfaction is at its lowest, in the hope that their union will improve their lot. As their well-being begins to rise in their late 40s and early 50s, perhaps this is the moment at which the net benefits of union membership look less attractive? They may make the calculation, as suggested by Lazear (1990) that maximizing their future welfare entails taking their pension early, even if they have not reached the maximum contribution limit, while the amenity of the insurance component of the union good is a declining function of time left to retirement (put simply, the value of insurance from arbitrary employer behaviour is considerably higher in one's 20s and 30s than it is much later in life when one is approaching retirement).

It is conceivable that in many countries leaving union membership in this way is particularly beneficial financially since members may continue to benefit from union bargaining coverage — which arises through workplace, firm, sectoral or national bargaining — because bargained terms and conditions are extended to non-members and — unless they live in a regime such as the non-RTW states of the United States — they will not be charged a fee reflecting the union's cost of procuring those public goods. However, it is not obvious why there are additional incentives for

[22] See, for example, https://peelsolutions.co.uk/life-after-the-police/

workers beyond midlife to become 'free-riders'. Also, the fact that age peaks for union membership are similar in RTW and non-RTW states suggests incentives to free ride may play only a limited role in explaining the age patterns we find. Although, to our knowledge, nobody has examined this issue directly, work that has been done on the probability of being a free-rider suggests, if anything, that the probability falls later in life (see Bryson 2008 for the United Kingdom and New Zealand).

The limitation of our study is that we have not analysed panel data tracking individuals over time. Consequently, we cannot make definitive statements about where union members go on leaving the union in later life. We have used cross-sectional data to suggest they have a high likelihood of leaving for retirement. But it would be useful to establish whether this is the case using panel data tracking individuals over time. Other possibilities, referred to by Blanchflower (2007) include the possibility that after midlife, union members leave the union because they are promoted into managerial ranks where union membership is traditionally less common.

Alternatively, they may have a higher probability of moving to unemployment or labour market inactivity than non-union workers, as might be the case, for example, if employers single them out for dismissal because they are more expensive than 'like' non-members, or because they are more likely to be in workplaces that close. Another possibility is that it is a subset of union members who quit after midlife because seniority wages and wage compression rules reduce their potential earnings later in life, such that these most productive workers quit membership at that point. These propositions, which are best investigated with panel data tracking individuals through time, have not been tested in the literature.[23]

Notwithstanding these limitations to the analyses presented here, the chief findings of the study have important practical implications for trade unions. First, the median union member in most countries is in his or her late 40s or early 50s and, at least in the UK, the membership is ageing quite rapidly. The rate at which workers leave membership rises after this peak, something which unions might be able to address through better targeting of their services on older workers. However, devising such policies might be difficult. One reason for the increased departure rate from membership is, as we showed above, early retirement among members who benefit from better pensions than their non-unionized counterparts, something that unions themselves have been able to engineer. However, unions might do well to consider the value in developing strategies for tackling age discrimination in employment, something that has received less attention than discrimination on grounds of gender and race. There are indications that this is happening as part of union efforts to respond to the need to represent an ageing workforce (Flynn 2014).

Second, the decline in unionization rates in recent birth cohorts we showed in Table 1 is of concern to trade unions, chiming as it does with earlier work, discussed in the introduction, which identifies the rise in 'never-membership' among young people in new birth cohorts as a major reason for the decline in union density. The implication is that trade unions should be supplementing their strategy for representing older workers with new organizing strategies which target younger generations so as to reverse the trend in never-membership.

At present it remains unclear as to whether this is a matter of branding: Studies suggest younger people recognize the value of trade unionism when asked about it, and the evidence discussed earlier points to a strong desire for union representation. Instead, trade unions face difficulties

[23] There is a literature on union effects on workplace survival and employment growth. Evidence on union closure effects is contested but the weight of evidence suggests unions do not increase the probability of workplace closure (Bryson 2004a; Machin 1995). Unions are also associated with lower rates of employment growth (Blanchflower *et al*. 1991, Blanchflower and Millward 1988; Bryson 2004b).

reaching and recruiting young workers, often because they know very little about trade unionism and work in hard-to-organize parts of the economy, such as the gig economy and parts of the service sector characterized by low pay and high labour turnover. These are traditionally the sectors trade unions have been least successful in organizing due to the high marginal costs of organizing and servicing workers in such workplaces (Willman *et al*. 2020).

There are signs of change. Of note is that in both the USA and the UK, we are seeing recent increases in union density rates for the young (Table 2). The Independent Workers Union of Great Britain (https://iwgb.org.uk/) is an example of a new, independent trade union focussing on organizing workers in the gig economy which has achieved notable successes recently such as its challenge to outsourcing of security services in higher education in the UK (see, e.g. https://www.ft.com/content/576c68ea-3784-11ea-a6d3-9a26f8c3cba4). At the same time the Baker's, Food and Allied Workers Union (BFAWU) have been campaigning for workers' rights in fast food chains such as McDonald's. Their use of digital platforms has helped in building membership (see https://wiserd.ac.uk/news/how-uks-first-mcstrike-was-tweeted-0, https://wiserd.ac.uk/news/young-people-are-leading-growing-movement-against-low-pay-and-precarious-work and https://www.ft.com/content/ea709746-f4c9-4fc3-80c9-8977b2dbd82d).

The implication is that unions need a twin-track approach which appeals to older workers, who dominate their current membership, and the younger generation of workers, many of whom appear eager to fight for their rights, often via a trade union, but whose demands for representation require new thinking and new tactics by trade union organizations.

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