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Guirkinger, Catherine; Aldashev, Gani; Aldashev, Alisher; Fodor, Mate

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ECONOMIC PERSISTENCE DESPITE ADVERSE POLICIES: EVIDENCE FROM KYRGYZSTAN*

Catherine Guirkinger, Gani Aldashev, Alisher Aldashev and Mate Fodor

We study the long-run persistence of relative economic well-being under adverse government policies using a combination of historical and contemporaneous data from Kyrgyzstan. After controlling for unobservable local effects, the economic well-being of Kyrgyz households in the 2010s correlates with the early twentieth-century average wealth of their tribes. Inequality at the tribe level in the 2010s correlates with wealth inequality in the early twentieth century. The likely channels of persistence are the inter-generational transmission of human capital, relative status, political power and cultural traits. Transmission of material wealth, differences in natural endowments or geographic sorting cannot explain persistence.

Questions of increasing inequality and declining social mobility, and the role of government policies in affecting these trends, are at the forefront of public debates. Relatedly, economics has been experiencing a recent boom in research on the distribution of income and wealth (see the reviews by Piketty and Zucman, 2015; Benhabib and Bisin, 2018) and on inter-generational mobility in economic outcomes (see the review by Solon, 2018).

In this paper, we analyse long-run persistence of the distribution in economic well-being in the face of massive (and violent) Soviet expropriative and redistributive policies, using a unique combination of rich historical and contemporaneous data from Kyrgyzstan. We document that even after controlling for unobservable local effects, the economic well-being (measured with income, expenditures and assets) of Kyrgyz households in 2011–13 strongly correlates with the early twentieth-century average wealth of the tribes to which the household heads belong. Furthermore, the degree of economic inequality among tribe members today correlates with the wealth inequality within tribes in the early twentieth century. This persistence is surprising given the extreme equalising policies conducted by the Soviet government from 1917 to 1991 (the collectivisation drive, mass purges targeting the wealthy and the middle-class citizens, and the virtual absence of private property) and the Soviet campaigns to eradicate tribal identity.

Next, we focus on the potential channels behind this persistence. The Soviet policies allow us to rule out the transmission of wealth or other tangible assets. By using the local-level geographic fixed effects, we exclude that the observed correlation is driven by natural endowment differences (in the location of tribes) or by geographic sorting of erstwhile richer tribes into better-endowed locations. Using information about the parents of respondents in the contemporaneous data, we find support for the transmission of intangible assets, such as human and social capital. There is a positive correlation during the Soviet period between the pre-Soviet wealth of tribes and the

* Corresponding author: Gani Aldashev, ECARES, SBS-EM, Université libre de Bruxelles (ULB), 50 Avenue F Roosevelt CP 114/04, 1050 Brussels, Belgium. Email: gani.aldashev@ulb.be

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The data and codes for this paper are available on the Journal website. They were checked for their ability to reproduce the results presented in the paper.

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relative position in society that members of these tribes have reached, with respect to the skill type of occupation and sector of activity, although not in terms of years of formal education. We also document significant differences in tribe-level cultural traits. Finally, combining the pre-Soviet data with the 1970s data on the political elite of Kyrgyzstan, we find that the once-wealthier tribes exhibit a disproportionately larger representation in the Soviet-period's political elite.

Our findings have important implications for the policy debate on inequality and social mobility. Vilfredo Pareto (1897) argued that 'in all places and at all times, the distribution of income remains the same. Neither institutional change nor egalitarian taxation can alter this fundamental constant of social sciences' (as cited in Samuelson, 1972, p. 404). Our findings lend support to Pareto's Law, by showing that wealth taxation—even in its extreme form as practised by the Soviet government—does not seem to revert the fortunes within a society. This is because the groups that are ranked higher in terms of their pre-policy wealth adjust by shifting to other non-taxable channels of inter-generational transmission of well-being and status.

We contribute to two large strands of literature. The first focuses on the long-run persistence in relative wealth and income levels. These studies analyse the datasets that link individual units across several generations, either through administrative records (see Chetty *et al.*, 2014; Chetty *et al.*, 2017, for the United States; Boserup *et al.*, 2016, for Denmark; Adermon *et al.*, 2018; Black *et al.*, 2020, for Sweden) or by relying on linking the units through surnames (Clark, 2014; for specific countries, see Clark and Cummins, 2015, for Britain; Barone and Mocetti, 2016, for Italy; Clark *et al.*, 2017, for Australia). This literature agrees on persistence of economic well-being across generations, although the debate remains open regarding the degree of persistence. Our contribution is to study persistence in a context of strongly expropriative government policies, aimed precisely at halting persistence.

In all the contexts studied so far, with the exception of China, there was relatively little disruption in the overall economic system and social life across generations. Two studies find results similar to ours. Clark (2014, ch. 9) compares people with the same surnames before and after the Cultural Revolution and finds a surprisingly high degree of persistence in social status. An advantage of our analysis over the surnames-based method is that we can match all household records in a nationally representative survey while the analysis of surnames needs to focus on sufficiently rare surnames that can be tracked over time (which is a particularly challenging endeavour in the case of China). The study closest to ours is Alesina *et al.* (2020). They analyse the correlation in individual-level economic outcomes of three generations of Chinese citizens: current day, their parents (growing up during the Cultural Revolution period) and their grandparents (who came of age before the 1950 revolution). Their main finding is that the equalising effect of the Communist regime policies gives way to a strong re-emergence of the inequality and rankings in economic outcomes after the 1978 pro-market reforms. In terms of the main mechanism, the authors argue in favour of the transmission of cultural values by using the comparison between current-day Chinese who grew up with their parents (and hence could inherit their cultural values) and those whose parents died early (and thus the cultural transmission mechanism was unlikely to be at play). Apart from being focused on a different geographic setting, our paper differs from theirs in two aspects. First, the length of the period with expropriative policies was much longer in Kyrgyzstan as compared to China (1928–89 versus 1950–78). Hence, our findings indicate that the non-wealth channels of transmission can operate under expropriative policies over several generations. Second, in terms of channels of persistence, Alesina *et al.* (2020) mainly focus on culture, whereas we also find some support for transmission of human capital (occupations) and political capital (top politician positions).

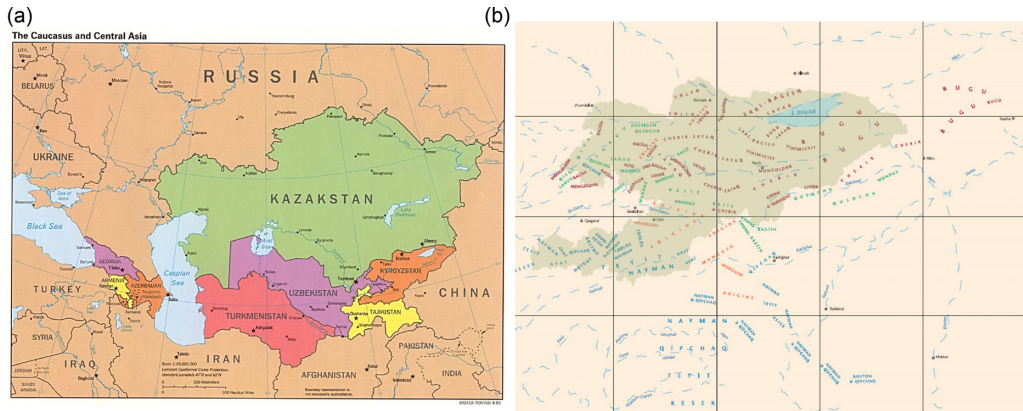


Fig. 1. *Modern-Day Frontiers of Kyrgyzstan and the Historic Tribal Areas.*

Notes: Panel (a): From Perry-Castañeda Library Map Collection, University of Texas. Panel (b): Based on Bregel (2003, Map 39), overlaid with the current-day borders of Kyrgyzstan. The darker area in Panel (b) corresponds to the current-day territory of Kyrgyzstan. Ong Qanat ('right wing') tribes are in red/orange, Sol Qanat ('left wing') tribes are in green, Ichkilik ('inner') tribes in blue.

The second strand focuses on the role of traditional institutions in economic development. In addition to the extensive analysis of the caste system (see Munshi, 2019, for a recent review of this literature), a growing literature in development economics and economic history has recently started to analyse the economic role played by institutions of clans and tribes. Some authors highlight the negative aspects of tribal and clan-based institutions. For example, Moscona *et al.* (2020) find that ethnic groups that are organised around segmentary lineages are more prone to conflict. Other scholars (Greif and Tabellini, 2010; 2017; De la Croix *et al.*, 2018; Enke, 2019; Acemoglu and Robinson, 2020), conversely, underline the positive aspects of tribal institutions, such as solidarity norms, democratic culture and enforcing social cooperation. We contribute to this literature by showing that the tribal or clan-based social structure is highly resilient in the face of aggressive adverse government policies aimed at equalising wealth distribution and undermining the traditional system (by deliberately replacing it with a more aggregate-level identity).

1. Historical Context

A confederation of ethnically and linguistically close nomadic pastoralist tribes known today as the Kyrgyz people consolidated into three large groups of tribes in the early sixteenth to mid-eighteenth centuries. During the nineteenth century, some of the Kyrgyz tribes sought the protection of the Russian Empire (against the neighbouring powerful Kokand kingdom) and gradually the Russians acquired military control of the entire territory of modern-day Kyrgyzstan (see Figure 1 for the modern-day boundaries of Kyrgyzstan).

The abolition of serfdom in 1861 in Russia triggered the process of Russian peasant migration into Central Asia. It was a massive process, so that by the 1900s, the ethnic Kyrgyz constituted only 60% of the population of the modern-day Kyrgyzstan's territory and towards the end of the nineteenth century the Russian Empire fully converted the protectorate into a colony. The

rising land pressure on the Kyrgyz tribes put the nomadic pastoralist economic system under strain and the Kyrgyz population had to rely ever more on sedentary agriculture. This period was characterised by the impoverishment of the Kyrgyz population and numerous episodes of anti-Russian revolts that were violently repressed by the empire (Asankanov *et al.*, 2017, p. 105).

Kyrgyz society was structured by a hierarchical system of tribal relationships. There were three large tribal groups (wings), which consisted of several tribes (*uruu*), further divided into clans (*uruk*) and sub-clans. Each of these units corresponded to families whose male descendants belonged (or were believed to belong) to the same lineage. Traditionally, a clan was headed by an elderly male (*manap*), and the council of *manaps* of all the clans jointly ruled the tribe. There were about 35 main tribes (for a total population of ethnic Kyrgyz of slightly more than 400,000 individuals around 1910). Political actions (settlement of large-scale land disputes, alliances with the Russian administration) were in the hands of clan elders. Clans actively intervened in and regulated the social behaviour of their members. Marriages were often used as a way of reinforcing the strategic relationships and alliances between clans (Asankanov *et al.*, 2017, p. 292). Clans also played a major role in regulating access to land and coordinating seasonal migration (between winter and summer pastures). Livestock was the private property of individual households, but pasture land was owned by clans.

After the 1917 Russian Revolution, Bolsheviks launched several land redistribution reforms. These reforms involved the collectivisation of land and livestock and the formation of kolkhozes. They targeted rich members of society, which led to the clan leaders and their households (about 500 households in Kyrgyzstan) being singled out for the confiscation of their wealth and for exile into Siberia and Ukraine (Sarsenbaev, 2013). By 1935, 85% of the land suitable for agriculture in Kyrgyzstan was collectivised (Junushaliev, 2003, p. 160). The clan structure received a further blow from the policy that explicitly forbade the formation of villages on the kinship basis during the transition from nomadic pastoralism to sedentary agriculture (Junushaliev, 2003, p. 129).

This set of policies was a huge shock to the economic system of Kyrgyzstan. The breakup of the social structure that followed the expropriation and the exile of the *manaps*, coupled with the poorly organised kolkhoz system and the general lack of trust of the population, led to a collapse in agricultural productivity and the famine in 1932–33. This was aggravated by the in-migration of Kazakh families escaping an even more severe famine driven by the same factors. Yet, despite facing these massive social problems, the party rule persisted in its ideological drive.

Under the Soviet regime, Kyrgyzstan remained economically marginal within the USSR: in 1979, Kyrgyzstan was the second-poorest republic in the Soviet Union (Anderson, 2013). Similar to the rest of the USSR, income and wealth distributions in Kyrgyzstan were highly compressed. In addition to collectivisation, the state regulation of the labour markets guaranteed minimum income and employment. The transmission of material assets through inheritance was extremely limited, not so much because inheritance was forbidden but because ‘with preponderant public ownership of the means of production ... accumulation of private wealth is limited’ (Bergson, 1984, p. 1089).

The Soviet state apparatus also conducted active policies against clan-based institutions. The clan identifiers (recorded by the pre-Soviet scholars and statisticians) were suppressed in almost all the data collected in the Soviet period (Junushaliev and Ploskikh, 2000). The Soviet ideological apparatus transformed Kyrgyz traditional milestone ceremonies (marriages, funerals), eliminating from them any clan-based elements. More generally, the objectives of the state ideology were the levelling of national ethnic features and the creation of a new community of people along

the communist ideal. On the surface, the majority of traditional social norms and structures were lost; however, in the years of post-Soviet transformation, many elements of this past cultural life re-emerged (Asankanov *et al.*, 2017, p. 501).

The collapse of the Soviet Union in 1991 triggered a deep economic crisis in all ex-Soviet republics, and those at the periphery of the Union (including Kyrgyzstan) were particularly affected. Ex-state companies and their employees found themselves with virtually no effective demand for their goods (Blanchard and Kremer, 1997; Suesse, 2018). Most of these companies went bankrupt and lost most of their (often skilled) personnel. In Central Asian republics, many citizens reverted to small-scale trade. This crisis led to a sharp rise in poverty: the poverty headcount ratio in Kyrgyz Republic in 1993 stood at 86%, the highest among all the transition economies (Milanovic, 1998).

2. Data

Our sources can be divided into three groups: (a) pre-Soviet data from Russian colonial expeditions of 1907–13; (b) the Soviet data (from ethnographic expeditions and administrative registries of elected politicians in the 1970s); and (c) the post-Soviet household survey of 2011–13.

2.1. Pre-Soviet Data

To determine the tribes' economic situation at the beginning of the twentieth century, we rely on records from two Russian colonial expeditions that were conducted between 1907 and 1913 in the territories that cover present-day Kyrgyzstan and Kazakhstan (Skryplev, 1911; Skryplev, 1913a,b; Skryplev, 1915; Rumyantsev, 1916a,b).¹

These records contain information on the composition of families and their economic well-being at the extended family level. Most importantly, they include information on kinship (sub-clan names) of each extended family, which allows us to identify the tribe to which each extended family belongs. After matching the tribes, we obtain a sample of 4,702 extended families from 34 different tribes. Panel (b) in Figure 1 shows the approximate location of the pastures of all the major Kyrgyz tribes in the early twentieth century. There is no clearly marked geographic separation of tribes and a given tribe is typically present in several territories.

Based on these data we construct measures of material well-being in the past at the tribe level. We rely on two main variables available at the extended family level: livestock ownership per capita (expressed in the equivalent of adult horses) and cultivated land per capita (expressed in desyatinas).² As livestock rearing and farming were the two main sources of income in the 1910s, these variables capture a family's productive capital. We also build an index of wealth for each extended family by aggregating the two types of capital after normalising (by subtracting the sample average and dividing by the sample standard deviation). Using an average over extended families of each tribe yields a measure of a tribe's wealth, expressed as a z-score. Table 1 in the Online Appendix provides descriptive statistics for these measures, aggregated at the tribe level.

¹ For more information about the expedition materials, see Aldashev and Guirkingner (2012) and Guirkingner and Aldashev (2016).

² 1 desyatina = 1.093 hectare.

2.2. *Soviet Data*

For the Soviet period, we rely on two main sources: the materials of the 1953–55 ethnographic expedition and the 1972–76 administrative data on biographies of members of the parliament (MPs), intended mostly for the internal use of the Communist Party.

2.2.1. *Materials of the ethnographic expedition of 1953–55*

In 1953–55, an ethnographic expedition headed by prominent Soviet orientalist, Abramzon and Vinnikov (for northern and southern Kyrgyzstan, respectively) studied the tribal composition of Kyrgyzstan, using a carefully constructed combination of historical materials and first-hand collection of qualitative data from several hundred elderly respondents with a good knowledge of tribal history. The materials of this expedition were published in 1956–60 and include tribes' genealogical trees (divisions into clans and sub-clans), and information about the geographic location of all the clans around 1950 (Vinnikov, 1956; Abramzon, 1960).

We rely on the genealogical trees of this expedition to match the clans (both in the pre-Soviet and post-Soviet data) to tribes, as explained below. In addition, we use these data to associate each village reported in this expedition to the tribes occupying it, which later allows us to associate Kyrgyz politicians of the 1970s to tribes.

2.2.2. *Biographies of MPs of Kyrgyz SSR, 1972–76*

Political power in the Soviet Republics belonged to the Central Committee of the Republican branch of the Communist Party (appointed by the USSR Central Committee). However, considerable privileges were given to the Supreme Soviet (the Republican Parliament), whose 340 members were elected. From the 1960s until 1991, after each election of the Supreme Soviet, the Soviet government printed a short biography of all elected MPs. Starting in 1972, these biographies contain detailed information on the place of birth of elected officials. We use data from 1972 and 1976.³ There are a total of 360 MPs elected either in 1972 or in 1976 who are ethnic Kyrgyz (the other MPs are from other ethnic origins). Matching these data with the tribe composition of villages (from the 1953–55 expeditions), we assign a tribe to each MP of Kyrgyz origin (if there are several tribes present at the location, we weigh the probability of belonging to each of these tribes with the population share of the tribes at this location).⁴

2.3. *Post-Soviet Data*

Our source for the modern-day economic outcomes is the 'Life in Kyrgyzstan' (hereafter, LiK): a nationally representative survey conducted in five waves (2010, 2011, 2012, 2013, and 2016) and including about 2,800 households and 8,000 individuals.⁵ About two-thirds of respondents are ethnic Kyrgyz. The 2012 wave is of special interest to us because it contains a section on custom and traditions, with questions about the tribe/clan to which the household head belongs. The tribe is the smallest level of aggregation (or the 'lowest common denominator') between historical and contemporaneous data. In the LiK dataset, 80% of ethnic Kyrgyz reported a tribe or a clan name. We were able to match 91% of them to one of the Kyrgyz tribes. Our main

³ The two volumes accessible online, respectively, at: <https://viewer.rusneb.ru/ru/rls01007110337?page=1&rotate=0&theme=white> and <https://viewer.rusneb.ru/ru/rls01006984364?page=1&rotate=0&theme=white>.

⁴ We could not identify villages of origin on the maps for 15 MPs.

⁵ The database and accompanying documentation are accessible at: <https://lifeinkyrgyzstan.org/>.

sample thus contains 1,344 households belonging to one of the Kyrgyz tribes. The details of the matching procedure are provided in the Online Appendix.

These data allow us to construct measures of per capita income and consumption at the household level. To reduce the noise arising from short-run fluctuations in income or expenditures, we average these across 2011–13. We also build normalised measures of income and expenditure (z-scores) by subtracting the corresponding sample average and dividing by the standard deviation.

The dataset contains measures of asset ownership and human capital. For asset ownership, we use the variables on land ownership (any land owned, land area owned per capita, and irrigated land owned per capita). We also build a composite asset that aggregates all household assets recorded in the survey using principal component analysis.⁶ For measures of human capital, we rely on the years of education completed, height, body mass index (BMI) and the birth weight of the firstborn (for women aged 25 or above).⁷

In addition, the data contain information on key outcomes for the parents of respondents. This allows us to go back one generation and to construct measures of human capital and proxies for wage income during the Soviet period. Specifically, we know the education of fathers of men and the skill type (skilled versus unskilled) and the sector of their occupation (agricultural versus non-agricultural). The first variable is a measure of human capital while the three others are indicators of the level of wage income. Unskilled and agricultural occupation were associated with a lower wage level than skilled and non-agricultural occupation (Gregory and Kohlhase, 1988; Rutland, 1993). Finally, we also build a variable to capture whether they belong to the top quintile in terms of the prestige of their occupation (again as a proxy for wage income).⁸ We focus on the fathers of male respondents, as tribal identity is transmitted from fathers to sons. Descriptive statistics for all the variables used in the analysis are provided in Table 1 in the Online Appendix.

3. Persistence of Material Well-Being Over the Long Twentieth Century

Section 1 highlights that the Soviet period was characterised by a massive expropriation of physical assets and a disruption in wealth accumulation in Kyrgyz society. Parents could not transmit physical assets to their offspring, but they could transmit intangible assets such as education or knowledge about tribal connections and history. Bergson (1984) and Gregory and Kohlhase (1988) find that even the most drastic collectivisation policies of the Bolshevik government did not fully expropriate the human and social capital embodied in labour income (i.e., the economic returns to education and connections were positive). This suggests that we may observe partial persistence in income levels across generations through the Soviet period.

⁶ The asset categories include real estate, vehicles, domestic appliances, furniture, media appliances, communication devices, and livestock. For each item, the survey recorded whether the household owned it. We build an index using the first principal component, separately for urban and rural households.

⁷ For human capital indicators, we restrict attention to individuals above 23 years of age, because individuals would typically have achieved their formal education by that age. As tribal identity is reported only for males, we focus on males for education and height levels. These outcomes are largely driven by parental investment and, due to relatively well-respected tribal exogamy rules, women are likely to have grown up in a tribe different from that of their husbands. We include women in the BMI analysis as the body mass depends on the current level of nutrition. We focus on the birth weight of firstborn children to avoid birth order effects.

⁸ Specifically, we classify the position of the father in terms of its prestige in the socio-economic ranking of the Soviet period. The categories included are: legislator, senior official, manager, professional, and technician. One-fifth of fathers occupied such a position, and therefore belong to the top quintile in terms of the prestige of their occupation.

The Online Appendix presents a simple model that illustrates how parents may adapt to an expropriative government policy by investing more in the transmission of human and social capital to their offsprings.

In this section we test empirically for persistence during the century of Soviet rule. Specifically, we first estimate persistence in indicators of material well-being. Second, we investigate the correlation between pre-Soviet and post-Soviet intra-tribe inequality. Third, we go back one generation and estimate whether the respondent's parents fared better (under the Soviet system) if they belonged to a wealthier tribe in the pre-Soviet period.

3.1. *Pre-Soviet Tribal Wealth and Post-Soviet Individual/Household Outcomes*

3.1.1. *Empirical strategy*

To investigate the link between the post-Soviet economic outcomes and the average pre-Soviet wealth of the tribe (from which the individual descends), we run simple linear regressions where the dependent variable is an individual (or household) outcome obtained from LiK and the tribe-level wealth measures in the 1910s serve as explanatory variables. We estimate the following model (where y_{itg} is the outcome for individual i , belonging to tribe t and living in area g , the vector \mathbf{x}_i includes other individual characteristics and \mathbf{x}_t the tribe characteristics in the past):

$$y_{itg} = \alpha' \mathbf{x}_i + \beta' \mathbf{x}_t + \varepsilon_{itg}. \quad (1)$$

Tribes have different sizes and averages (included in \mathbf{x}_t) are computed over different numbers of extended families for different tribes; therefore, we weigh the observations by the population size of the tribe in the 1910s. Standard errors are clustered at the tribe level.

A natural channel that could explain the persistence of a tribe's material well-being is geography (Alesina *et al.*, 2016). If regions differ in their natural endowments (climate, land productivity, etc.) and migration over the twentieth century was relatively limited, then households living in the 2010s in the better-endowed regions have better economic opportunities, which would also hold for their ancestors. Under this scenario, the correlation in material well-being between the 1910s and the 2010s would require no mechanism of inter-generational transmission and rely uniquely on the region of residence. We mute this channel by including neighbourhood fixed effects in the above model, so that the estimation of the coefficients β is based on the comparison of individuals living in the same geographic area but belonging to different tribes.⁹

3.1.2. *Household consumption, income, assets, and human capital in 2011–13 and tribes' pre-Soviet wealth*

The first panel of Table 1 reports the results of the estimations of equation (1) with neighbourhood fixed effects using household income, expenditures, and assets as dependent variables. The parameter estimates are provided for two specifications, corresponding to different measures of pre-Soviet tribe wealth. Average levels of material well-being over the twentieth century are remarkably persistent, and this persistence cannot be attributed to tribes' geographic endowments: the regression coefficients on the 1910 tribe characteristics are statistically significant and economically important. For example, the results reported in Table 1 (Panel 1, Specification 1,

⁹ There are 108 neighbourhoods in the 2012 sample. They correspond to a village in rural areas and to a town quarter in urban areas. These neighbourhoods are the primary sampling units from which the 2010 LiK sample was drawn. The average number of tribes represented in the same neighbourhood is 3.8, corresponding to 13 households. Single-tribe neighbourhoods are 18.5% of the sample.

Table 1. *Household and Individual Outcomes as a Function of Past Tribe Wealth.*

<i>Panel 1: Household per capita income, per capita expenditure and asset</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	z-sc. inc. 2011–13	z-sc. exp. 2011–13	Mean inc. 2011–13	Mean exp. 2011–13	Asset index	Any land owned	Land per cap	Irrig. land per cap
Specification 1: Composite index of 1910 wealth (z-score)								
Wealth 1910	0.195** (0.076)	0.171*** (0.049)	0.472** (0.184)	0.271*** (0.078)	0.348* (0.193)	−0.028 (0.051)	−0.090** (0.042)	−0.095** (0.038)
<i>N</i>	1,324	1,343	1,324	1,343	1,343	1,343	1,343	1,343
Specification 2: 1910 land and livestock ownership (z-score)								
Land	0.105** (0.040)	0.127*** (0.026)	0.254** (0.097)	0.201*** (0.042)	0.200 (0.160)	0.017 (0.015)	−0.047* (0.024)	−0.053** (0.022)
Livestock	0.078 (0.128)	−0.025 (0.108)	0.189 (0.310)	−0.039 (0.172)	0.104 (0.210)	−0.096** (0.043)	−0.040 (0.030)	−0.032 (0.029)
<i>N</i>	1,324	1,343	1,324	1,343	1,343	1,343	1,343	1,343
<i>Panel 2: Individual human capital and men's fathers' socio-economic status</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Educ (years)	Height	BMI	Firstborn weight	Father educ.	Father unskill.	Father in agricult.	Father good pos.
Specification 1: Composite index of 1910 wealth (z-score)								
Wealth 1910	0.116 (0.449)	0.548 (1.239)	0.930*** (0.256)	0.118*** (0.036)	−0.155 (0.436)	−0.111* (0.056)	−0.175* (0.097)	0.098 (0.079)
<i>N</i>	1,590	1,555	3,253	1,459	1,143	1,079	1,106	1,079
Specification 2: 1910 land and livestock ownership (z-score)								
Land 1910	−0.065 (0.205)	1.131** (0.497)	0.515*** (0.147)	0.049*** (0.015)	0.088 (0.199)	−0.039 (0.034)	−0.082 (0.051)	0.086* (0.046)
Livestock	0.438 (0.379)	−2.405** (1.024)	0.321 (0.306)	0.090*** (0.028)	−0.536 (0.640)	−0.097 (0.060)	−0.102 (0.098)	−0.044 (0.071)
<i>N</i>	1,590	1,555	3,253	1,459	1,143	1,079	1,106	1,079

Notes: Each column and specification (within a panel) reports estimates of a separate regression. Regressions are weighted by the number of extended families in 1910. Neighbourhood fixed effects (2010 sampling unit) are included throughout. Controls include the household head age and its square (Panel 1) or the individual age and its square (Panel 2). We include men over 23 years of age for education and height (Panel 2, columns (1) and (2)), women and men for BMI (Panel 2, column (3)) and women above 25 for weight of firstborn (Panel 2, column (4)). We focus on men's fathers for fathers' outcomes (Panel 2, columns (5) to (8)) because, due to exogamy, only the tribe of men's fathers can be inferred. Cluster robust SE in parentheses (at tribe level). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

column (1)) indicate that one additional standard deviation of tribe wealth in the past implies an additional 0.195 standard deviations of income today. Area cultivated and livestock holding in the 1910s do not have the same influence on current-day outcomes: the second specification reveals that only the area cultivated has a statistically significant effect on both present-day income and expenditure. Asset ownership is positively correlated with tribe wealth in the past even if the estimated coefficient is statistically significant only for Specification 1 (column (5)). In contrast, land ownership is negatively correlated with tribe wealth in the 1910s (columns (6) to (8)): members of tribes who cultivated larger areas in the past own less land today.

The estimated correlation between the present-day income and the pre-Soviet tribe wealth is substantial, as compared to the persistence rates in the existing literature. The two data points are distant by 3.3 generations (using the conventional 30-year span for one generation). The correlation of 0.195 between the pre-Soviet tribe wealth and the current income implies a persistence rate of 0.61 between generations.¹⁰ In the societies studied by Clark (2014) using

¹⁰ Assume a simple AR(1) (autoregressive) model for the correlation between adjacent generations and solve for x in the following expression: $0.195 = x^{3.33}$. We thereby can abstract from the fact that we have two different measures of



Fig. 2. *Pseudo-Kuznets Ratios for Expenditures 2011–13 and for Livestock in the 1910s (Dots Proportional to Tribe Size).*

surnames, the estimated persistence rate in social status across generations is slightly higher (between 0.7 and 0.9). However, in the rest of the literature, persistence rates are much lower and vary strongly over space and time (Solon, 2018). For example, using surnames data from the United States, Chetty *et al.* (2014) find a persistence rate of about 0.4. Our estimated degree of persistence in tribes' relative well-being is therefore surprisingly large, given the political and economic turmoil experienced by Kyrgyz people over the twentieth century.

In Table 1, Panel 2, columns (1) to (4) reproduce the analysis using indicators of human capital as dependent variables. Past tribe wealth (of the husband's tribe) appears strongly and positively correlated with the BMI and birth weight (for instance, one standard deviation increase in tribe wealth in 1910 translates into an additional 120 g in newborn weight in the present), but less so with education and height.¹¹

3.1.3. *Correlation between intra-tribe levels of inequality in the pre-Soviet and the post-Soviet periods*

The granularity of the data allows us to go beyond averages and investigate the persistence of inequality *within* tribes. To compare the levels of inequality in the pre- and post-Soviet periods across tribes, we construct pseudo-Kuznets ratios for area and livestock per capita in the 1910s and income and expenditure in 2011–13. For each variable, we divide the average measure in the top quintile of the distribution by the average in the bottom two quintiles.¹² Figure 2 plots the obtained measures for livestock per capita in the 1910s and expenditure per capita in 2011–13. Each dot denotes a tribe; the size is proportional to the population size in 1910. The figure suggests a positive correlation between these inequality measures. Tribes in which the top quintile owned less than three times the average livestock of the bottom two quintiles (pseudo-Kuznets ratio <

material well-being at the two points in time (wealth for the 1910s and income for the 2010s), implicitly assuming that the distributions of wealth and income in the 1910s are similar.

¹¹ Results are similar if we measure past wealth in levels instead of normalising land and livestock per capita into z-scores (see the Online Appendix).

¹² We consider the distribution across *individuals* of the same tribes. We attribute to each member of the extended family (household) the average per capita measure of the extended family (household).

3) in the 1910s have a pseudo-Kuznets ratio below three in expenditure per capita in 2011–13. The highest level of inequality today (pseudo-Kuznets > 3) is in tribes that have also experienced relatively high inequality in the past (pseudo-Kuznets > 3). The Online Appendix reports similar figures using alternative measures of wealth in the past and of well-being in 2010 and a matrix of correlation coefficients across the various measures of inequality.

3.2. *Going Back One Generation: Soviet Period Outcomes and Pre-Soviet Wealth*

3.2.1. *Human capital and labour income in the Soviet period versus tribes' pre-Soviet wealth*

Table 1, Panel 2, columns (5) to (8) report the results on the correlation between pre-Soviet tribe wealth and individual outcomes for the *parental* generation. The results on education are similar to those obtained for the current generation: the coefficients on past tribe wealth are small and insignificant, suggesting no correlation between pre-Soviet tribe wealth and the Soviet-period years of education. Regarding occupation, descendants of pre-Soviet wealthier tribes are significantly less likely to have an unskilled job or to work in agriculture. For example, column (6) suggests that an additional standard deviation in pre-Soviet tribe wealth is associated with a decrease of 11 percentage points in the probability of being in an unskilled occupation (for fathers of LiK respondents). These effects are even stronger for older fathers (a lower probability of 21 percentage points). As for the top of the distribution of occupational status (column (8)), it is positively correlated with pre-Soviet tribal wealth, but the coefficient is statistically insignificant. Table 6 in the Online Appendix reproduces these results for the subsample of fathers born before 1965 (entering their professional life during the Soviet period). The coefficients tend to be larger for this subsample confirming that persistence in well-being was perceptible during the Soviet period. In summary, even during the Soviet period, the relative social position held by individuals correlates positively with the pre-Soviet wealth of tribes from which they descend.

3.2.2. *Social capital in the Soviet period versus pre-Soviet wealth*

To measure the level of social/political capital of a tribe, we rely on its representation among the political elite in the 1970s. Specifically, we compute the proportion of elected members of the Supreme Soviet belonging to each tribe: $SharePolElite_t = (Nelite_t) / (\sum_k Nelite_k)$, where $Nelite_t$ is the number of members of the political elite belonging to tribe t . We then explore whether tribes that were richer in the pre-Soviet period were over-represented among the political elite, controlling for the share of the tribe in the general population, $ShareTribe_t = (N_t) / (\sum_k N_k)$ (with N_t denoting the size of tribe t).

We thus run simple linear regressions at the tribe level, with $SharePolElite_t$ as the dependent variable:

$$SharePolElite_t = \alpha' \mathbf{x}_t + \beta \times ShareTribe_t + \varepsilon_t.$$

The vector \mathbf{x}_t includes measures of pre-Soviet wealth at the tribe level. We weigh the observations by the pre-Soviet population size of the tribe.

Results are reported in Table 2. The parameter estimates on the pre-Soviet wealth measures indicate that the 1970s' political representation of a Kyrgyz tribe is positively correlated with the tribe's pre-Soviet wealth, controlling for the population share of the tribe. The correlation is statistically significant when the wealth is measured as an index, in column (1), or in levels of land and livestock, in column (3). One standard deviation increase in the wealth index of a tribe in 1910 is associated with an increase of 3.7 percentage points in the proportion of the political

Table 2. *The Representation of the Tribes Among the Political Elite in 1972–76 and Wealth in the 1910s.*

	(1)	(2)	(3)
	Share elite from tribe	Share elite from tribe	Share elite from tribe
Share tribe in pop 1910	0.859*** (0.100)	0.856*** (0.106)	0.810*** (0.096)
Tribe wealth 1910 (z-score)	0.038* (0.020)		
Tribe land/cap 1910 (z-score)		0.019 (0.011)	
Tribe livestock/cap 1910 (z-score)		0.020 (0.015)	
Tribe land/cap 1910 (desyatinas)			0.065** (0.027)
Tribe livestock/cap 1910 (horses)			0.018** (0.007)
Constant	0.005 (0.008)	0.005 (0.009)	−0.068*** (0.023)
<i>N</i>	33	33	33

Notes: Standard errors in parentheses. Observations weighted by the number of members in 1910. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

elite belonging to that tribe in the 1970s (based on estimates in column (1)). Hence, tribes that were richer in the pre-Soviet period were over-represented among the political elite in the Soviet times.

4. Discussion

As argued above, the transmission of material assets through inheritance was extremely limited during the Soviet period and cannot account for the persistence in relative well-being of Kyrgyz tribes over the twentieth century. We now briefly discuss the relevance the transmission of intangible assets (human capital and social capital) in the historical context.

4.1. *Transmission of Human Capital*

The existence of an inter-generational transmission of education levels in the Soviet Union has been widely documented (see Bergson, 1984, for a review). Yet, we find little evidence that members of wealthier tribes in 1910 acquired a higher level of education.

Besides formal education, families may also transmit cultural traits, some of which might facilitate economic success under the market system (for example, values of entrepreneurship). We cannot directly trace the persistence of cultural traits. However, a necessary condition for this explanation is that tribes exhibit sufficiently marked differences in cultural traits. We can test this using the 2012 wave of LiK that includes information on respondents' cultural values regarding family. The comparison of these traits across tribes (controlling for geography) confirms that there is substantial heterogeneity in the extent of bride capture practices, the acceptance of a son-in-law or a daughter-in-law from another ethnic background (non-Kyrgyz) and co-residence patterns (see Online Appendix, Figures 6–8). For example, in certain tribes, multi-generational co-residence is considered as exceptional, whereas in some other tribes, more than 75% of households are vertically extended. In short, tribes differ significantly in some key cultural traits.

While this is not a mechanism per se that explains the persistence in relative levels of material well-being we have documented earlier, it nevertheless suggests that tribes possess and transmit highly specific cultural traits.

4.2. *Transmission of Social/Political Capital*

A related but distinct mechanism of transmission is based on social networks. If the allocation of scarce resources (for example, prestigious positions or jobs) relies on clan-based networks, then tribes and clans who initially held powerful positions in the Soviet administration may have endowed their next-generation members with better opportunities. Then, even in the absence of inter-generational transmission of wealth or human capital, we might observe a persistence in levels of relative prosperity over several generations.

Historians and political scientists provide qualitative evidence that in Kyrgyzstan clan and tribe networks were important in the political elite sphere during the colonial and Soviet era. Ohayon (2016) writes that in the 1920s and 1930s,

Despite purges and other phenomena that weakened the political resources of the lineages, it appears that the political duplicity that emerged through the meeting between two forms of power and loyalty lastingly structured local power in the Kazakh and Kirghiz Soviet Republics, sometimes working to thwart the Soviet state's ideal and project, and sometimes ensuring its implementation.

(Ohayon, 2016, p. 190–1)

Thus, even when politicians were appointed by the top for their loyalty to the regime, to effectively rule locally these politicians had to play along clannish and tribal lines. Similarly, Junushaliev (2003) provides ample evidence for the use of tribal relations for the occupation of key political positions in the 1920s and 1930s.

After the fall of the USSR and the introduction of democratic elections in Kyrgyzstan, tribal or clan-based loyalties appear to resume their key role in politics. Several scholars have underlined how powerful politicians skilfully exploit clan identities to win votes, at least in the context of local elections (Gulette, 2006; Jacquesson, 2012; Radnitz, 2012). Jacquesson (2012) provides examples where the instrumentalisation of clan identity by contenders of local elections in rural areas led to unprecedented antagonism between clans. Ismailbekova (2017) builds a detailed account of how both real and putative kinship ties are exploited by local political entrepreneurs to construct patron–client relations that shape the economic and social life at the subnational level. The main insight that emerges from these studies is that tribal and clan-based identity is a rich and malleable resource that political entrepreneurs use in their contest for power.

5. Conclusion

Our findings have important implications for the key debate concerning the effectiveness of public policies in reducing inequality and enhancing social mobility. Although recent studies (e.g., Jakobsen *et al.*, 2020) find that the elasticity of taxable wealth with respect to the net-of-tax return is large (at the top of the wealth distribution), we argue that wealth taxation—even in its extreme form—is ineffective in reverting the fortunes within a society, because the groups ranked higher in pre-policy wealth adjust by exploiting other non-taxable channels of inter-generational transmission of well-being and status. Thus, we lend support to Pareto's Law discussed in the introduction. A natural question for future work is whether these patterns hold in other societies

that massively taxed wealth but whose social structures are less reliant on tribal identity (e.g., Russia).

University of Namur, Belgium

Université libre de Bruxelles (ULB), Belgium

Kazakh-British Technical University, Kazakhstan

Satbayev Kazakh National Technical University, Kazakhstan

Additional Supporting Information may be found in the online version of this article:

Online Appendix Replication Package

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