A Missing Historical Variable? The Long Run Effects of Nineteenth Century Landholding Patterns on Contemporary Voting in Central Europe, 1895-2009

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August 2012

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1 Introduction

For all its rich diversity, Central Europe remains the location of a distinctive political syndrome. Rather than the engaged and mobilized citizens who impressed the world in the heady days of 1989-1990, it is the "disaffected democrat" who is the hallmark of political life in the region of Europe governed by communism for fifty years. The evidence is unambiguous that, on average, postcommunist citizens turn-out to vote less frequently, sign petitions less frequently, attend fewer political rallies and trust political institutions less than citizens in western Europe or other post authoritarian regimes (e.g. Paceck, Pop-Eleches, and Tucker, 2009; Pop-Eleches and Tucker, forthcoming).

To be sure, in all democracies, political life oscillates between periods of intense "creedal passion" (Huntington, 1983) where public concerns predominate and periods in which citizens retreat inwards, absorbed in their own private affairs. This familiar "public-private" cycle, evocatively described by Albert Hirschman (1982) is arguably a dynamic at the center of modern life. Yet, if this cycle operates at all in the postcommunist world, it operates in a very different way: after the very short burst of 1989-1990 and high rates of voter and civic participation in 1989-1990 throughout the region, the retreat to the private realm has been persistent (e.g. Howard, 2003), with even voting turnout — itself a minimal feature of citizenship — falling far short of rates in western Europe.

What explains this syndrome of political disengagement, as represented most vividly by low rates of voter participation? A well-developed literature has emerged to try answer this question (see, e.g. Pop-Eleches and Tucker, forthcoming). Some have focused on the proximate dynamics, including economic conditions such as unemployment (e.g. Paceck et *al*, 2009). Another more historical view builds on a key and important insight, originally articulated by Ken Jowitt (1992) twenty years ago in which it was claimed that the communist experience altered societies to such a degree that a "Leninist Legacy" would leave citizens in place who above all regarded political life as fbdangerous and something to be avoidedfb (see also Howard, 2003; Tismaneanu, Howard, and Sil, 2006). From this view, low voter turnout and a distrust of political institutions go hand-in-hand, reflecting the communist historical experience that created disaffected postcommunist citizens (Pop-Eleches and Tucker, forthcoming).

This paper summarizes some preliminary research that suggests an amendment to these two views on the problem of political participation in contemporary Central Europe. In particular, in this paper we explore detailed *Kreise*-level historical data from 1895 and contemporary voting and unemployment data in the present-day territories formerly governed by the communist German Democratic Republic (GDR). We identify the importance of what may be a crucial omitted historical variable for understanding contemporary politics in the region. While we only study one national case, the implications of the argument are potentially far-reaching. We demonstrate that despite being governed by the same communist regime between 1949 and 1990 not only are there stark variations today in voter

turnout rates across local units in the territories of the former GDR, but these contemporary differences are themselves traceable to nineteenth century patterns in rural social structure. It is commonplace to argue that Nazism, the devastation of war, and the communist experience of collectivization itself shattered the old and repressive social hierarchies of Prussian *Junkerdom* (Dahrendorf, 1966; Kopstein, 2009; Wittenberg, 2011). We demonstrate in this paper that as thorough and as violent as the social discontinuities of the twentieth century in this region may have been (see, e.g. Snyder, 2011), they did not entirely dissolve the effects of landlord power. Rather, what we can think of as "non-biodegradable" shards of the pre-communist past litter the contemporary landscapes of Central Europe, and in fact are still visible in voting patterns in present-day Germany.

In this preliminary effort to trace the long-run effects of Prussian *Junkerdom*, we come to the following empirical finding: across the historical *Kreise* of the former GDR, locales that in the nineteenth century were marked by large landed estates, where a high concentration in landholding dominated the social structure (Gerschenkron, 1943; Moore, 1966), voter turnout is lower today. Furthermore, one of the most frequently identified modern-day correlates of low voter turnout, the unemployment rate, is also higher. By contrast, in regions historically distinguished by very different historical rural social structure, medium sized farms, owned and operated by independent farmers, these two modern-day variables take on different values: political voter turnout today is much higher and its contemporary correlate, unemployment, is lower.

The present-day variations across eastern Germany and the striking fact that these are traceable to nineteenth century landholding patterns lead us to both question the common claims that "communist legacies" determines political behavior today and the claim that present-day economic conditions such as unemployment "cause" lower voter turnout today. Both contemporary unemployment and voter turnout appear to share a common historical correlate, suggesting they may be both *jointly* determined by the historical structure of landholding.

But, what explains this finding? To provide a fully convincing account we must not only identify a systematic relationship between a distant historical "cause" and the contemporary outcomes of election turnout and unemployment, but we must also provide a theoretical account and evidence of the causal mechanisms that link these variables (Kitschelt, 2003). In the following we report on our initial efforts at this task but first begin by presenting the puzzle and arguments that motivate the research. Second, we provide an overview of the data and analysis that lead us to these arguments. Finally, in the conclusion, we reflect on some historical evidence and arguments that might help us reconstruct the causal mechanisms and thus to piece together how the "shards" of Europefbs past make themselves felt today.

2 The Puzzle and an Argument

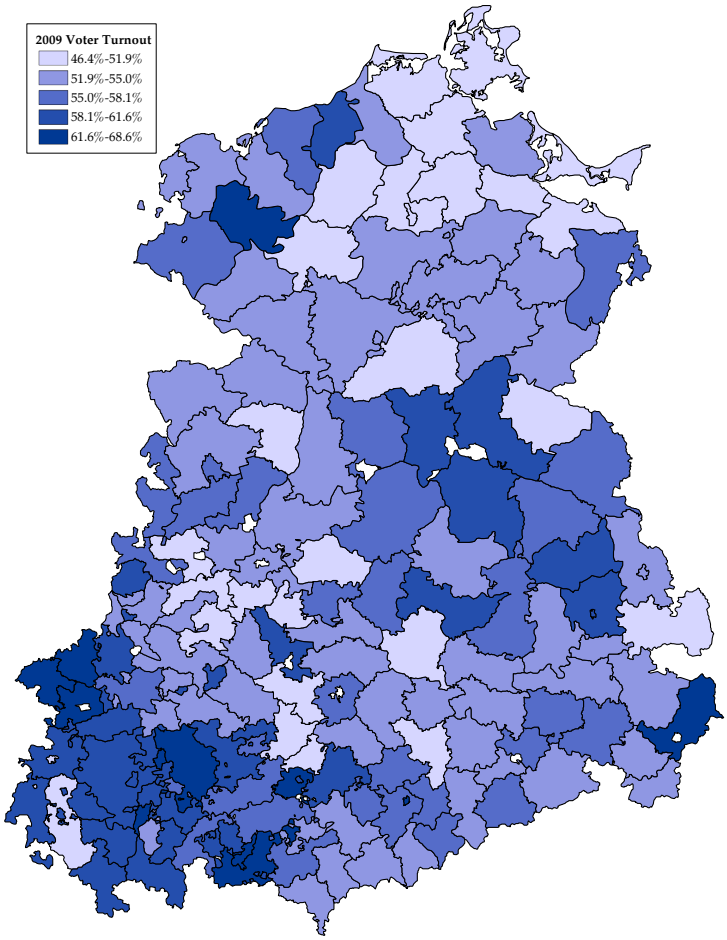
More than twenty years since the fall of the Berlin Wall, two contradictory pictures still occupy our collective imagination about the territories of the former GDR. The first is an image of an undifferentiated East German *mezzogiorno* (Boltho, Carlin, and Scaromozzino, 1997; Sinn and Westermann, 2001). From this view, like its south-Italian counterpart, the region appears doomed to permanent "backwardness," marked by persistently high unemployment, a weak civil society, low voter turnout, an increasingly elderly demographic profile as the young migrate *en masse* to western Germany, and unlike southern Italy, a relatively high incidence of right wing violence (Karapin 2002). This undifferentiated view of a homogeneous "East" is reinforced politically by the fact that the Minister Presidents of the five East German states have often insisted on formal collaboration vis-à-vis west German state governments (in the so-called "East German Minister President Conference") because of what they themselves have argued are their "common" and uniquely "eastern" problems (Ziblatt, 2002). From this perspective, as a recent *Spiegel* article of voting patterns in eastern Germany, pessimistically entitled "East Germans Losing Faith in Democracy" puts it, given all of these problems, it is no surprise that voting rates are lower in the East than the rest of Germany (Spiegel Magazine, March 2011).

A second, perhaps less common picture of eastern Germany, rejects this undifferentiated if not stereotyped view of the "eastern" problem and notes pockets of economic success and political vibrancy. Scholars have noted, for example, that, despite Howard's (2003) important findings on the weakness of civil society for East Germany as a whole, Leipzig's associational density is remarkably high in recent years (Olivo, 2011); economists have noted that during periods such as 2006, the highest rates of regional economic growth in Germany as a whole were in Saxony, where new small businesses have flourished (Financial Times, 2007). In Thuringia, voting turnout rates almost match West German levels (Becker, 2004). These "islands" of economic success and political vibrancy are often taken as a sign that there is reason to be optimistic about the east German future and that the predominant image of a lagging East are misplaced.

Taken together, these two pictures of the East suggest a puzzling diversity across the east German landscape. If examined with more fine-grained local data, the puzzle becomes more striking. In Figure 1, for example, voter turnout in 2009 ranges from 46.4% to 68.6% of eligible voters. Additionally, in Figure 2, the unemployment rate in 2008 ranges from 3.27% to 12.5%.

What explains these variations across the territory of the former East German communist state? A first answer, drawing from the traditional political science literature on the topic, extracts history from the analysis altogether and looks at the contemporary demographic characteristics of individual level voters, or demographic attributes

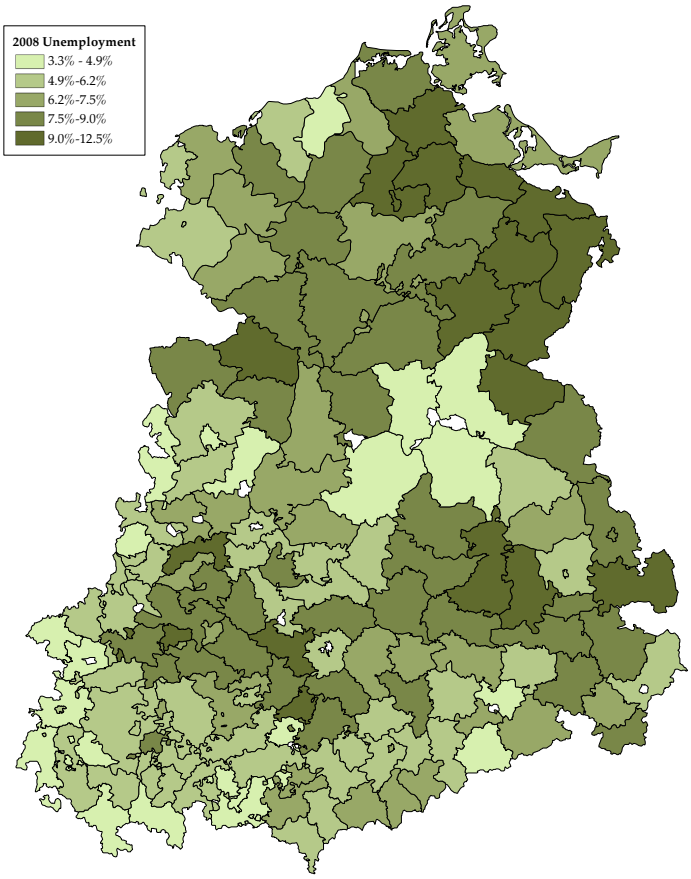
Figure 1: Distribution of 2009 Turnout Across East German *Kreise* (1895 *Kreise* boundaries)



associated the unit of analysis whether constituency or *Kreise*. We know, for example, that unemployment, age, education, and marital status all correlate with voting turnout in predictable ways (e.g. Wolfinger and Rosenstone, 1980; Rosenstone, 1982). We also know that certain political attitudes, patterns of socialization, and levels of education also co-vary with election turnout (Becker, 2004). But, to "explain" low voter turnout in eastern Germany, however is to do more than point to the most proximate individual-level correlates of voting, because it is likely that the correlates of voting may themselves be *jointly* shaped by fbdeeperfb historical contexts that were determined in the past.

This raises a fundamental question: what were the historical conditions that gave rise to the distribution and clusters of contemporary demographic characteristics that shape unemployment and voting turnout rates that we see in Figures 1 and 2? Such a question suggests that we must turn back in time to find the historical sources of political behavior. But where do we look? The first, and most common argument for students of the region, is to focus

Figure 2: Distribution of 2008 Unemployment Rate Across East German *Kreise* (1895 *Kreise* boundaries)



on "communist-era" (1945-1989) legacies to explain regime outcomes, institutional choices, and patterns of political behavior (e.g. Wittenberg, 2011). After all, citizens not only today live in countries in which political institutions emerged directly out of the communist era, but also patterns of political socialization were themselves often set in the communist period itself. Thus, in the area of political behavior, Pop-Eleches and Tucker (forthcoming) identify at least three mechanisms by which the shared communist heritage might reshape political behavior and attitudes of postcommunist citizens: indirectly via political institutions from the communist era, directly via personal experiences, or indirectly via one's demographic profile (ibid). In short, cross-nationally different types of communist rule thus might give rise to cross-nationally different types of political behavior.

For a straightforward "communist legacy" argument, however, the subnational variation presented in Figures 1 and 2 above represents a difficult puzzle. First, why, despite sharing a single communist state for fifty years, is there

such stark and consistent differentiation in political and economic outcomes today inside the former state of the GDR? Second, and even more strikingly, while on average voting turnout rates in eastern Germany were indeed roughly fifteen percent lower than in western Germany, this figure conceals a fascinating fact: there are a number of municipalities in eastern Germany that far exceed the average west German levels of voter turnout. In sum, a shared "communist heritage" may be a barrier but it is not a "trap" that prevents the possibility of higher voter turnout; other factors are certainly at work.

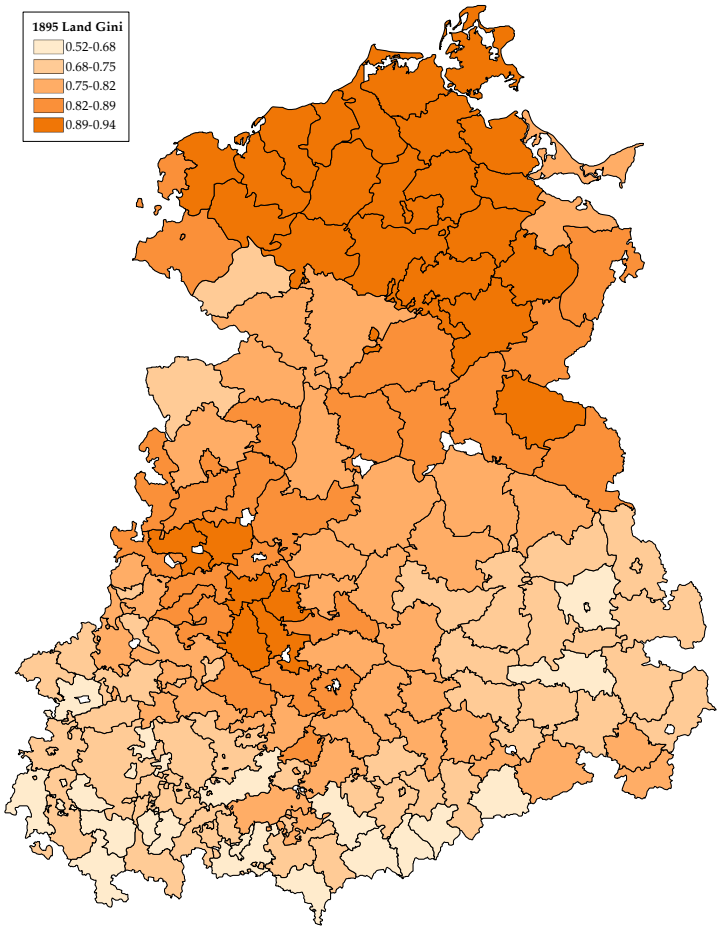
An Alternative Argument: the Precommunist Past Matters, But How?

It is this puzzle that compels us to the following observation: any argument of contemporary voter disengagement or low turnout that focuses exclusively on communist-era legacies, or even the more proximate postcommunist era dynamics, while certainly identifying important elements, is fundamentally incomplete. What we may be witnessing in eastern Germany, as well as in Central Europe as a whole, is not therefore merely a postcommunist legacy; it may also be a *precommunist* legacy. Building on the work of Janos (2002), Kitschelt (2003), Darden and Grzymala-Busse (2007), Wittenberg (2006), Kopstein (2009), and Darden (2010), we contend that the precommunist era may be decisive for understanding contemporary politics.

However, our focus is not on precommunist political institutions, imperial legacies, or levels of economic development but instead on the precommunist legacy of a *repressive rural social structure*, especially prominent in nineteenth and early twentieth century Central Europe. We contend that rural areas of Central Europe that were marked in the nineteenth century by large landed estates and high levels of land inequality, in which repressive landlords were predominant, are today marked by lower rates of voter turnout and higher levels of political disengagement, as well as higher rates of unemployment. By contrast, it is those rural areas of Central Europe that were marked by medium-sized agricultural units and lower levels land inequality that today appear as "islands" of engaged and mobilized citizenry. To assess this idea, we draw upon the German agricultural census of 1898 that reports the number of farms and the amount of acreage in each size category for every *Kreise* in Germany. We draw upon this detailed farm size and area data available in Ziblatt (2010) that calculates Gini coefficients for each *Kreise* in Germany in 1895. Figure 3 below maps Gini coefficients for each of the original 1895 *Kreise* within the boundaries of pre-1990 GDR.

This argument runs counter to much conventional wisdom. It is of course commonplace to argue that democracy arrived in a stable fashion in Europe only after 1945 in no small part because the devastation of war — and, counter-intuitively the communist experience itself — eliminated the old social rural hierarchies that had kept Europe's old regime intact into the twentieth century (Moore, 1966; Dahrendorf, 1967; Kopstein 2009). The landed elite of Prussia was itself destroyed; so too, the argument runs, must it follow that the impact of this social class on

Figure 3: Distribution of 1895 Landholding Gini Coefficient Across East German *Kreise*



European history has also vanished (Wittenberg, 2011). We believe that it is hasty, however, to assume that successful democratization, whether after 1948 or after 1989, equates to the entire disappearance of the long-run impact of this rural social structure. If the precommunist social power of rural landlords undermined both the fairness of elections in the nineteenth century (Ziblatt, 2009) and the possibility of democracy more broadly in the twentieth century (Moore, 1966), we then ask the provocative questions: could such a form of social organization have an impact today, even after those atop the social hierarchies have been eliminated and the hierarchies themselves no longer exist? Is it possible that an attribute of society that no longer exists can continue to exert an impact on politics today? And if so, how exactly?

We depart company from other scholars cited above who also focus on the impact of the precommunist period in two ways. First, we do not conceptualize the rich flow of history as discrete and neatly compartmentalized fbperi-

odsfb that can serve as alternative explanations pitted against each other. Indeed, to ask the question – "what matters more, the precommunist past, the communist past, or the postcommunist present?" – is to misunderstand how the dynamics of continuity and discontinuity ought to be studied by political scientists; we are interested in precisely how dynamics affect and interact with each other over time and across periods.

Second, we further depart from existing accounts by pointing out that there are two alternative general causal logics by which precommunist legacies such as repressive rural social structure might exert an impact on the present; both allow for the interaction of causal dynamics across the overly-stylized "periods" of history that typically structure analysts' accounts.[1] The first pathway, that we dub the *replication pathway*, is one in which a correlation (in our case, between high landholding inequality in the nineteenth century and low voter turnout today) was established in the distant past and continues to replicate itself through a functional or path-dependent logic year-by-year into the present. This causal logic is one Stinchcombe (1968) calls the logic of "constant causes" (p. 101), in which some fixed and unchanging attribute exerts a constant effect on an outcome. This perspective would expect to find that the nexus between high landholding inequality and low voter turnout is a long-standing relationship.[2]

The second pathway, that we can dub the *survival pathway* is one in which a contemporary outcome is merely the "outer-tip" of a long historical casual chain. Stinchcombe (1968) describes this model of historical causality in these terms:

> "Some set of causes *once* determined a social pattern...Then ever since, what existed in one year produced the same thing the next year...the original causes in such an explanation may be of any kind...but the reasons that traditions get maintained are sociological. Thus the problem of explanation breaks down into two causal components. The first is the particular circumstances which caused a tradition to be started. The second is the general process by which social patterns reproduce themselves." (pp. 102-103)

In this instance, high landholding inequality, at some point in time came into contact with an exogoneous shock (e.g. war) or generated an endogenous process of development (e.g. intensive collectivization) that gave rise to a long causal chain that left low voting turnout in regions where landholding inequality was once high, whether or not landholding inequality itself persisted.

Which logic — the replication pathway or the survival pathway — is at work in our case? At first glance, the latter certainly appears more plausible given that the Second World War, not to mention Soviet-inspired land reform in

[1] The following builds on Arthur Stinchcombe's (1968) useful distinction between two forms of historical causality: "survivals" and "replication". Interestingly his distinction also corresponds to two different modes of fbcontinuityfb as identified by Alexander Gerschenkron (1968) in his underappreciated collection of essays on "Continuity in History".

[2] An initial examination of the evidence casts doubt on this perspective since our data showed no consistent relationship between landholding and turnout throughout Imperial Germany (1871-1914). We plan to investigate the relationship between land structure and voter turnout during the Weimar period in the future.

1945 and collectivization in 1953 and 1960 (Naimark, 1995; Bauerkaemper, 2002), eliminated precisely the agricultural structures and socio-economic elites who sat atop these social structures. However, this remains an open question: at what point in Germany's nineteenth and twentieth century history did election turnout come to be correlated with landholding inequality in Germany's nineteenth century?

We will return to the question of causal mechanisms in a later section, but to give a general sense of the contourfbs of the argument, it is useful to begin by restating our proposition: rather than juxtaposing the "communist legacy" and the "precommunist legacy", we believe it is decisive that the two periods interact. Overlooking this interaction provides not only a misreading of history but, we believe, a misreading of Jowitt's (1992) original essay. In an frequently overlooked passage of Jowitt's often-cited essay, he argues precisely for this notion of interaction across periods:

> "In a curious, unintended, and highly consequential way, Leninist rule reinforced *many of the most salient features of traditional culture throughout Eastern Europe*...[and] Eastern Europe's pre-Leninist *peasant culture* and oligarchical authoritarian elites..., the neotraditional features of Stalinist and Brezhnevite rule, and the ethical charisma of 1989, for all their qualitative difference, combine to provide a remarkably consistent and continuous support for a world view in which political life is suspect, distasteful, and possibly dangerous..." (Jowitt, 1992, pp. 292-293)

Our argument thus builds on this view to assert that precommunist social structure itself was a key factor that unleashed, when confronted with communist rule, a new causal dynamic, that over time, produced contemporary patterns of politics. However, to provide a successful theoretical account of voting turnout today, we need to accomplish two goals: first, provide systematic evidence that landholding inequality and voting patterns are correlated in ways our theory predicts; second, we need to articulate and provide evidence of a causal mechanism linking our two main variables. Before elaborating the precise causal mechanism linking high landholding inequality in the nineteenth century and voting turnout today, we first present our evidence demonstrating that there is a systematic correlation between landholding inequality in the past and voting patterns and unemployment today.

3 Data and Empirical Analysis

We first assess whether contemporary outcomes of levels of voter turnout and its present-day correlate, level of unemployment, are themselves correlated in systematic ways with distant historical causes in ways that fit our expectations. The maps on the previous pages demonstrate the tremendous variation in contemporary voting turnout and unemployment rate. Moreover, there is also tremendous variation in 1895 landholding patterns. The observed

spatial variation in these variables lends itself to identifying the long-run effect of landholding inequality upon contemporary voting patterns and unemployment rates. Part of our motivation is simply to explain the tremendous variation in voter turnout and unemployment in present-day eastern Germany given the common historical communist legacy of a single state, the relative homogeneity of economic policies adopted by the Federal Republic today, and identical electoral institutions. We begin this section by describing how we measure our dependent variables, landholding inequality, and control variables. Then, we directly address an issue skirted by many quantitative analysts of long-run social, political, and economic processes — administrative boundary changes. Finally, we present our statistical model and the empirical results.

3.1 Data

Dependent Variables: Voter Turnout and Unemployment

Our analysis has multiple responses — that is, we treat voter turnout and unemployment as joint, non-independent outcomes. We gathered all of the voting and unemployment data at the *Gemeinde*, or municipality, level from the *Statistik Lokal 2009* and then aggregated it to our unit of analysis — the 1895 *Kreise* (see next section for details on aggregation). How do we measure voter turnout and the unemployment rate? Following a vast and diverse literature on voting, we measure electoral turnout as the number of votes cast divided by the number of eligible voters for the 2009 Bundestag election (national parliamentary elections) (Rosenstone and Hansen, 1993). The variation in East Germany is fairly striking, with *Gemeinde* whose turnout is as low as 27.2% and as high as 91.8%. Once we aggregate to our level of analysis, the range is 46.4% to 68.6% of eligible voters.

With regards to the unemployment rate, while Germany counts the number of unemployed persons at the *Gemeinde* level, it does not keep data on the size of labor force at the same level. As a result, we cannot directly calculate the technical unemployment rate at this micro-level and are instead forced to standardize the number of unemployed persons in 2008 by the overall population in that year. This proves to be less of a concern than one might think, since to check the efficacy of our variable we calculated both the official unemployment rate and our proxy for the unemployment rate at a more aggregated level of analysis, the 2009 *Kreise* level, at which the size of the labor force is available. The resulting correlation coefficient between the two measures is 0.96, and while the absolute magnitude of the rates differs, we feel comfortable that our proxy captures the relative and important variation in unemployment. Our measure of unemployment ranges from 1.45% to 52.9% at the *Gemeinde* level, and 3.27% to 12.5% at the 1895 *Kreise* level.

Explanatory Variable: Landholding Inequality

Our primary variable of analysis is landholding inequality for 1895. Following the work by Ziblatt (2009), we conceptualize of this variable as a proxy for the structure of landed elites and an indicator of the asymmetry of economic and political power. We construct the dataset at the level of 1895 *Kreise*, or districts, from the German national census carried out by the Imperial Statistical Office (*das Kaiserliche Statistische Amt*). Landholding inequality is measured using the Gini coefficient, which captures the degree of deviation from a perfectly equal distribution of farms in terms of farm area. The map in Figure 3 demonstrates the high amount of variation between *Kreise*. The average Gini coefficient score amongst the *Kreise* that were destined to become part of East Germany was 0.784. However, land inequality was as low as 0.519 in Gehren (in Thuringia), and as high as 0.949 in Greifswald (in Mecklenburg). As a robustness check, we re-run all our regressions while substituting average farm size for the landholding Gini coefficient as the main explanatory variable.[3]

Control Variables

In addition to our main explanatory variable, we control for a variety of historical socioeconomic factors that may influence both contemporary turnout and unemployment.[4] First, we control for the level of industrialization, urbanization, and economic development through several proxies. This is crucial because one might imagine that regions that were simply historically poorer or more historically rural at the turn of the 19th/20th century might also be poorer today with lower voting turnout (Pacek et al, 2009). While this is possible, our aim is to identify whether, even holding constant the degree to which a district was historically rural or poor, the historical social structure (namely concentration of landed wealth and power) independently shapes contemporary outcomes. Thus, we control for both population density, measured using the 1900 census, and the people per 1,000 of the population employed in agriculture in 1895. In some regressions, we also control for the people per 1,000 that are "without an official occupation" ("*Ohne Beruf*") in 1895, which we believe is a good proxy for the unemployment rate and thus partially reflects the level of economic development.

Because, it is often argued religious fragmentation and tensions historically shaped politics in nineteenth century European political development (Kalyvas, 1996; Gould, 1999) we also include a variable to account for the effect of religious cleavages on our outcomes by controlling for the share of Catholics in each *Kreise* in 1900. Similarly, given the possibility that regions that are closer to the border of modern-day Poland or Lithuania display greater ethnic

[3] Results are available upon request from authors.

[4] Note that to avoid post-treatment bias and capture the total effect of landholding inequality upon voter turnout and unemployment, we do not control for any contemporaneous covariates. Doing so would only give us a partial effect of landholding inequality on our dependent variables.

and linguistic heterogeneity, which may in turn affect the social and economic development of those districts, we insert a dummy variable for whether or not at least 5% of districtfbs population has a language other than German as their mother tongue. Finally, we also include a control for the overall population size. All of these variables are gathered and calculated from the 1900 census (Kaiserliche Statistische Amt, 1903).

3.2 Administrative Boundaries

One of the chief obstacles to historical quantitative work is the mutable nature of administrative boundaries, which often define the units of analysis for social scientists. Indeed, we believe that the absence of cleanly defined units of analysis across time has deterred more social scientists from exploring theoretically interesting puzzles using statistical techniques. East Germany is a prime example of such changing boundaries. Between 1895 and today, the administrative boundaries of states, districts, and municipalities within Germany have of course been redrawn a striking number of times as Imperial Germany was replaced by Weimar Germany, Nazi Germany, the East German Communist regime, and finally the Federal Republic of Germany in 1990. The result is that, unsurprisingly, the boundaries of contemporary districts — or *Kreise* — do not fit cleanly onto the boundaries of the *Kreise* in 1895.

To overcome this problem, we take advantage of more disaggregated modern data that we can aggregate to the level of 1895 *Kreise*. Specifically, we decide to take the 1895 *Kreise* as our unit of analysis. This is the level at which we have historic landholding data, which fits with our conceptualization of landholding inequality as a "treatment" variable. Consequently, our outcome variables of turnout and unemployment must be measured at the level of 1895 *Kreise*. However, since the administrative boundaries have changed, we collected data for the outcome variables at the much smaller level of *Gemeinde*, or municipalities, and then grouped municipalities into aggregated units based on where the 1895 *Kreise* boundary would have fallen today.

In order to create these comparable units across time, we manually digitized the boundaries of 1895 *Kreise* into ArcGIS shapefiles using a collection of detailed historical maps that we georeferenced to fairly immutable features of Germany, such as coastlines, large lakes, and cities (cite). We also obtained shapefiles of the modern *Gemeinde* from the Bundesamt für Kartographie und Geodäsie. We then superimposed the modern *Gemeinde* on top of the 1895 *Kreise* and performed a spatial join, wherein all *Gemeinde* that fall entirely within the boundaries of *Kreise* become associated with it. Furthermore, to allow for the fact that the historical maps from which we drew our *Kreise* boundaries are not as accurate as modern maps, we allowed for some error in the 1895 boundaries by creating shapefiles buffered in various increments and then performed our spatial join procedure. For example, a spatial join between modern *Gemeinde* and 1 kilometer-buffered 1895 *Kreise* boundaries would associate any *Gemeinde* that fell

within 1 km of a given traced 1895 *Kreise* boundary to that *Kreise*.[5] A graph showing the cumulative percentage of *Gemeinde* that were matched to 1895 *Kreise* as a function of buffer distance is found in Figure 6 in the Appendix. Ultimately, we decide to conduct our main analysis with units created from *Gemeinde* matched using a 1 kilometer buffer. Visual examination of boundaries confirms that granting a 1 kilometer margin of error to the historical boundaries sufficiently accounts for the imprecision of mapping technology in 1895, but does not go so far as to match *Gemeinde* to 1895 *Kreise* that are clearly not in the same area. As a result, using a 1 kilometer buffer, we matched 87.5% of *Gemeinde* to 1895 *Kreise* boundaries.

3.3 Statistical Model

As previously mentioned, we treat voter turnout and unemployment rate as joint outcomes. Moreover, these outcomes are empirically correlated with a coefficient of -0.59. As a result, we use seemingly unrelated regression to estimate the multiple equations. It is noteworthy that this approach departs from much of the voting literature that has explored the contemporaneous relationship between voter turnout and unemployment (e.g. Rosenstone, 1982; Paceck, Pop-Eleches, and Tucker, 2009). We, in contrast to the literature, argue that both are determined by more distal factors, specifically landholding inequality over a century ago.

Seemingly unrelated regression (SUR) is a generalization of the typical linear regression that is suited for solving a system of equations, with one equation for each of the dependent variables. The advantage of using SUR is that it allows for correlation in residuals across the multiple equations for the same observational unit. That is, there might be a correlation in residuals for the two regressions for *Kreise* Erfurt, for example, even once conditioning on our explanatory variables. The SUR model allows for the estimation of this contemporaneous correlation (Alimadhi, Lu, and Villalon, 2007).[6]

More technically, the stochastic component of the model is:

$$(\text{Voter Turnout}_i, \text{Unemployment}_i) = (Y_{1,i}, Y_{2,i})\ N(y_{1,i}, y_{2,i} | \mu_{1,i}, \mu_{2,i}, \sigma^2_{1,i}, \sigma^2_{2,i}, \sigma_{12,i}),$$

where $\mu_{1,i}$ and $\mu_{2,i}$ are the means of the two dependent variables for unit i, $\sigma^2_{1,i}$ and $\sigma^2_{2,i}$ are their respective variances, and $\sigma_{12,i}$ represents the covariance between residuals across equations for the same observational unit. Unlike in ordinary least squares regression, $\sigma_{12,i}$ is not restricted to zero by assumption. The systematic component of the

[5] Note that this is a fbgreedyfb matching procedure in the sense that a gemeinde can only be matched to a single kreise. If a gemeinde doesnfbt neatly fit into 1 kreise, it becomes matched to first kreise whose buffered boundaries entirely envelop it. The spatial join was performed iteratively over increasing buffer distances in order to implement this procedure.

[6] Note that in the case where the explanatory variables are fully identical across equations, the SUR model reduces to a set of OLS regressions. That is, there is no efficiency gain from using SUR. While our preliminary analysis uses identical explanatory variables for both turnout and unemployment, we believe that there is an advantage to running SUR due to the fact that we can still obtain a valuable estimate for $\sigma_{12,i}$.

model is:

$$\mu_{1,i} = \mathrm{E}(\text{Voter Turnout}_i) = X_{1,i}\beta_1$$
$$\mu_{2,i} = \mathrm{E}(\text{Unemployment}_i) = X_{2,i}\beta_2,$$

where $X_{1,i}$ and $X_{2,i}$ represent the explanatory variables for observation i for the 1st and 2nd equations, respectively, and β_1 and β_2 are the corresponding coefficients (assumed homogenous across units).

3.4 Results

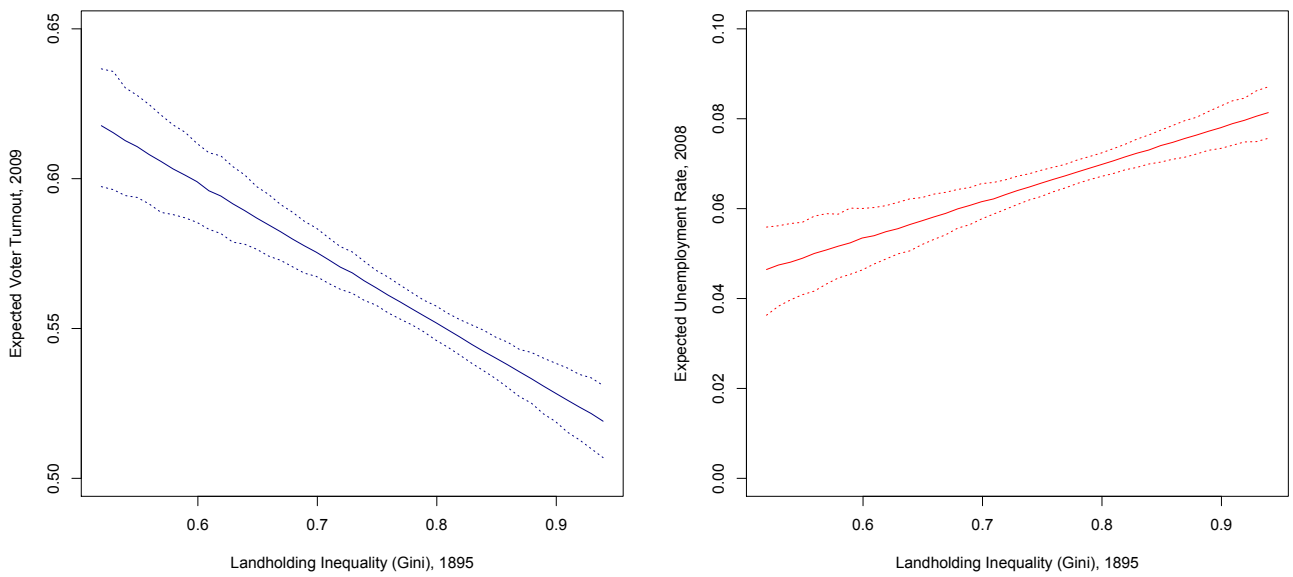
The full results of the SUR model are presented in Table 1 in the Appendix. In Model 1 of Table 1, we include the Gini coefficient as our measure of landholding inequality as well as the following control variables for both regressions: people employed in agriculture, population, population density, the percentage of Catholics, and a foreign language dummy. Notably, in line with our predictions, landholding inequality enters into the regression significantly. The results indicate that higher landholding inequality in 1895 is associated with lower turnout in 2009 and higher unemployment in 2008. Moreover, this finding is robust to the use of average farm size instead of the Gini coefficient for landholding as our chief explanatory variable. Furthermore, some of the control variables are significant at the 5% level in this model. For example, the percentage of Catholics is a significant predictor of both turnout and, albeit a bit less so, unemployment.

Some have argued that historically rural districts within Germany have lower voter turnout and higher unemployment today. We address this directly by controlling for the percentage employed in agriculture in this model, thus accounting for the degree to which a *Kreise* is rural. First, we find that the historic degree of rurality is not a significant predictor of modern turnout or unemployment. Furthermore, our findings suggest that equally rural districts with different patterns of landholding can have rather different modern political and economic outcomes.

In Model 2 of Table 1, we add the number of unemployed per 1,000 of the overall population as an additional control. Note that the inferences we can draw from this model do not substantively change from Model 1. Again, higher landholding inequality is strongly associated with lower voter turnout and higher unemployment. To illustrate the substantive relationship between these variables in more depth, we calculate the predicted values of both voter turnout and the unemployment rate for different values of landholding inequality in Figure 4. We hold all control variables from Model 2 at their means. One can see that an increase in landholding inequality from a Gini of 0.60 to a Gini of 0.80 is roughly associated with a decrease of 5 percentage points in voter turnout and an increase of 2 percentage points in the unemployment rate. Moreover, an increase from the minimum (Gini of 0.52) to the

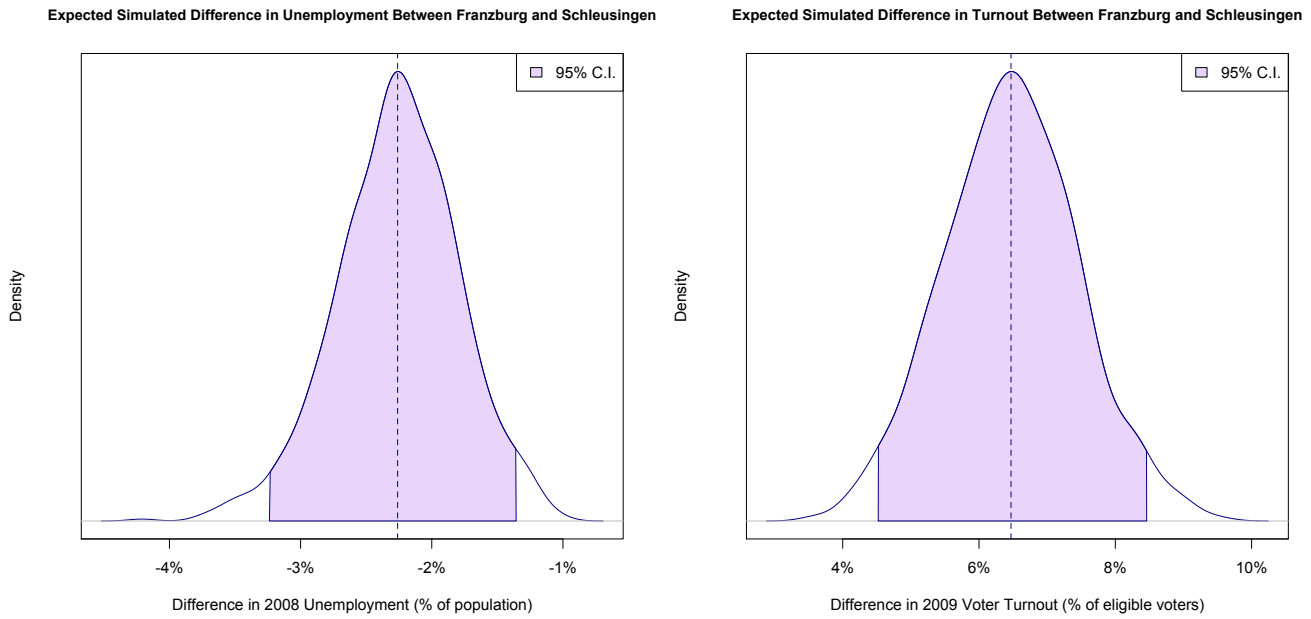
maximum (Gini of 0.95) of landholding inequality is associated with a decrease of 9.86 percentage points in turnout and an increase of roughly 3 percentage points in unemployment. In sum, the figures illustrate that the effect of landholding inequality we find is both substantively and statistically significant.

Figure 4: Predicted turnout and unemployent levels for different values of the land Gini, simulated from Model 2 of Table 1. All control variables are held at their means.



To provide a more tangible illustration of our results, we hold all control variables constant at their means and simulate the difference in predicted voter turnout and unemployment rate as a result of the difference in Gini coefficients between two exemplary districts: Franzburg and Schleusingen. Franzburg, located in Mecklenburg, was historically marked by high landholding inequality, summarized by a Gini score of 0.94 for 1895. Meanwhile, Schleusingen, located in Thuringia, had a Gini score of 0.67 and was marked by low inequality. The results of the simulation, presented in Figure 5, plot the probability densities of the difference in predicted values for turnout and unemployment between Franzburg and Schleusingen. The graphs indicate that Schleusingen should have voter turnout on average 6.47% higher than Franzburg and an unemployment rate that is on average 2.26% lower than Franzburg. The corresponding 95% confidence interval for the difference in predicted turnout is [4.52%, 8.46%] and the interval for the difference in the predicted unemployment rate is [-1.36%, -3.24%]. For comparison, the actual difference in voter turnout between Franzburg and Shleusingen was 9.59% in 2009 and the difference in the unemployment rate was 2.88% in 2008.

Figure 5: Simulated difference in turnout and unemployment levels between a district with a Gini value equal to Franzburg's and a district with a Gini value equal to Schleusingen's. Based on Model 2 from Table 1. All control variables are held at their means.



4 Conclusion: Reflecting (and Speculating) on Causal Mechanisms

In this paper we have proposed a different lens through which to understand why the societies of Central Europe that were governed by communism for fifty years appear to possess what scholars have called "demobilized" or "disaffected citizens" who are less likely to vote in national parliamentary elections than their western European counterparts. We have argued that current findings that highlight either contemporaneous causes such as unemployment or proximate historical causes such as the "communist legacy" either are incomplete, or may even be spurious.

In particular, we have demonstrated that local variations in contemporary unemployment (as a proxy for economic vibrancy more generally) and voter turnout (as a proxy for political mobilization) are themselves both traceable to a distant historical cause: the nature of rural social structure in the late nineteenth century. Put differently, present-day correlations that attract the attention of many scholars — such as the correlation between low unemployment and low voter turnout — likely tell only part of the story, or if causally related at all, may be jointly determined by history. Indeed, our findings demonstrate that even controlling for a range of historical factors, including how rural and poor a district was in the nineteenth century, we can predict, on average, where turnout would be higher and unemployment lower today in eastern Germany, given the nature of rural social structure in the nineteenth century.

Yet, why would those regions historically dominated by *Junkers* and repressive large-scale agriculture be the locations of poor economic performance and disengaged citizens today? After all, in his work on post-War East German history, Norman Naimark (1995) vividly recounts the War's devastating impact on the *Junker*-class. Naimark writes,

> "Junkers and their families were on the run; their estates were burned to the ground...of 8,827 members of the German nobility listed in one study, 4,948 were killed in the fighting, most on the eastern front, while another 1,500 or so died in air raid attacks, in detention camps, or while in flight" (Niamark, 1995, p. 142).

Moreover, upon coming to power in 1945, the group of Moscow-based German communists who took power, Walter Ulbricht, Wilhelm Pieck, and Anton Ackermann, made a conflated group of *Junkers* and large landowners (*Gross-grundbesitzer*) into a primary political target and expropriated the remaining large estate-owners' land, following Wilhelm Pieck's famous slogan "*Junkerland in Bauerhand!*" (Bauerkämper, 1996).

In view of such stark social discontinuity, the notion that a distant historical cause, that was itself eliminated from political reality over the course of the twentieth century, still has a lingering effect on political life calls for some caution and modesty. In particular, in order to build a truly successful theoretical account about how continuity persists through periods of upheaval, it is clear we need to couple our regression analysis with an account of the causal mechanisms or pathways that connect distant causes and contemporary outcomes.

Rather than offering a definitive answer to these questions, we conclude our first effort at analyzing the problem by outlining future directions for our work and outlining our current speculations on alternative causal mechanisms and pathways. First, as noted earlier, of the two plausible ways in which history can matter — as replication or survival (Stinchcombe, 1968) — it is clear the latter seems most applicable to our case. Not only have the repressive social structure of nineteenth century Europe been largely dismantled due to war, land reform, and collectivization, but, as we noted earlier, the relationship between turnout and landholding inequality itself was not consistently negative in the fifty years before 1914; in fact, turnout tended to be higher in areas with larger landholding inequality.[7] How this relationship emerged therefore is a crucial part of the causal story, requiring careful historical analysis and process-tracing.

At present, however, based on some initial analysis, we can propose two alternative causal pathways. In future work we will investigate these further. The first, a logic of *long-run human capital accumulation*, builds on the work of economists (Engerman and Sokoloff, 2000; 2002) who study the effects of economic inequality on social and

[7] Scholars have noted the tendency for turnout to be higher in traditional rural settings because of the use of coercion and the dynamics of "deference" in such contexts. On this dynamic in 19th century Germany, see Ziblatt (2009).

political development. In this influential body of work, based on comparisons of North and Latin America, the authors note a particular causal chain over time: an initial distribution of economic resources, in particular of land, gives rise to a lower provision of public goods because policy and institutions are more exclusive in these settings, and as a result, the outcome is lower human capital accumulation, lower levels of literacy and education, and lower economic performance over the long-run. As Engerman and Sokoloff argue,

> "The persistence of the relative degrees of inequality across the New World economies to the present day lends support to our view that countries with extreme inequality tended to adopt institutions that served to advantage members of the elite and hamper social mobility" (2002, p 84).

Given that individual level-analyses of voting behavior (e.g. Wolfinger and Rosenstone, 1980; Rosenstone, 1982) have long noted that education and literacy negatively affect turnout, one might imagine that places with historical patterns of inequality might over the long run, because of human capital deficiencies, begin to experience both lower voter turnout and higher unemployment. How does this argument work in the setting of communist East Germany where efforts were made explicitly to transform societies in ways that might combat legacies of exclusion?[8] To answer this question and to explore this hypothesized mechanism in the context of the East German experience requires that we turn to micro-level literacy and education data that are available in historical census materials and that would reveal whether, despite communist efforts to close the gap between historically "developed" regions and less historically developed regions, inequalities in human capital persisted, possibly explaining political and economic outcomes today.

A second alternative mechanism to the human capital accumulation pathway centers on the *long-run accumulation of social capital*. Here, the argument might build on recent work that identifies social capitalfbs impact on economic growth (Putnam, 1993) as well as work that argues that a vibrant associational life is necessary to achieve higher rates of voter turnout (Rosenstone and Hansen, 1993). Broadly speaking this second argument focuses on the following causal chain: economic inequality gives rise to lower social capital and less associational activity over the long run, which in turn makes citizens less accessible as targets of mobilization and less likely to vote. As Rosenstone and Hansen (1993) themselves put the argument,

> "Membership in social networks makes people available to politicians, organizations, and activists...Membership in organizations causes people to be targeted by political leaders for mobilization" (p. 27; 83)

[8] We should note that scholars have argued that despite the "modernizing" impulse of collectivization and land reform, the policies of communist regimes often reinforced traditional social structures throughout eastern Europe (Bauerkämper, 2002; Jowitt, 1992). Thus, the idea that social problems associated with traditional peasant society might have persisted into the modern age is not as far-fetched as it might at first sound.

How precisely would this second "social capital" argument work in the context of Germany between 1895 and 2009? We can summarize the argument in five "bullet-points," with some reference to the historical material that we have begun to collect that supports the hypothesis.

1. Patterns of rural social structure in the nineteenth century were the "starting conditions" of subsequent developments and two patterns predominated: one set of regions, often found in eastern Germany's north (e.g. Mecklenburg and Brandeburg) where coercive landed elites and a *Junker*-class had been historically dominant, and a second in eastern Germany's south (e.g. Saxony and Thuringia) where mid-size independent farmers were dominant (e.g. Bauerkmper, 2002; Last, 2009).

2. However, we do not try to read contemporary outcomes off of these distant "antecedent conditions" because land reform (Last, 2009; Bauerkämper, 2002) carried out in 1945, collectivization in 1953 and 1960, and the communist-led transformation of agriculture (in addition to war) remade the countryside. As Jowitt, argues, "collectivization may be the most distinctive feature of Leninist regime strategies and its significance rests as much in its social as in its economic impact" (1992).

3. But this is the key point: collectivization was carried out differently depending on the precommunist structure of agriculture with varying consequences. As the most recent historiography on East German land reform of 1945 makes clear, land reform was more extensive in regions of Germany with higher land inequality (including Mecklenburg and Brandenburg) because, according to official policy in 1945, only estates with more than 100 hectares were expropriated (predominately found in Germanyfbs north), while smaller and medium-sized farms (in locations such as Thuringia) remained in private hands (Last, 2009 and Bauerkämper, 2002).

4. The result was two different historical pathways of land reform in eastern Germany:

   - **Pathway 1:** High landholding inequality → greater inflow of east Prussian settlers → more coercive collectivization → greater social disruption and breakdown of social organization.
   - **Pathway 2:** Low landholding inequality → fewer east Prussian settlers → less coercive collectivization → agricultural structures and ownership patterns remain intact → less social disruption.

5. How does this "prehistory" link to voter turnout after 1989? First, beginning already in 1945, east-European "German" settlers settled in disproportionate numbers in areas with high land inequality (in northern Germany) because of accessibility of land and because of conscious policy of the East German regime to redistribute land to the new settlers (see data in Hoffmann et al, 2000; Schwartz, 2004). Second, these former

"*Junker*-lands" turned into territories of great social turmoil and social conflict among the new settlers and old residents. We hypothesize that associational life was lower in these districts and is so today.[9] Voter turnout, as Rosenstone and Hansen (1993) teach us, is less a question of "choice" and more a question of mobilization: if groups are available to mobilize voters, voter turnout will be high; without well-developed associations, voter turnout is simply lower.

In sum, we find ourselves with some tantalizing findings: historical rural structures from the precommunist period appear to continue to effect political and economic life today in eastern Germany today. Though *Junker* power was shattered over the course of the twentieth century, its impact continues to be felt. Untangling the rich and complex causal pathways that link the past to the present is the task now before us.

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[9] For a discussion of rural restructuring in the Communist period and its impact on social capital and social networks, see Laschewski (2009).

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6 Appendix

Figure 6: Matching efficacy of modern *Gemeinde* to 1895 *Kreise* as a function of buffer distances. See text for discussion of matching procedure.

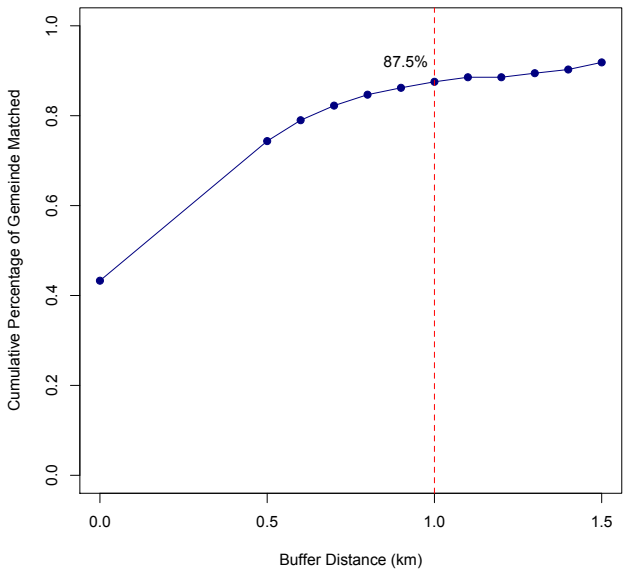

Table 1: Seemingly unrelated regression for voter turnout (2009) and unemployment rate (2008).

	Model 1		Model 2	
	Turnout	Unemployment	Turnout	Unemployment
(Intercept)	0.725	0.00127	0.725	0.00125
	(0.0252)***	(0.0121)	(0.0251)***	(0.0122)
1895 Land Gini	-0.218	0.0890	-0.234	0.0828
	(0.0335)***	(0.0161)***	(0.0357)***	(0.0173)***
% Catholic	0.0900	-0.0217	0.0923	-0.0220
	(0.0241)***	(0.0116)	(0.0241)***	(0.0117)
1900 Pop.[1]	0.0647	-0.0162	-0.0727	-0.0152
	(0.0799)	(0.0385)	(0.0800)	(0.0387)
1900 Pop. Density[1]	9.59	0.997	9.94	9.57
	(3.55)**	(1.71)	(3.55)**	1.72
Agriculture per 1000 People[1] (1895)	1.91	14.9	3.50	14.7
	(24.7)	(19.1)	(24.7)	(12.0)
Foreign Language Dummy	-0.0291	0.0214	-0.0295	0.0215
	(0.0177)	(0.00854)*	(0.0177)	(0.00857)*
1895 Unemployment			0.000202	-.0000236
			(0.000160)	(.0000773)
R^2	0.357	0.252	0.364	0.252

Standard errors are in parentheses; *** $p \leq .001$, ** $p \leq 0.01$, * $p \leq 0.05$
1) Coefficients multiplied by $1x10^6$ to improve readability.