

M-form hierarchy with poorly-diversified divisions: A case of Khrushchev's reform in Soviet Russia

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Abstract:

We test the premise of the theoretical literature that M-form political hierarchies are effective in creating yardstick competition between regional divisions only when those divisions have sufficiently diversified or similar industrial composition. The reason for this is that the competition among poorly diversified inter-related divisions creates incentives for regional leaders to pursue policies that inhibit industrial growth in neighboring regions in order to make their own region look better from the point of view of the center. We use a unique episode in Soviet history, when a traditional Soviet unitary-form (U-form) hierarchy was replaced by a multidivisional-form (M-form) organization, namely, Khrushchev's "Sovnarkhoz" reform. First, we demonstrate that during this reform regional leaders were subjected to relative performance evaluation, which created incentives to generate industrial growth. Second, we show that these career concerns resulted in higher growth in regions with sufficiently diversified and, therefore, self-contained economies, and lower growth in highly specialized regions.

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1. Introduction

Career concerns are an important determinant of performance of any political hierarchy. They, in turn, depend on the organizational form of the hierarchy. Starting with Chandler (1962) and Williamson (1975), an extensive theoretical literature considers incentive aspects of M-form (multidivisional form) and U-form (unitary form) hierarchies. The form describes the way of organizing a hierarchy into divisions: the classical M-form hierarchy is comprised of a collection of territorial divisions implementing the same tasks, whereas the U-form hierarchy is organized along functional lines and consists of a number of departments implementing complementary tasks on the same territory. Maskin, Qian and Xu (2000) show that U-form and M-form hierarchies differ in the quality of incentive schemes that can be given to division managers. In particular, M-form permits a more effective relative-performance evaluation compared to U-form. Under the assumption that the territorial divisions of the M-form are comparable and self-contained – i.e., division heads can pursue policies that affect performance only of their own division and not of the other divisions – relative-performance evaluation creates yardstick competition (e.g., Holmstrom 1982 and Shleifer 1985) that encourages good performance (Maskin, Qian and Xu 2000). In contrast, if territorial divisions are inter-related and the policies pursued in one division can affect performance of another, high-powered career concerns created by relative-performance evaluation result in negative inter-divisional externalities and can be detrimental to performance of the hierarchy (e.g., Cai and Treisman 2004 and Xu 2011).¹ This is because division heads have incentives to pursue policies that hurt growth in neighboring divisions in order to make their own division look better from the point of view of the center. The aim of this paper is to test this empirically using the unique episode of a drastic reorganization reform conducted by Nikita Khrushchev in the Soviet Union,

¹ See also Musgrave (1969) and Oates (1972) in the context of fiscal federalism.

namely “*Sovnarkhoz*” reform, which dismantled the traditional U-form organization of Soviet industry and organized it along the lines of M-form multi-regional hierarchy.

So far, the literature made a comparison between the Soviet and Chinese economies, in which the Soviet economy was considered as an example of a U-form hierarchy with political and economic orders directed via highly-specialized sectoral ministries, while the Chinese economy was viewed as an example of an M-form as it is comprised of relatively self-sufficient provinces (e.g., Qian and Xu 1993, Maskin, Qian and Xu 2000, Qian, Roland and Xu 2006, Xu 2011). The literature highlighted a tradeoff between superior incentives schemes, better provided by the M-form hierarchy, and economies of scale (arguably) better utilized by the U-form. As Xu (2011) points out, however, an important pre-condition for the success of the Chinese M-form hierarchy is that “Chinese regions [...] have historically been and remain relatively self-sufficient in that each region contains multiple economic sectors” (Xu 2011). Xu argues further that China is a very special case, as “regional specialization in Russia, or more generally in the CIS and Central-Eastern European countries, is much higher than that in China” (Xu 2011). In this paper, we empirically examine the functioning of an M-form (compared to a U-form) under the condition of poorly-diversified regions. Using regional-level panel data for Soviet Russia, the largest republic in the USSR, we first demonstrate that Khrushchev’s *Sovnarkhoz* reform, indeed, introduced a system of evaluation of relative performance in regional industrial growth as a way to provide career concerns to the regional leaders of Soviet Russia, and that such system was largely absent both before the reform and after its reversal. Second, we test the hypothesis that yardstick competition created by M-form is efficient only when divisions are self-contained by showing that the reform had differential impact on regional performance depending on the level of diversification of regional economies. In particular, we find that the reform had a positive effect on the industrial

growth only in regions with sufficiently diversified economies, whereas it had a negative impact on the industrial growth of highly specialized regions. As a result, the average effect of the *Sovnarkhoz* reform was not significantly different from zero. In addition, we provide some evidence that horizontal social networks of regional leaders (measured by common experience in the higher party school) can partly mitigate negative inter-regional externalities created by the M-form hierarchy with poorly diversified regions.

Overall, our main contribution is in providing empirical support for the theoretical notion of the limitations of the M-form yardstick competition, as it is beneficial for the performance of the hierarchy only when territorial divisions are self-contained. Our results also highlight the importance of the regional-level industrial structure of the respective economies for the Soviet-Chinese comparison. Qian and Xu (1993) argued that the M-form organization in China caused faster rates of economic growth than the Soviet U-form economy. However, just as Xu (2011) argues, our results show that this comparison is driven by the underlying differences in the level of diversification and self-sufficiency of the regions.

Our paper is also related to the empirical literature on career concerns in hierarchies. The first step in our analysis is similar to the analyses in Li and Zhou (2005), Chen, Li and Zhou (2005), and Gang (2007), who show that the main criterion of promotion and demotion of provincial government officials in China have been the provincial growth performance relative to the average performance and to performance under the predecessor. We reproduce their findings on the importance of the relative-performance evaluation of regional divisions in M-form hierarchies in application to the Soviet case; and, using the over-time variation in the organizational form of Soviet economy, we also demonstrate that the relative-performance evaluation was absent from the U-form Soviet hierarchy.

Sovietologists began studying the determinants of the career concerns of Soviet regional leaders in the 1960s and 1970s.² This early literature formulated two theories of career advancement: the “patron-client model,” in which personal connections to the central leadership determine bureaucrats’ vertical mobility, (Brzezinski and Huntington 1964 and Armstrong 1959) and the “rational-technical model,” in which the main reason for promotions was performance (Hough 1969). We find empirical support for both theories as both the personal connections to the center and industrial performance, albeit only in the *Sovnarkhoz* reform period, were important determinants of regional party leaders’ career concerns in Soviet Russia.

Finally, our paper contributes to the empirical literature on the outcomes of regional decentralization (e.g., Fisman and Gatti 2002, Jin et al. 2005, Enikolopov and Zhuravskaya 2007, Fan et al. 2009, and Guriev et al. 2010). This literature largely focuses on the effect of fiscal federalism because of the difficulties with measurement of the non-fiscal elements of decentralization. The “*Sovnarkoz*” reform presents a binary measure of regional non-fiscal decentralization.

The paper proceeds as follows. The next section provides stylized facts on the Soviet political hierarchy and a historical overview of the *Sovnarkhoz* reform. In Section 3, we formulate our hypotheses. Section 4 describes the data. In Section 5, we present our findings. Section 6 concludes.

2. Soviet Hierarchy and the *Sovnarkhoz* Reform: A Historical Background

The Soviet Union throughout its existence was a very centralized state with a strict top-down hierarchy of authority and a single center of decision-making, the Central Committee of the Communist Party. Under the *Nomenklatura* system, introduced in 1923, party and

² See, for instance, Armstrong (1959), Blackwell (1972), Blackwell et al. (1973), Brzezinski and Huntington (1964), Frank (1971), Hodnett (1965), Hough (1969), McAuley (1974), Oliver (1973), Stewart et al. (1972).

state officials at each level of the hierarchy were appointed by higher-level officials (Levin 1997).

The territory of the Soviet Union consisted of fifteen republics divided into smaller territorial administrative units, known as “regions.” Russia was the largest republic in the Union; it consisted of about eighty regions. The top regional executive in each region was the regional party leader, called “the first party secretary.” Regional governors, who were the heads of regional government, were subordinated to the first party secretaries (just as in modern China). Soviet regional leaders were always responsible for the agriculture of the regions. In contrast, as we describe below, regional leaders were only put in charge of the regional industrial sector during Khrushchev’s *Sovnarkhoz* reform. Historical documents published in Denisov et al. (2004) and Khlevnuk et al. (2009) demonstrate that the center carefully monitored regional leaders throughout the history of the Soviet Union (details are provided in the on-line Historical Appendix).

Since the beginning of five-year plans in 1928, Soviet industry was organized along production branch lines. Specialized ministries and departments managed all enterprises in its corresponding branch of industry across all regions; one ministry was responsible for one production branch. Thus, the organization of Soviet industry is a classic example of a U-form hierarchy.

2.1. *The M-form episode: Sovnarkhoz reform*

Stalin’s death in March 1953 triggered a power struggle for the leadership of the country, which eventually resulted in Nikita Khrushchev assuming full power in 1957-1958 and conducting a major organizational reform of the economic and political hierarchy, the so-called *Sovnarkhoz* reform (Ballis 1961, Swearer 1959). In the on-line Historical Appendix we provide a detailed account of this power struggle around the reform.

The *Sovnarkhoz* reform was initiated in January 1957 by Khrushchev. The essence of the reform was an abolition of the production branch industrial ministries and the establishment of the regional bodies, called “*Sovnarkhozes*,” i.e., Soviet councils of national economy, which were supposed to oversee and manage industry and construction in the regions (Fursenko et al. 2004 p. 221-223 protocol of the Presidium - an official name of Politburo of the party under Khrushchev - meeting on 28.01.1957). The reform made regional officials responsible for industrial development in their regions. Thus, the reform reorganized Soviet industry into an M-form hierarchy. Publicly, Khrushchev explained the need for the reform by the necessity to overcome negative elements of the ministerial system: narrow departments’ interests and ministerial autarky (Hoeffding 1957; Swearer 1959). The introduction of competition between local officials was another important motivation for the reform. During numerous trips around the country, Khrushchev repeatedly stated to regional leaders that ‘vigorous leadership will bring promotion and that slackers will weed out’ (Swearer 1962a p. 458; see also Swearer 1962b p. 37). Newly available records of closed Presidium/ Politburo meetings also give examples of Khrushchev’s concerns about how to provide incentives to Soviet bureaucrats (Fursenko et al. 2004 see for example p. 561 document #251 records of the Khrushchev’s speech at the Presidium/Politburo meeting on 31.05.1962). Once Khrushchev managed to overcome the opposition of the ministerial lobby, the reform was implemented. The party Central Committee approved the *Sovnarkhoz* initiative in February 1957 and a formal law introducing the system took force on May 10 of the same year. The actual realization of the *Sovnarkhoz* system was put into practice during the second half of 1957. The decree of September 26, 1957 detailed the reorganization procedure (Swearer 1959, p. 52): 105 *Sovnarkhozes* were established in the USSR, of which 68 were in the Russian Federation. Each *Sovnarkhoz* got authority over industry and construction in the region under its

control (with the exception of the Leningrad, Pskov and Novgorod regions, which together got one united *Sovnarkhoz* instead of three). *Sovnarkhozes* had to prepare drafts of regional plans in cooperation with the central state planning body, *Gosplan*, and were responsible for their implementation.

The role of regional party leaders in that system increased enormously. Regional party secretaries gained authority over appointing enterprise directors in their regions and no longer had to coordinate the selection of candidates for these positions with production branch ministries. *Sovnarkhoz* officials admitted their subordination to the regional party organization (Ballis 1961 p. 162; Swearer 1962b p. 34).

2.2. *Inter-regional externalities as a result of the reform*

Shortly after the introduction of the *Sovnarkhoz* system, central officials acknowledged a problem of ‘localism’ in the behavior of regional authorities. Regions tried to compose plans favorable for their local interests at the expense of other regions, and therefore, national development. As described in Swearer (1959, pp. 49, 51, 58; see also Khlevnuk et. al. 2009, p. 402, document # 72, 06.10.1959), regional *Sovnarkhozes* illegally reallocated resources received from the center away from inter-regional projects to purely local projects, which resulted in an increase in inter-regional delivery failures. Declassified documents from the Soviet archives illustrate the magnitude of this phenomenon: so-called ‘non-planned’ investments unauthorized by the center doubled after the introduction of the *Sovnarkhoz* system (Khlevnuk et al. 2009, p.404, document # 73, 28.11.1959).³ Historical documents provide examples of regions that pursued policies which directly hurt their neighbors; e.g., in 1960 the Tataria region refused to cooperate with the Bashkiria region to exploit oil fields located on the border of the regions, which caused an increase in the oil-

³ Narrow interests were a problem under the Soviet ministerial system as well, but the magnitude of the effect of negative inter-ministerial externalities was presumably smaller due to the high level of vertical integration and the autarky of production branch divisions (Gregory and Stuart 1998).

extraction expenditures of the latter (Khlevnuk et. al. 2009, p. 415-417, document # 75 22.03.1961). At the macro level, Soviet rates of economic growth started to decline in the late 1950s (Hanson 2003), and there was certainly no apparent boost of economic growth observed at the time of the *Sovnarkhoz* reform.

The central authority first made a largely-unsuccessful attempt to mitigate the problem of negative inter-regional externalities with administrative means by punishing regional leaders who were engaged in a hold-up of other regions.⁴ When it became clear that administrative means are insufficient, Khrushchev undertook a reorganization of *Sovnarkhozes* in September 1962. *Sovnarkhoz* divisions were enlarged to overcome parochial tendencies, such that divisions now typically managed several neighboring administrative regions (see Fursenko 2004, pp. 576-596; the record of Khrushchev's speech at the Presidium/Politburo meeting on 20.09.1962 and Mieczkowski 1965).

2.3. *Reform of the party apparatus and the end of M-form hierarchy*

In late 1962, Khrushchev also initiated another major reform: a reform of the party apparatus, which separated regional party units into detached industrial and agricultural party bodies in more than half of the regions. This party-apparatus reform affected all regions with the exception of autonomous national republics and regions with clearly-pronounced agricultural specialization. Khrushchev believed that such reorganization would allow corresponding party officials to specialize either on agricultural or industrial issues and would shape their career incentives, which would benefit economic development

⁴ A law prescribing the priority of inter-regional contracts appeared in April 1958 (Swearer 1959, p. 59; Swearer 1962a, p. 468). In May 1958, the Presidium/Politburo of the Communist party discussed the practice of illegal resource allocation and decided to launch a national campaign against it (Fursenko 2004, p. 309, protocol of Politburo meeting on 06.08.1959). Several administrative and criminal investigations were initiated against plan-discipline violators (Swearer 1959 p. 59; Khlevnuk et al. 2009 document # 77, 15.09.1962). Strict restrictions were introduced to regulate the use of resources and investment funds by regional authorities (Swearer 1962b p. 33). In 1960 and 1961, the center established special government bodies, which were prescribed to coordinate inter-regional economic development.

(Fursenko et al. 2004 p. 576-596 records of Khrushchev speech at the Presidium/Politburo meeting on 20.09.1962).

The reorganization of regional party divisions turned out to be a fatal political mistake because, in regions that were affected by the reform, Khrushchev lost the political support of the incumbent regional first party secretaries, who were deprived of a substantial part of their (economic) power (Pikhoya 2000; Burlazkii 2008). As these incumbent secretaries were the members of the party Central Committee in 1964, in contrast to the ‘new’ secretaries promoted in 1962 who benefited from party reorganization, Khrushchev lost support of the Central Committee. This was decisive for the success of the intra-party coup of Leonid Brezhnev against Khrushchev in October 1964. (The details are provided in the on-line Historical Appendix.) In addition, historians agree that the separation of party units caused substantial disorganization, which negatively affected regional performance and gave Brezhnev reasons to blame Khrushchev for economic failures (Hanson 2003). Within days of the dismissal of Khrushchev, Brezhnev re-united regional party organizations and fully restored the powers of the ‘old’ incumbent secretaries (Armstrong 1966).

In September 1965, Brezhnev reversed the *Sovnarkhoz* reform and re-instituted traditional U-form hierarchy into industrial sectors (planned already in October 1964, Tomilina 2009, p. 194). The reintroduction of the production branch ministerial system deprived regional party secretaries of control over industry.

3. Hypotheses

Anecdotal evidence described in the previous section suggests that M-form hierarchy in the Soviet Union, i.e., the *Sovnarkhoz* system, did not generate economic growth. This stylized fact is in sharp contrast with the findings of the literature from China suggesting

that the M-form organization is responsible for the fast rates of Chinese economic growth (e.g., Qian and Xu 1993, Maskin, Qian and Xu 2000, Qian, Roland and Xu 2006, Jin, Qian and Weingast 2005). The theory of the growth-promoting M-form hierarchy relies on a necessary assumption of the self-sufficiency of the regional divisions (Maskin, Qian and Xu 2000, Xu 2011). Historical anecdotes about the problems of a hold-up with deliveries of raw materials of some regions by other regions in the Soviet Union, which escalated with the introduction of *Sovnarkhoz* system (described in Section 2.2.), illustrate that the assumption of self-sufficiency of the regions was violated in the case of at least some Soviet regions.

Our aim is to test empirically the premise of the theoretical literature that the success of inter-regional competition of the M-form hierarchy in generating growth depends on the extent to which regions are self-sufficient.

We first empirically establish the fact that regional leaders in Soviet Russia were subjected to relative-performance evaluation under the *Sovnarkhoz* reform, which displaced the U-form organization of Soviet industry and instituted the M-form; and this was not the case both before the reform and after its reversal.

Second, we test the hypothesis that the difference between regional performance during the M-form and U-form depends on the level of diversification of the regional economy. We expect well-diversified regions to grow faster during the *Sovnarkhoz* reform times and less diversified regions to grow slower.

Third, we test whether social networks between regional leaders could mitigate the negative externalities generated by the M-form hierarchy with poorly-diversified regional divisions. Since the adverse effects of inter-regional competition for performance of specialized regions are a result of uncooperative behavior of regional leaders, a social

network between them may help coordinate on policies that improve the overall outcome. Thus, we expect that the effect of the level of diversification on growth during M-form episode to be more pronounced in regions with leaders who have no horizontal social connections (measured by the common experience of the regional first party secretaries in the higher party school) and less pronounced in regions with leaders who have such social connections.

4.Data

We construct a dataset on career movements and individual characteristics of Soviet regional party leaders and industrial growth and demographic characteristics of Russia's regions between 1951 and 1967, i.e., before, during, and after the *Sovnarkhoz* reform.

We utilized four different types of data sources. First, we extracted data on regional party leaders' appointments and career paths from archival Politburo records organized by historians (Denisov et al. 2004; Khlevnuk et al. 2009). Second, we used biographies of regional leaders from Goryachev (2005) and Khlevnuk et al. (2009) to account for officials' individual characteristics. Two hundred and thirty seven different persons occupied offices of regional party leaders in Soviet Russia between 1951 and 1967. From their biographies, we know their personal characteristics, such as age and tenure in office; at that time, an average Soviet party leader was a male of forty-nine-and-a-half years old with four-and-a-half years of experience in the office.⁵ We also constructed proxies for regional leaders' vertical political connections. In particular, we documented whether a regional leader had any experience of work or study in Moscow. We also collected information on direct connections to the country's leaders, i.e., the experience of working together with the country's leaders before they occupied important positions in the

⁵ We do not register and control for regional leaders' gender because we have only one woman (Ekaterina Furtseva) in our dataset.

Kremlin. We coded connections to Nikita Khrushchev for 1953 – 1964 and connections to either Leonid Brezhnev or Alexei Kosygin for 1965 – 1967. Note that no regional leader had experience working with Stalin before he became the party leader in 1922. We also collected information on party leaders' involvement in horizontal social networks, namely, their experience attending the Higher Party School.⁶ More than two thirds of party secretaries had Moscow experience; forty percent graduated the Higher Party School, while only ten percent worked together with the country leaders at early stages of their careers.

Third, we gathered data on regional industrial performance from Soviet annual official statistical volumes on the Russian federation (*"Narodnoe khozyastvo RSFSR"*). Finally, we collected information on regional industrial structure from the former Soviet archives. In particular, we used unpublished materials of the 1959 Soviet population census (RGAE 1562/336/1620 -- 1624) and 1957 archival files on industrial employment produced by the Soviet Central Statistical Agency (RGAE 1562/332/6237, 6239, 6241).⁷ The data appendix provides further details.

We have information about eighty-five regions for seventeen years. The panel is unbalanced and has 1225 region-year observations because of a series of administrative-territorial reforms. Thus, there are sixty-nine regions for an average year in the dataset. There are some missing values for particular variables in several regions and years.

Table 1 summarizes changes in career status of regional leaders during the whole period for which we have data and for the years of the *Sovnarkoz* reform only. In total there were 77 cases of demotions, 57 cases of promotions and 1091 region-year observations when regional leaders either kept their offices or got a lateral transfer, 6.3, 4.7 and 89

⁶ The Higher Party School was established in 1939 in Moscow as an elite institution of Communist education that was supposed to produce managers for the party apparatus. It was attached and subordinated directly to the party Central Committee.

⁷ Soviet archival documents are numbered according to a Russian standard system: collection (*fond*), inventory (*opis*), file (*delo*). RGAE stands for Russian State Archive of Economy (*Rossiiskij Gosudarstvennij Archive Ekonomiki*).

percent of all observations, respectively. The frequency of career mobility during the *Sovnarkhoz* reform was very similar, with a slightly higher (5.3) percent of promotions. There was only one region where the single leader was in power over the whole period under study, and eleven regions with only lateral transfers. In an average region, four changes in leadership occurred during the seventeen years.

Table 2 provides summary statistics for the regional economic performance indicators and characteristics of the regional leaders. According to official records, Soviet industry grew at almost ten percent a year on average. Scholars agree that such a high figure is the result of the Soviet practice of aggregation, which artificially inflated growth rates.⁸ For our purposes, the upward bias of industrial growth rate figures is not a problem because the official figures are the only numbers that the central government knew. To evaluate relative regional economic performance, we also rank the regions by industrial growth rate, which range from one (the lowest industrial growth rate) to seventy-one (the highest).

Our measure of regional diversification is equal to one minus the Herfindahl-Hirschman index. To construct the index we use information on urban employment by twenty-two sectors from the unpublished part of the 1959 population census. The census did not register employment by branches of industry. To account for diversification within industry, we combine the data from the census records with the 1957 archival records on industrial employment by thirteen branches. As a result, we compiled data on employment in each of the thirty four sectors of the economy of each region and constructed the regional diversification measure based on these data.

The party reorganization reform occurred in 1963 – 1964. It affected forty-three out of the seventy-three regions that existed during these years. To account for this

⁸ Based on the assumption that Soviet disaggregated series in natural units were correct and not falsified (Harrison 2003), Sovietologists produced ‘true’ aggregated series of Soviet industrial development; they estimated that for the period 1951 - 1967 industrial growth was about eight percent (Bergson 1961, CIA 1990). There are no such estimates at the regional level.

confounding reform, we constructed a dummy that equals 1 in regions and years with party reorganization (i.e., seven percent of our sample).

5. Analysis

5.1. Relative performance evaluation under Sovnarkhoz reform

In this subsection, we test whether the relative regional industrial performance evaluation schemes were used during the *Sovnarkhoz* reform and whether this was not the case outside the period of the reform. The empirical approach in this subsection is similar to Li and Zhou (2005) and Chen, Li and Zhou (2005). Our main dependent variable here is an indicator of career mobility of regional party secretaries (denoted by C). In each region and each year, we code it as “-1” for demotion, “0” for staying at the same level (keeping the same position or a lateral transfer) and “1” for promotion. Our main explanatory variable is an indicator of industrial performance of a region. We use a linear OLS regression model with fixed region and year effects. To be precise, we estimate the following equation:

$$C_{it} = \alpha Y_{it} + \beta Y_{it} R_t + \gamma' P_{it} + \delta' X_{it} + \varphi_i + \tau_t + \sum_g \mu_g t D_g + \varepsilon_{it} \quad (1)$$

where subscripts i and t index regions and years, respectively. Y is a measure of economic performance of a region. In different specifications, as Y , we use the regional industrial growth rate or the rank of the region in the industrial growth rate. R is a dummy for the *Sovnarkhoz* reform period (1958-1964). The rest of the variables are controls to be described below. We employ current economic performance indicators because of the “permanent monitoring” principle formulated by Stalin as early as 1934 (see Stalin’s speech at the 17th Party Congress – Hoover/RGANI 59/2/1 f.92), according to which the center had to observe efforts and achievements of subordinators permanently and to

intervene immediately whenever necessary.⁹ P is a vector of proxies for the political connections of a regional party secretary, namely, a dummy for Moscow experience and a dummy for previous work experience with the current leader of the country. P is a necessary control variable, as historians point out that, throughout the history of the Soviet Union, political connections were an important determinant of career mobility of the regional party secretaries (Pikhoya 2000, Khlevnuk 2003, Lazarev and Gregory 2004; for details, see on-line Historical Appendix).

X is a vector of other control variables that includes logs of regional urban and rural population and personal characteristics of the regional leaders, namely, age, age-squared and tenure in office up to this point. Age-squared accounts for a potential non-linear effect of life-cycle on career. There is no retirement age due to the absence of forced retirement rules in the USSR. We also control for year fixed effects, τ_t , and region fixed effects, φ_i . Year effects take into account any time trends such as macroeconomic shocks or waves of appointments; regional fixed effects account for any unobserved cross-sectional heterogeneity. Given the size of Russia, we also introduce linear trends for eight mega-regions, i.e., North-West, Volga, Center, North Caucasus, Urals, West Siberia, East Siberia and Far East, indexed with g . These regional trends control for differential development of different parts of the country. D is a set of dummies for each of the mega-regions; and therefore, tD , are the mega-region linear trends. We exclude these linear trends from the list of covariates when considering regional rank as the performance indicator as there are no trends in ranks. Finally, ε is an error term, assumed to be uncorrelated across regions, but not necessarily within regions as we allow for clusters at the regional level. Since our dependent variable is ordinal in nature, non-linear models, such as the ordered probit

⁹ Hoover/RGANI stands for “Archives of the Former Soviet State and Communist Party’ from the Russian State Archives of Recent History (Moscow) at the Hoover Institution of War, Revolution, and Peace (Stanford, CA).

model, could potentially fit the data better and give higher efficiency. Nonetheless, in our baseline specification, we employ a linear regression model because fixed effects estimators for non-linear models can be severely biased due to an incidental parameters problem when the time span of the panel is small (e.g., Fernandez-Val 2009).¹⁰ We verified that all our results go through if we use the ordered probit and ordered logit instead of OLS.

One might argue that the central leader may have appointed his supporters into fast-growing regions in order to promote them later. If this were the case, our empirical methodology would have suffered from an endogeneity problem. Such endogeneity could be addressed only with a dynamic instrumental variable for regional industrial growth, which varies across regions and over time; and such a variable does not exist. Fortunately, such argumentation does not fit the historical accounts of the Soviet command system. In particular, it implies an extraordinary ability of the Soviet leaders to foresee future regional development. That is highly improbable when one considers the history of the collapse of the Soviet system and the organization of Soviet planning. The command system suffered severely from a problem of flow of information, which complicated forecasting and planning of economic development (i.e., Mises 1936, Gregory and Stuart 1998). Since Stalin, central leadership's involvement in the planning process was limited to decisions over a number of key national indicators (Gregory 2003, Gregory and Harrison 2005). Moreover, Soviet leaders possessed enormous political power and could appoint their supporters directly to key positions in the hierarchy, and there was no need for an intermediate step of appointments to fast-growing regions.

Table 3 presents the estimation results. The first two of the presented regressions use industrial growth rate as the performance indicator and the second two regressions use the

¹⁰ The estimations of binary conditional logit models, conducted separately for promotions and demotions – a potential solution for the incidental parameters problem – are not possible in our case because they would lead to a substantial reduction in the sample (of about forty to forty-five percent). The reason for this is that many regions experienced either only demotions or only promotions of party leaders during the period under study.

region's rank in industrial growth rate as the performance indicator. For each performance measure, we first present a regression without the interaction between the performance indicator and the reform period in the list of covariates and, second, we present it with this interaction. Thus, in the first case, the coefficient on the performance indicator reflects the average effect of performance on careers of regional leaders across all years (1951-1967). In the second case, this coefficient estimates the effect of performance on careers of regional leaders outside the reform period; whereas the coefficient on the interaction between the performance indicator and the reform period estimates the effect of performance on careers during the reform relative to the no-reform period. We find that, on average across all years, industrial growth and regional rank in industrial growth were not significantly related to career mobility of regional leaders (as reflected by columns 1 and 2 in Table 3). In contrast, as shown in columns 2 and 4 of the table, both the industrial growth and the regional rank in industrial growth were significant determinants of career advancement of regional leaders during the *Sovnarkhoz* reform. Thus, only during the *Sovnarkhoz* reform, regional leaders were subjected to an incentive scheme which gives rewards when the industrial growth rate in their region is above those observed in other regions. The power of these incentives is reflected in the magnitude of coefficients: a one standard deviation increase in the annual industrial growth rate of the region (equal to a 4 percentage point increase) during the reform led to a five percentage point increase in the probability of promotion to the center and a five percentage point decrease in the probability of being demoted. Since the average probability of being promoted was about 5% and the average probability of being demoted was about 6%, a standard deviation change in industrial growth rate almost doubled the likelihood of career advancement of a regional leader. Similarly, a one standard deviation increase in the rank of the region (equal to moving 20 positions up in the ranking) led to a four percentage point increase in the

probability of promotion to the center and a four percentage point decrease in the probability of being demoted.

It is worth noting also that the political connections variables behave as one would expect: both the connections to the leader and dummy for Moscow experience are positive; only the former is statistically significant, however. None of the other personal characteristics of regional leaders are significantly different from zero.

Overall, the results support our conjecture that industrial performance was important for the career advancement of regional leaders only under the *Sovnarkhoz* system; and therefore, we can conclude that the *Sovnarkhoz* reform instituted an M-form hierarchy.

5.2. Differential response to incentives created by *Sovnarkhoz* reform

In this subsection, we test for the differential response of the regions to the incentives created by the reform. In particular, we are interested in whether the level of industrial diversification of the regions affected the ability of the regional leaders to translate high-powered incentives into better performance. Thus, we regress the regional industrial growth rate (Y) on the interaction between the dummy for the time of the reform (R) and our measure of regional diversification minus its sample mean ($F - \bar{F}$), controlling for time and region fixed effects, linear trends for mega-regions and all other variables that were found to affect regional leaders' career concerns. Thus, our baseline specification is the following:

$$Y_{it} = \alpha R_t (F_i - \bar{F}) + \gamma' P_{it} + \delta' X_{it} + \varphi_i + \tau_t + \sum_g \mu_g t D_g + \varepsilon_{it}. \quad (2)$$

The notation is as in equation (1). Note that F , our measure of diversification, which is equal to one minus the Herfindahl-Hirschman index of branches of the regional economy, varies only across regions and not over time; whereas the reform/timing dummy R varies only over time and not across regions. Thus, in a panel specification with a full set of

regional and year fixed effects, we can only estimate the differences in responses of different regions to the reform depending on their level of diversification (estimated by α), and not the level of the average response of regions to reform, as it is collinear with time effects.

To evaluate the average effect of the reform on performance and address the question of how much diversification is required for the reform to have a positive effect on growth, we estimate an auxiliary regression suppressing time dummies, but including a dummy for reform period. In this specification, macroeconomic dynamics are accounted for by eight separate linear trends for each mega-region.¹¹ To be precise, the auxiliary specification is as follows:

$$Y_{it} = \alpha R_t(F_i - \bar{F}) + \beta R_t + \gamma' P_{it} + \delta' X_{it} + \varphi_i + \sum_g \mu_g t D_g + \varepsilon_{it}. \quad (3)$$

We subtract the sample mean from the diversification measure before taking its cross-term with reform dummy in order to have the coefficient on the reform dummy (β) in the auxiliary specification estimate the average effect of reform on a region with the average level of diversification.

Table 4 presents the results. The first column of Table 4 presents the estimation of equation (2). We find that the main coefficient of interest (namely, α in equation (2)) is positive and statistically significant. The magnitude of the effect is as follows: During the reform, two regions that had a one standard deviation difference in their respective levels of diversification exhibited on average one half of a percentage point difference in the annual growth rate (with more diversified region growing faster). This translated into a 3.2 percentage point difference in industrial growth over the reform period.

¹¹ We verified that linear trend is a good approximation for macroeconomic dynamics over the period under study. However, it is important to note that in auxiliary regressions we rely on over-time variation only, and this permits alternative interpretations of the results. Thus, one has to exercise caution in interpreting these results.

The results of estimation of equation (3) are presented in columns 2 and 3 of Table 4. The two presented regressions differ in the set of controls. In column 2, the set of controls is as above; and in column 3, we add an additional variable to the list of covariates, namely, a dummy equal to one for regions and years in which Khrushchev undertook reorganization of party apparatus (a confounding reform that took place in some regions between late-1962 and 1964, which we described in Section 2.3). Note that the inclusion of this additional control variable has no effect on our main coefficient of interest (α), namely, on the effect of the interaction between the reform and diversification and, therefore, the results of the estimate of α presented in column 1 (as well as all other columns in Table 4) are identical for specifications with and without this control. This control has an important effect on estimation of β , i.e., on the point estimate of the average effect of the *Sovnarkhoz* reform. In particular, if we do not account for the reform of party apparatus (see column 2), it appears that the *Sovnarkhoz* reform had a negative significant, albeit small in magnitude, effect on a region with the average level of diversification. Accounting for the confounding reform of party apparatus (see column 3) yields that the *Sovnarkho*” reform had no effect on regions with the average level of diversification, and which were not affected by party reorganization.¹² According to this specification, the *Sovnarkhoz* reform had a positive impact on the regional growth rate in 45 percent of the regions (those with relatively high diversification levels) and a negative impact on the rest. Under the counterfactual scenario with all regions having the same level of diversification as the most diversified one (i.e., the North Osetia Republic), the annual industrial growth rate of an average region would have been higher by 0.44 percentage points (i.e., it would have been equal to 9.71 percent instead of 9.27 percent). This translates into additional 4.15 percentage points of industrial growth lost during the entire period of the *Sovnarkhoz*

¹² The results of this estimation confirm anecdotal evidence (i.e., Hanson 2003) that party reorganization reform caused substantial disorganization, as the coefficient on the dummy for regions affected by party reorganizations is negative, large, and statistically significant.

reform, due to poor diversification of the regions. Under this counterfactual scenario, the *Sovnarkhoz* reform would have affected the industrial growth positively instead of having no effect in practice.

Overall, our main hypothesis that the regions with low levels of diversification perform poorly under M-form's relative-performance evaluation schemes finds support in the data. Regional leaders subjected to relative-performance evaluation schemes have incentives not only to improve growth in their own regions but also to inhibit growth in neighboring regions (We provide anecdotal evidence about this type of behavior in section 2.2.); thus, poorly diversified regions become vulnerable.

Potentially, inter-regional externalities could be internalized when regional leaders establish informal social ties with each other and agree to implement policies cooperatively. The Higher Party School, which some of the regional leaders attended together before or during their tenures as regional party secretaries, facilitated such relationships. Party officials from different regions had a chance to get to know each other during their study, which gave them a chance to coordinate on inter-regional policies (Denisov et al. 2004). The majority of regional leaders spent a couple of years at the Higher Party School roughly at the same time from the late 1940s to the early 1950s. It is important to note that the Higher Party School had no educational value, and it is doubtful that regional leaders could learn advanced management there because ideological issues dominated the school's program (Khlevnuk et. al. 2009). Thus, it could only serve as a tool for social networking.

In order to test whether social networks created during Higher Party School attendance could mitigate inter-regional externalities created by M-form yardstick competition, we estimate the effect of diversification separately for those party secretaries who attended and those who did not attend the Higher Party School. We operationalize this

by including triple interactions between reform period, diversification, and the attendance (or non-attendance) of the Higher Party School into equations (2) and (3). The results are presented in columns (4) and (5) of Table (4), respectively. We find that the industrial performance of those regions whose party secretaries did not attend the higher party school significantly depended on diversification of regional industry during the *Sovnarkhoz* reform. In contrast, the effect of diversification during the reform on the performance of regions whose party secretaries attended the higher party school is insignificant and smaller in magnitude (but the coefficient has a rather large standard error). This suggests that at least some party secretaries (although, certainly not all) among those who attended the Higher Party School formed social networks that allowed them to form policies cooperatively and not hinder the growth of each-others' regions (which would have been the uncooperative outcome). This evidence is merely suggestive, however, as the difference in the magnitude of the coefficients on the two triple interactions is statistically insignificant.

One can also wonder whether party school attendance helped industrial growth during the reform for a region with an average level of diversification; we present the results of this estimation in columns (6) and (7) as above, using specifications with and without time effects. Our coefficient of interest here is on the interaction between the reform dummy and school attendance dummy. We find that school attendance increased the regional annual growth rate by one percentage point during the reform for a region with an average level of diversification. This result holds also when we include both the interaction of reform with diversification and the interaction of reform with school attendance (see column 8 of Table 4): both interactions are individually and jointly significant in this specification.

5.3. Sensitivity tests.

We conducted several sensitivity tests to understand how robust our findings are to alternative specifications and sub-samples. First, we verified that none of our results depend on the set of included covariates. We experimented with exclusion of controls for individual characteristics of party secretaries and linear trends for mega-regions, and also with allowing trends for mega-regions to be non-linear. The results proved to be robust. Second, we excluded the years 1963 and 1964 for the regions where party units were divided into separate agricultural and industrial regional committees. Again, the results were robust to this change in the sample. Third, we repeated our exercises for the dataset without regions where only lateral transfers of regional leaders occurred and again got the same results. Fourth, we verified that our results are not driven by the inclusion of any specific region. Fifth, we verified that the results of the estimation of equation (1) are robust to the exclusion of appointments occurring in the first month of the year. (One could argue that such changes in offices were determined by the previous year's economic performance rather than the current one.) Sixth, our results are robust to including indicators of agricultural performance of the regions as control variables both at the first and the second stage of our analysis. The reason we do not include agricultural performance in our baseline specification is because of data limitations. Data on agricultural performance substantially reduce the sample size. We found that agricultural performance significantly affected career concerns of the regional leaders, but as agricultural and industry performance indicators are uncorrelated conditional on other covariates, the inclusion of the agricultural performance indicators does not affect the estimation of any of our parameters of interest. Thus, as a baseline, we report results for the longer series. Seventh, we checked that our results are not driven by other region-specific reforms initiated by Khrushchev (and we account for other nation-wide Khrushchev policy initiatives with year dummies). In particular, we controlled for possible

confounding effects of the virgin-land campaign and of the closing of Gulag camps, both of which affected subgroups of regions (Hanson 2003). Our results proved to be robust. Finally, we checked whether the results of the estimation of equation (1) are sensitive to the choice of functional form. We used ordered probit and ordered logit models and found that all the results hold. The results of all of these sensitivity tests are available from the authors upon request. Overall, we find that the results are robust.

6. Conclusions

The main contribution of our analysis is in testing how the performance of an M-form hierarchy depends on the level of diversification, and thus, self-sufficiency of the territorial divisions. In the context of the *Sovnarkhoz* reform in the USSR, we show that poorly diversified regions experience a significant economic slowdown when regional leaders are subjected to the relative-performance evaluation schemes of the M-form hierarchy. In contrast, well-diversified regions perform better under these circumstances.

Previous empirical literature on the comparison of incentives of bureaucrats and outcomes in the U-form and M-form hierarchies was based primarily on cross-country comparisons between China and the Soviet Union. It argued that, in the absence of economies of scale, M-form produced better outcomes. In contrast to this literature, we study the change of organizational form within one country, namely, the introduction and reversal of the *Sovnarkhoz* reform in the USSR. Our analysis shows that the concentrated industrial structure of territorial divisions poses a serious limitation to the argument for superior performance of M-form hierarchies.

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Table 1. Changes in career status of regional party secretaries

| | 1951-1967 whole period | | 1958-1964 <i>Sovnrakhoz</i> reform | |
|------------------------------------|---------------------------|-------|---------------------------------------|-------|
| | frequency | % | frequency | % |
| Demotions | 77 | 6.29 | 32 | 6.27 |
| Stay in office or lateral transfer | 1091 | 89.06 | 452 | 88.45 |
| Promotions | 57 | 4.65 | 27 | 5.28 |
| Total | 1225 | 100 | 511 | 100 |

Table 2. Summary statistics for the regional economic performance indicators and characteristics of the regional leaders, 1951-1967

| | Obs | Mean | Std. dev. | Min | Max |
|---|------|--------|-----------|-------|------|
| Industrial growth rate | 1167 | 0.1 | 0.04 | -0.12 | 0.31 |
| Rank of the region in industrial growth | 1167 | 34.86 | 19.89 | 1 | 71 |
| Diversification index | 72 | 0.91 | 0.023 | 0.78 | 0.94 |
| Regions with party reorganization | 1233 | 0.07 | 0.25 | 0 | 1 |
| Higher party school attendance | 1222 | 0.36 | 0.48 | 0 | 1 |
| Moscow experience | 1222 | 0.7 | 0.46 | 0 | 1 |
| Connection to the Leader | 1222 | 0.1 | 0.3 | 0 | 1 |
| Age | 1222 | 49.4 | 5.1 | 33 | 66 |
| Age2 | 1222 | 2467.8 | 507.4 | 1089 | 4356 |
| Tenure | 1223 | 4.4 | 4 | 1 | 35 |

Table 3. Relative performance evaluation under the *Sovnarkhoz* reform.

| | Career movements of regional party secretaries: demotion (-1); lateral or no move (0); promotion (1) | | | |
|--------------------------------------|---|-----------|----------|----------|
| Industrial growth rate | 0.34 | -0.09 | | |
| | [0.27] | [0.33] | | |
| Industrial growth rate x Reform | | 1.12 | | |
| | | [0.46]** | | |
| Rank in industrial growth | | | 0.001 | -0.0002 |
| | | | [0.001] | [0.001] |
| Rank in industrial growth x Reform | | | | 0.002 |
| | | | | [0.001]* |
| Connection to the Leader | 0.17 | 0.17 | 0.15 | 0.15 |
| | [0.06]*** | [0.06]*** | [0.06]** | [0.06]** |
| Moscow experience | 0.05 | 0.05 | 0.05 | 0.05 |
| | [0.04] | [0.04] | [0.03] | [0.03] |
| Age | -0.04 | -0.04 | -0.04 | -0.04 |
| | [0.04] | [0.04] | [0.04] | [0.04] |
| Age2 | 0.0004 | 0.0004 | 0.0004 | 0.0004 |
| | [0.0004] | [0.0004] | [0.0004] | [0.0004] |
| Tenure | -0.01 | -0.01 | -0.01 | -0.01 |
| | [0.01] | [0.01] | [0.01] | [0.01] |
| Urban and rural population (in logs) | yes | yes | yes | yes |
| Linear trends for mega-regions | yes | yes | no | No |
| Year and region fixed effects | yes | yes | yes | yes |
| Observations | 1129 | 1129 | 1129 | 1129 |
| R-squared | 0.15 | 0.15 | 0.14 | 0.14 |

Note: "Reform" is a dummy for the period of *Sovnarkhoz* reform. Standard errors corrected for clusters at the level of regions in brackets. * significant at 10% level; ** significant at 5% level; *** significant at 1% level.

Table 4. Differential effect of reform on regions with different level of diversification

| | Regional industrial growth rate | | | | | | | |
|---|---------------------------------|-----------|------------|------------|------------|----------|------------|----------|
| Diversification x Reform | 0.18 | 0.17 | 0.17 | | | | | 0.15 |
| | [0.07]** | [0.08]** | [0.07]** | | | | | [0.07]** |
| Reform | | -0.005 | -0.001 | | -0.005 | | -0.01 | |
| | | [0.002]** | [0.002] | | [0.003]* | | [0.003]*** | |
| Diversification x Reform x no Higher Party School | | | | 0.16 | 0.15 | | | |
| | | | | [0.07]** | [0.07]** | | | |
| Diversification x Reform x Higher Party School | | | | 0.11 | 0.11 | | | |
| | | | | [0.21] | [0.21] | | | |
| Higher Party School x Reform | | | | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | | | | [0.01] | [0.005]* | [0.005]* | [0.006]** | [0.005]* |
| Higher Party School | | | | -0.003 | -0.006 | -0.004 | -0.007 | -0.004 |
| | | | | [0.005] | [0.006] | [0.005] | [0.006] | [0.005] |
| Regions with party reorganization | | | -0.026 | -0.016 | -0.026 | | | |
| | | | [0.004]*** | [0.006]*** | [0.004]*** | | | |
| Connection to the Leader | -0.001 | -0.003 | -0.004 | -0.001 | -0.004 | -0.002 | -0.004 | -0.001 |
| | [0.004] | [0.005] | [0.005] | [0.005] | [0.005] | [0.004] | [0.005] | [0.004] |
| Moscow experience | -0.003 | -0.005 | -0.006 | -0.004 | -0.005 | -0.003 | -0.004 | -0.003 |
| | [0.003] | [0.003] | [0.003]* | [0.004] | [0.004] | [0.004] | [0.004] | [0.004] |
| Personal characteristics | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Urban and rural population (in logs) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Linear trends for mega-regions | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Regional fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | No | No | Yes | No | Yes | No | Yes |
| Overall linear trend | No | Yes | Yes | No | Yes | No | Yes | No |
| Observations | 1116 | 1116 | 1116 | 1116 | 1116 | 1129 | 1129 | 1116 |
| R-squared | 0.39 | 0.30 | 0.32 | 0.40 | 0.32 | 0.38 | 0.30 | 0.39 |

Note: "Reform" is a dummy for the period of *Sovnarkhoz* reform. Standard errors corrected for clusters at the level of regions in brackets. * significant at 10% level; ** significant at 5% level; *** significant at 1% level. The sample mean is subtracted from Diversification before the cross-term with Reform is taken. The inclusion of a dummy for regions with party reorganization into the list of covariates does not change the estimated coefficient on Diversification x Reform irrespective of specification. Age, age-squared, and tenure are included as controls in all specifications.

Data Appendix.

We combine four sources of information to construct our dataset: (1) list of regional leaders' appointments from archival Presidium/Politburo records (Denisov et al. 2004; Khlevnuk et al. 2009; also available at: <http://www.socialsciences.manchester.ac.uk/disciplines/politics/research/SovietProvinces/archive/FirstSecretaries.htm>); (2) biographies of regional leaders from Goryachev (2005) and Khlevnuk et al. (2009); (3) data on regional economic performance from Soviet annual official statistical volumes on Russian federation ("*Narodnoe khozyastvo RSFSR*"); (4) archival files on urban employment by twenty two sectors in 1959 (from the unpublished part of the 1959 population census which is located in the former Soviet archives, RGAE 1562/336/1620 -- 1624) and on industrial employment in 1957 (from the Soviet Central Statistical agency materials located in RGAE 1562/332/6237, 6239, 6241). The interaction of these sources cover the time period between 1951 and 1967.

Our dataset includes only autonomous republics, Oblast's and Kraies of the Russian Federation, but not autonomous Okrugs or autonomous Oblast's given different decision-making mechanisms on appointments of their leaders. The number of regions varied during the period under study as a result of series of administrative-territorial reforms. Several new regions like Belgorod (1954), Lipetsk (1954), Kalmykia (1957) etc. were established; others like Velikii Luki (1957), Kamensk (1956), Balashev (1956) were divided between their neighbors; finally borders of several regions (Rostov, Volgograd, Saratov in 1956 or Pskov and Tver' in 1957) were changed. Regions from the later group enter as separate pre- and post-reform units into our dataset.

Because of the advantage of declassified archival information on party leaders' appointments, there are no gaps in our data on regional leaders' career mobility. The only appointments which we do not include into our analysis are appointments of those secretaries who worked less than a year in their offices. There were 5 such secretaries during our period under study. We also do not consider 'new' regional party secretaries promoted as a result of the 1962 party apparatus reorganization because there was no turnover at all among them during 1963 – 1964, i.e., the two years when the separated party units existed and these "new" people served as secretaries.

We employ the following classification procedure, coding regional leaders' careers. We consider positions in the Politburo or the Politburo's Secretariat as promotions for regional leaders as well as posts of all-union ministers and their first-deputies, heads of Central Party and State Control Commissions, heads of main departments in the party Central Committee's apparatus and posts of first secretaries of union republics. Ambassadors in socialist countries, key officials in the central party apparatus are equal in our classification to the position of a regional first party secretary. Finally, we count transfers to positions of regional second party secretaries, heads of regional governments, plant directors, etc. as demotions. We code the single case of suicide as a demotion. We also code retirement as demotion due to the absence of forced retirement age in the USSR. (Full description of our codification is available from the authors by request.)

On-line Historical Appendix

Table A1. Milestones of the political struggle after Stalin's death and of the organizational reforms in the USSR.

| Date | Struggle for power | Organizational reforms |
|---------------------|---|---|
| Mar 1953 | Stalin's death | |
| Sep 1953 | Khrushchev elected the Party leader | Khrushchev: 'local and regional party secretaries are responsible for agriculture' |
| Jan 1955 | Malenkov was dismissed from the Prime Minister position, but remained a member of the Politburo of the CPSU | |
| Feb 1956 | XX party congress: Khrushchev did not get a majority in the Politburo | Khrushchev: 'regional party secretaries have to supervise economy' |
| Jan – Jun 1957 | | Discussion and elaboration of the <i>Sovnarkhoz</i> reform |
| Jun 1957 | 'Anti-party' group tried to dismiss Khrushchev | |
| Second half of 1957 | | Realization of the <i>Sovnarkhoz</i> reform |
| Apr 1958 | Bulganin retired from the Prime Minister position. Khrushchev combined the leadership of the party and the state apparatus. | Law prescribing the priority of inter-regional contracts |
| May 1958 | | The Politburo blamed 'non-authorized' allocation of resources by regions |
| Jun 1960 – Apr 1961 | | Introductions of inter-regional bodies |
| Nov-Dec 1962 | | 1962 reorganization of <i>Sovnarkhoz</i> system: introduction of production branch 'state committees' (ministries), centralization of construction, separation of regional party committees and enlargement of economic regions |
| Oct 1964 | Brezhnev dismissed Khrushchev in a party coupe | |
| Nov 1964 | | Reunification of party regional committees (reversal of the separation reform of 1962) |
| Sep 1965 | | Full restoration of the ministerial system |

A.1. Historical evidence on career concerns of regional leaders in Soviet Union

Recent historical research in declassified Soviet archives provides new details on factors influencing the career mobility of regional leaders. Historical documents published in Denisov et al. (2004) demonstrate that the center carefully monitored regional leaders. Regional party organization had to regularly present information about the performance of local managers and to send their representatives to Moscow to report personally at least once a year (Denisov et al. 2004 document #18, 26/01/1953; document #21, 05/10/46). The volume describes several cases of local party secretaries' demotions after the Second World War. In several of them poor economic performance of their regions was named by higher officials as an important reason for their removal (see cases of Vladimir and Ivanovo 1947,

Ryasan' 1948, Kursk 1950, Kirov 1952 etc.: documents # 76-78; 82; 119-121; 127-130 in Denisov et al. 2004). These cases suggest that the central government paid special attention to regional agricultural performance and, especially, to the fulfillment of area-under-crops plans before Khrushchev. Khlevnuk et al. (2009) published recently declassified historical documents which show that in many cases, in years when Khrushchev was in power, the dismissal of regional leaders was caused by the poor performance in terms of agricultural production as well as industrial growth of regions under their control (Bryansk 1954; Yaroslavl' 1954; Karelia 1955; Vologda 1955; Sverdlovsk 1955 etc. documents # 11-12; 13-15; 16; 17; 18).

There is also some historical evidence that political connections were also important for regional leaders' careers (Khlevnuk 2003). For instance, in the 1920s Stalin used his position as General Secretary of the Communist party to place his supporters in key positions in the apparatus, including regional offices. Lazarev and Gregory (2004) provide a case study of the allocation of cars among party elites, demonstrating that the dictator also used his control over the distribution of resources to maintain the loyalty of his supporters. Personal connections to the leadership were particularly important under Leonid Brezhnev, who relied heavily on political loyalty in his relations with subordinates (Pikhoya 2000). He promoted many of his former colleagues, e.g., Andrei Kirilenko, Nikolai Shchelokov and Vladimir Sherbitskii (*Dneproterovsk* clan, named at the city where Leonid Brezhnev was a regional party secretary in Stalin's time). In the relations with regional elite Brezhnev introduced the policy of "no-turnover of cadres," which postulated no demotions except in extraordinary circumstances (Khlevnuk 2003).

A.2 Power struggle after Stalin's death and the stages of Sovnarkhoz reform

Table A.1 overviews the main historical events in the power struggle after Stalin's death and the organizational reforms that were set off by it.

In March 1953 Khrushchev was not on the top of the list of Stalin's likely successors. The main candidate, Georgii Malenkov, inherited the post of the head of the Soviet government from the dictator, while Khrushchev became 'just' a party secretary, and was promoted to the (All-union) first party secretary in September 1953 (the position did not exist before then). During the next four years Khrushchev and Malenkov were in a political battle. Malenkov, as the head of the Soviet government, had political support of the state apparatus, including production branch ministries. In contrast, Khrushchev, as the leader of the party, relied heavily on the party's political support, and, especially, on the regional party secretaries.

Khrushchev acquired the support of regional party leaders by means of canceling secret police monitoring of their work and granting them more authority in local decision-making (Khlevnuk et al. 2009). In addition, Khrushchev promoted many of his supporters to key regional positions (Rigby 1984, Khlevnuk 2003).

In January 1955, Khrushchev managed to dismiss Malenkov from the Prime Minister position, but Malenkov remained a member of the Presidium of the Communist party (an official name of the Politburo under Khrushchev) (Fursenko et al. 2004, p. 35, protocol of the Presidium/Politburo meeting on 22.01.1955).

In late January 1957, Khrushchev started the *Sovnarkhoz* reform. As the reform made regional officials responsible for industrial development of their regions, it meant a drastic reallocation of power from ministerial elites in the center to the regional elites, and, most importantly, to regional party leaders. The ministerial lobby in the Presidium/Politburo tried to sabotage the reform (Fursenko et al. 2004 pp. 221-223, 236-241 protocol of the Presidium/Politburo meeting on 28.01.1957, 22.03.1957; Kovaleva et al. 1998 pp. 194 -

195). Moreover, having a majority in the Presidium/Politburo of the Central Committee of the Communist party, the ministerial lobby attempted to dismiss Khrushchev from his office in June 1957. In response, Khrushchev called a meeting of the Central Committee, where regional secretaries constituted a majority, in which he managed to crush the opposition (the so-called “anti-party group of Malenkov-Molotov-Kaganovich”). Soon Khrushchev became the undisputed leader of the country: in April 1958 he replaced Bulganin, who was discredited by his support of the ‘anti-party’ group, in the office of the head of the Soviet government. Khrushchev’s victory also meant that the realization of the *Sovnarkhoz* system was put into practice during the second half of 1957. The *Sovnarkhoz* system was built through a trial-and-error process during late 1957 and early 1958 (Swearer 1962). Regional leaders lobbied for the widening of their authority (Swearer 1959 p. 56). Some of them went as far as suggesting instituting fiscal federalism (Churchward 1977). Khrushchev rejected these initiatives. Nonetheless, Khrushchev carefully took into account the interests of regional secretaries. Initially, Khrushchev envisioned few regional economic bodies (*Sovnarkhozes*), such that each *Sovnarkhoz* is responsible for several administrative regions, which supposed higher level of diversification. Regional officials, however, successfully lobbied for their own unshared *Sovnarkhozes* (Swearer 1959).

In addition, in 1962, Khrushchev separated party units into detached industrial and agricultural party bodies in slightly more than one-half of the regions. Khrushchev stated that the new system would allow regional party secretaries to focus on a particular sector of the regional economy and help to boost economic performance (Fursenko 2004, pp. 576-596; record of Khrushchev’s speech at the Presidium/Politburo meeting on 20.09.1962). Historians agree that the separation of party units caused chaos in management and proved to be counter-productive (Hanson 2003).

Many writers name the separation of the party units as one of important reasons for the success of the coup against Khrushchev (Pikhoya 2000; Burlazkii 2008). The reason is that Khrushchev lost the political support of regional leaders who were members of the party Central Committee. Only the ‘old’ secretaries were members of the party Central Committee in 1964; and the ‘new’ secretaries promoted in 1962 were not.¹³

The ministerial lobby in the center also played an important role in helping Brezhnev’s plot against Khrushchev. Once Khrushchev was removed in October 1964, Alexei Kosygin – an influential Soviet industrial top-manager - became the head of the government, as a part of duumvirate with Leonid Brezhnev. Brezhnev and his allies in Moscow stated that the *Sovnarkhoz* system undermined the power of the center (Fursenko 2004, pp. 862-872 protocol of the Presidium/Politburo meeting on 13.10.1964; Vestnik ... 2006, p. 32-43 Record of Brezhnev’s speech at the meeting of Leningrad regional party organization on 12.07.1965). While the new government reintroduced production branch ministries almost a year after the coup, Brezhnev and his allies had planned this reform from their very first day in power (Tomilina 2009 p. 194; a draft of the Presidium/Politburo report to the party Central Committee meeting on 13.10.1964). They arguably postponed the reform to ensure the support of regional elites. The reintroduction of the production branch ministerial system deprived regional party secretaries of control over industry.

¹³ The reform was planed and realized between the 22nd and 23rd Communist party congresses, occurring in 1961 and 1966, respectively. Only the congress could formally appoint the Central Committee; and in 1961 future ‘new’ secretaries had too low political ranks to be elected into the committee.

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