Revealed in Transition:
The Political Effect of Planning's Legacy *

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Abstract

For countries transitioning from communism, much as for those affected by China's WTO accession, post-market-shock outcomes reflect pre-market-shock industrial geography. Tracking presidential voting in Russia at the district level in the 1990s, we document asymmetric reactions to the rapid liberalization of markets in 1992. Electoral support for the pro-market incumbent, as well as night-time light intensity, declined more in districts whose inherited structures of production made them more vulnerable to reforms. By controlling for provincial fixed effects, we plausibly filter out the impact of post-1992 policy variation, allowing us to shed new light on an old debate about the importance of "initial conditions" to the trajectories of post-communist societies.

Keywords: industrial structure, transition economy, voting, Russia

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1 Introduction

A once lively, recently dormant, but never fully settled debate about the post-communist transition touched on the relative importance of so-called "initial conditions" to countries' post-liberalization trajectories. Did China avoid the "transformational recession" that afflicted most of the post-communist world more because the post-Mao leadership made effective policy choices or more because pre-reform structural features conferred unique advantages? Did several countries in Central Europe forge ahead of many post-Soviet nations more because they adhered to the "Washington Consensus" or more because they benefited from favorable geography, a briefer history under central planning, and/or more favorable structural conditions? Were the fates of post-communist societies, in short, tied more to the mix of reforms they pursued or more to their inheritances – i.e., their so called "initial conditions?"

A particular challenge to answering such questions arises from the seemingly inextricable linkage between the two. At the national level, policy choices were almost certainly endogenous to "initial conditions" (Campos and Coricelli, 2002). As a consequence, isolating the independent effect of one or the other is, at the least, a tall order. Here, we take a modest step toward addressing the independent effect of (a subset of) initial conditions by identifying a setting in which policy was plausibly invariant across space. The Russian Federation's relatively small sub-national districts operated within policy environments shaped by officials in both Moscow and their provincial capitals. Comparing them to their within-province neighbors allows us to isolate the independent effect of initial conditions on their post-liberalization trajectories. Specifically, we connect communist-era structures of production to trends in presidential voting patterns as Russia transitioned toward a market economy in the 1990s. We find that districts with unfavorable structural inheritances abandoned the reform-oriented incumbent at a much higher rate. The independent effect of initial conditions was substantial.

In the summer of 1991, Russians went to the polls to elect a president for the first time in their nation's thousand-year history. By year's end, the winner, Boris Yeltsin, had led Russia through the dissolution of the Soviet Union to independent nationhood. In January 1992, with the stroke of a pen, he dis-empowered the planning bureaucracy that had managed the economy for over a half century. Overnight, the ruble became convertible and prices on nearly all consumer and producer goods were liberalized. Markets, both domestic and international, became the primary mechanisms for determining what would be produced and how. As enterprises scrambled to adapt, a stunning collapse ensued. Real per capita GDP and life expectancy plunged (Leon et al., 1997; Shkolnikov et al., 1998; Brainerd and Cutler, 2005; Scheiring et al., 2023), and in the nascent labor market, both the unemployment rate and the incidence of wage non-payments spiked upwards (Desai and Idson, 2001; Earle and Sabirianova, 2002). In 1996, Russians returned to the polls. In a dramatic two-round election, Yeltsin defied the early predictions and defeated a diverse field of candidates to secure a second term in office.

Although much of the initial commentary emphasized the stability of the disproportionately urban and well-educated Yeltsin electorate across the two elections (McFaul, 1996,

1997; Berezkin et al., 1999), Gehlbach (2000) observed in a short research note that at the provincial level, the Yeltsin votes in 1991 and 1996 were poorly correlated. Why this might be so, to the best of our knowledge, has heretofore gone unexplored. Here, we hypothesize that the market-oriented reforms of 1992 had differential effects across space. By virtue of their inherited structures of production, geographical units varied with respect to their preparedness for the transition away from planning. They differed, that is, with respect to their degree of *market vulnerability*.

Market vulnerability differed across space, in good part, because market vulnerability differed across sectors.[1] Some geographical units were fortunate in their sectoral inheritance, but others were not. A few had a high concentration of production in sectors well-situated to exploit price liberalization, but many did not. A large and diverse literature highlights the particular vulnerability of post-Soviet manufacturers (Hughes and Hare, 1992; Senik-Leygonie and Hughes, 1992; Ericson, 1999; Gaddy and Ickes, 1999, 2002). In both relative and absolute terms, the manufacturing sector was regarded as bloated, technologically backward, and generally ill-prepared for market competition, with large swaths described as "negative value added," "value subtracting," or "value destroying." Gaddy and Ickes' (1999) stylized model of the Russian economy takes this point to the extreme by characterizing the manufacturing sector as wholly value-subtracting and only capable of surviving the transition to competitive markets if kept afloat through subsidies channeled from a value-adding natural resource industry. In light of these descriptions, our primary measure of a geographical unit's market vulnerability is its per capita employment in manufacturing.

Our identification strategy combines the plausibly exogenous shock of the nation-wide liberalization program with intra-country differences in inherited structures of production. We expect the drop in electoral support for Yeltsin to be greatest in those areas for which the Soviet legacy made them most vulnerable to the liberalization of internal and external markets. The inherited heterogeneity in market vulnerability permits a treatment and control strategy.

To isolate the independent effect of inherited structures of production, we focus our analysis at the district level. Unlike provinces, which operated with a not insignificant amount of policy-making autonomy in the 1990s, sub-provincial districts were effectively "policy takers." (De Melo and Ofer, 1999; Stoner-Weiss, 1999; Berkowitz and DeJong, 2003; Ahrend, 2005; Gelman, 2010). Controlling for province, that is, districts confronted a uniform policy environment.

Figure 1 illustrates our primary finding. The horizontal axis depicts a district economy's dependence on manufacturing as measured by manufacturing employment per capita. The vertical axis measures the residual from a regression of the change in a district's voting support for Yeltsin between 1991 and 1996 on provincial fixed effects. There is a clear neg-

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[1]Market vulnerability also differed across space because geographical units differed in their proximity to potential customers and suppliers. Industrial location decisions under central planning were often made for strategic (i.e., non-commercial) reasons and were always made in the absence of a price-based understanding of opportunity costs. These factors led to high levels of investment in regions, like Siberia, that were distant from domestic and global markets (Hill and Gaddy, 2003; Markevich and Mikhailova, 2013). All else equal, remote location could be a disadvantage to firms and regions when markets were liberalized.

ative relationship between the two. In other words, on average, within a province, Yeltsin's performance between the two elections suffered relatively more in manufacturing intensive districts. Figure 1, of course, might also reflect a correlation between Soviet-era manufacturing intensity and other variables plausibly related to market vulnerability. Our baseline regressions, for this reason, control for geographic and demographic variables plausibly related to post-liberalization trajectories.
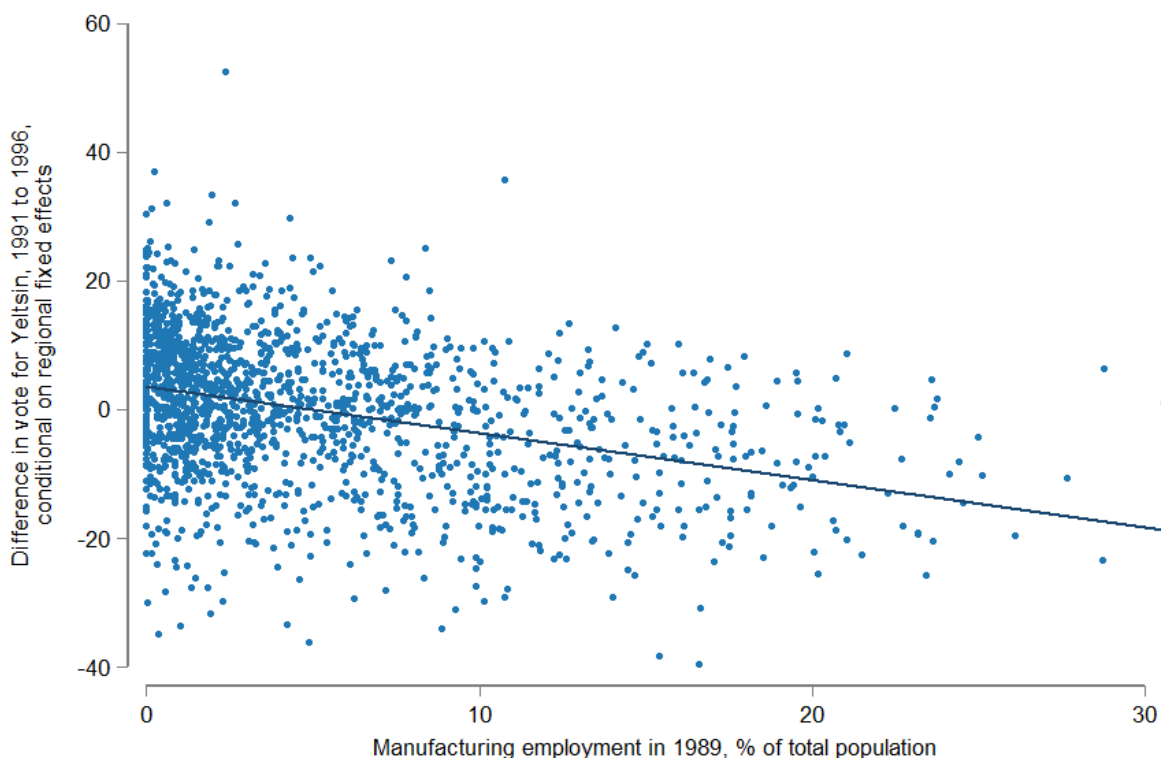

Figure 1: Manufacturing employment in 1989 and residual of change in vote share for Yeltsin from 1991 to 1996

Notes: The scatter plot is a correlation (conditional on regional fixed effects) between employment in manufacturing in 1989 and difference in vote shares for Boris Yeltsin between 1996 (the first round) and 1991 presidential elections on the sample of 1664 districts (*rayon*) of the Russian Federation.

We strengthen our case for a connection between districts' structural inheritance and their voting behavior by integrating two additional variables capturing variation within the manufacturing sector. In a frequently cited paper, Blanchard and Kremer (1997) tie the post-liberalization fate of economic sectors to the degree to which their enterprises were embedded in "complex" supply chains. Once plan-based coordination had been eliminated, acute market frictions – e.g., information asymmetries and costly contract enforcement – would, they theorized, be particularly problematic for firms dependent on a broader array of upstream linkages. Using a Soviet input-output table documenting the product flows across manufacturing sub-sectors, we create district-level measures of economic *complexity*. We show that districts with more complex profiles experienced, on average, bigger declines in

support for Yeltsin. We calculate one additional measure of market vulnerability by drawing on foreign trade data to show that districts specializing in manufacturing sub-sectors in which the Soviet Union had a (revealed) comparative disadvantage experienced bigger drops in support for Yeltsin.

Districts' post-liberalization economic performance, we suspect, mediates the relationship between their inherited structures of production and electoral outcomes.[2] To confirm this, we show that the industrial inheritance explains the change in a district's night-light intensity, which is often used as a proxy for economic growth (Chen and Nordhaus, 2011; Henderson et al., 2012). More market vulnerable regions, that is, experience greater declines in night-light intensity in the half decade following market liberalization.

Our findings here speak to at least two distinct literatures. One, by linking geographic asymmetries in Russia's economic inheritance to its post-communist trajectory, we connect to recent research on the region-specific effects of trade liberalization in large, economically diverse countries. One strand of this literature, which includes the celebrated work on the "China shock," highlights the effects of trade expansion on local labor markets (Topalova, 2010; Kovak, 2013; Autor et al., 2013; Hakobyan and McLaren, 2016; Dix-Carneiro and Kovak, 2017). Another strand highlights how regional variation in economic structure interacts with trade liberalization to realign voting (Autor et al., 2020; Choi et al., 2021; Dippel et al., 2022).

Two, we shed new light on an old debate about the post-communist transition. Though all countries in Eastern Europe and the former Soviet Union experienced a post-liberalization fall in output, the breadth and length of the "transformational recession" varied tremendously. A large literature grew up around identifying the reasons for this variety in post-communist growth experiences, with some authors emphasizing the scope and pace of policy reform and others giving more weight to pre-liberalization factors – i.e., so-called "initial conditions" (Fischer et al., 1996; Krueger and Ciolko, 1998; Berg et al., 1999; Heybey and Murrell, 1999; Popov, 2000; De Melo et al., 2001; Havrylyshyn, 2001; Campos and Coricelli, 2002; Falcetti et al., 2002). Distinguishing between the two convincingly requires overcoming several challenges, not least of which is the effective measurement of key variables. An equally, if not more, difficult challenge involves the endogeneity of policies to initial conditions. Here, in a manner new to the literature, we address that challenge by focusing on sub-national units that are situated hierarchically below the level at which policy is made. Homing in on Russian districts (*rayons*), we draw comparisons to their within-province neighbors which operate in a similar policy setting. This allows us to isolate the effects of an important legacy of planning. A district's inherited structure of production, we show, has a substantial effect on its post-liberalization trajectory.

Our paper proceeds as follows. Section 2 expands on the literature germane to our study. Section 3 reviews relevant background, including the Soviet Union's development strategy and its economic legacy for Russian politics in the 1990s. Section 4 presents the data, including our primary source evidence as well as several important constructed variables.

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[2]A large literature has established a connection between post-communist economic outcomes and voting behavior (Colton, 1996; Fidrmuc, 2000; Tucker, 2002; Richter, 2006).

Section 5 briefly summarizes our empirical methodology. Section 6 presents our key results, demonstrating that districts more vulnerable to market liberalization experienced bigger declines in support for the incumbent who became associated with its introduction. Section 7 turns the focus to a plausible mechanism for our primary result; districts with more unfavorable inheritances, we show, experienced larger declines in night-time light intensity, a frequently used proxy for economic activity. Section 8 presents brief concluding points.

2 Related literature

2.1 Post-communist political economy

2.1.1 Initial conditions, policies, and diverging trajectories

The first post-communist decade produced a large empirical literature exploring with country-level data the relative contributions of initial conditions and transition-era policies to diverging growth patterns (Havrylyshyn, 2001; Campos and Coricelli, 2002).[3,4] Conclusions were mixed. Some emphasized the importance of policies (Fischer et al., 1996; Berg et al., 1999), while others gave greater weight to initial conditions (Krueger and Ciolko, 1998; Heybey and Murrell, 1999; Popov, 2000). Yet others contended that the importance of initial conditions diminished over time (Falcetti et al., 2002). To distinguish between the two, researchers confronted several challenges, perhaps the primary one of which centered on policy's endogeneity to initial conditions. In a comprehensive review of the literature Campos and Coricelli (2002) write:

> The liberalization policies implemented in the 1990s were likely affected by initial conditions. Countries with less-favorable conditions were more constrained in the reform process and thus followed a less-radical reform path. At the same time, less-favorable initial conditions might have adversely affected output performance. As a result, one would observe a positive correlation between reforms and output performance even though the ultimate cause of both reforms and output performance was the set of initial conditions.

Though Campos and Coricelli envisioned that the "debate on the relative importance of economic policies and initial conditions is likely to continue for some time," it arguably did not, in part, we surmise, because researchers struggled to respond to this fundamental challenge of policy's endogeneity.

Our response to this challenge is to isolate the effect of initial conditions by drawing comparisons across political-geographic units for which policy is constant. That is, we compare across relatively small regions within a single country. As Stoner-Weiss (1999), Berkowitz and DeJong (2003), and Ahrend (2005) all make clear, provincial capitals were also loci of economic policy making in Russia in the 1990s. We thus make sub-provincial districts,

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[3]Policies, here, are understood broadly as referring to stabilization as well as economic and political liberalization.

[4]Most of the comparisons are across countries. A smaller literature addresses variation in growth across regions within a single country. See, for example, the Russia-focused studies of Berkowitz and DeJong (2003) and Ahrend (2005).

which prior research suggests were "policy takers" (De Melo and Ofer, 1999; Wollmann, 2004; Gelman, 2010), the units of analysis in our specifications below.

At the sector as opposed to the macro level, the most sophisticated analysis of the post-liberalization output collapse emphasizes variation in the complexity of inherited input-output linkages (Blanchard and Kremer, 1997). As market liberalization replaces centralized coordination of enterprise relationships with decentralized bargaining, sectors that inherit a more complex web of supplier relations will face higher transaction costs and thus experience greater collapses in output. As a general rule, Blanchard and Kremer (1997) surmised, sectors further up the supply chain (e.g., natural resources) are at less of a disadvantage than those whose production involves more processing and combining of material inputs (e.g., machinery and equipment).

2.1.2   Public opinion and the exit from communism

In the early and mid-1990s, there was a great deal of speculation as to how post-communist voters would respond to the inevitable short- to medium-run dislocations that market liberalization would entail. Two general theories emerged. One, championed by the economist Leszek Balcerowicz (1994), architect of Poland's economic transformation, characterized the early reform years as a time of "extra-ordinary politics," a period in which widespread enthusiasm for the exit from communism would translate into tolerance for officials whose liberalizing reforms might bring temporary economic pain. Voters, in other words, would be forward-looking and not punish incumbents whose reforms' benefits had yet to arrive. Post-communist voting patterns could thus be expected to be only weakly connected to pre-election economic indicators. The alternative view emphasized voters as retrospective, prone to reassess support for incumbents and their reforms in light of lived experience (Przeworski, 1991). They would vote their pocketbooks and punish incumbents whose policies were understood to have produced economic pain.

Tucker (2002) reviews the relevant research on the first decade of post-communist elections. In general, the "macro-level" empirical work supports the conclusion that economic conditions did affect election results. Research on individual voting decisions, however, has been more mixed.[5] Richter (2006), however, draws on rich survey data from Russia to link electoral support for Yeltsin in 1996 to experiencing wage arrears. In so far as we are aware, no research in this area considers the economic inheritance of the pre-reform communist system.

A large and varied literature has addressed popular attitudes towards markets and market reforms during and after the exit from communism. Both Alesina and Fuchs-Schündeln (2007) and Pop-Eleches and Tucker (2017), for instance, draw on comparisons to non-post-communist countries to demonstrate that the experience of living through communism socialized populations to espouse relatively anti-market attitudes. Both Shiller et al. (1991) and Duch (1993), however, point to survey evidence from within communist countries suggesting that a "nascent free-market culture" survived the communist experience. Finally,

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[5]Tucker speculates this is because researchers doing micro-oriented work often have access to an array of political variables that generally are unavailable to those analyzing aggregated voting data.

a small empirical literature emphasizes how hardships experienced during the early post-communist period produced a shift away from the more liberal values that animated the transition from communism (Gaber et al., 2019; Pyle, 2021).

2.2   Political consequences of liberalization-induced shocks

Empirical research on the political consequences of liberalization-induced shocks has grown quickly in recent years. Quite a few articles, for instance, have explored the within-country electoral effects of greater global economic integration. Margalit (2011) demonstrates with data from 2000 and 2004 that support for the presidential incumbent, George W. Bush, declined most dramatically in counties in which job dislocation resulting from foreign competition was greatest. Choi et al. (2021) show that US counties whose industrial profiles made them most vulnerable to import competition from Mexico shifted toward the Republican Party in House elections after the passage of NAFTA. Several similar papers focus specifically on the effects of trade liberalization with China (aka, the "China shock"). Che et al. (2021) show after the extension of Permanent Normal Trade Relations to China in 2000, vote shares for Democratic candidates for the US House of representatives increased relatively more in those counties more exposed to trade with China; after the rise of the Tea Party in 2010, however, this boost for Democrats disappeared. Autor et al. (2020) demonstrate that greater import competition with China has led to increases in political polarization across US House of Representative districts. Outside the United States, Dippel et al. (2022) show that in Germany, electoral support for far right parties followed from trade shocks associated with communism's collapse and the accession of China to the World Trade Organization.

3   Historical background

3.1   Russia's Soviet economic inheritance

The Soviet economic system operated on the basis of centralized plans. Owning almost all natural resources and physical capital, the state through its control over tens of thousands of enterprises accounted for the bulk of economic output. Prices in the state sector were determined bureaucratically and fulfilled both accounting and monitoring functions. Since they reflected neither use values nor opportunity costs, they often concealed gross inefficiencies, including the destruction of value by individual enterprises and entire sectors alike. By the late 1980s, the Soviet system constituted a "structure of capital and economic activity that [was] fundamentally non-viable in an environment determined by market valuation (Ericson, 1999)."

No sector more fully embodied the system's pathologies than manufacturing (Hughes and Hare, 1992; Senik-Leygonie and Hughes, 1992; Ericson, 1999; Gaddy and Ickes, 1999, 2002). Burdened by outdated assets and redundant employees, its ill-preparedness for market competition – masked during Soviet times by a complex web of protective tariffs, distorted pricing, and hidden taxes – was a major reason for Russia's output collapse in the 1990s. Gaddy and Ickes (1999), in fact, go so far as to characterize the entire Soviet manufacturing

sector as "value-destroying," its material inputs worth more in economic terms than its outputs.

This blanket characterization, however, may miss important variation across manufacturing sub-sectors. Extrapolating from input-output tables, as well as from world and domestic prices, Hughes and Hare (1992), for instance, conclude that one-quarter of Soviet manufacturing was "negative value added," one-third was "highly competitive," and the remainder was somewhere in between. Blanchard and Kremer (1997) rank sub-sectors by the degree to which input-output relationships suggest they were embedded in costly-to-reconstitute supply chains, distinguishing the most market vulnerable (e.g. construction ceramics, and medical equipment) from the least (e.g., coking products, and cotton products). Less systematic analyses highlight the inefficiencies of the largest manufacturing sub-sector, machine-building (Grant, 1979; Treml, 1981). Using trade flows as evidence, Ofer (1987) notes that the Soviet Union is "a large net importer of machinery, with a deficit of over 20 percent...in contrast with most industrial countries, which are net exporters of machinery and equipment." Nikolay Ryzhkov, one of the last prime ministers of the Soviet Union, similarly comments, "Our industrial products were not competitive on the world market. Take machine building, for instance. It went almost exclusively to Comecon countries. The "capitalists" took barely 6 percent of all our machine-building exports! That is why we exported such large amounts of raw materials (Ryzhkov, 1995, p. 229)."

The massive defense-industrial sector also bears mentioning in any discussion of how the Soviet legacy impacted the market vulnerability of Russia's post-Soviet economy. Although its enterprises benefited from high priority access to scarce labor and material inputs, the collapse of the Soviet Union and the end to the Cold War brought about a massive reduction in demand for its goods (Gaddy, 1996). In January 1992, the budget for military procurement was slashed by 68 percent.

In addition to enterprises whose capital assets rendered them ill-equipped for market competition, the Soviet economy bequeathed post-communist Russia with industries whose geographic location alone made them market vulnerable. Hill and Gaddy (2003) describe how, particularly under Stalin, investments across Siberia were made without any concern for the opportunity cost of locating firms in regions far from customers, where they were expensive to heat, and where capital broke down at a much faster rate.

3.2   From Gorbachev to Yeltsin

By 1985, if not well before, the Soviet Union's stagnation had become obvious. Mikhail Gorbachev, the new General Secretary, introduced partial reforms that neither challenged the Communist Party's leading role in the political system nor the centrality of planning and state ownership in the economy. They did, however, de-stabilize the country, ultimately putting it on a path to dissolution at the end of 1991 (Zubok, 2021).

In the years leading up to the Soviet collapse, individual republics, including Russia, accumulated greater political autonomy. In the spring of 1991, Russians (i.e., citizens of the Russian Soviet Federative Socialist Republic) went to the polls for the first time in their nation's thousand-year history to elect a president. The campaign was relatively simple and

short. Boris Yeltsin ran as an independent, but his cause was championed by Democratic Russia, a loose coalition of political parties and civic organizations. The Party's program called for the dissolution of the Soviet Union and the removal of the Communist Party from all state and public institutions. Though there were massive demonstrations in support of his candidacy, Yeltsin neither actively campaigned nor laid out specific policy priorities. Nikolai Ryzhkov, the former Prime Minister and one of five candidates that were Communist Party members, was his only serious opponent (Urban, 1992). Yeltsin ended up winning with 58.6 percent of the national vote.

In early December, in the wake of a coup that he had helped foil, Yeltsin and the leaders of Ukraine and Belarus signed an accord proclaiming that the Soviet Union ceased to exist. On Christmas day, Gorbachev resigned from his office, declaring it extinct and handing over its powers to Yeltsin. A day later, the Soviet Union was formally dissolved. A week later, Yeltsin's government rolled out a radical market liberalization reform for the newly independent Russian Federation. Overnight, international trade, as well as nearly all consumer and producer prices were liberalized. Later in the year, the Yeltsin government rolled out an ambitious plan to privatize thousands of state-owned enterprises.

In the wake of these reforms, the Russian economy contracted rapidly, shrinking each year over the next half decade. When Yeltsin launched his campaign for re-election early in 1996, he was widely predicted to lose. With the Russian economy standing in tatters, he was polling in the single digits. Most observers believed that the Communist Party candidate, Gennady Zyuganov, would win. Nevertheless, in an election characterized as "the last 'referendum' on communism–a vote between two different political and economic systems (McFaul, 1996)," Yeltsin won a 35.8 percent plurality of votes in the first round, and went on to secure the necessary majority to defeat Zyuganov in the runoff.

Although some researchers emphasize the stability of the Yeltsin electorate between 1991 and 1996 (Berezkin et al., 1999; McFaul, 1997), others correctly highlight the shift in his support. Oreshkin and Kozlov (1996), for instance, write that "the 45 million supporters of B. Yeltsin [in 1991] differ very strongly from his 40 million supporters [in 1996]." Gehlbach (2000) highlights that across provinces, the Yeltsin votes in the 1991 and 1996 elections were poorly correlated.

3.3   Policy in the provinces and districts

Because of its weakness, the Yeltsin government could not enforce implementation of its rapid liberalization agenda uniformly across Russia's vast expanse (Stoner-Weiss, 1999). Although largely unable to cushion the massive impact of the near wholesale freeing of prices and opening to global trade, through at least the mid-1990s provincial governments did operate with some degree of policy discretion, particularly over small-scale privatization and the liberalization of prices on a limited number of consumer goods (Warner, 2001; Berkowitz and DeJong, 2003). For example, in his memoir, Yegor Gaidar (1999), who served as Acting Prime Minister in 1992, writes about regional variation with respect to the pricing of bread, vodka, milk, sunflower oil, and sugar:

In early January I signed an order delegating decision making on most of these

prices to local [i.e., provincial] authorities. Depending on specific local conditions, we gave local authorities the right to refuse subsidies, thereby providing an impetus for market determination of prices, which would in turn do away with shortages ... The leadership reacted differently in each region. Chelyabinsk and Nizhni Novgorod put the rights accorded them to quick use ... But there were other regions that stubbornly stuck to a policy of "regulated entry into the market," with all its attendant coupons, lines, generous subsidies, and further deterioration of the underfinanced social sphere...

Sub-provincial districts, however, operated with effectively no policy autonomy, for as Gelman (2010) writes, a planned reform of local self-government had been derailed by the post-1992 turmoil:

At the request of B.N. Yeltsin, the Congress of People's Deputies granted him additional powers, including the right to appoint and remove heads of administrations of provinces. The latter, in turn, received the right to appoint and remove the heads of district administrations – the so-called 'executive power vertical.'

Wollmann (2004) continues in the same vein:

In order to carry out radical economic reforms in the face of strong opposition in many cities, particularly in rural areas, Yeltsin attempted to create an executive vertical, a chain of centrally and hierarchically appointed regional and local heads of administration who would operate under the watchful eyes of the presidential representatives ... The presidential decrees did not mention the districts (*raiony*) when referring to local self-government, which implied that the district governments had become part of the regional administration.

Even in well-resourced provincial capitals, policy autonomy was highly, if not completely, circumscribed through at least 1996. A systematic World-Bank-sponsored study of ten provincial capitals on the Volga River concludes (De Melo and Ofer, 1999): "[B]y end-1996 it was in fact still difficult to distinguish city policies from region policies."

Sensitive to skepticism that even the most populous and best resourced districts were "policy takers," in our analysis below, we both control for a district's urban and rural populations as well as its status as a provincial capital.[6]

4   Data

We draw on published and archival sources to compile a panel dataset of 1664 Russian districts (*rayons*). Table 1 reports descriptive statistics and Table 6 lists the data sources for all variables.

Outcome variables.—We gather district-level voting results for the 1991 and 1996 presidential elections from the Electoral Geography project. For 1996, we use the first rather than the second round results because the 1991 election itself was the first round of a potential

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[6]Our headline results are robust to the exclusion of provincial capitals

two-round election. Since Yeltsin garnered a majority in the first round in 1991, there was no need for a second.[7]

To measure the change in economic activity at the district level, we use the difference across time in night-time light intensity (Chen and Nordhaus, 2011; Henderson et al., 2012). Obtained from National Oceanic and Atmospheric Administration satellite images, the series starts in 1992, the same year Russia liberalized its economy. Since other series were compromised by the switch from fixed to free-market prices, the subsequent hyper-inflation, and the government's weak data gathering capabilities, we feel it the best measure of the change in real economic activity between 1992 and 1996.

Main Explanatory Variables.—For each district, we assess its inherited structure of production, and thus its market vulnerability, in terms of the share of the population employed in different sectors at the end of the Soviet era. Our main source for employment data is the *1989 Census of Soviet Industry*, which contains information on the sector, location, and employment numbers of more than 21 thousand civilian industrial enterprises across the Russian Soviet Federative Socialist Republic (RSFSR).[8] Of the 13.7 million workers at these enterprises, 11.5 million, or 83 percent, work at enterprises designated as "manufacturing" in one of twenty manufacturing sub-sectors (see Table 2). We aggregate these employment data to the district level to generate a manufacturing employment per capita measure that serves as our primary measure of market vulnerability.

We integrate two additional variables designed to reflect dimensions of market vulnerability at the district level. Both combine employment data from the *1989 Census* with macro-level variables. One, a measure of *complexity* (Blanchard and Kremer, 1997) draws on the *1989 Input-Output Table for the Soviet Economy* from the Institute of Forecasting of the Russian Academy of Sciences.[9] The other, a measure of *revealed comparative disadvantage*, employs dollar-denominated, sector-specific estimates of Soviet and global exports for 1988 through 1990 compiled by analysts at the United Nations (1992).

To explain the post-liberalization output collapse, the widely-cited "disorganization" hypothesis of Blanchard and Kremer (1997) emphasizes variation across sectors in the "complexity" of inherited upstream linkages, with the "complexity" of sector i defined as equal to one minus the Herfindahl index of input concentration for sector i:

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[7]Another reason we do not use the second round of the election in 1996 is that it was dogged by improprieties. Across a number of districts, Yeltsin's vote share in the second round, relative to the first, was improbably large. One explanation as to why points to public officials' incentives. Before the first round, it was unclear who would ultimately win and so officials refrained from using their political influence to alter the outcome for fear of offending the eventual winner. After the first round, however, Yeltsin had the momentum and the backing of key oligarchs, so "supporting" Yeltsin meant helping the likely winner (Myagkov and Ordeshook, 2008).

[8]We thank Maxim Ananyev and Tatiana Mikhailova for kindly sharing these data, which were classified using the standard industrial classification scheme, US SIC 1987, by researchers at PlanEcon, Inc. For examples of research that have drawn on this dataset, see Buggle and Nafziger (2021), Ananyev and Guriev (2019), Markevich and Mikhailova (2013), and Brown et al. (1994).

[9]Uzyakov et al. (2006) explains the methodology for constructing the tables.

$$c_i \equiv 1 - \sum_j (\phi_{ij})^2 \qquad (1)$$

with ϕ_{ij} being the share of inputs from sector j in the production of sector i. By construction, c_i tends to one if the sector uses inputs from many sectors in equal proportions and equals zero if it relies on inputs from only one sector. We use the *1989 Input-Output Table* (Uzyakov et al., 2006) to calculate complexity scores for each of its 22 manufacturing sub-sectors. We then match these 22 to the 19 manufacturing sub-sectors covered in the *1989 Census*.[10] Although the two sources draw on slightly different categorization schemes, the correspondence between them is close, with many one-to-one matches. There are two cases in which there are not one-to-one matches. If more than one of the 22 sub-sectors from the *1989 Input-Output Table* can be fit within one of the 19 sub-sectors in the *1989 Census*, we take their average to generate a match. Alternatively, if one of the 22 sub-sectors from the *1989 Input-Output Table* encompasses more than one of the 19 categories in the *1989 Census*, we match it to each of those sub-sectors that it encompasses.

Table 2 shows complexity scores for the 19 sub-sectors. Most make sense and comport with Blanchard and Kremer's (1997) ranking from a 100-sector input-output table. For example, at 0.90, the industrial machinery and equipment sub-sector scores as the second most complex, well ahead of food products, which at 0.63, could reasonably be predicted as less dependent upon a diverse array of suppliers. The stone, clay, glass, and concrete products sub-sector scores highest at 0.91. To those not familiar with the industry, this might come as a surprise. Reassuringly, however, Blanchard and Kremer (1997) find that "construction ceramics" and "glass and porcelain" rank as the most and third-most complex of 100 manufacturing sub-sectors.

We transition from sub-sector to district-level measures of complexity by summing complexity-weighted employment totals across all 19 manufacturing sub-sectors:

$$c_d = \frac{\sum_{i=1}^{19} c_i E_{id}}{\sum_{i=1}^{19} E_{id}} \qquad (2)$$

with c_i being the complexity index for sub-sector i, and E_{id} being employment (as calculated from the *1989 Census*) in sub-sector i in district d. Districts specializing in more complex manufacturing sub-sectors, that is, will have a higher district-level complexity index, c_d.

We also capture market vulnerability through a district-level measure of revealed comparative disadvantage (RCD). Presuming pre-liberalization trade flows were roughly guided by principles of comparative advantage, districts specializing in sectors in which the Soviet Union had a relatively weak export profile will, we hypothesize, be more market vulnerable, *ceteris paribus*. To compile a district-level measure of RCD, we start by calculating the Balassa Index (BI) (Balassa, 1965), a widely-used measure of comparative advantage, for

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[10]The *1989 Census* actually has twenty sub-sectors, but we exclude the "miscellaneous" sector since it has no analog in the 1989 input-output table.

each of the 19 manufacturing sub-sectors represented in the *1989 Census* data:

$$BI_{USSR,i} = \frac{X_{USSR,i}}{X_{USSR}} \bigg/ \frac{X_{World,i}}{X_{World}} \tag{3}$$

with $X_{USSR,i}$ and $X_{World,i}$ representing the Soviet Union's and the world's exports of goods in sub-sector i; X_{USSR} and X_{World}, in turn, represent total Soviet and global exports in the sub-sector. Exports, here, are annual dollar-denominated averages for 1988-1990 as compiled by the United Nations (1992).[11] Of 237 commodity groups, we were able to match 196 to one of the 19 manufacturing sub-sectors covered by the *1989 Census*; the remaining 41 either cannot be easily matched or refer to non-manufactures (e.g., agricultural products, natural resources).[12] Table 2 reports the Soviet Union's BI for 19 manufacturing sub-sectors. We take the negative of these values to arrive at sub-sector measures for RCD.

To calculate district-level measures of RCD, we sum RCD-weighted employment totals across all 19 manufacturing sub-sectors

$$RCD_d = \frac{\sum_{i=1}^{19} RCD_i E_{id}}{\sum_{i=1}^{19} E_{id}} \tag{4}$$

with RCD_i being the negative of the Balassa Index for sub-sector i, and E_{id} being employment (as calculated from the *1989 Census*) in sub-sector i in district d. Districts specializing in manufacturing sub-sectors in which the Soviet Union operated with a revealed comparative disadvantage, that is, will have a higher district-level revealed comparative disadvantage, RCD_d.[13]

Finally, in light of the Soviet Union's large defense industry, we supplement the *1989 Census*, which only covers civilian enterprises, with historical data documenting the location and dates of operation of military-industrial plants (Dexter and Rodionov, 2020). We generate a rough approximation for employment in the defense sector by calculating military-industrial plants per capita in 1989 for each district.

Additional Data.—Population data and the administrative status of a district – regional capital, town, or rural area – come from the 1989 population census of the USSR. Geographic controls – longitude, latitude, and distance to the regional capital – are calculated using QGIS software and the shapefile of Russian administrative divisions from NextGIS.

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[11]Dollar-denominated export values for the Soviet Union have been estimated by UN analysts.

[12]The commodity groups in the UN data are reported at the 3-digit level of the SITC, revision 2.

[13]Our approach resembles that taken by Hakobyan and McLaren (2016) to measuring U.S. districts' vulnerability to NAFTA's passage. Their index weights a U.S. location's sectoral employment structure by the degree to which it is concentrated in sectors in which Mexico had a revealed comparative advantage as measured by the Balassa Index.

5   Empirical Methodology

To quantify the effect of the inherited structure of production on voting outcomes, we estimate a panel regression model with fixed effects:

$$Voting_{cdt} = \alpha \, Manuf_d \times Post1991_t + \gamma X_d \times Post1991_t + \\ \delta P_d \times Post1991_t + \psi_d + \delta_t + \epsilon_{dt} \tag{5}$$

$Voting_{cdt}$ represents vote shares of candidate c in 1991 and the first round of the 1996 elections in district d. We estimate Equation (5) for three candidates: Boris Yeltsin, the leading Communist Party candidate (Nikolay Ryzhkov in 1991, and Gennady Zyuganov in 1996), and Vladimir Zhirinovsky. $Manuf_d$ is the share of district d's population employed in civilian manufacturing in 1989. $Post1991_t$ is a dummy variable for the period after the shock of market reform; it takes the value "1" for the 1996 election and "0" for 1991. The interaction between $Manuf_d$ and $Post1991_t$ is our main variable of interest. Its coefficient, α, is the difference-in-differences estimator of the effect of rapid market liberalization on voting outcomes.

To account for possible correlations between a district's manufacturing intensity and other factors that might also predict its market vulnerability, we control for the interactions between the post-1991 dummy and the vector X_d, which includes in all specifications a district's longitude, latitude, distance from the provincial capital, and, separately, its urban and rural populations. In some specifications, X_d also includes military plants per capita, as well as a dummy for whether the district is a regional capital. Finally, P_d is a vector of provincial dummies to account for post-liberalization developments, including policy measures, that similarly affect all districts within a given province. ψ_d and δ_t are district and year fixed effects, respectively.

The identification of the effect of market liberalization relies on (i) within-province, district-level variation in market vulnerability, and (ii) the exogeneity of the policy reform. By the end of the 1980s, decades of investment decisions by communist central planners had resulted in substantial cross-district differences in inherited structures of production and, thus, market vulnerability. As the maps in Figures 2 through 4 demonstrate, there were noteworthy differences across space in manufacturing employment per capita, manufacturing complexity, and revealed comparative disadvantage. In Nizhny Novgorod, for example, the within-province variation in market vulnerability was substantial.[14]

The identification further relies on the exogeneity of reform policy from the perspective of the political-geographic units analyzed. Russia's districts, unlike its provinces, were "policy takers," whose post-1991 policy environments were shaped, first and foremost, by decisions made by Yeltsin's government in Moscow and, secondarily, by provincial governors and legislatures (De Melo and Ofer, 1999). The timing of the national "shock therapy" policy, moreover, depended on national level political forces wholly unrelated to expectations about future development prospects for specific Russian districts.

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[14]Nizhny Novgorod, during the Yeltsin years, attracted attention for being governed relatively well (Stoner-Weiss, 1997).

One might be concerned that in the summer of 1991, districts systematically differed in their voters' expectations over how the candidates' respective platforms would play out economically. To this point, we find it noteworthy that Yeltsin's campaign steered clear of discussing economic reform policy, prioritizing instead greater autonomy for Russia and the removal of the Communist Party from state and public institutions. The "shock therapy" program, itself, did not materialize until the fall as a product of discussions among Yeltsin's team of advisors.

Concern about forward looking voters, however, should not be easily dismissed. If in the summer of 1991, Russians voted based on an expectation that Yeltsin would be more likely than his competitors to liberalize the economy, we would suspect that districts with market vulnerable structural inheritances would, all else equal, vote disproportionately against Yeltsin in 1991.[15] Such anticipatory behavior would mute the effect – i.e., the change in his support as a function of market vulnerability – that we seek to identify. We thus believe that we estimate a lower bound to the effect of market liberalization on support for Yeltsin and his policies.

We build on Equation (5) by considering the effects on voting for Yeltsin of a fuller set of market vulnerability measures:

$$
\begin{aligned}
Voting_{dt} = \alpha\, Vulner_d \times Post1991_t + \gamma X_d \times Post1991_t + \\
\delta P_d \times Post1991_t + \psi_d + \delta_t + \epsilon_{dt}
\end{aligned}
\tag{6}
$$

$Voting_{dt}$, here, represents vote shares for Yeltsin in district d. $Vulner_d$ is a vector of market vulnerability measures, which in alternate specifications includes combinations of district-level complexity, revealed comparative disadvantage, and manufacturing employment per capita. All other variables are as in Equation (5).

6   Planning's legacy for post-planning politics

Table 3 presents our estimations for Equation (5). In columns (1)-(3), we regress voting for the three main candidates on manufacturing employment per capita, controlling only for district and year fixed effects as well as provincial dummies and demographic and geographic variables interacted with *Post1991*. The results show a substantial and statistically significant decrease (increase) in voting for Yeltsin (opposition candidates) in districts with a higher share of manufacturing employment.

In columns (4)-(6), we add controls for military plants per 1000 population, and a dummy for whether the district is a regional capital. Though the coefficients of interest drop in absolute value terms, they remain highly statistically significant. In terms of magnitudes, an increase in manufacturing employment by 10 percentage points decreases the vote share for Yeltsin in 1996 compared to 1991 by 5.9 percentage points, and increases the vote share for the Communist Party candidate by 2.7 percentage points. These are large effects considering

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[15]To the contrary, manufacturing employment per capita at the district level was an extremely strong and positive predictor of electoral support for Yeltsin in 1991.

that Yeltsin outperformed the Communist, Gennady Zyuganov, by just 3.3 percentage points nationwide in the fist round of the 1996 elections.

Table 4 presents our estimations for Equation (6). In column (1), we regress vote share for Yeltsin on the district complexity index interacted with post 1991; in column (2), we substitute in the comparative disadvantage index. Columns (3) and (4) control for all three of the industrial inheritance variables, with the latter controlling for the interaction between military plants per capita and post 1991.

Table 4 further confirms that districts more vulnerable to market liberalization witnessed steeper decreases in support for Yeltsin. The coefficient on the complexity index is negative and remains statistically significant at the 5% level across all specifications. An increase in complexity of a district's manufacturing sector from 0 to 1 decreases support for Yeltsin by more than 6 percentage points. Revealed comparative disadvantage also remains consistently negative and statistically significant at the 5% level across all specifications. In column (4), when we include all structural interactions, each of them is significant at the 5% level in a manner consistent with the decline in Yeltsin's electoral support being driven by inherited vulnerabilities. Note, as well, that the coefficients on manufacturing employment and military plants are almost identical to the baseline results in Table 3.

We conclude that a district's structural inheritance determined the degree to which Yeltsin lost support between the 1991 and 1996 elections. Different dimensions of that legacy, moreover, contributed independently and significantly to its market vulnerability.

7   A shock to district-level economic activity

To explain the relationship between pre-liberalization market vulnerability and changes in voting for Boris Yeltsin, one might reasonably presume there to be a connection between a district's industrial inheritance and its post-liberalization economic performance. After all, a large literature has established a strong correlation between post-communist economic outcomes and voting behavior (Colton, 1996; Fidrmuc, 2000; Tucker, 2002; Richter, 2006). Finding data that reliably captures changes in real economic activity in the early 1990's, however, poses a challenge. Price-based measures require a consistent set of prices, but market-based prices did not, for all intents and purposes, formally exist prior to 1992. Moreover, after 1992, the ability of price-based series to capture real economic activity was compromised by extremely high rates of inflation.

We thus turn to a non-price-based series often used to track real economic activity in difficult data environments: night-light intensity (Chen and Nordhaus, 2011; Henderson et al., 2012). In Table 5, we plug the change in night-light intensity at the district level between 1992 and 1996 into our baseline model. Manufacturing employment per capita, military plants per capita, and revealed comparative disadvantage all predict a decline in night-light intensity in a statistically significant manner. In other words, the sorts of districts whose citizens abandoned Yeltsin the most between 1991 and 1996 were largely the sorts of districts that experienced the biggest declines in economic activity.

8 Conclusion

Research on China's entry into the World Trade Organization confirms that when an already established market economy opens itself up quickly to imports from a low-wage country, the cross-regional differences in net benefits can be large and persistent. As some regions gain, and other regions suffer, the country's trajectory is forever altered.

If consequential asymmetries result from a quick expansion of trade relations with just a single country, albeit a large one, then certainly they must also result from the quick expansion of trade relations *with the entire world*. And even more, for non-market economies, they must result from the simultaneous liberalization of nearly all internal and external markets in one dramatic break with the past.

Considering the magnitude of the shock, as well as the country's size and geographic diversity, is it any surprise that Russia's voters' response to the January 1992 reforms was so asymmetric across the country's regions? In fact, it is not. Far from being a "time of extraordinary politics," Russia's exit from communism turns out to have been a time of quite ordinary politics. Electoral support for the pro-market incumbent, that is, declined precisely where we might have expected it to, in those regions most vulnerable to the all-encompassing liberalizing reforms.

That twentieth century communism was not a monolith is a truism but, perhaps, one too easily disregarded. Ascribing the divergent trajectories of post-communist societies, in whole or even in good part, to post-communist policies risks disregarding the potentially consequential ways communist societies differed across space on liberalization's eve. Culture, geography, and inherited human capital, perhaps all played independent roles in determining whose post-communist trajectories were relatively successful and whose were not.

Here, we have taken a modest step, shedding light on the effects of only one such "initial condition," the inherited structure of production. By focusing on differences along this dimension across relatively small political-geographic units, we draw comparisons across units for whom post-communist policy environments are plausibly similar. We thus isolate what turns out to be a substantively large, independent effect of the inherited structure of production on Russia's trajectory in the 1990s. In light of this finding, we believe it prudent for policy makers contemplating liberalizing reforms in the future to pay heed to *ex ante* inter-regional asymmetries so that they are better positioned to ease the burden on the most vulnerable after reforms' passage.

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9 Tables

Table 1: Summary statistics

Variable	Mean	SD	Min	Max	N
Panel A: District (rayon) level data					
Votes for Yeltsin in 1991, %	43.5	16.8	7.1	90.5	1664
Votes for Yeltsin in 1996 (first round), %	27.3	10.5	9.3	70.2	1664
Votes for communist candidate in 1991 (Ryzhkov), %	40.6	13.3	5.1	84.9	1664
Votes for communist candidate in 1996 (Zyuganov), %	41.3	14.7	5.4	82.5	1664
Votes for Zhirinovsky in 1991, %	10.1	4.7	0	29.4	1664
Votes for Zhirinovsky in 1996, %	7.3	3.2	1.0	25.5	1664
Manufacturing employment, %	4.9	5.4	0	30.6	1664
Military plants, per 1000	0.05	0.14	0	2.61	1664
Complexity index	0.74	0.11	0	0.91	1569
Balassa index	0.73	0.86	0	5.22	1569
Regional capital	0.04	0.18	0	1	1664
Night lights index in 1992	7.49	12.8	0	62.9	1664
Night lights index in 1996	7.21	12.1	0	61.4	1664
Distance to regional capital, km	132	112	0	1435	1664
Latitude, N	53.9	4.1	42.8	75.1	1664
Longitude, E	55.8	25.6	19.9	142.0	1664

Notes: Summary statistics for two panel data sets. District data comprise 1664 districts (*rayons*) that cover 85% of the population of Russia in 1989. Regional data comprise 88 regions. For data sources see Table 6 in the online Appendix.

Table 2: Manufacturing sub-sectors, complexity index, and revealed comparative advantage index

SIC code	Manufacturing sub-sectors	(1) Employees, thousands	(2) Number of enterprises	(3) Complexity index	(4) Balassa index
35	Industrial machinery and equipment	1863.1	1138	0.90	0.32
20	Food products	1318.4	5865	0.63	0.16
32	Stone, clay, glass, concrete products	1027.1	2008	0.91	0.18
37	Transportation equipment	995.0	351	0.89	0.39
24	Lumber and wood products	928.0	1858	0.86	2.92
33	Primary metals	840.0	227	0.77	1.57
22	Textile products	851.3	601	0.53	0.57
28	Chemicals and allied products	673.0	454	0.85	0.69
23	Apparel, finished fabric products	517.6	814	0.53	0.00
36	Electronics, electrical equipment	443.4	270	0.86	0.15
34	Fabricated metal products	381.9	565	0.85	0.13
38	Measuring, photographic, medical goods	275.9	290	0.86	0.17
30	Rubber and plastic products	272.9	176	0.79	0.26
31	Leather and leather products	231.8	261	0.53	0.07
25	Furniture and fixtures	231.4	390	0.89	0.17
26	Paper products	195.9	157	0.84	0.28
29	Petroleum refining	136.3	82	0.69	5.22
27	Printing, publishing	142.0	1424	0.84	
21	Tobacco products	14.1	28	0.63	0.00

Notes: Sub-sectors are sorted by the number of employees. Data on employees and number of enterprises are from 1989 Census of Soviet Industry. The Complexity Index has been calculate on the basis of Soviet input-output tables for 1989 (see Section 4 for calculation method). The Balassa Index has been calculated on the basis of United Nations international trade statistics for years 1988-1990. See Table 6 for data sources.

Table 3: Manufacturing employment and change in 1996 voting relative to 1991 (district level panel regressions)

	(1)	(2)	(3)	(4)	(5)	(6)
			Vote shares (%) for			
	Yeltsin	Communist candidate	Zhirinovskiy	Yeltsin	Communist candidate	Zhirinovskiy
Manufacturing employment × post 1991	-0.76***	0.28***	0.14***	-0.59***	0.27***	0.08***
	(0.05)	(0.04)	(0.02)	(0.06)	(0.05)	(0.02)
Military plants × post 1991				-6.83***	3.38***	1.00**
				(1.94)	(1.08)	(0.39)
Regional capital × post 1991				14.67***	-5.96***	-4.31***
				(2.91)	(1.94)	(0.88)
District and year fixed effects	✓	✓	✓	✓	✓	✓
Population interactions	✓	✓	✓	✓	✓	✓
Region interactions	✓	✓	✓	✓	✓	✓
Geography interactions	✓	✓	✓	✓	✓	✓
R-squared	0.80	0.64	0.73	0.81	0.64	0.74
Number of districts	1,664	1,664	1,664	1,664	1,664	1,664
Observations	3,328	3,328	3,328	3,328	3,328	3,328

Notes: Dependent variables are vote shares of respective candidates in 1991 and 1996 presidential elections. Communist candidates are Ryzhkov in 1991 and Zyuganov in 1996. All regressions are run at the district (*rayon*) level with district and year fixed effects. Population interactions are urban and rural population figures interacted with *Post*1991 dummy. Region interactions are region fixed effects interacted with *Post*1991 dummy. Geography interactions are latitude, longitude, and distance to regional capital interacted with *Post*1991 dummy. Standard errors are clustered within observational units (districts) over time and reported in parentheses.
* $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 4: Industrial complexity, comparative disadvantage and voting
(district level panel regressions)

	(1)	(2)	(3)	(4)
		Vote shares for Yeltsin, %		
Complexity index × post 1991	-7.92***		-6.41**	-6.31**
	(2.79)		(3.15)	(3.15)
Comparative disadvantage index × post 1991		-0.79**	-1.78***	-1.79***
		(0.37)	(0.40)	(0.40)
Manufacturing employment × post 1991			-0.60***	-0.60***
			(0.06)	(0.06)
Military plants × post 1991				-7.95***
				(2.40)
Regional capital and population interactions	✓	✓	✓	✓
District and year fixed effects	✓	✓	✓	✓
Region interactions	✓	✓	✓	✓
Geography interactions	✓	✓	✓	✓
R-squared	0.78	0.85	0.78	0.85
Number of districts	1,569	1,569	1,569	1,569
Observations	3,138	3,138	3,138	3,138

Notes: The sample is restricted to districts with non-zero manufacturing employment. Dependent variable is vote share for Boris Yeltsin in 1991 and 1996 (first round) presidential elections. All regressions are run at a district (*rayon*) level with district and year fixed effects. Regional capital interaction is dummy for a regional capital interacted with *Post*1991 dummy. Population interactions are urban and rural population figures interacted with *Post*1991 dummy. Region interactions are region fixed effects interacted with *Post*1991 dummy. Geography interactions are latitude, longitude and distance to regional capital interacted with *Post*1991 dummy. Standard errors are clustered within observational units (districts) over time and reported in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 5: Manufacturing employment, industrial complexity, comparative disadvantage and change in night lights from 1992 to 1996 (district level panel regressions)

|	(1)	(2)	(3)	(4)
		Night lights luminosity		
Manufacturing employment × post 1992	-0.038***	-0.046***	-0.038***	-0.046***
	(0.014)	(0.015)	(0.014)	(0.015)
Complexity index × post 1992		0.60		0.63
		(0.49)		(0.49)
Comparative disadvantage index × post 1992		-0.15**		-0.15**
		(0.06)		(0.06)
Military plants × post 1992			-1.44***	-1.45***
			(0.45)	(0.45)
Regional capital and population interactions	✓	✓	✓	✓
District and year fixed effects	✓	✓	✓	✓
Region interactions	✓	✓	✓	✓
Geography interactions	✓	✓	✓	✓
R-squared	0.28	0.29	0.30	0.30
Number of districts	1,569	1,569	1,569	1,569
Observations	3,138	3,138	3,138	3,138

Notes: The sample is restricted to districts with non-zero manufacturing employment. Dependent variable is night lights luminosity index in 1992 and 1996. All regressions are run at a district (*rayon*) level with district and year fixed effects. Regional capital interaction is dummy for a regional capital interacted with *Post*1991 dummy. Population interactions are urban and rural population figures interacted with *Post*1991 dummy. Region interactions are region fixed effects interacted with *Post*1991 dummy. Geography interactions are latitude, longitude and distance to regional capital interacted with *Post*1991 dummy. Standard errors are clustered within observational units (districts) over time and reported in parentheses.

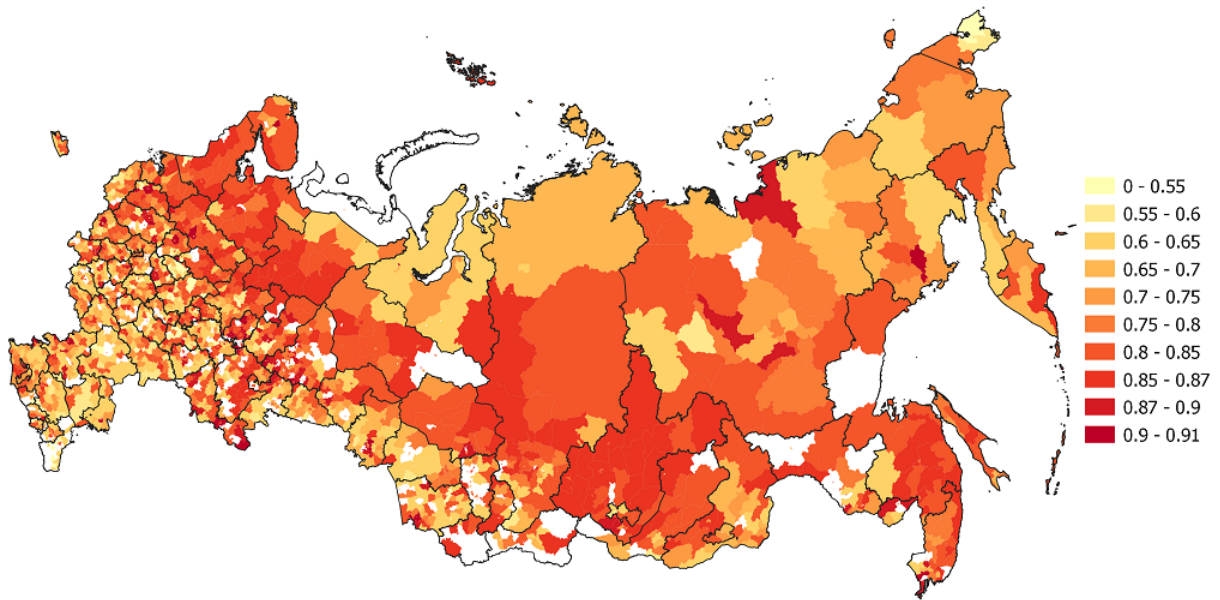* p<0.10, ** p<0.05, *** p<0.01.

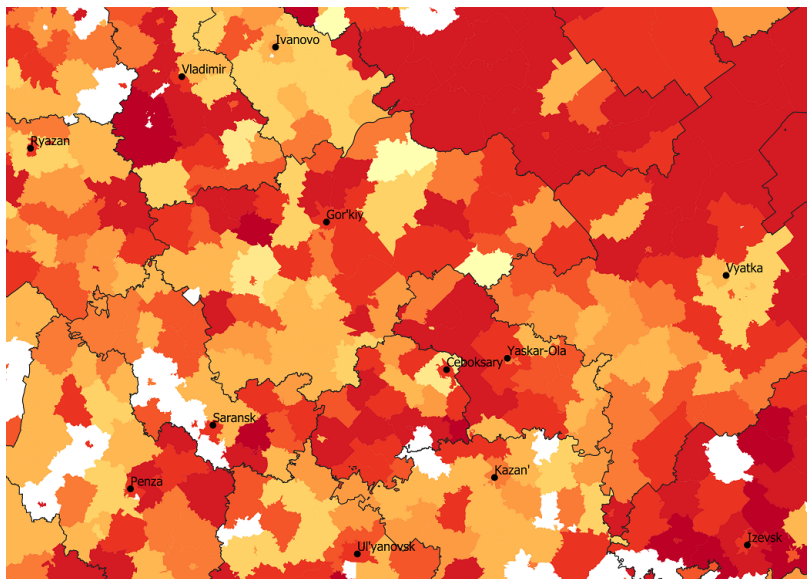# 10 Figures
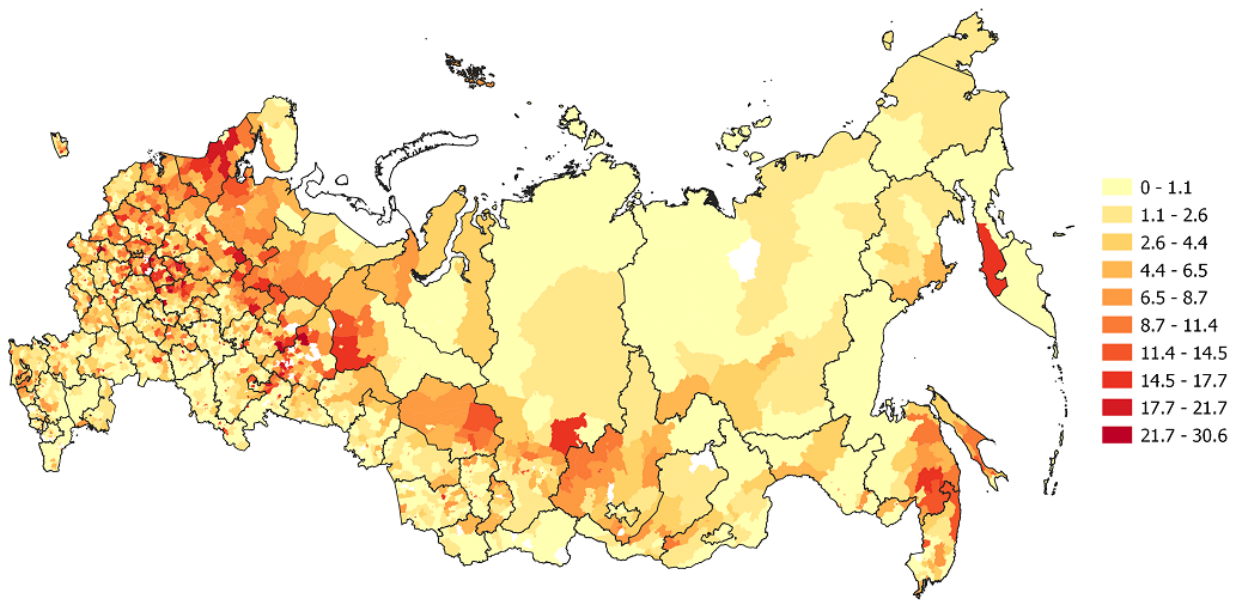
(a) All regions
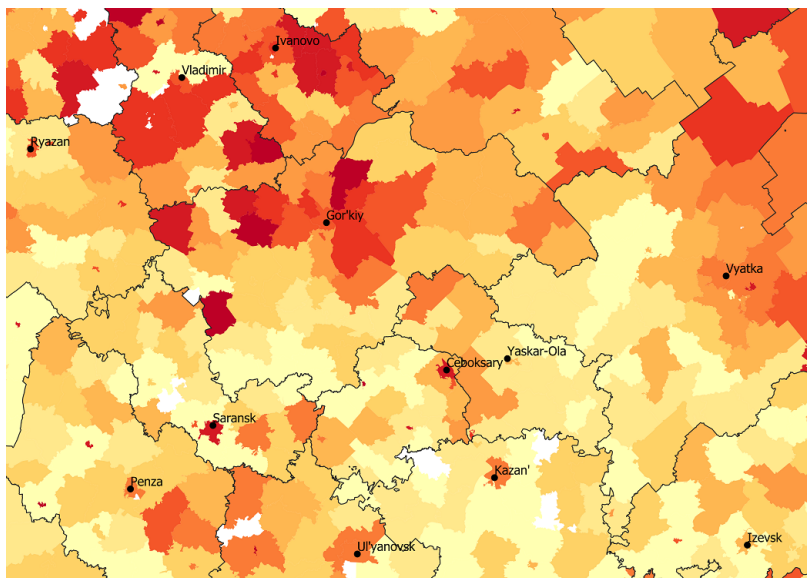
(b) Nizhniy Novgorod and neighboring regions

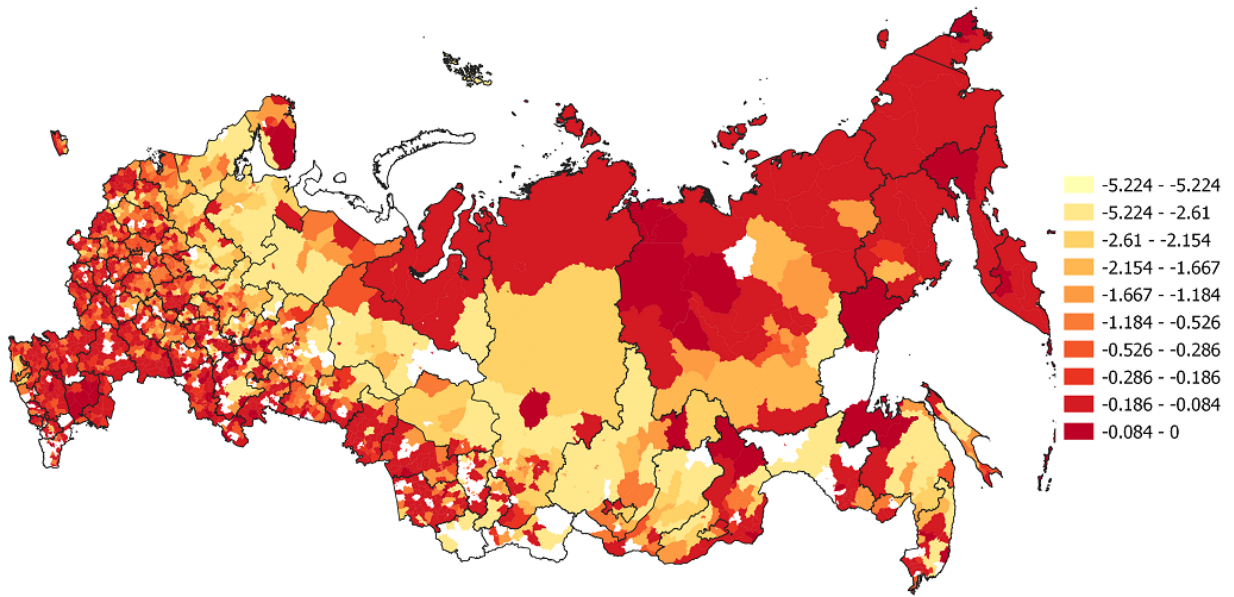Figure 2: Manufacturing employment in 1989, %
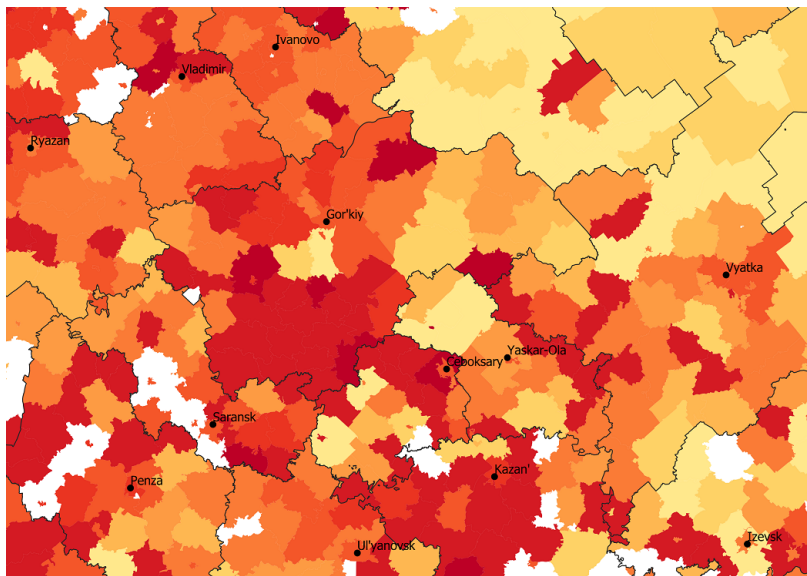
(a) All regions

(b) Nizhniy Novgorod and neighboring regions

Figure 3: Complexity index

(a) All regions

(b) Nizhniy Novgorod and neighboring regions

Figure 4: Comparative disadvantage index (negative Balassa index)

11   Data sources

Table 6: Data sources

Variable	Source
Panel A: *District (rayon) level data*	
Votes for Yeltsin in 1991, %	Electoral Geography. Russia, 1991 elections
Votes for Yeltsin in 1996, %	Electoral Geography. Russia, 1996 elections
Votes for Ryzhkov in 1991, %	Electoral Geography. Russia, 1991 elections
Votes for Zyuganov in 1996, %	Electoral Geography. Russia, 1996 elections
Votes for Zhirinovsky in 1991, %	Electoral Geography. Russia, 1991 elections
Votes for Zhirinovsky in 1996, %	Electoral Geography. Russia, 1996 elections
Manufacturing employment, %	1989 USSR manufacturing census
Military plants, per 1000	Dexter and Rodionov (2020)
District (*rayon*) level population	1989 population census of USSR, Table 3
Urban population in 1989	1989 population census of USSR, Table 3
Night lights index	NASA Nighttime Lights data
Distance to regional capital, km	Authors' calculations using QGIS software
Latitude, N	Authors' calculations using QGIS software
Longitude, E	Authors' calculations using QGIS software
Panel B: *Indices*	
Complexity index	Authors' calculations on the basis of input-output tables
	from Institute of Forecasting and Uzyakov et al. (2006)
Balassa index	Authors' calculations on the basis of
	United Nations (1992) for years 1988-1990