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WORLD WAR AND WELFARE LEGISLATION IN WESTERN COUNTRIES

Herbert Obinger and Carina Schmitt

This article examines the impact of the two world wars on welfare legislation in 16 Western countries. We use Poisson regressions to test our hypothesis that war was a catalyst of welfare legislation especially in countries that were heavily exposed to the dreads of war. By welfare legislation we mean the inaugural adoption and major reforms across four programs (old age and disability benefits, sickness and maternity benefits, unemployment compensation, and family allowances). Our findings suggest that both world wars are key factors for explaining the timing of comprehensive welfare reforms and outweigh the significance other factors such as regime type or level of economic development.

Keywords: War, welfare state, welfare legislation, social policy

1. Introduction

The impact of war and other national emergencies on the development of welfare states in the Western world has recently attracted growing attention (Castles 2010; Rehm 2016; Obinger et al. 2018). The horrors caused by both world wars created a huge demand for social protection that states were well-placed to fill, leading them to provide income for invalids, war victims, and the survivors of fallen servicemen. Moreover, demobilized servicemen had to be reintegrated into society via employment, education, and housing programs. The questions of whether and how war has affected welfare state legislation for civilians have, to date, been neglected in comparative social policy research. Even though scholars have observed a clustering of reform activities during and after both world wars, the relationship between war and the introduction and reform of social security programs has never been systematically examined.

This paper aims to fill this research gap. Focusing on four major social protection schemes¹ we examine the impact of the two world wars on the timing of welfare legislation in 16 Western

¹ The four schemes are: old age and disability benefits, sickness and maternity benefits, unemployment compensation, and family allowances.

countries². These nations are characterized by very different war experiences, as some countries were involved in both world wars, while others were not. Some belligerent countries fought in war theaters overseas, while others suffered from severe (← p. 261) destructions on their homeland. This variation is essential for studying the impact of war on welfare state legislation. We use Poisson regressions to examine this relationship in which the number of welfare acts (program introduction and major reforms) across the four social protection schemes is our main dependent variable. As main independent variable, we constructed an index of war intensity measuring the extent to which a country has been affected by war. Our findings suggest that both world wars are key determinants for explaining comprehensive welfare reforms that outweigh the significance of other factors such as regime type or level of economic development.

The remainder of this paper is organized as follows. The next section briefly summarizes the state of the art related to the warfare-welfare nexus. Section 3 discusses possible mechanisms through which war has left its imprint on welfare reform. Section 4 presents the data and methodology and illustrates some descriptive evidence how warfare and the adoption of welfare schemes are related. Section 5 reports the empirical findings of the multivariate analysis. The final section concludes.

2. War in the comparative welfare state literature

Beginning with Titmuss (1958), several scholars have argued that war has influenced the development of Western welfare states. The most obvious and direct impact of warfare on social policy is the establishment of categorical social protection schemes for disabled veterans, dependents of killed servicemen and civilian victims of war (Geyer 1983; Gerber 2001). As a result of advances in military technology and the spread of conscription, the number of war casualties reached unprecedented levels in the age of industrial mass warfare. Welfare provision for this group of beneficiaries entailed important but ambiguous consequences for the development of the civilian welfare state. While (generous) veterans' benefits impeded or even crowded-out welfare entitlements for civilians in some countries (Skocpol 1992; Mittelstadt 2015; Shalev and Gal 2018), other scholars emphasized that veterans' benefits have been

² Australia, Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Norway, New Zealand, Netherlands, Sweden, Switzerland, United Kingdom, and the United States.

harbingers of the welfare state in the long run as these schemes relied on new principles of entitlement or included new policies that later expanded into civilian welfare provision (Geyer 1983). A second impact of war refers to social spending. Dryzek and Goodin (1986) found in their seminal paper a substantial push effect of the Second World War on social expenditure. However, this war-induced increase in social spending cannot be simply attributed to the newly established social protection schemes for veterans and their dependents. Obinger and Schmitt (2018) have shown that World War II has also significantly raised civilian social expenditure over a period of ca. 30 years. This impact of war on spending levels is closely connected to a third war-induced effect, namely the introduction of income and inheritance taxation and the massive expansion of tax progressivity in wartime (Scheve and Stasavage 2010, 2012, 2016). Even though the tax burden was abated after the end of war, the tax rates imposed in wartime never returned to the pre-war level (Peacock and Wiseman 1961; Scheve and Stasavage 2010).

Apart from the newly established veterans' benefits and the fiscal effects of war, however, other social policy legacies of war have not been systematically studied in comparative perspective. One blind spot refers to the impact of war on program adoption. Did war lead to the introduction of new (civilian) welfare schemes or to major amendments of existing programs? Case study evidence suggests a close nexus between military conflict and welfare legislation. In particular, British historiography has pointed to significant war-induced shifts in social policy legislation. This holds true for the Boer Wars (Dwork 1987), the Great War (Edgerton 2018) and, particularly, the Second World War (Titmuss 1958, 81-84). The British historian Asa Briggs (1961, 223) even noted that "war seems to have been as relevant as the appeal of socialism in determining the practicability and popularity of introducing comprehensive welfare proposals". Australia enacted several new welfare programs during the Second World War (De Maria 1989; Llyod and Battin 2018), whereas Japan introduced not only old age pensions but also launched a major (← p. 262) extension of health insurance during the Pacific War (Kasza 2002). Preller (1978) has argued for Germany that the Great War was the key catalyst of the welfare state in the Weimar Republic. Other belligerent nations of the Great War such as Italy, Britain and Austria introduced or extended unemployment insurance shortly after armistice (Pribram 1920; Gilbert 1970; Ferrera 2018; Pironti 2020).

Comparative research has also pointed to a striking coincidence between war and the timing of welfare legislation. Studying social policy innovation in 18 countries, Abbott and DeViney

(1992, 268-69) find that welfare legislation related to health insurance, pensions, workmen's compensation and unemployment insurance has substantial peaks during and right after the Great war, whereas "family allowances are clearly tied to the Second World War". Emmenegger (2014) observes a close correspondence between job protection legislation and war in several European countries. Obinger et al. (2018) present diffusion charts of welfare legislation in 18 western countries which indicate a close nexus between war and unemployment insurance legislation (World War I) and the introduction of family allowances (World War II). Like Abbott and DeViney (1992), however, they do not investigate the reasons for this pattern. By contrast, all comparative inquiries which empirically examined the factors accounting for cross-national differences in the temporal adoption of welfare legislation neglected war at all (Cutright 1965; Collier and Messick 1975; Flora and Alber 1981; Alber 1982; Schneider and Ingraham 1984; Usui 1994; Hicks et al. 1995; Carroll 1999; Kangas 2012; Schmitt et al. 2015). Both world wars are nevertheless widely seen as crucial watershed in the history of the welfare state. Flora and Alber (1981) and Alber (1982), for example, distinguish between three distinct phases of welfare state development in the western world which are separated from each other by the two world wars³. Even though this classification suggests that both world wars were crucial turning points in social policy development, it remains unclear in these accounts why and how large-scale military conflict changed the course of welfare state development. The next section therefore discusses mechanisms how war and welfare legislation might be causally related.

3. Why does war matter for welfare legislation? Theoretical reflections and hypotheses

From a theoretical perspective, there are two main channels through which war might affect welfare legislation⁴. The first is a *demand-side* impact, which is related to the horrors of war. Seen from a functionalist point of view, the cruelties of war generate the need for social protection of a magnitude that required government action. These social needs are direct effects of warfare as they would not have occurred in the absence of military conflict. Belligerent countries needed to provide income support to disabled veterans and to the dependents of killed servicemen. Veterans also needed health care and assistance for successful reintegration into

³ Alber (1982) distinguishes between (i) the period of welfare state consolidation (stretching from the 1880s until 1914), (ii) the interwar period and (iii) the Golden Age ranging from 1945 to the mid-1970s.

⁴ See also Obinger et al. (2018, 7-25.)

society and labor markets. This included, at least for a transition period, the provision of unemployment benefits, housing programs, education, and vocational training.

Social needs were even greater in countries that suffered from acts of war on their home territory. Apart from the military war victims, these countries were confronted with large numbers of civilian casualties, notably during the Second World War. This group of war victims consisted of war refugees, victims of persecution, civilians injured by military hostilities, homeless civilians (e.g. because of air strikes), and the dependents of civilians who were killed in acts of warfare or died of war-induced hunger and diseases. Acts of war on the homeland also had a tremendous impact on the economy. Destruction of production sites and infrastructure, military demobilization and the lay-offs in the munitions industry led to high levels of unemployment and poverty at the end of war. In addition, large segments of the population were exhausted in war-torn countries and suffered from rampant diseases. War had also a devastating impact on demographics in these nations. Birth rates declined, infant mortality increased and millions of procreative young men were killed in combat. Moreover, the horrors of war changed individual preferences and nurtured a higher demand for *public* social protection as wartime uncertainty, the collapse of financial markets and the loss of household (← p. 263) assets in war-torn economies led to higher preferences for redistribution and risk-pooling, i.e. collective insurance (Dryzek and Goodin 1986). Following the seminal study by Dryzek and Goodin, Rehm (2016) argues that national emergencies massively change the distribution of risk in society. Mass warfare, for example, quite likely leads to a substantial 'risk flip' towards a more homogenous risk distribution in society. In this situation, a majority of the population is facing high social risks and the resulting higher demand for public social protection makes, in consequence, the adoption of welfare programs more likely (Rehm 2016, 24). However, the extent of a war-induced 'risk flip' and the associated demand for social protection is not similar across belligerent countries but should rather vary with the intensity of war, i.e. the extent to which a country and its population were affected by the horrors of war.

The higher demand for social protection in wartime was reinforced by conscription as the imposition of a risky and potentially deadly civic duty (military service) by the state raised the question of potential compensations after the end of war. Several scholars have argued that conscription and war service nurtured demands for the provision of social and political rights on a quid pro quo basis (Hintze 1906; Andrzejewski 1954; Wilensky 1975). Finally, there is empirical

evidence (Dudley and Witt 2004; Bauer et al. 2016) that exposure to war violence and deprivation strengthened solidarity and co-operation as argued early on by Andrzejewski (1954) and Titmuss (1950, 1958).

The second channel linking warfare and welfare refers to the repercussions of war on the *supply-side* of the political system. These are well-documented effects that impacted the welfare state in a more indirect manner (e.g. Elias 1939; Tilly 1975; Porter 1994; Klausen 1998; Scheve and Stasavage 2010, 2016). War encouraged the rise of the tax state (via new taxes and tax progressivity), provided governments with new jurisdictions (typically leading to a centralization of government), and led to an expansion of state bureaucracies (e.g. the first establishment of welfare ministries such as ministries of labor and social affairs). Taken together, these transformations significantly strengthened state capacities and generated the institutional and fiscal *means* that enabled governments to respond to the colossal social *needs* generated by the dreads of war. Finally, both world wars were triggers of democratization and electoral reform (e.g. the introduction of proportional representation during and after the Great War in many European countries). This improved the political articulation of social needs and changed, in consequence, not only the power resources of the labor movement in society but also informed political coalition-building, with important implications for redistribution and welfare state patterns in the long-run (Iversen and Soskice 2006; Manow 2009).⁵

Overall, there are many reasons to assume that large-scale interstate wars induced welfare innovations and welfare state reforms. Since a nexus between warfare and the introduction of welfare programs for veterans is quite trivial, a more appropriate test of this overall argument is to examine the impact of war on the adoption and reform of *civilian* welfare programs. In terms of the impact of war on social legislation two qualifications are in order. First, we assume that the pressure for adopting or amending welfare legislation in response to war-induced social needs should be greater in countries which suffered from acts of war on their home territory than in countries which either fought in foreign war theatres or were not involved in combat activities at all. In other words, we contend that a nation's particular war experience matters for the timing of

⁵ In the empirical analyses, we directly test the demand-side effects of war. The supply-side effects are captured with the control variables included in the models. This can be seen as conservative test strategy for the impacts of war on welfare state legislation.

welfare legislation (H1). Second, we assume that welfare programs were mainly adopted immediately after the end of military conflict rather than during war (H2). One reason is that the military attracted tremendous economic resources in wartime⁶ that likely crowded-out the introduction of expensive transfer-related welfare programs in wartime. Moreover, there was no pressure during war to introduce unemployment compensation due to the widespread labor scarcity caused by the draft, while military demobilization, lay-offs in the munitions and war-related industries, and economic crisis in war-torn nations had the opposite effect immediately after armistice.

In sum, we contend that the probability of welfare legislation increases with war intensity and that the (← p. 264) war-related pressure to enact welfare reforms materialized merely in the immediate postwar period.

4. Data and methods

Our empirical analysis begins with the operationalization of our main variables and some descriptive patterns before proceeding to the multivariate analysis.

Our sample includes 16 Western countries that were sovereign states at the onset of the Great War.⁷ The period of observation ranges from 1880, when the consolidation of social security programs had started, until 1955, i.e. 10 years after the end of World War II.

Our key *independent variable* is the national intensity of the two world wars. It is a proxy for the social *demands* (or the risk flip) generated by the horrors of warfare. We use three indicators to measure cross-nationally distinct aspects of warfare and occupation experiences, which are then compiled into an overall index of war intensity (cf. Obinger and Schmitt 2018). First, it is of relevance whether military hostilities took place on the home territory or not. Some countries such as Australia, the United States, or Canada fought almost exclusively in war theatres overseas. Hence, they escaped large-scale, war-induced destruction on their home territory and had to bemoan fewer civilian casualties. The war experience in nations whose territories were major battlegrounds and/or that were occupied was markedly different, as they suffered from

⁶ In 1943, for example, military outlays as a percentage of the national income amounted to 70% in Germany, 55% in the UK, 43% in Japan and 42% in the United States (Harris 1998).

⁷ In the empirical analysis, Australia was not considered until 1901, and Norway not until 1905 as both countries were not sovereign states before these years.

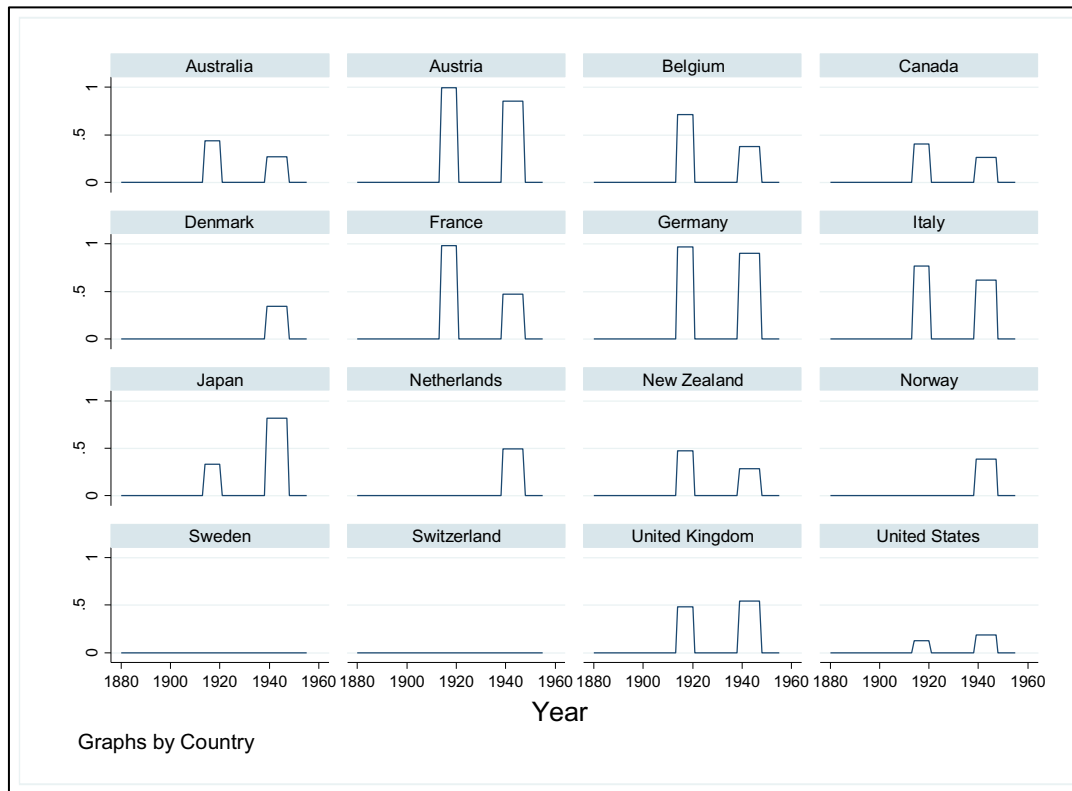
massive destruction in their homeland and many civilian war casualties. We use a dummy variable for measuring this aspect of warfare which takes the value 1 for war-waging nations and/or occupied countries that experienced military combat within their territory. Our second indicator focuses on the number of military and civilian war victims as a percentage of the pre-war population in the case of World War II. For World War I, we only use military victims as a percentage of the pre-war population as comparable figures for civilian casualties are not available. The third partial indicator reflects the duration of conflict⁸, as it is likely that socio-economic problem pressure and uncertainty increases with the duration of war and occupation. For the second and third indicators, we use data from Dryzek and Goodin (1986) and ‘Correlates of War’ (Marshall et al. 2014) and cross-validated it with data from alternative sources.⁹ In a final step, we constructed a composite index of war intensity which is the average of the standardized three indicators. Hence our index ranges from zero to one and shows high values if a country was heavily affected by World War I and/or World War II and low values otherwise. Our additive index of war intensity reflects several dimensions of warfare and we assume that high values of this index are positively related with war-induced social needs and, in consequence, a high demand for social protection. We furthermore assume that the impact of war intensity on welfare reform only occurs in wartime and shortly thereafter. The war index therefore equals zero before the outbreak of war and two years after armistice (e.g. in the case of World War I after 1920).¹⁰

⁸ In the case of World War II, we took data provided by Dryzek and Goodin (1986) who measured the length a country was involved in war or had combat activities on its home territory in months (1986, 24). In the case of World War I, we used data from the ‘Correlates of War’ project measuring war participation in days (Marshall et al. 2014).

⁹ With regard to the percentage of people killed during World War II, we used alternative data sources for the United States, France and Austria. Cross-validation revealed that the figures provided by Dryzek and Goodin (1986) are too high in the case of Austria (Neugebauer and Morawek 1989) and too low in the case of the United States and France (Ellis 1993). However, the results are robust irrespective of the data source used. In the case of World War I, we used the number of soldiers killed during World War I (Ellis and Cox 2001) in percentage of the pre-war population 1913 (Maddison Database Project 2018). For Austria, we took the information on Cisleithania provided by Rumpler and Schmied-Kowarzik (2013).

¹⁰ We used different time spans for the post-war period to test the robustness of our findings. We decided to report the results for a two-year time span after both world wars as this is in our view a conservative strategy to test war-induced effects on social reforms.

Figure 1. Overall index of war intensity, 1880-1955.



Source: Own compilation, for details see the description above (Figure 1 ← p. 266)

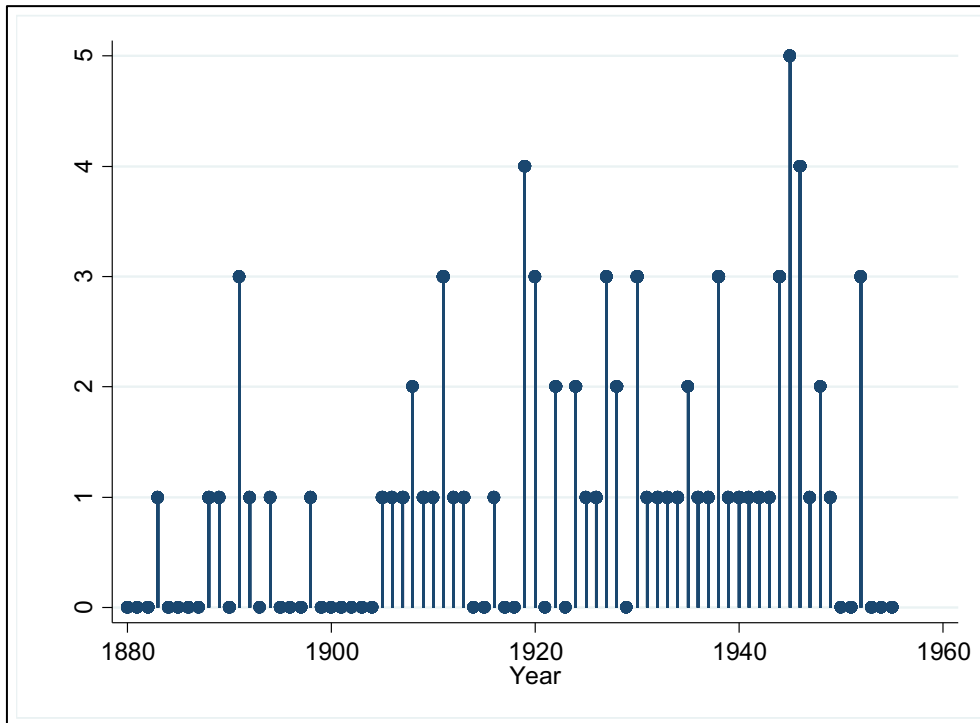
Figure 1 shows the war intensity index for all countries from 1880 until 1955, revealing a substantial variation in the extent to which the 16 nations were affected by the two world wars. While some countries were strongly affected by both world wars, such as Germany, Austria and Italy, others were either involved in only one conflict (e.g. Norway) or were not directly involved in war at all, such as Switzerland. This cross-national variation in national war experiences is essential for studying the impact of war on welfare reform.

Our key *dependent variable* is the number of social reforms per year. By social reforms we mean the initial adoption and/or subsequent major reforms of four major social security programs, namely (i) old age and disability benefits, (ii) sickness and maternity benefits, (iii) unemployment compensation, and (iv) family allowances. Data on social program consolidation is provided by Hicks et al. (1995) who coded the years of introduction and extensions of social security

programs in the above mentioned social policy fields¹¹. Initial adoption means that a particular social security program has been introduced at the national level for the first time. Two types of possible extensions are distinguished: (i) making a social program binding “in the sense of being legally compulsory for (← p. 265) some set of national actors or virtually binding as in the case of Ghent unemployment programs” (Hicks et al 1995, 335); and (ii) making a social program extensively and funded, i.e. the scheme covers a notable share of the target group and is adequately funded within some short period to provide notable benefits (cf. Hicks et al 1995, 335f).

Figure 2 illustrates the number of social reforms per year for 16 countries in the period of observation across the four welfare state programs. It gives a first clue that war might have swayed welfare legislation in line with our hypotheses as the number of social reforms peaks out during and especially after the end of both world wars. The next section examines whether war is a significant determinant of welfare state reforms if other explanatory factors are taken into account.

Figure 2. Number of social reforms per year, 1880-1955.



¹¹ Note that Japan is not included in Hicks et al. (1995). Welfare reforms in Japan were coded by the authors based on secondary literature and cross-validated by a country expert. We thank XXX (blinded for review).

Source: Own compilation based on data provided by Hicks et al. (1995). (Figure 2 ← p. 267)

5. Multivariate analysis: Poisson regressions

Since our dependent variable is a count variable (the annual number of initial adoptions and extensions of four social security programs), we estimate Poisson regressions. To account for the panel structure of the data, we use robust standard errors clustered by country.¹² Table 1 reports the empirical findings for a baseline model, whereas Table 2 summarizes models testing the robustness of our findings. Both tables report incident-rate ratios to facilitate the interpretation of our results.

To test hypothesis H1, we include our measure of war intensity as the key independent variable (*War intensity*). To examine whether the impact of war on social reforms mainly takes place in wartime or shortly after armistice (H2), we use two specifications of our war index: the first one captures war intensity only in wartime (*War intensity[wartime]*), whereas the second specification measures war intensity in the two years after the end of war (*War intensity[postwar period]*).

Furthermore, we test whether the reform intensity is simply a product of time rather than a result of cross-nationally distinct war experiences by including different period dummies. In model 2 of Table 1 we integrate dummy variables that equal one both in wartime and during the two years after the end (← p. 266) of both world wars (*WWI [wartime and postwar period]* and *WWII [wartime and postwar period]*). In model 4 we integrate dummy variables that equal one only in the two years after the end of military conflict (*WWI [postwar period]* and *WWII [postwar period]*) and zero otherwise. If the differences in the extent to which countries have been affected by warfare account for differences in welfare legislation, the estimated war impact should remain stable.

Besides the war index, we control for a number of additional variables which are considered by comparative welfare state research as important determinants of welfare legislation. Several of these variables also control for the above mentioned supply-side effects, i.e. the political, economic and institutional transformations generated by war. Concretely, we include *GDP per capita* in 2011 US Dollar as the key variable in functionalist welfare state theory (Wilensky

¹² Overdispersion is often an issue in Poisson regressions, i.e. the variance in the data is larger than model-wise expected. We therefore report the results for H0 according to which alpha is zero. In all models, p is close to 1 indicating that overdispersion is not a problem. The use of Poisson regressions has not to be rejected in favor of negative binomial regressions.

1975). The level of economic development is an indicator of socio-economic modernization and a proxy for the capability of governments to finance expensive social programs. According to the ‘logic of industrialization’ we should expect a positive impact of economic affluence on welfare legislation. Data stems from the Maddison Project Database (2018). Furthermore, we include a dummy variable capturing government ideology. The dummy equals one in the case of a left head of government and zero otherwise (*Left government*). The data is taken from Brambor et al. (2017), and we assume, in line with power resources theory, that left governments have a higher propensity of enacting social reforms. Moreover, welfare state consolidation should vary with the political regime type. We therefore integrate an index measuring the level of *democracy* provided by the ‘Polity IV Project’ (Marshall et al. 2014). This indicator ranges from –10 (autocracy) to +10 (full democracy). Even though there is evidence that autocratic regimes were pioneers of welfare state consolidation in Western Europe (Alber 1982), we suppose that democracies launch more welfare reforms by virtue of their greater responsiveness to social needs and higher propensity for redistribution. Additionally, the capability of governments to initiate welfare reforms might depend on the institutional setting of a political system. To measure institutional constraints that might impede the capacity of governments to implement policy change, we compiled (← p. 267) an additive and time-varying index of institutional veto points (ranging from 0 to 4) which reflects the existence of the following four veto points: (i) judicial review by constitutional courts; (ii) proportional representation; (iii) referenda at the national level; and (iv) federalism.

Table 2 reports several alternative models to check the sensitivity and the robustness of our results. First, we test whether the International Labor Organization (ILO) has affected domestic social reform activities by including a dummy variable that equals 1 if a country is member of the ILO and 0 otherwise (*ILO membership*). The foundation of the ILO was an outcome of the Great War with a view to promote social security. In line with previous research (Usui 1994; Schmitt et al. 2015) we expect an accelerating effect of ILO membership on welfare legislation.

Furthermore, we control for the extent of economic openness measured by the sum of exports and imports per capita (*Trade per capita*). Data is taken from ‘Correlates of War’ (Marshall et al. 2014). From a theoretical perspective, the impact of trade openness on the welfare (← p. 268) state is unclear, however. While the compensation thesis argues that high levels of trade openness lead to enhanced social protection, the efficiency thesis expects the opposite effect. In model 3,

we additionally control for the effect of conscription on social policy. The variable takes the value one in years when universal male *conscription* (own compilation) exists and zero otherwise. Given mass carnage and the ‘logic of equal sacrifice’ which is prevalent in wartime (Wilensky 1975; Scheve and Stasavage 2010), we expect a positive influence of conscription on welfare reform. Moreover, we control for the effect of occupation after the war by including a variable equalling 1 when a country was occupied in the post-war period and 0 otherwise (Table 2, model 4). Finally, we include a dummy variable in model 5 capturing the effect of the Great Depression. Like total war, the Great Depression was a national emergency that likely changed the distribution of risk in society and consequently increased the likelihood of welfare legislation (Rehm 2016). This dummy variable equals 1 in the years from 1929 until 1935 and 0 otherwise.

Table1. War intensity and adoption/extensions of social security schemes

VARIABLES	(1)	(2)	(3)	(4)
War intensity	2.938*** (1.077)	2.359* (1.156)		
War intensity (wartime)			1.563 (0.733)	1.571 (0.733)
War intensity (post-war period)			7.889*** (3.144)	4.744** (3.535)
Left government	1.777** (0.500)	1.551 (0.427)	1.681** (0.442)	1.729** (0.438)
Democracy	1.008 (0.0178)	1.015 (0.0166)	0.996 (0.0196)	0.995 (0.0189)
GDP per capita	1.000 (2.99e-05)	1.000 (3.14e-05)	1.000** (2.42e-05)	1.000** (2.44e-05)
Institutional constraints	0.863 (0.0891)	0.864 (0.0933)	0.841* (0.0771)	0.840* (0.0797)
WWI (wartime and postwar period)		1.666 (0.679)		
WWII (wartime and postwar period)		0.876 (0.487)		
WWI (postwar period)				1.689 (1.034)
WWII (postwar period)				1.053 (0.556)
Constant	0.0401*** (0.0125)	0.0397*** (0.0124)	0.0446*** (0.0141)	0.0444*** (0.0140)
α^a	1.73e-07 (4.26e-06)	1.66e-07 (4.24e-06)	5.85e-08 (1.34e-06)	1.59e-07 (3.61e-06)

Wald Chi2	1797.7***	1845.72***	4412.08***	4086.51***
Observations	1,144	1,144	1,144	1,144
Number of countries	16	16	16	16

Notes: Incident-rate ratios and robust standard errors clustered by country in parentheses.

*** p<0.01, ** p<0.05, * p<0.1; ^a Test of equidispersion of conditional variance.

(Table 1 ← p. 268)

The results of the Poisson regressions clearly support hypothesis H1 that war matters for the timing of welfare legislation in terms of the four major social protection programs under analysis. In model 1, the (← p. 269) incident-rate ratio for our measure of war intensity equals 2.938 and is statistically significant at the 1% level. Hence, the expected number of social reforms in countries highly affected by war is estimated to be almost three times higher than in countries not affected by war at all. This effect remains stable if the time effects of the war and postwar period are controlled for (see model 2). Welfare state reform is, therefore, not a product of warfare itself but rather depends on distinct, cross-national war experiences that correspond with significant differences in social needs. The same holds true when we separately test the effect of war intensity during war and in the immediate postwar period (see model 3 and 4). In line with hypothesis H2, both models indicate that war has triggered social reforms, particularly in the first two years following military conflict. Given the lack of financial resources and the priority of the overall war effort, the ability to adopt significant social reforms in wartime was likely constrained. However, it seems that war created a backlog of tremendous socio-economic problems, leading to a burst of welfare reforms right after the military conflict ended. In other words, the impact of war on the welfare state occurred with a delay. The expected number of social reforms in belligerent states with a high score for the war index is 4.7 times higher than in neutral countries in the two years after war (model 4). This effect is substantial in size, even though the model includes time dummies for the immediate postwar period. Hence, the increase in welfare reform activities in the immediate postwar period does not reflect a general time trend caused by war but is rather the consequence of the extent to which a country was affected by the dreads of war.

The results for the control variables are mostly in line with the conventional wisdom of comparative welfare state research. First, the ideological orientation of the head of government matters for the adoption of social reforms. When a left-oriented government was in office, the expected number of adoptions and reforms of major social programmes is 1.77 times higher than in countries without a left-oriented government. In most models, the coefficient of this variable is

statistically significant or slightly fails statistical significance. The estimated coefficients for the level of economic prosperity and the level of democracy are in most models above one and thus in line with the theoretical expectations. However, the polity index is statistically insignificant in all models besides one. In accordance with our assumption, a high number of institutional veto points has a retaining effect on social reform activities. The incident-rate ratios are below one and therefore indicate that an increase in institutional constraints decreases the expected number of reform activities. However, the respective coefficient is only significant at the 10 percent level in two of the models.

In Table 2, we test the robustness of our results by including further potential cofounding factors.

Table 2. War intensity and adoption/extensions of social security schemes

VARIABLES	(1)	(2)	(3)	(4)	(5)
War intensity	2.325** (0.818)	4.059*** (1.619)	2.804*** (1.018)	2.889*** (1.079)	3.117*** (1.118)
Left government	1.405 (0.361)	1.359 (0.366)	1.732* (0.502)	1.790** (0.509)	1.759** (0.494)
Democracy	1.002 (0.0126)	1.026* (0.0162)	1.011 (0.0196)	1.007 (0.0175)	1.007 (0.0166)
GDP per capita	1.000 (3.89e-05)	1.000* (3.23e-05)	1.000 (2.90e-05)	1.000 (2.95e-05)	1.000 (2.99e-05)
Institutional constraints	0.867 (0.0783)	0.823 (0.108)	0.870 (0.0803)	0.849 (0.0876)	0.858 (0.0896)
ILO membership	2.499*** (0.586)				
Trade per capita		0.242 (0.270)			
Conscription			1.173 (0.287)		
Occupation				1.778** (0.407)	
Great Depression					1.397 (0.520)
Constant	0.0374*** (0.0102)	0.0326*** (0.00852)	0.0360*** (0.0146)	0.0399*** (0.0399)	0.0387*** (0.0118)
α^a	6.36e-08 (2.10e-06)	1.04e-07 (3.30e-06)	1.13e-07 (2.56e-06)	1.99e-07 (4.78e-06)	1.73e-07 (4.16e-06)
Wald Chi2	1878.98***	3064.17***	2324.88***	2656.33***	2248.96***
Observations	1,144	994	1,144	1,144	1,144
Number of countries	16	16	16	16	16

Notes: Incident-rate ratios and robust standard errors clustered by country in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; ^a Test of equidispersion of conditional variance.

(Table 2 ← p. 269)

Our key war measure again turns out highly statistically significant in all models, demonstrating unequivocally that both world wars strongly influenced the adoption and extension of major social programs. The incident-rate ratios remain stable in size in comparison to our baseline model (cf. Table 1, model 1).¹³ Furthermore, model 1 shows that ILO membership significantly accelerates welfare legislation. By contrast, economic openness as well as universal male conscription do not exhibit a statistically significant influence on social reforms. In terms of conscription a possible explanation for this finding might be that almost all belligerent countries relied on the draft in both world wars. Model 4 controls for the occupation of the Axis Powers after the Second World War. The coefficient is positive and thus reflects welfare reforms imposed by the occupation forces such as the introduction of unemployment insurance in Japan in 1947 (Takemae 2003, 327). Finally, the coefficient of the Great Depression in model 5 is not statistically significant. The reasons for this finding might be that, firstly, the economic recession and the related 'risk flip' is already captured by the GDP per capita. And secondly, the resources required for implementing social security programs are naturally scarce in times of heavy economic recession¹⁴.

Overall, the results summarized in Table 2 show that our findings are highly robust and consistent across all different model specifications.

6. Conclusion

More than 60 years ago, Richard Titmuss argued that modern war has had “a profound influence on social policy” (Titmuss 1958, 86). He even contended (← p. 270) that the impact of war on social policy increases with the intensity and scale of warfare (1958, 78). While several country studies have corroborated this claim, quantitative comparative welfare state research has widely neglected war as a possible determinant of welfare state development. To address this blind spot,

¹³ Only the coefficient in model 2 is higher as a result of lower number of observations due to data limitations for trade per capita.

¹⁴ As a matter of fact, however, several countries have introduced new welfare programs in response to the Great Depression. Unemployment insurance is a case in point. While in most countries examined in this paper unemployment insurance was adopted or expanded during or, more frequently, in the aftermath of both world wars, the Great Depression was the key impetus for program introduction in Sweden, the United States and New Zealand (ILO 1955; Castles 2010; Rehm 2016).

this paper examined whether and how both world wars have affected the timing of welfare legislation, i.e. the introduction and subsequent reforms of four civilian social protection schemes. From a theoretical point of view there are many reasons to presume that total war affects welfare reform, notably in the wake of military conflict. We argued that the impetus for social policy change mainly results from war-induced social needs which, however, strongly varied by the extent to which a nation was affected by the horrors of warfare. In other words, not war involvement itself but rather national distinct war experiences are crucial for explaining cross-national differences in the timing of welfare reform. In line with our hypotheses, the empirical evidence suggests that welfare legislation was mainly enacted in the immediate aftermath of war and not in wartime. The comparison of 16 Western countries with markedly distinct war experiences in the period between 1880 and 1955 not only reveals that war clearly matters for the adoption of civilian welfare programs, but also that it outweighs many other explanatory factors more commonly emphasized in comparative welfare state research. Power resources theory, which is strongly supported by our empirical analysis, is the major exception. Left governments were far more likely to introduce and extend social security programs than their conservative counterparts.

Given this overall substantial impact of war on welfare state development, our findings point to two promising avenues of future research. One is to study the impact of war on other programs of social protection. Examples include regulatory social policies, such as labor protection legislation (e.g. working time and dismissal regulations), housing or social protection schemes tailored to children and juveniles. While many historiographic studies have examined this war impact for individual countries, systematic comparative inquiries are still rare and quantitative studies lacking at all. A second avenue of future research should extend the analysis to further regions, as both world wars had a tremendous impact not only on welfare state development in Eastern Europe, but also in many parts of the Global South. (← p. 271)

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