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The Deficiency of Competitiveness: Did Socialism Fail to Foster It?*

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January 19, 2017

Very Incomplete

Abstract

Competitiveness is a key character trait for economic success in a market economy. We examine whether growing up in a socialist country affects the development of competitiveness by comparing three Korean groups in South Korea, born and raised in three countries with distinct institutional environments; South Korea, North Korea, and China. They participate in a laboratory experiment in which they can choose an incentive scheme determining their payoff; a noncompetitive piece rate or a competitive tournament scheme. We find that North Korean refugees are significantly less confident in winning tournaments and less likely to choose the competitive scheme than South Koreans. The North-South gap, which remains significant even after controlling for a rich set of individual characteristics such as risk aversion and the level of pre-choice performance on the same real-effort task, is explained by cognitive ability. However, we fail to identify any significant socialist institutional factor for explaining within-group heterogeneity in competitiveness among North Korean refugees.

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1 Introduction

Competitiveness is not only a key character trait for economic success in a market economy but also plays a critical role in fostering competition, which is vital for the working of the market economy. Recent literature in economics suggests that there exists substantial heterogeneity in competitiveness within a country as well as across countries. For example, it has been found that there are pronounced differences in competitiveness between men and women (Gneezy, Nierderle, and Rustichini, 2003; Gneezy and Rustichini, 2004; Nierderle and Vesterlund, 2007; Nierderle and Vesterlund, 2011). Interestingly enough, however, the opposite phenomenon is observed in a matriarchal society (Gneezy, Leonard, and List, 2009). This indicates that competitiveness is a trait that is not biological but shaped by social institutions. Another piece of evidence supporting the “nurture” hypothesis is that seamen are found to be less inclined toward competition than fishermen at a lake since the former needs cooperation while the latter tends to work alone (Leibbrandt, Gneezy, and List, 2013).

In this paper, we examine how economic and political institutions individuals experienced affect their competitiveness.¹ To investigate this question, we exploit a unique natural experiment arising from the division of Korea—the so-called Korean experiment, according to Acemoglu, Johnson and Robinson (2005); after the end of the Korean War, the Korean peninsula was suddenly divided into two parts and they have taken contrasting development paths afterwards. On the Southern part, a market economy has been developed at an unprecedented pace, whereas on the Northern part a centrally planned economy has been established and domestic market activities have basically been prohibited under the totalitarian regime. We conduct a laboratory experiment, which Niederle and Vesterlund (2007) employed for investigating gender differences in competitiveness,

¹Our paper is related to recent literature in economics suggesting that the cultural, economic and political environments in which individuals grow up affect their preference and belief formation, such as their trust in financial institutions, stock market participation, preferences over social policies, and willingness to take financial risks (Guiso, Sapienza, and Zingales 2004, 2008; Alesina and Fuchs-Schündeln 2007; Osili and Paulson 2008; Malmendier and Nagel, 2011).

with non-student South Koreans (SK) and North Korean refugees (NK) to measure and compare their competitiveness.² Both groups are ethnically identical and officially South Korean citizens, but they have starkly different experiences regarding a market economy and related formal or informal education. North Korean refugees were educated and made a living in a society where resource allocation is organized by the central government rather than by a market mechanism. The North Korean economy is basically a centrally planned and distributed economy with the extent of market substantially limited.³

Obviously, the two groups of Koreans should differ along important observed as well as unobserved dimensions. It is therefore difficult to attribute any inter-Korean differences causally to the differences in their institutional experiences. To overcome this difficulty, we try to recruit South Koreans as comparable to North Koreans as possible. We over-sampled low-income South Koreans. Also we collect rich information on individuals' and households' demographic and socioeconomic characteristics and control for them in our regression analyses. We also experimentally measure individuals' risk preferences which should play a critical role in making their tournament entry decision. Lastly, we measure individuals' performance on the same real-effort task that they will perform after they make their tournament entry decision and control for this when estimating the tournament entry decision equation.

Further, we make two additional efforts to pin down the impacts that the institutions individuals experienced make on their competitiveness. First, we recruit a third comparison

²A similar design was used by Bartling, Fehr, Maréchal and Schunk (2009) for exploring the associations between social preferences and competitiveness. Also using a similar design, Dohmen and Falk (2011) investigate a more comprehensive list of individual characteristics that shape the selection into different compensation schemes and show the nature of the selection process is multidimensional.

³Our approach is the “epidemiological approach” in the literature (Fernández , 2007, 2011; Fernández and Fogli, 2009) that analyzes how economic and social outcomes of immigrants (or their descendants), coming from countries with different cultural values and beliefs but living in an environment (the host country) with uniform institutional and economic characteristics, are affected by attitudes observed in the home country. This approach exploits the “portability” of culture. The fact that the immigrants in the host country, despite they face the same economic and institutional environment, show economic or social choices related to the behaviors observed in their home country is taken as evidence of the importance of cultural values in defining economic outcomes.

group, Korean Chinese (KC). They should make a good comparison group in that they are similar to North Korean refugees with the regard that both groups are sort of immigrants in South Korea. Also Korean Chinese are indistinguishable from North Koreans in terms of their accent or appearances. On the other hand, Korean Chinese are more comparable to South Koreans than North Koreans in terms of their institutional background, especially regarding the exposure to a market economy.⁴ Second, we conduct a detailed survey for North Korean refugees about their economic activities and experiences in North Korea as well as in South Korea. Utilizing the information, we try to account for heterogeneity among North Korean refugees by their (limited) market experiences. For example, we examine whether North Korean refugees with more exposure to a market economy in North Korea or longer duration of residence in South Korea are more competitive than other North Koreans.

Our experiment mainly consists of two rounds. In the first round of our experiment, subjects perform a simple real-effort task (counting zeros in a 7×7 table) under two different payoff schemes; piece rate and tournament. Under the piece rate scheme, they earn their income exactly by their task performance. The tournament scheme is a winner-takes-all system. A subject competes with an anonymous partner and, if the subject performs better than the partner, she earns double the income she makes at the task. The purpose of the first round is twofold; first, we elicit subjects' individual productivity levels. The measurement of North Korean refugees' productivity is by itself of a great interest. Second, we make sure that subjects fully understand two different compensation schemes. In the second round, subjects are given another opportunity to perform the same task, but this time they are allowed to choose the compensation scheme they like. From their

⁴Most of the Korean Chinese in our experiments spent their childhood and were educated in China but came to South Korea mainly for economic opportunities. They are influenced by Chinese institutions which can be characterized as being politically centralized but economically decentralized (Xu, 2012). This means that while Korean Chinese should be comparable to North Korean refugees as both are immigrants in South Korea, they should be closer to South Koreans in terms of their institutional background, especially regarding the exposure to a market economy. If past experiences of economic institutions in the home country matter for competitiveness, we should find that Korean Chinese are as competitive as South Koreans.

choice of a compensation scheme, we are able to elicit their preferences for competition after controlling for a set of potentially confounding factors such as risk aversion and self confidence.

Summarizing our main findings, we find that North Koreans are significantly less likely to self-select into the competition scheme. The unconditional probability of North Koreans' selecting into competition is about 20 percentage points lower than that for South Koreans. The gap remains substantial (about 10 percentage points) even after controlling for the level of pre-choice task performance. Also we find that North Koreans hold a significantly lower expectation about winning the competition. On the other hand, North Koreans' lower expectation is totally explained by their lower general cognitive ability. In fact, it turns out that North Koreans are more competitive than South Koreans after controlling for general cognitive ability. Also, to our survey question about attitude to competition, North Koreans are more likely to answer that they like to compete with others. Finally, it turns out that Korean Chinese are not different from South Koreans regarding the extent of competitiveness.

Regarding the question of whether socialism matters for competitiveness, we have some mixed results. First, we find that market experience in North Korea does not significantly affect competitiveness. Actually, we do not find any kind of experience in North Korea, such as educational attainment in North Korea or the Communist party membership which is symbolic for a socioeconomic status in North Korea, to have any significant effect on competitiveness. Our results suggest that institutions affect competitiveness only through cognitive ability. We find little direct effects of socialist institutions on competitiveness, implying that socialism is not free of competition.⁵ On the other hand, we find that the duration of residence in South Korea does increase competitiveness. The duration of residence in a third country, such as China, also increases competitiveness but the

⁵Yet, socialist ways to encourage competition are different from those in capitalism. Competition is built in the market mechanism in capitalism while, in socialism, it is stimulated by ad hoc mechanisms such as speed battles and races for fulfilling production targets made by central planners.

effect is about of a half size. Lastly, we find that education in South Korea, which is strongly correlated with the age at the arrival at South Korea, also significantly increases competitiveness.

The remainder of the paper proceeds as follows. Section 2 explains our experimental design. Section 3 presents and discusses the results. Section 4 concludes.

2 Sampling, Experiments, and Cognitive Test

2.1 Sampling

Our study involves three distinct groups of Korean people in terms of their countries of origin. We use the stratified sampling method of recruiting 191 North Korean refugees who are representative to the population of North Korean refugees in South Korea in terms of gender, age (at least 20 years old), and year of entry.⁶ 193 South Korean adults and 72 Korean Chinese in South Korea were recruited to match with the composition of North Korean refugee subjects in terms of gender and age. In order to reduce income differences between South Korean and North Korean subjects, we oversampled low-income South Korean subjects. In recruiting these three subject groups and implementing the experiment, we collaborated with a branch of a global survey company, the Nielsen Company in Korea, which has accumulated experiences of conducting surveys with a representative sample of South Korean adults and North Korean refugees in South Korea.

The basic sociodemographic characteristics of the three subject groups are reported in Table 1. A significant majority of each group are female: 66% of North Korean subjects and about 70% of each of South Korean and Korean Chinese subjects. North Korean subjects are on average 37 years old, while South Korean subjects and Korean Chinese subjects are 35 years old and 34 years old, respectively. [further discussion about income,

⁶According the 2014 official statistics of the Ministry of Unification in South Korea, the population of North Korean refugees consists of about 28% in their twenties, 30% in their thirties, 16% in their forties, and 10% in their fifties or above. About 28% of them entered at South Korea prior to 2005, 27% between 2006 and 2008, 29% between 2009 and 2011, and the rest since 2012.

labor market participation, and marital status]

- Table 1 here -

2.2 Real-Effort Experiments

We ran 12 experimental sessions in June 2015 at the Nielsen Company in Korea and invited each of the three Korean subjects groups in an experimental session, proportionate to the total number of subjects. Our experiments consist largely of the three stages in the following order. At the first stage, subjects conducted a series of individual real-effort tasks under two different payment schemes and with the selection of payment schemes, and took part in beliefs elicitation. At the second stage, we randomly formed groups of three subjects each of which conducted a joint real-effort task under an exogenously given payment scheme. At the final stage, we elicited subjects' risk preferences using the multiple price list design of Holt and Laury (2002). The detail of the experiment and its results at the second stage are dealt with in an ongoing companion paper, Choi et al. (2016). The current paper focuses on the experiments at the first stage and at the third stage.

Subjects participated in three rounds of real-effort tasks at the first stage. The task in each round involves counting 0s in a 7×7 table of containing 0s and 1s.⁷ At the beginning of a round, subjects received 20 of such tables in an envelope, counted 0s and input answers in a computer within 5 minutes. In the first two rounds, subjects performed this task either under a noncompetitive piece-rate incentive scheme or under a competitive tournament scheme. In the piece-rate incentive scheme, each correct table paid the subject 1,000 KRW. Under the tournament incentive scheme, subjects were informed that each person would be randomly matched with an anonymous partner at the end of the session and earn 2,000 KRW for each correct answer if the number of correct answers made by the individual is higher than that by its partner or if the individual is randomly selected in case both answered the same number of correct answers. Otherwise, the individual got

⁷A sample of 7×7 table is given in Online Appendix I.

nothing. We randomized the order of the two schemes among subjects. At the end of the task under each payment scheme, individual subjects were informed of the number of correct answers they made. Under the tournament scheme, whether the individual won or not was not revealed at the end of the round but at the end of the session.

The purpose of the real-effort task experiment is to measure subjects' willingness to compete (e.g., Niederle and Vesterlund, 2007) and relate subjects' competitiveness to individual characteristics including their countries of origin. After completing the real-effort tasks under the two incentive schemes, subjects at the final round were asked to choose an incentive scheme under which they perform the same task of counting 0s with new 20 of such tables as in the first two rounds. Because there might be performance differences among three Korean groups, we introduced an exogenous variation in the task performance by randomly giving an individual an interger bonus point between 0 and 10. If the piece-rate scheme is selected, the individual obtained total earnings as the sum of the number of correct answers and the bonus point, multiplied by 1,000 KRW. If the tournament is selected, the individual got the total earnings of the sum of the number of correct answers and the bonus point, multiple by 2,000 KRW, if the individual wins and got nothing otherwise. Under the tournament incentive scheme, the individual with a bonus point competed with the opponent matched in the previous round under tournament.

2.3 Elicitation of Winning Probability and Risk Preferences

Upon completing the three rounds of the real-effort experiment, we elicited subjects' beliefs of winning probability under the tournament at the final round of the real-effort experiment. The method of belief elicitation is based on the binarized soccer rule of Hossain and Okui (2013). Subjects were reminded of the number of correct answers under the incentive scheme they chose as well as the bonus point assigned to themselves, and that their opponent in the stage of belief elicitation was another participant who were matched under the tournament scheme and had no bonus point. In the case where the piece-rate scheme

was chosen, the subject was asked his or her beliefs of winning probability if he or she had chosen the tournament. Subjects were asked to choose beliefs of their winning probability in the range between 0% and 100% with 10% increment. We computed a prediction error based on whether they won and their elicited beliefs. The computed prediction error was compared with a random number generated between 0 and 1. If the prediction error was lower than a random number, the subject received 2,000 KRW and got nothing otherwise.

We used the multiple price list design of Holt and Laury (2002) for the elicitation of risk preferences. The design involves ten choices between the paired lotteries (for more detail, see Online Appendix). One lottery in the pair involves 5,000 KRW with probability p and 4,000 KRW with probability $1 - p$, whereas the other lottery entails 10,000 KRW with probability p and 0 KRW with probability $1 - p$. The probability of the high-payoff outcome p increases by 0.1 as the decision goes down along the list.

2.4 Raven’s Progressive Matrices Test

At the end of experiments and survey, we measure the cognitive ability of subjects using an abbreviated version of the Raven Progressive Matrices Test (Raven, 1962), which is a classic and leading test of analytic intelligence. Analytic intelligence refers to “the ability to reason and solve problems involving new information without relying extensively on an explicit base of declarative knowledge derived from either schooling or previous experience” (Carpenter et al., 1990; Nisbett et al., 2012).⁸ In this sense, the Raven test is appropriate for our study. In our study, we measure and compare cognitive ability between three groups of Koreans, who have substantially different life experiences and received completely different schooling.

Also the cognitive ability measured by the Raven test is policy relevant for the following two reasons. First, Raven test scores are related not only to individuals’ welfare but also

⁸Analytic intelligence is also called as fluid intelligence as opposed to crystallized intelligence. Crystallized intelligence concerns the individual’s store of knowledge about the nature of the world and learned operations such as arithmetic ones which can be drawn on in solving problems. Fluid intelligence is the ability to solve novel problems that depend relatively little on stored knowledge as well as the ability to learn.

to efficiency. In economics, Raven test scores have been found to correlate positively with fewer Bayesian updating errors (Charness et al., 2011), with more accurate beliefs (Burks et al., 2009) and with the propensity to play equilibrium and learning to play equilibrium (Gill and Prowse, forthcoming). Second, it is known that analytic or fluid intelligence is modifiable or can be enhanced by training working memory skills (see related articles in page 139 of Nisbett et al. 2012). For example, Flynn (2007) shows massive IQ gains over time and its potential links to modernization (so-called the Flynn effect) and documents that gains on tests generally considered to measure fluid intelligence showed substantially greater gains than tests considered to measure crystallized intelligence.⁹ We did not provide any monetary incentives for completing the Raven test, This is conventional in the psychology and psychometric literature (Gill and Prowse, forthcoming).

3 Empirical Results

3.1 Performance by Compensation Scheme

Panel A of Table 2 summarizes individual performance. Subjects perform the real-effort task twice under two alternative compensation schemes. We randomized the order of the compensation schemes, so about 50% of subjects of each country of origin have performed under the piece rate scheme first and under the tournament scheme later (54% for NK, 50% for KC and 49% for SK).¹⁰

Under both schemes, on average, SK subjects performed best, while NK subjects performed worst. KC subjects are between SK and NK. The difference between NK and SK is statistically significant at the 1% significance level. The performance gap is about 18% in

⁹The causes of IQ gains are debated. One hypothesis is the nutrition hypothesis positing that IQ gains are due to improvements in nutrition and greater IQ gains in the lower half of the IQ distribution than the upper half if the nutritional deficiencies of the lower half were larger than those of the upper half (e.g., Lynn 1989).

¹⁰Due to small sample size, there is a statistically significant difference in the percentage of those subjects who have performed under the piece rate scheme first between SK and KC. But there is no significant difference between SK and NK.

both schemes. There is no significant gap between SK and KC under the piece rate scheme (less than 0.5%). But the gap becomes significant (7%) under the tournament scheme.

3.2 Selection into Competition

Panel B of Table 2 presents the compensation scheme choice results and task performance outcomes under the selected scheme. As explained above, subjects are randomly given some bonus points before choosing a compensation scheme. The bonus point is a random integer between 0 and 10. Thus, the average is 5 for all three groups, and there is no statistical difference.

The most important finding in Panel B is that NK subjects are less likely to choose the tournament scheme than SK or KC subjects. About 45% of NK subjects select the tournament scheme, whereas 65% of SK subjects and 63% of KC subjects choose the tournament scheme. The difference between SK and NK or between NK and KC is significantly different from zero at the 1% significance level. Figure 1 illustrates the differences across three Korean groups in the proportion of subjects who select the tournament scheme.

Panel B also shows how well subjects perform in their selected compensation scheme. It is found that subjects perform better in the selected scheme, compared to the results in Panel A. This is partly because of learning as they repeatedly do the same kind of the task. Also it is found that the performance under the tournament scheme is on average better than that under the piece rate scheme. although the compensation scheme is selected by subjects. This suggests that more productive subjects self-select into the tournament scheme (any learning effect should be the same because this is the third time they do the task regardless of which scheme they select). If we interpret the choice of tournament as a measure of competitiveness, the results mean that NK subjects are less competitive than SK or KC subjects.

What explains the differences in competitiveness across three Korean groups? As mentioned earlier and shown in Table 1, the three Korean groups, particularly, SK and NK,

differ along important observed and unobserved dimensions. To address this concern, in the regression analysis below, we control for some demographic and socioeconomic characteristics. Furthermore, we elicit or measure some unobservable characteristics which are presumably relevant for the compensation scheme selection, such as risk aversion, confidence and ability. We test for the differences in competitiveness after controlling for these characteristics.

Table 3 presents the regression results. In column (1), we control for age, female, and bonus points only. Then we add more and more control variables to check the robustness of the inter-group differences. Column (1) shows that NK subjects are about 17 percentage points less likely to select the tournament scheme than SK subjects while there is no significant difference between SK and KC subjects. In column (2), we control for risk aversion; the number of safe choices and whether they made any inconsistent choices (more than one switching point). The SK-NK difference gets slightly smaller to 15.6 percentage points but is still statistically significant. This result holds in column (3) where we control for the level of pre-choice task performance.

The SK-NK gap becomes statistically insignificant in column (4) once we control for Raven’s test score, which is a measure of general cognitive ability. Actually the sign of the estimate for NK is reversed. It now suggests that NK refugees are *more* competitive than SK. There is no difference between SK and KC across the board in Table 3, regardless of control variables.

In the post-experiment survey, we asked a question about preference for competition. The exact question is “What do you think about competing with others in a usual day?” The response is from 1 (hate it very much) to 10 (like it very much). The survey results show that the average is highest for NK subjects (6.6) and lowest for SK subjects (5.5). KC subjects’ average is around the middle, 6.2. This means that NK subjects do not mind or even *enjoy* competing with others. We checked whether the result holds after controlling for individual characteristics. It turns out that the result that NK subjects have

a more favorable attitude toward competition holds with control variables including general cognitive ability. This corroborates our experimental finding about competitiveness.¹¹

3.3 Winning Probability

Figure 1 shows that NK subjects hold a 18 percentage point lower expectation about winning the tournament than SK subjects while KC subjects are not significantly different from SK subjects in terms of subjective winning probability. Among others, there are two main competing explanations. The first explanation is based on rational expectation. Since subjects have done the same task under the tournament scheme, they should have good expectation about their own performance. That is, those who did not performed well in the previous tournament are more likely to choose the piece-rate scheme rather than the tournament scheme.¹² Since NK subjects performed below average, they may have a lower expectation about winning and less likely choose the tournament scheme. The second explanation is based on self-confidence. There exists a substantial amount of heterogeneity in self-confidence (Barber and Odean, 2001). It is likely that minority groups such as women and immigrants are less confident about themselves. If NK subjects are less self-confident, then despite the probability of winning the tournament being the same, they should less likely choose the tournament scheme.

In Table 4, we attempt to examine which individual characteristics can account for the NK-SK difference in their subjective winning probability. Column (1) present the differences among three Korean groups conditional on basic variables; age, female and bonus points. NK subjects' subjective winning probability is on average 17 percentage points lower than SK subjects'. KC subjects' probability is 5.2 percentage points lower but it is only marginally significant. In column (2), we control for two variables of risk aversion. The NK-SK gap gets a bit smaller, 15.4 percentage points. In column (3), we

¹¹The survey results show that KC subjects are more favorable to competition than SK subjects. This is not consistent with the experimental result where we find no difference between KC and SK.

¹²They are limited to guess their winning probability accurately because they have little information about the distribution of ability among other subjects in their session.

add the variable of pre-choice task performance. As expected, this variable is significant and explains a part of the NK-SK gap. After controlling for the variable, the gap gets smaller to 10.6 percentage points.¹³

In the last column, we control for Raven’s test score and find that the variable explains the whole NK-SK gap in subjective winning probability. The gap become statistically insignificant as well as virtually zero in magnitude. It is intriguing to find that general cognitive ability plays a key role in explaining why NK subjects have a lower expectation about winning given our previous finding that it is also a crucial factor for explaining the NK-SK difference in tournament entry decision.

3.4 Do Experiences in North Korea Matter?

In this subsection, we focus on the sample of NK subjects and examine whether any experiences in North Korea matter for the willingness to compete and subjective probability of winning tournament. As mentioned earlier, we conduct a detailed survey for North Korean refugees about their economic activities and experiences in North Korea. Although the North Korean society is an extremely uniform society, there exists some extent of between-individual heterogeneity in terms of economic and social experiences. This is partly because it is also a class society where social mobility is extremely limited. Therefore, the extent to which they are captured by the standard rules and social norms of North Korea is varying across individuals.

Tables 5 and 6 present the results which are basically replications of Tables 3 and 4, respectively. We begin with the full specification in column (4) in Tables 3 and 4 and add NK-specific variables. The results in columns (2) and (3) of Table 5 show that no

¹³We tried to control for two additional variables; own group strongest and own group weakest. In the post-experimental survey, we ask which group among NK, SK and KC is expected to perform best in the task and which group would perform worst, respectively. Based on the responses to the questions, we create the two variables which indicate that their own group is expected to be the best or the worst. We interpret that these variables measure the extent of group-level confidence. The results show that those who believe that their own group is the most inferior are less likely to select into the tournament. However it turns out that these variables do not explain the NK-SK difference.

variables representing the experiences in North Korea are significant. The indicator for the Communist party membership should be correlated with socioeconomic status in North Korea. It is therefore somewhat intriguing to find that the variable is not significant. Those from border provinces should be more exposed to markets, but still it turns out to be insignificant for competitiveness.

In column (4), we include NK refugees' experiences in South Korea; education in SK and the duration of residence in SK. We find that the longer they stay in South Korea, the more competitive they get. The unconditional gap between NK and SK in the propensity to select into the tournament scheme is about 20 percentage points. Thus, the estimate for years in SK, if we could interpret it as being causal, indicates that it take about 8 years for NK subjects to be as competitive as SK subjects.¹⁴

Table 6 presents the results for subjective winning probability. As in Table 8, we find that no variables representing the experiences in NK are significant. For subjective winning probability, any variables related to experiences in SK are not significant.

4 Summary

Our main findings in this paper can be summarized as follows:

- First, NK subjects are less likely to select into competition than KC as well as SK subjects. However, after controlling for cognitive ability, the tournament entry gap disappears.
- Second, NK subjects hold a lower expectation about winning tournament than SK and KC counterparts. The expectation gap is also explained by the difference in general cognitive ability.

¹⁴It should be noted that in a linear specification like ours, it is impossible to separate out the effects of age, the age at the arrival at SK and the duration of stay in SK.

- Third, we find little evidence that socialism directly affects competitiveness, but it does so indirectly only through its impact on cognitive ability.

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Figure 1. Tournament Entry Choice and Subjective Winning Probability

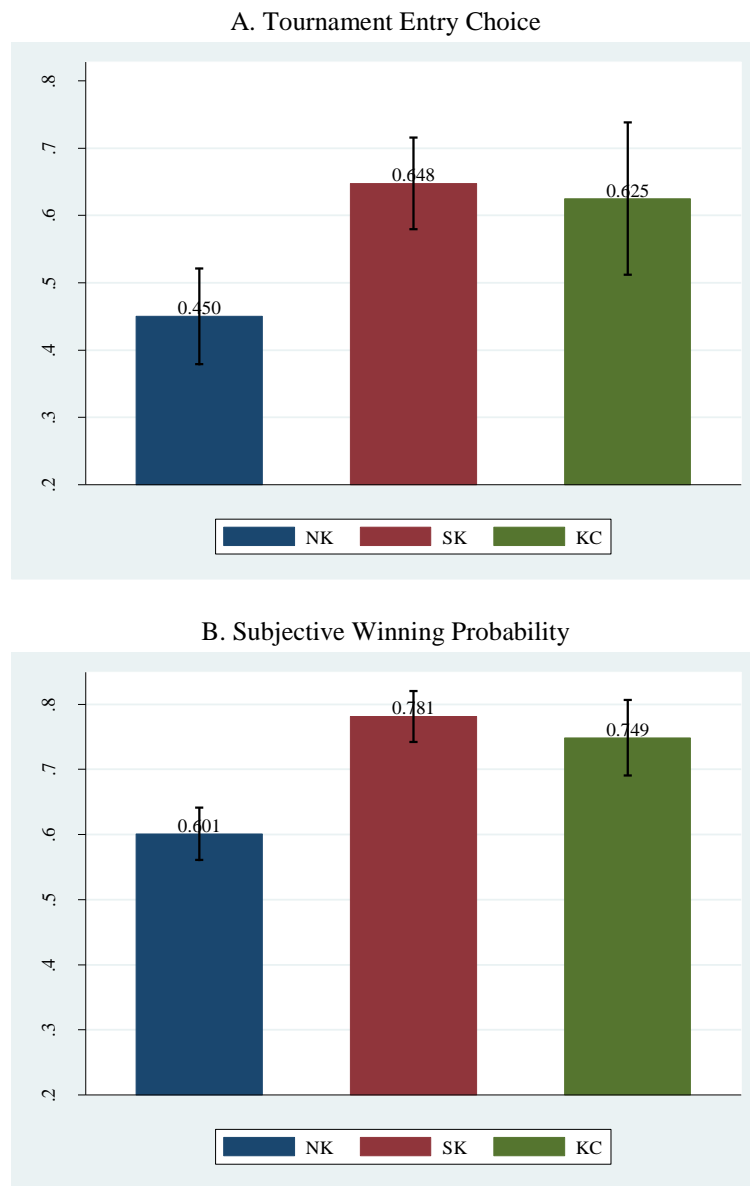
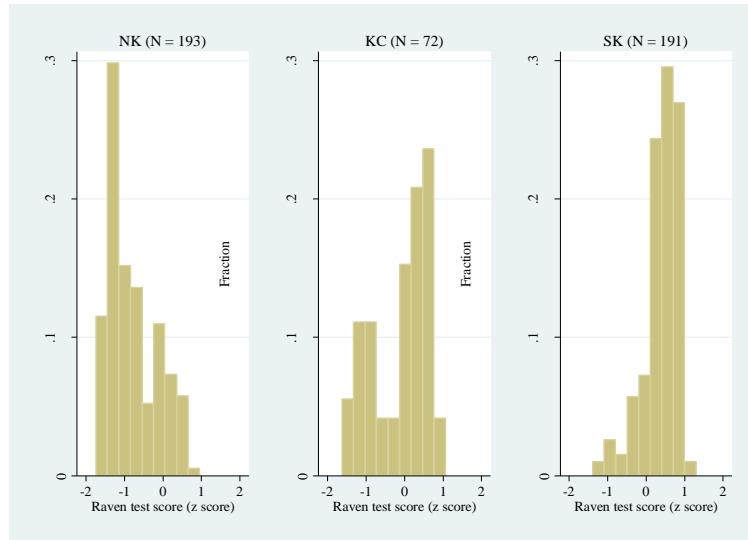


Figure 2. Raven's Progressive Test Scores

A. Histogram of Standardized Test Scores



B. Age Profile of Test Scores

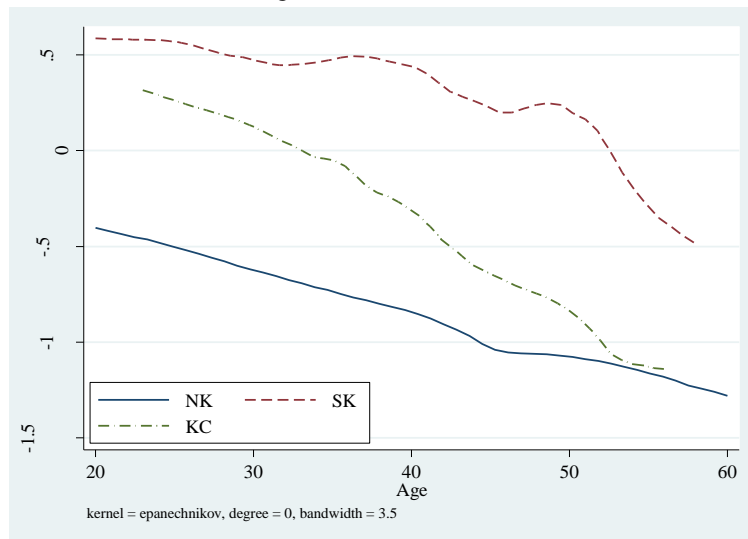


Figure 3. Pre-Choice Tournament Performance and Tournament Entry Choice

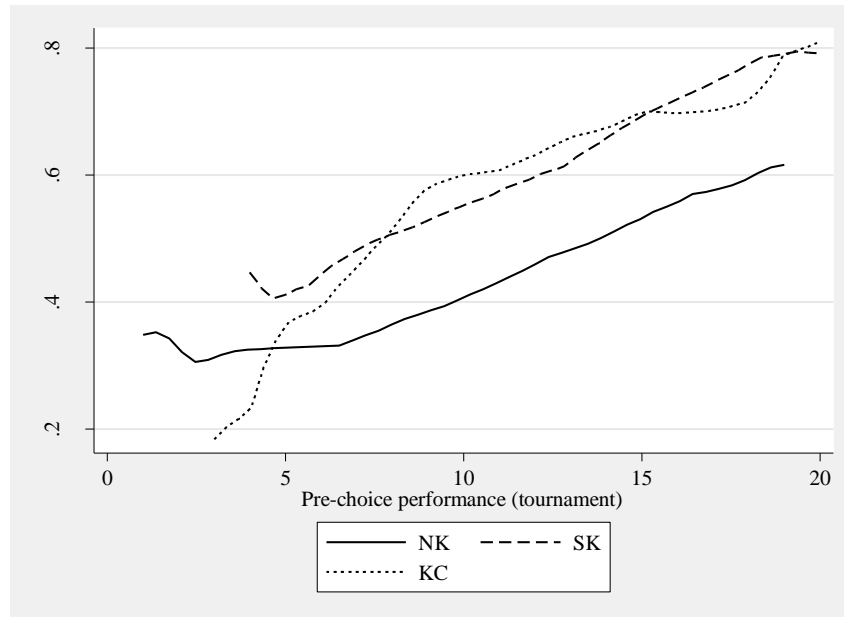


Figure 4. Empirical and Subjective Winning Probabilities

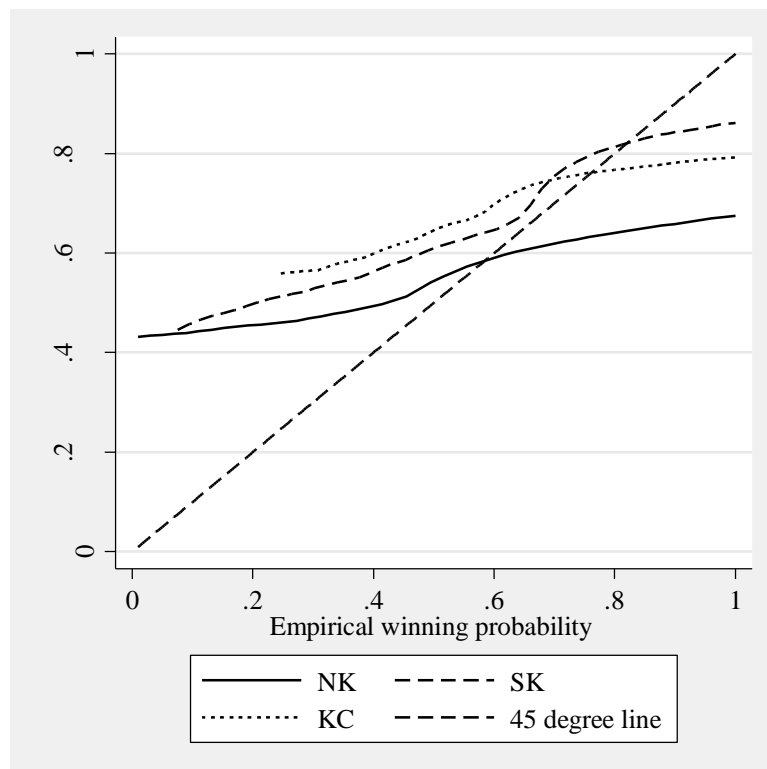


Table 1. Summary Statistics by the Country of Origin

	NK	KC	SK
A. Demographic and socioeconomic characteristics			
Female	0.660	0.708	0.710
Age	37.45	33.60	34.76
Married	0.298**	0.306*	0.425
Secondary education	0.524***	0.145***	0.319
Post-secondary education	0.262***	0.850***	0.597
Health status: bad	0.304***	0.125	0.140
Religious affiliation	0.597	0.417**	0.585
Number of household members	2.382***	2.903***	3.150
B. Economic activities			
Employed	0.639***	0.792	0.798
Out of labor force	0.225***	0.097	0.124
Stock market participation	0.084***	0.139**	0.275
Credit card holding	0.38***2	0.333***	0.705
Online shopping	0.429***	0.611***	0.933
C. Household financial condition			
Monthly household income	1.500***	2.117***	4.425
Monthly household income per person	0.794***	1.007***	1.645
Monthly household expenditure	1.050***	1.542***	3.340
Household wealth	132.7**	185.3	351.8
D. Stated preferences of economic institutions			
Pay for performance	0.874*	0.872*	0.859
Market rules	0.446	0.550	0.485
Private ownership	0.610***	0.653***	0.777
Competition	0.766***	0.774	0.794
E. Stated preferences for political institutions			
Democratic leader	0.308***	0.322***	0.433
Freedom of voting	0.911	0.867***	0.920
Multiparty system	0.775**	0.767	0.825
Individualism	0.528***	0.481***	0.629
Human equality	0.890***	0.886*	0.869
Number of subjects	191	72	193

Notes: The results for the test of equality with SK are presented in terms of asterisks. *** significant at 1%; ** 5%; * 10%. Chi squared test is conducted for all variables except for income and expenditure variables, for which t-test is used. The unit of the income and expenditure variables is million KRW. Financial and institutional literacy variables are normalized to be between 0 and 1. The exact definitions of all variables are presented in the text. The questions about preferences for economic and political institutions are responded in the Likert scale, 1 to 5. The exact wording of each question is presented in Online Appendix.

Table 2. Summary of Experimental Results

	NK	KC	SK
A. Real effort task performance			
Piece rate first	53.9%	50.0% **	48.7%
Score at piece rate	10.791 *** (3.755)	12.861 (3.762)	12.922 (3.565)
Score at tournament	11.351 *** (3.640)	12.667 ** (3.544)	13.617 (3.453)
B. Compensation scheme choice			
Bonus	4.906 (3.215)	5.125 (2.964)	4.741 (3.209)
Choice of tournament	45.0% ***	62.5%	64.8%
Extremely risk averse choice	38.5% **	27.3%	19.2%
Score at piece rate (chosen)	11.686 (4.202)	13.222 (4.309)	13.574 (3.849)
Score at tournament (chosen)	13.186 (3.408)	14.444 (3.279)	16.056 (2.835)
C. Belief elicitation			
Subjective winning probability	0.601 *** (0.282)	0.749 (0.250)	0.781 (0.276)
Subjective - empirical prob. gap	-0.119 *** (0.318)	-0.084 (0.258)	-0.045 (0.253)
Over-confidence	17.3%	13.9%	15.5%
Under-confidence	42.4%	34.7%	26.9%
D. Cognitive ability test			
Raven's matrices test score	-0.791 *** (0.631)	-0.091 *** (0.723)	0.405 (0.457)
E. Lottery choice			
Number of safe lottery choices	4.618 *** (2.905)	4.736 *** (2.748)	5.078 (1.971)
Inconsistent lottery choices	42.9% ***	23.6% ***	10.4%
F. Time preference survey			
Choice of sooner payment	37.3% ***	22.2%	17.3%
Present bias	39.9%	23.1%	33.3%
Time inconsistency	9.42% ***	9.72% ***	0.52%
Observations	191	72	193

Notes: Standard deviations are presented in parentheses. The results for the test of equality with SK are presented in terms of asterisks. *** significant at 1%; ** 5%; * 10%. Chi squared test is conducted for categorical and ordinal variables. For such variables as task performance, winning probability and Raven test score, t-test is used.

Table 3. Determinants for Selection into Tournament

	(1)	(2)	(3)	(4)
NK	-0.171*** (0.038)	-0.156*** (0.035)	-0.110** (0.044)	0.089 (0.056)
KC	-0.051 (0.090)	-0.053 (0.082)	-0.029 (0.078)	0.064 (0.070)
Age	-0.014*** (0.003)	-0.013*** (0.003)	-0.011*** (0.003)	-0.007* (0.003)
Female	-0.109* (0.054)	-0.086 (0.055)	-0.092 (0.054)	-0.076 (0.050)
Bonus	0.032*** (0.005)	0.031*** (0.005)	0.031*** (0.005)	0.033*** (0.005)
Number of safe lottery choices		-0.022** (0.009)	-0.022** (0.008)	-0.020** (0.008)
Inconsistent lottery choices		-0.107* (0.050)	-0.103* (0.055)	-0.053 (0.056)
Pre-choice performance			0.023*** (0.006)	0.016** (0.006)
Raven's test score				0.202*** (0.045)
Constant	1.057*** (0.139)	1.150*** (0.126)	0.773*** (0.155)	0.589*** (0.147)
Observations	456	456	456	456
R-squared	0.165	0.185	0.211	0.250

Notes: Linear probability models. The dependent variable is an indicator of whether the subject selects the tournament scheme. Task-specific ability is the number of correct answers in the tournament scheme. General cognitive ability is Raven's test score. Robust standard errors, clustered by session, are presented in parentheses. *** significant at 1%; ** 5%; * 10%.

Table 4. Determinants for Subjective Winning Probability

	(1)	(2)	(3)	(4)
NK	-0.167*** (0.024)	-0.154*** (0.026)	-0.106*** (0.027)	-0.008 (0.028)
KC	-0.052* (0.027)	-0.047* (0.024)	-0.022 (0.021)	0.024 (0.026)
Age	-0.008*** (0.002)	-0.007*** (0.002)	-0.005*** (0.002)	-0.003** (0.001)
Female	-0.063*** (0.018)	-0.057*** (0.018)	-0.064*** (0.018)	-0.055*** (0.016)
Bonus	0.026*** (0.004)	0.025*** (0.004)	0.025*** (0.003)	0.026*** (0.004)
Number of safe lottery choices		-0.003 (0.004)	-0.002 (0.004)	-0.002 (0.004)
Inconsistent lottery choices		-0.048 (0.035)	-0.044 (0.035)	-0.019 (0.033)
Pre-choice performance			0.024*** (0.003)	0.021*** (0.003)
Raven's test score				0.099*** (0.023)
Constant	0.972*** (0.072)	0.977*** (0.082)	0.580*** (0.100)	0.489*** (0.087)
Observations	456	456	456	456
R-squared	0.248	0.253	0.339	0.367

Notes: The dependent variable is the subject's subjective probability of winning the tournament. Robust standard errors, clustered by session, are presented in parentheses. *** significant at 1%; ** 5%; * 10%.

Table 5. NK Refugees' Tournament Entry and Experiences in North and South Korea

	(1)	(2)	(3)	(4)	(5)
Age	-0.004*	-0.005	-0.005*	-0.009**	-0.009**
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)
Female	-0.157	-0.182	-0.164*	-0.183***	-0.197**
	(0.088)	(0.105)	(0.086)	(0.051)	(0.072)
Secondary education	-0.078	-0.039	-0.057	0.026	0.068
	(0.127)	(0.131)	(0.146)	(0.144)	(0.170)
Post-secondary education	-0.103	-0.079	-0.066	0.065	0.101
	(0.131)	(0.124)	(0.148)	(0.152)	(0.164)
Bonus	0.020*	0.020*	0.020*	0.025**	0.024**
	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)
Number of safe lottery choices	-0.019*	-0.018	-0.019*	-0.021*	-0.020
	(0.011)	(0.011)	(0.010)	(0.010)	(0.011)
Inconsistent lottery choices	-0.018	-0.017	-0.017	-0.039	-0.040
	(0.070)	(0.068)	(0.070)	(0.078)	(0.078)
Household size	-0.001	-0.001	0.000	-0.007	-0.006
	(0.024)	(0.025)	(0.023)	(0.025)	(0.022)
Pre-choice performance	0.019*	0.019*	0.018	0.013	0.014
	(0.010)	(0.009)	(0.011)	(0.010)	(0.010)
Raven's test score	0.127	0.133	0.129	0.098	0.102
	(0.102)	(0.103)	(0.101)	(0.102)	(0.103)
Border provinces		0.064			0.090
		(0.080)			(0.084)
Military service in NK		-0.150			-0.121
		(0.151)			(0.159)
Communist party member		0.127			0.133
		(0.165)			(0.176)
Informal market participation		0.045			0.039
		(0.083)			(0.086)
Economic reasons			0.068		0.037
			(0.108)		(0.095)
Political reasons			0.007		0.013
			(0.117)		(0.094)
Family reasons			0.064		0.040
			(0.114)		(0.092)
Years in SK				0.024*	0.024**
				(0.011)	(0.011)
Years in a third country				0.020	0.019
				(0.013)	(0.014)
Education in SK				0.091	0.095
				(0.077)	(0.078)
Household income				-0.038*	-0.039*
				(0.021)	(0.022)
Constant	0.673***	0.596**	0.640***	0.582***	0.453**
	(0.139)	(0.204)	(0.185)	(0.123)	(0.202)
Significance of NK variables		0.504			0.411
Significance of defection reasons			0.837		0.977
Significance of SK variables				0.014	0.031
Observations	191	191	191	191	191
R-squared	0.177	0.189	0.180	0.242	0.255

Notes: Linear probability models. The dependent variable is an indicator of whether the subject selects the tournament scheme. Task-specific ability is the number of correct answers in the tournament scheme. General cognitive ability is Raven's test score. Robust standard errors, clustered by session, are presented in parentheses. *** significant at 1%; ** 5%; * 10%.

Table 6. NK Refugees' Winning Probability and Experiences in North and South Korea

	(1)	(2)	(3)	(4)	(5)
Age	-0.004** (0.002)	-0.004* (0.002)	-0.004** (0.002)	-0.004 (0.003)	-0.004 (0.003)
Female	-0.102*** (0.026)	-0.098** (0.037)	-0.106*** (0.027)	-0.096*** (0.021)	-0.101** (0.034)
Secondary education	0.070 (0.045)	0.062 (0.039)	0.090* (0.044)	0.092 (0.073)	0.101 (0.063)
Post-secondary education	0.060* (0.032)	0.058 (0.034)	0.089** (0.036)	0.080 (0.064)	0.104* (0.054)
Bonus	0.023*** (0.006)	0.023*** (0.006)	0.021*** (0.005)	0.023*** (0.005)	0.022*** (0.005)
Number of safe lottery choices	-0.001 (0.007)	-0.001 (0.008)	-0.001 (0.007)	-0.001 (0.008)	-0.001 (0.008)
Inconsistent lottery choices	-0.001 (0.054)	-0.004 (0.058)	0.004 (0.055)	-0.005 (0.056)	-0.003 (0.061)
Household size	-0.001 (0.009)	-0.000 (0.009)	-0.001 (0.008)	-0.002 (0.009)	-0.001 (0.008)
Pre-choice performance	0.018*** (0.005)	0.018*** (0.005)	0.017*** (0.005)	0.016*** (0.004)	0.016*** (0.004)
Raven's test score	0.140*** (0.039)	0.136*** (0.037)	0.141*** (0.038)	0.134*** (0.040)	0.132*** (0.037)
Border provinces		0.005 (0.036)			0.005 (0.036)
Military service in NK		0.037 (0.084)			0.029 (0.082)
Communist party member		-0.034 (0.105)			-0.034 (0.106)
Informal market participation		0.011 (0.044)			0.008 (0.047)
Economic reasons			0.044 (0.058)		0.047 (0.054)
Political reasons			0.020 (0.072)		0.026 (0.069)
Family reasons			0.085 (0.060)		0.081 (0.068)
Years in SK				0.003 (0.008)	0.002 (0.009)
Years in a third country				-0.001 (0.005)	0.000 (0.005)
Education in SK				0.029 (0.052)	0.027 (0.049)
Household income				-0.001 (0.016)	0.001 (0.017)
Constant	0.575*** (0.104)	0.546*** (0.123)	0.540*** (0.116)	0.547*** (0.121)	0.490*** (0.134)
Significance of NK variables		0.922			0.973
Significance of defection reasons			0.310		0.631
Significance of SK variables				0.779	0.886
Observations	191	191	191	191	191
R-squared	0.328	0.330	0.335	0.332	0.339

Notes: Linear probability models. The dependent variable is an indicator of whether the subject selects the tournament scheme. Task-specific ability is the number of correct answers in the tournament scheme. General cognitive ability is Raven's test score. Robust standard errors, clustered by session, are presented in parentheses. *** significant at 1%; ** 5%; * 10%.

Some Observations on Sex Ratios in Russia, India and China

Prabir C. Bhattacharya

The human sex ratio, which is usually defined in terms of the number of males per 100 females, varies greatly between countries and regions. The biological norm is for the sex ratio at birth (SRB) to be about 105 more or less everywhere – meaning just over 51 per cent of births are boys and just under 49 per cent are girls.

But with equal care and feeding, females die less quickly. It is therefore not surprising that the sex ratio of the population as a whole in the West and in many other regions leans in favour of women. In the UK this ratio is 99; in the US, 97; and in the EU, 96. In sub-Saharan Africa, where life expectancy at birth is relatively low for both sexes, the ratio is 99. In Russia, Ukraine and some former Eastern block countries, it is among the lowest in the world: 86 for both Russia and Ukraine.

Russia's "missing men"

There are other countries – notably China and India – where the ratio is abnormally high: the ratio is 106 for both countries. Yet even in India and China, there are now more elderly women than men. The sex ratio among over-65s is 90 in India and 91 in China. By comparison, it is 76 for the UK and 75 for the US. For Russia this ratio seems astonishingly low: only 45.

Couple this with the fact that the overall sex ratio is also quite low in Russia, yet the sex ratio at birth and for childhood years is in line with the international norm. The difference in life expectancy at birth between males and females in Russia is also 13 years in favour of females

– the widest anywhere. It all suggests a problem of “missing men” in Russia (the reverse of the “missing women” problem in India and China).¹

Since 1992, Russia’s population has declined by 7 million from 149 million to 142 million. The decline would have been even greater without net immigration. Most of the immigration has been of ethnic Russians, mainly from Ukraine, Belarus and Moldova. However, this ethnic Russian immigration has been declining and most analysts agree that immigration is unlikely to be an important source of population stabilization in the future.

The decline in Russia’s population is linked to a sudden, sharp decline in fertility and high mortality rates. Until the mid-1960s, Russia’s total fertility rate (TFR), which represents the number of live births a woman would have were she to live through her childbearing years and bear children in accordance with the prevailing age-specific fertility rates, generally exceeded the replacement level fertility of 2.1. Then it hovered around 2.2 in 1986 and 1987 – the years of perestroika. After the collapse of communism, the TFR, however, went into a precipitous decline, the lowest level reached being 1.17 in 1991. Since then it has recovered somewhat to reach around 1.3, a rate that is, however, still among the lowest in the world. It has been argued that this is the result of a society ravaged by a sense of hopelessness and disillusionment, and less optimistic about bringing children into the world (see, among others, DaVanzo and Grammich, 2001; Gavrilova and Gavrilov, 2009). Accompanying the low fertility rate in Russia has been one of the highest abortion rates in the world – at 70 per cent of pregnancies in 2000-01.²

The rapid decline of fertility in early 1990s coincided with a rapid increase in mortality. In 1991-92, the death rate passed the birth rate and since then Russia has recorded nearly 13 million more deaths than births. Last year, according to figures that were allegedly heavily doctored, the birth rate exceeded the death rate for the first time since 1991. This may or may not be a start, but in any case it is a very fragile one to base any optimism about the future.

The upsurge in mortality has been disproportionately concentrated among men and women of working age. For men in their 30s and 40s, Russia’s death rate today is roughly twice what it

¹For a discussion of the “missing women” problem in India and China, see, among others, Sen (1990), Coale (1991), and Klassen (1994). See also discussions below.

² The abortion rate, however, has been declining in recent years due to the greater availability of modern means of contraception.

was 40 years ago. It has been estimated that if Russia had maintained the hardly-exacting survival rates of the years just before the collapse of communism, there would have been 6.6 million fewer deaths between 1992 and 2006, of which 4.9 million would have been men (Eberstadt and Shah, 2009).

While there have been rapid increases in HIV/AIDS infections and tuberculosis in Russia, the main cause of this mortality upsurge are deaths from heart disease and “external causes” such as injuries, homicide and suicide. Alcohol is the common denominator. Russian men in particular tend to consume hard spirits and drink in binges (McKee et al., 2001; Shkolnikov et al., 2002; Eberstadt, 2009).

It has been estimated that an average adult drinks a bottle of vodka per week (or the equivalent).³ Russians have always drunk vodka, but the psychological stress following the collapse of communism would appear to have played an important role in recent times. One is tempted to say that a large number of Russians have lost the will to live and are simply drinking themselves to death.

But why have men of working age suffered more than women? It has been suggested that the gender order that developed during the Soviet era made men virtually redundant within the typical Russian household, especially in urban areas (see, in particular, Ashwin and Lytkina, 2004; Rotkirch, 2000). It served the perceived needs of the state by expecting women to combine roles as workers, mothers and household managers; while men’s far more limited role involved serving as soldiers, workers and managers.

Soviet society was “matrifocal” with everyday family life relying “heavily on cross-generational help and caregiving relations, taking place mostly between women”, and men estranged from most family spheres. The respect men commanded within the household depended mainly on their role as primary breadwinners. Once that role came under threat or disappeared at the end of the Soviet era, they had no other roles or support network to fall back on. Since vodka drinking had always been part of traditional Russian male culture, it was the obvious culturally appropriate way for men to cope with their hardships.

Apart from the effects of alcoholism on worker productivity, the danger here is that if dying young is common, it affects people’s economic decisions. They will be less likely to spend

³ See Eberstad (2009) where he quotes Nemstov, one of Russia’s leading authorities in this area.

years acquiring training and education to benefit their future. Companies become less likely to invest in their workforces. People are less likely to save for their futures, which can become a drain on the state in years to come. Also, activities where men may have a comparative advantage may be adversely affected if there is a shortage of men in the relevant age groups.

The India-China comparison

Be that as it may, men are not dying in larger numbers than women in Russia because of any deliberate discrimination against them. In India and China, by contrast, the culture of discrimination against females has been mainly responsible for the sex-ratio imbalances. Both countries have a problem with sex-selective abortions and higher rates of female child mortality (see, among others, Bhattacharya, 2006; Kulkarni, 2007; Cai and Lavelly, 2003). It has been estimated that if India had the normal sex ratio at birth of 105 and the same mortality differentials by sex as in the West, then there would have been 9.8 million more girls in the age group birth to 14 years in 2001 (Kulkarni, 2009). Of this, 3.78 million (38 per cent) is attributed to excess female mortality and the rest, 6.07 million, to higher than the normal sex ratio at birth. This works out at 3.5 per cent of the female population in this age group. An estimate of missing girls in China for the cohorts born in the period 1980-2000 puts the figure at 4.1 per cent of girls for the period as a whole, while in the late 1990s, the figure rose to over 8 per cent, a figure much higher than seen in India (Cai and Lavelly, 2003).

It has been estimated that there will be 30 to 40 million more men than women of marriageable age in China and India by 2020 as a result of sex-selective abortions. Many young men will face difficulties in finding brides. The possible consequences of a large number of men remaining unmarried have attracted a great deal of attention in both academic and popular discussions in recent years. It has been argued that this marriage squeeze will result in socially disruptive behaviour among men unable to find brides, that there will be an increase in violence against women (including kidnapping and trafficking of women), a rise in sexually transmitted diseases and an increase in mental health problems.

In this context it is well to remember that the excess female child mortality in China and India in the past meant that there must always have been a shortage of brides in their age groups for young men in these countries. In India, the marriage system evolved such that husbands are usually older than their wives. In China, under the Qing dynasty (1644-1912) 'about 10 per

cent of men probably never married' (Smith, 1994). There have also been other societies where many men never married. In Ireland, for example, in the late nineteenth and the early twentieth centuries, late marriage was quite common and a considerable proportion never married at all. Also, in the West today the proportion of men over 40 who never married has been rising. In the US, for example, while in 1970, 4.9 per cent of men in the age group 40-44 years had never married, in 2008, the figure was 16.9 per cent (US Bureau of the Census, Statistical Abstract of the United States, 2010). It is also well to remember that many of the ills attributed to gender imbalance in China could also be explained by the massive migration of males from rural to urban areas.

Life expectancy at birth for both males and females has been increasing in both India and China. The gains for females have been much greater than for males in the past few years, and overall female life expectancy now exceeds male life expectancy in both countries by about four years. In India, in the early years of the 20th century, the overall life expectancy was around 20 years. By 1961, this had risen to 41.3 years (41.9 for males, 40.6 for females). There was an increase to 61.9 years by 2000 (61 for males, 62.7 years for females). The figures for 2009 show life expectancy at 69.89 years, with that for males being 67.46 years and for females at 72.61 years. China's record here has been better than India's. Average life expectancy in the 1964-82 intercensal period was 60 years (males 59 and females 61.4 years) and improved to nearly 70 years in the period 1990 -2000 (males 69.7 and females 72.8 years). Since then it has risen further, with gains for females being higher than for males. The 2009 figures are: 71.61 years for males and 75.5 years for females. This increase in female life expectancy is tilting the sex ratio away from its male bias.

But why is there the preference for sons in China and India? At the heart is thought to be the patrilineal kinship system. Lineage of the family is continued only through sons, and daughters are typically excluded from inheritance rights. In societies, where social security provisions for old age are absent or minimal, sons are expected to support their parents and sons provide the best assurance of security in the parents' old age. By contrast, married daughters become members of their husbands' families with little or no obligation towards their natal families. Marriages tend to be patrilocal (meaning that married couples live near the husbands' family) or virilocal (married couples reside with the husbands' parents). The parents of married sons, therefore, have the additional help of their daughters-in-law for farming and related activities. In South Asia, the practice of dowry adds to the financial burden of having daughters. Further, give the patrilineal inheritance system, a mother without a son will lose her husband's assets

on his death. Overlaying all of these is the stipulation in both Hinduism and Confucian tradition that certain death rites can be performed only by sons.

The practice of dowry would appear to have been of great significance in the Indian context. It is reportedly one of the main reasons for son preference in the country. The practice involves the giving of money, jewellery and other durable goods by a bride's family to a groom's family. The amounts can be huge, constituting several years of the household income of the bride's family, and often indebting them severely. The 'social justification' of this practice has been in terms of it being the 'last expense' that a girl's family must bear before she becomes the 'responsibility' of her husband's family and also in terms of compensating the daughter for her exclusion from inheritance rights (though, of course, the 'dowry gifts' never accrue to the daughter; instead, they accrue to the husband and his family). In reality, the practice is more like a groom purchase – in general, the more educated and the wealthier the groom, the higher the dowry demanded. The practice, which at one time used to be confined mainly to North India and among the upper castes, has now become widespread across India, despite the government enacting legislation banning the practice. The Dowry Prohibition Act of 1961, subsequently strengthened through amendments in 1984 and 1986, banned the practice. The law, however, has been impotent in the face of widespread acceptance of the practice by the society. There has also been dowry inflation in recent years as economic prosperity has fuelled an increase in 'consumerism'. Indeed, in the early years of the availability of the sex-determination tests, they were marketed with slogans such as: 'Spend Rs. 500 now, save Rs. 50,000 later'.

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centuries, late marriage was quite common and a considerable proportion never married at all. Also, in the West today the proportion of men over 40 who never married has been rising. In the US, for example, while in 1970, 4.9 per cent of men in the age group 40-44 years had never married, in 2008, the figure was 16.9 per cent (US Bureau of the Census, Statistical Abstract of the United States, 2010).

However, it has sometimes been argued that in the West people are choosing not to get married, while in India and China, this will be due to the 'marriage squeeze'. It has further been argued that this marriage squeeze will result in socially disruptive behaviour among men unable to find brides, that there will be an increase in violence against women (including kidnapping and trafficking of women), a rise in sexually transmitted diseases and an increase in mental health problems. There would also be difficulties of old age support for those who never married. One study (Wei and Zhang, 2009) has also claimed that about half of the increase in China's savings rate over the last 25 years could be attributed to the rise in the sex ratio at birth: households with sons need to save more to attract brides in the highly competitive marriage market.

Policies to correct sex ratio imbalances have, in recent years, concentrated on preventing sex-selective abortions. However, excess female child mortality, while declining in recent years, still continues to be a problem in India and China. In India, in particular, it has been the neglect of female children, especially when they fall sick, which has been mainly responsible for the excess female child mortality. An important aim, therefore, should be to see that female children do not fall sick from infectious and communicable diseases. Here the provision of safe drinking water and compulsory immunization programmes are essential. Provision of free school meals would also be useful.

Dealing with the issue of sex-selective abortion raises difficult ethical questions. As Mamdani and Mamdani (2006) wrote:

'feminist groups have struggled long and hard to make abortion legal and easily available to women. They assert that women must have the absolute right to decide whether or not to carry the child to term as it is their body that will nurture this child and they will put in the labour to raise it till maturity. If we accept this position, we must also accept the right of women to choose the size and gender balance of her family'.

It is educated urban middle-class women in India who have mainly resorted to sex-selective abortions and not the poor and the illiterates. As against this, the view could be taken that

women themselves acquire patriarchal biases. Banning sex-selective abortions can also be justified on the ground that harms done to the many – the society – as a result of sex-selective abortions overwhelmingly outweigh the benefits to few – women and their families. However, again as Mamdani and Mamdani note, ‘many of the ills attributed to gender imbalance in China could also be explained by the massive migration of males from rural to urban areas. Until we can show, without ambiguity that denying the right to sex selection prevents severe harm to the society, we are being unjust, arbitrary and dictatorial’. In this context, it is of some interest to note that Sweden legalized sex-selective abortion in 2009.

Policies to rebalance high SRBs in India and China have included banning sex-determination tests and sex-selective abortions. These, however, has not been particularly successful. Establishing either that an ultrasound test is for sex determination or that a particular abortion is sex-selective is not easy (especially when abortion as such is legal, as in India and China) and very few prosecutions have resulted under the relevant legislations. So while banning sex-detection tests and sex-selective abortions do have their place in an overall strategy to rebalance SRBs, the real need would appear to change the conditions that cause son preference.

And here continued economic development and associated modernizing influences are likely to play important roles. As continued economic development opens up wider opportunities and roles for women in both the private and public spheres, traditional patriarchal values and norms will be increasingly questioned and weakened. Urbanization and greater contact with the urban areas bring modernizing influences to rural areas. At the same time, wider access to education and various media (including satellite TV) exposes people to new ideas and new ways of viewing gender relationships. Continued economic development also makes it possible to make a start towards providing for old age security. All of these would then tend to exert a downward influence on high sex ratios at birth and eventually bring high SRBs down.

Indeed, one can think in terms of an inverted U-shaped curve, with the SRB first rising, following the availability of sex-selection techniques in communities with strong son preference, but then over time as economic development continues, forces are set in motion to bring the SRB back towards its biological norm. Of course, how high the SRB will rise, how long it will stay at this peak, how fast it will fall and the level it will fall to, will depend on a number of factors such as the extent and depth of the initial strength of son preference, the ease or difficulties in obtaining sex-selective abortions, the speed and nature of economic growth

and associated social changes, the rate of decline of TFR and last, but not the least, the public policies pursued. Policies that are likely to be of particular benefit would include giving greater property rights to women, provision of old age pensions and preventing gender discrimination in the labour market.

South Korea may provide a precedent. Its sex ratio at birth was the highest in the world in 1990, peaking at 117 (54 per cent boys). Only ten years earlier it had been normal – just at the point when sex-determination tests were becoming available and sex-selective abortions became possible. And in more recent years, the figures have returned to around the norm. Contributory factors are thought to include increased urbanisation; structural change in the economy from agriculture to non-agriculture; greater employment opportunities for women; greater prosperity for individuals; establishing more nuclear families and several laws giving special rights to women (see, among others, Chung and Das Gupta, 2007).

In India there are now signs that those states with the biggest male birth bias – Punjab and Haryana – are also beginning to reverse. But this has to be set against the fact that the sex ratio in the birth-to-six-years category in some states with less male birth bias has been increasing. In China, the sex ratio at birth did shift appreciably towards girls during 2000-05 in several regions such as the contiguous south-eastern provinces of Guandong, Hainan and Guagxi. In some other areas, the ratio has been stagnant,

Concluding remarks

It is possible that India and China will follow the South Korea path towards a more balanced sex ratio as their economies develop. High sex ratios at birth continue to be major problems, but rising life expectancy at birth for both males and females is encouraging: the gains have been strongest in the last few years, particularly for females. India also has the advantage that her youth ratio in the population is higher as compared to many other countries. With 364 million people aged between 10 and 24, India has by far the largest number of young people in the world.

It is hard to avoid the conclusion that India and China probably have better prospects of sustained economic growth in the foreseeable future than Russia, where the situation continues to look gloomy. The old Soviet gender order is being actively maintained and binge vodka drinking continues to be part of traditional male culture. Death rates among working age people

are still a problem. Male life expectancy is lower than in the late 1950s. Russia wishes to be a great economic and political power again. But surely an economy and society where human capital is as precariously poised as in Russia is likely to be greatly limited by that weakness.

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(This article is based on the author's previous work in this area).

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A Cooperative Strategy: The Economic Roles of China, Russia and Japan under the OBOR Initiative

Wen-jen, Hsieh¹

Abstract

This paper takes an introductory explore of “The Silk Road Economic Belt and the 21st Century Maritime Silk Road” or “One Belt, One Road” Initiative established by China in 2014. For geographic aspect, OBOR covers China and Russia as member states, but not the neighboring “outsider” as Japan. With the progress of OBOR, the possible impacts on the relations of China, Russia, and Japan are discussed, and furthermore, suggestions of strategies for the three countries are provided. China can accumulate the reputation or benefit in international political as well as economic arenas. Russia should be able to find opportunities to fulfill the so-called “turn to the East” strategy. Japan could put efforts on seeking development projects through cooperation between ADB and AIIB in the progress of OBOR and pay unavoidable attention to United States’ intention on OBOR related issues.

Keywords: One Belt, One Road; Eurasian Continent; China; Russia; Japan; Economic Development

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Introduction

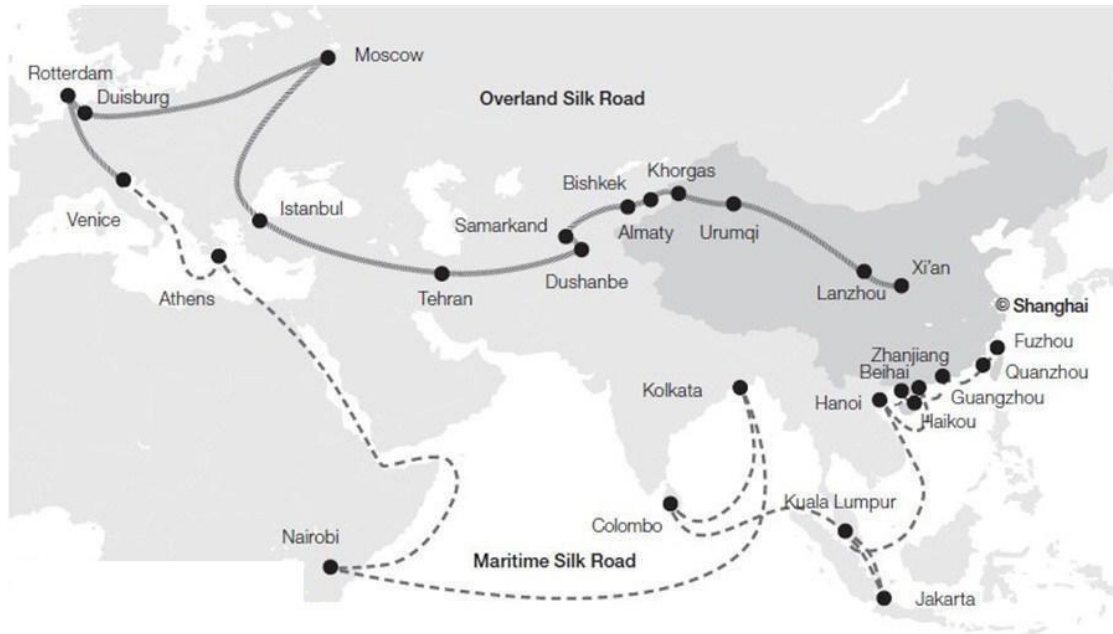
The dynamic progress of China's "The Silk Road Economic Belt and the 21st Century Maritime Silk Road" or "One Belt, One Road" (pronounced as *yidai yilu* and written as 一帶一路 in Mandarin Chinese, referred as "OBOR" herein after) political economic strategy starting from 2014 is considered as one of the most massive economic development cooperative initiatives in the 21st century. China wishes to improve or deepen China's political economic relationships with countries on the path of the land-based Silk Road Economic Belt (SREB) routes covering Central Asia and part of European regions based on the old Silk Road established in Han dynasty. While the other Maritime route called oceangoing "Maritime Silk Road" (MSR), similar to the naval paths sailed by diplomat Zheng He (鄭和) in Ming Dynasty, is designed with the same purpose to engage with South and Southeastern Asian, and African countries.

Figure 1 as below is a simplified illustration of overall coverage of the overland and maritime silk roads that cross from Eastern Asia to Western Europe and Africa. As we can find, two major communist (one is former) countries, People's Republic of China and Russia Federation (one of the former Union of Soviet Socialist Republics member states) are connected from Xi'an to Moscow, making them the two major composition of OBOR.

Furthermore, as we can observe, OBOR's geographical coverage includes more than 60 countries,² which most are central Asian countries and Southeast Asian countries. Comparing to the "participated" countries, there are some major economies listed as "non-participated" countries such as Japan (and United States of course), which is not covered in the scope of OBOR. However, the situations between and among the three major players in the global arena (China, Japan and Russia ranked the 2nd, 3rd and the 10th, respectively in 2015 nominal GDP scale) may need to be reevaluated after Mr. Donald Trump being

² The details of covered countries of OBOR can be viewed at Hong Kong Trade Development Council, "Country Profiles of Belt and Road." Website is available at <http://beltandroad.hktdc.com/en/country-profiles/country-profiles.aspx>, and accessed on December 13, 2016.

assumed as the 45th Presidency of the United States.



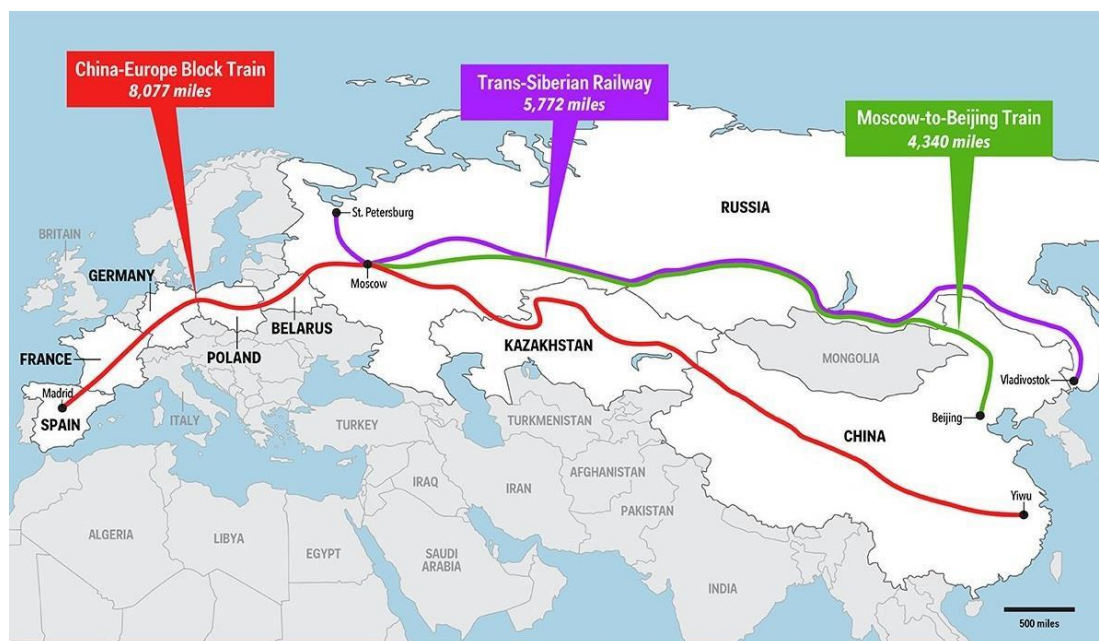
Source: Silk Routes.Net, Silk Road Trade & Travel Encyclopedia, Website is available at <http://silkroutes.net/OBOR/MapsMaritimeSilkRoadRoutesChina.htm>, and accessed on December 21, 2016.

Figure 1. The Two Major Routes of OBOR

It was reported that there have been three routes of railway systems as The China- Europe Block Train begins from the city of Yiwu (義烏市) in Zhejiang Province, China to Madrid, Spain, the Trans-Siberian railway and the Moscow-Beijing train under operation since 2014 (see Figure 2) and further, China had signed agreement with Russia to construct the high-speed railways from Moscow to Kazan in Russia in 2016.

As Figure 2 exhibits, all three major railways converge at one city spot, Moscow in Russia, which indicates the importance of such location. This observation raises our interests in the exploration of the role of Russia playing in the development of OBOR policy, and what expected actions the country would take in the future. Furthermore, from geographic layout, one economic strong power, Japan, remains absent in this massive economic initiative. To

that extent, this paper would also attempt to discuss the diverse roles the three Major Asian and European countries as People's Republic of China (China), Russia Federation (Russia) and Japan take under OBOR initiative and their influences with each other in such framework.



Source: Business Insider (2015), "The Longest Railway in the World is Stalled in Madrid," January 26, 2015. Website is available at <http://www.bullfax.com/?q=node-longest-railway-world-stalled-madrid>, and accessed on December 22, 2016.

Figure 2. Three Major Railways in the Eurasian Continent

For the variables taken by this paper into discussion, considering the historical and geographical background of the three countries, Russia, a country with abundant energy resources ranging from natural gas to petroleum, has been heavily depending on the supply-demand of such resources for the progress of its economy. Japan, on the other hand, is lack of the energy resources that Russia can provide, and it also faces economic challenges from China. China, which is the initiator of the OBOR and located in between Russia and Japan geographically, it not only has to ensure the stability of the development process of OBOR, the trading relations, political and historical dispute on Pacific islands and the past wars fought against Japan, as well as the cooperation with Russia on the development of western territories toward inlands of

Central Asia, remain it as the most complicated role discussed here.

With this consideration, the infrastructure construction, the natural energy resources and the political economic interaction activities of these nations will be elaborated. The rest of this paper is organized as follows: the economic performance of the three countries will be briefly discussed first. Owing to the OBOR initiative is still an ongoing process, trends of several political or economic variables would be rather uncertain even for the two OBOR participants, China and Russia, not to mention the outsider, referred as Japan in our discussion. Therefore, we will later discuss the impacts from OBOR development on China, Russia and Japan. The conclusion will be followed as suggestion for future strategies on the three countries under the progress of OBOR.

The Economic Performance of China, Russia and Japan

If we look back to the history progress, China, Russia and Japan all have unique national economic development: China, which underwent tremendous political economic ideology from capitalism to communism during the mid-20th century, experienced Three Red Banners (三面紅旗; *Sanmian Hongqi*), Cultural Revolution that severely deteriorated Chinese economic development foundation, namely, infrastructure, human capital and industrial capacities. It wasn't until 1978 that the economic growth of China met another boost, and then has enjoyed the double-digits growth since 1980s, and slowed down to around 7% in recent years. Russia, the first modern communism country since 1917, was built gradually to become an industrialized country through a series of five-year plans until its transformation into the more capitalized national economic structure in 1991. Japan had utilized the technology capacity and human capital to dedicate to the development and revival of the heavy industry after World War II, which leading to the economic miracle and became a key player in global economy around 1980s. The prosperous economic fruits turned into a real estate bubble that burst in 1990, resulting in the Lost Decades that may be revived in recent years.

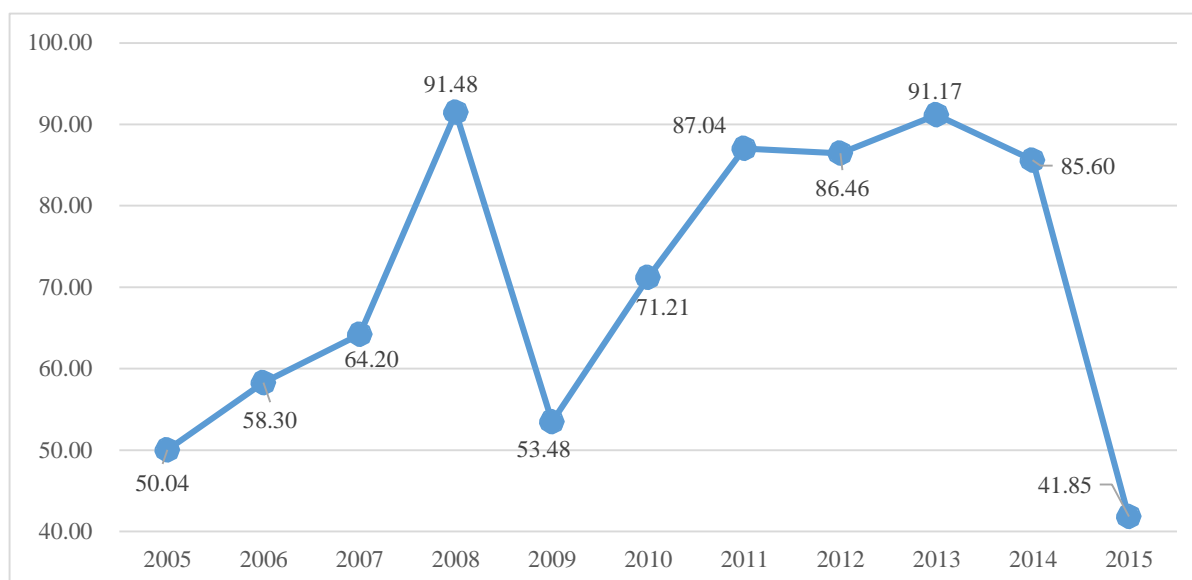
Table 1 below provides the economic performance on GDP per capita growth of the three countries for the past decade. China is no doubt one of the fastest economic- growing country while Japan meets typical economic stagnation after the burst of economic bubbles in 1990.

By examining Figure 3 below, the crude oil price reached the highest 91.48 USD in 2008 and the lowest as 41.85 USD in 2015 at our measured time period as 2005 to 2015. The Russian economic growth of GDP per capita illustrated in Table 1 can be somehow reflected to the ups and downs of crude oil prices. Russia as a country that relatively heavily depending on the exports of natural resources, experiences radical fluctuations of economic growth, making Russia's economic weakness rather evident. If no further efforts can be exerted more severe influence from global energy prices and the recent sanction could endanger Russia of being marginalized from the center of world political economic issues (such as deciding international trade rules or conducting mutual or multilateral trading agreements etc.).

Table 1. GDP per capita growth (annual %) of China, Russia, Japan and the World

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
China	10.74	12.09	13.64	9.09	8.86	10.10	9.01	7.33	7.23	6.76	6.37
Japan	1.29	1.63	2.07	-1.09	-5.52	4.69	-0.26	1.95	1.53	0.13	0.61
Russia	6.78	8.51	8.72	5.29	-7.85	4.46	4.18	3.34	1.06	-1.07	-3.93
World	2.55	3.10	3.05	0.60	-2.89	3.12	1.87	1.25	1.24	1.49	1.43

Source: World Bank, GDP per capita growth (annual %). Website is available at <http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?end=2015&locations=JP&start=2005>, and accessed on January 3, 2017.



Note: Price calculated in USD

Source: InflationData.com (2016), Historical Crude Oil Prices (Table) May 1, 2016. Website is available at http://inflationdata.com/Inflation/Inflation_Rate/Historical_Oil_Prices_Table.asp, and accessed on January 3, 2017.

Figure 3. Crude Oil Price, 2005 to 2015

While Russia and Japan are facing quite obvious obstacles of their own, China is not immune to economic problems either. China's marginal benefit of population from agricultural sector moving to urban sectors has been eliminated recently. If no further cultivation of human capital or policies encouraging further foreign investment direct investment (FDI) containing advanced technologies are introduced³, the middle-income trap stagnation could be burdened by China, at least, to some extent.

Bearing those aspects in mind, what can the three countries seek for solutions of economic problems or find new opportunities for development or interaction for each's national interests under the OBOR framework shall be discussed. However, it is crucial to explore the background and dynamics behind the construction of OBOR initiative first.

³ As we know, the newly elected U.S President Donald Trump is working aggressively on bringing manufacturing industries back to U.S. homeland.

Purposes of OBOR

The purposes behind the formation of OBOR are multifold regarding various factors from social, political, economic, cultural or military aspects, and can be categorized into three main purposes as listed below:

Political diplomatic purpose: For ideological and political reasons, the Communism was opposed heavily by the American-led first world countries after World War II. United States' first island chain strategy formulated in the tension of Cold War era had effectively restricted the military outbound toward the Pacific of China. Experiencing high economic growth for about three decades, with American Navy fleet still roaming the ocean worldwide, China, as the second largest economy since 2014 (in nominal GDP) in the world, may find difficulty connecting rather practical diplomatic relationships with countries already under the American influence.

Since such hegemony of sea power had been withheld by United States for so long and seemed still unshakable. The inland countries- especially post-communist states across the Eurasian continent- which were historically or politically less relevant to the global expansion of Americans. Accompanied with geographical proximity and similar political ideology with China (i.e. Socialism or left-wing thought background), making themselves as the best candidates for China to delve into deeper interaction with.

The Silk Road Economic Belt (SREB) of OBOR has several city- "knots" which indicating they have special economic or trade positions on the cooperation path. With already-established Chinese embassies in those Central Asian states and the connection of the SREB route (such as signing further bilateral or multilateral economic cooperative agreements), China can effectively expand its own influences on these Central Asian nations. Besides, the Maritime Silk Road (MSR) is able to surpass the lockdown of first island chain strategy. In 2015, Pakistan's Gwadar Port, the destination of China-Pakistan Economic Corridor (CPEC) at the Pakistan's southern end has been organized as a special economic zone fully operated by a

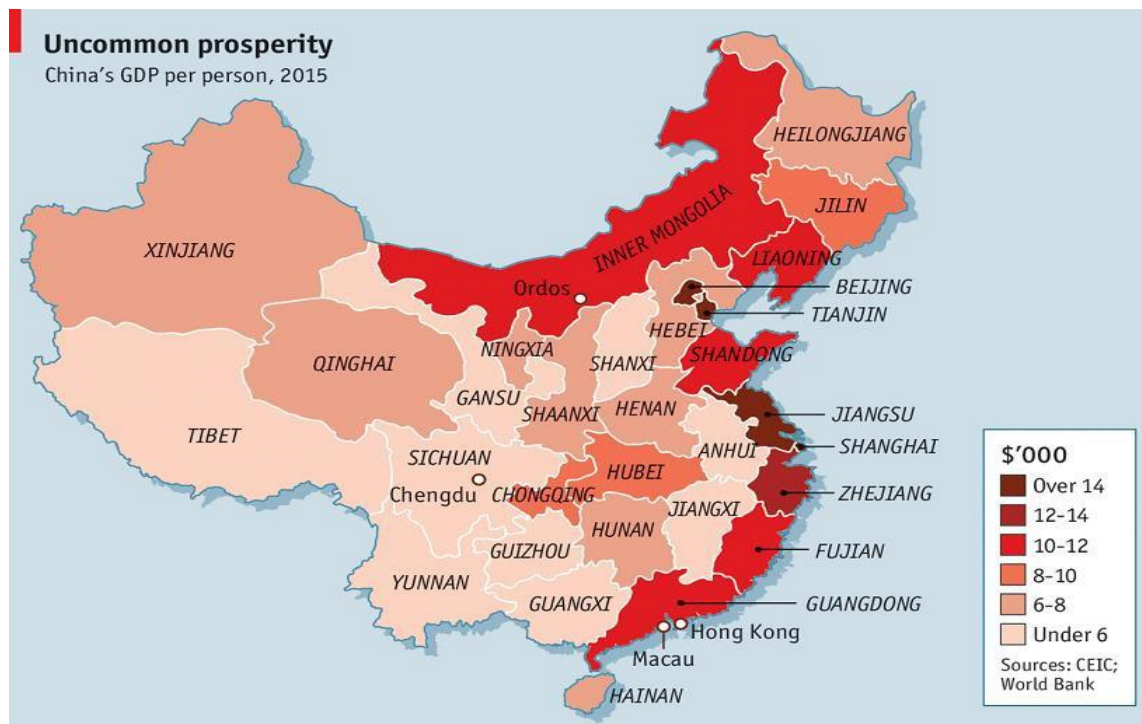
Chinese cooperation- China Overseas Ports Holding Company (COPHC)⁴. Such strategy has enabled China to circle behind through the islands of the chain and pave the way to Africa or Turkey, further combining with the SREB toward Europe. Also, the China-Pakistan cooperation on Gwadar Port is also important for both countries since they both have remained military or territorial disputes with India. In sum, breaking through the political containment of Americans along with countries at the coasts of Pacific and developing into a regional influential power can be resulted as one of the aims of the formation of OBOR.

As a result, the realization of OBOR will extend China's political diplomatic power toward Central Asia and further develop itself as a nation with land power hegemony, in turn, further weaken American influences in the Asia and Pacific areas.

Economic development and cultural purpose: Besides economic reasons for Chinese companies to expand overseas markets and tackle overcapacity in many industries⁵, the nationwide overall development of China is rather imbalance. The scope of China's economic engagement in Central Asia through the SREB serves as a measurement to satisfy China's economic needs of developing its western provinces (Li, 2016). Figure 4 below shows the GDP each person can share at the provincial level in China in 2015. The western provinces, namely, Xinjiang, Qinghai or Gansu, has relatively low level of GDP share per person while enjoying rather high GDP growth rates recently as Figure 5 illustrated.

⁴ Indian Express (2015), "Pakistan Hands over 2000 Acres to China in Gwadar Port City," November 12, 2015. Website is available at <http://indianexpress.com/article/india/india-news-india/pakistan-hands-over-2000-acres-to-china-in-gwadar-port-city/>, and accessed on December 26, 2016.

⁵ Ruff, Abdul (2016), "China's 'One Belt, One Road' Policy for Russia and Japan," Modern Diplomacy, March 19, 2016. Website is available at http://moderndiplomacy.eu/index.php?option=com_k2&view=item&id=1290:china-s-one-belt-one-road-policy-for-russia-and-japan&Itemid=868, and accessed on January 6, 2017.



Source: Economist (2016), "Rich Province, Poor Province," October 1, 2016. Website is available at <http://www.economist.com/news/china/21707964-government-struggling-spread-wealth-more-evenly-rich-province-poor-province>, and accessed on January 15, 2017.

Figure 4. Provincial GDP per person of China, 2015 (in USD)



Source: Wall Street Journal (2016), “In China, Economic Data Highlights Growing Divide between Regions,” August 10, 2016. Website is available at <https://www.wsj.com/articles/in-china-economic-data-highlights-growing-divide-between-regions-1470847002>, and accessed on January 15, 2017.

Figure 5. Provincial GDP growth rate of China from January to June, 2016

In the scope of OBOR, Xinjiang would be set as the core strategic role which shoulders the responsibility of serving as a bridge linking the Central Asian economies and China.⁶ It can be foreseen that many major construction or important economic or cultural interaction such as people-to-people exchanges would be organized or executed by Xinjiang in order to enhance the foundation of SREB with neighboring nations, helping the Province to promote its provincial economic development status among the region. In addition, the mobilization of population from rural provinces to coastal urban areas might be reversed as a spillover benefit from such regional development, further fostering local human capital and retain them instead

⁶ Diplomat (2016), “Making China's 'One Belt, One Road' More Turkic,” July 4, 2016. Website is available at <http://thediplomat.com/2016/07/making-chinas-one-belt-one-road-more-turkic/>, and accessed on December 31, 2016.

of being drained.

In the perspective of cultural interaction, OBOR can provide the framework for interaction with academics, think tanks or media from various states. China may invest resources to connect present society to the past one by establishing museums, expos, festivals, or other intangible heritage initiatives⁷, improving the practical mutual understanding with countries under cooperative agreements.

Military strategic purpose: As the founder of such massive initiative, China, however, does not “get along” with its neighboring countries. The various disputes on the national ownership of islands with Japan, Taiwan and Southeast Asian countries, not to mention Russia’s recent attempt to develop Russian influence among Central Asia described as “turn to the East” strategy. (Amrebayev, 2016), forming an inevitable competition with China, even the domestic threats of Xinjiang liberation movements all indicating obstacles against the progress of OBOR.

However, it is one of the purposes of OBOR initiative to look for solutions for all the above impediments. The islands ownership dispute often resulted in naval military conflict, with the connectivity of MSR, military bases or contractors can be implemented at the leased areas (such as ports, airports or industrial zones), cleverly disguised in the form of maritime logistics or transportation. The mobilization of Chinese naval fleet to islands under dispute can be more efficient, and the threats of pirates reduced at significant level can be expected.

When it comes to Russian expansion, the railroads constructed in SREB across Russian soil have their economic aspects. These land based infrastructures (road, rail, pipelines, digital backbones) aim to connect China to all parts of the Eurasian continent and to the oceans surrounding Asia.⁸ Therefore, the functions of transporting resources (gasoline fuel, weapons,

⁷ Diplomat (2016), “One Belt, One Road, One Heritage: Cultural Diplomacy and the Silk Road,” March 29, 2016. Website is available at <http://thediplomat.com/2016/03/one-belt-one-road-one-heritage-cultural-diplomacy-and-the-silk-road/>, and accessed on December 20, 2016.

⁸ Salute (2016), “ONE BELT ONE ROAD (OBOR): Economic, Diplomatic and Strategic Dimensions,” June, 2016. Website is available at <http://www.salute.co.in/one-belt-one-road-obor-economic->

and minerals) required by military deployment can be obviously anticipated. In addition, these infrastructures may locate their destinations at the inland parts of China, adding difficulties for the adversary armies to invade or disable the infrastructure from coastal sides. Hence, the security on military logistics can be more ensured. Also, with western sanction on Russia, China can play a role of consumer market of digesting Russian exported goods, desalinating the tension of confrontation of regional expansion from both countries. The last but not the least, the stabilization of provinces such as Xinjiang means more efficiently prevent Central Asian and other neighboring Islamic States (Pakistan, Afghanistan or Iran) from becoming bases for Xinjiang liberation movement activists or others alike.⁹

Effects on the Three Countries under OBOR Framework

In a globalized world so vastly intertwined with almost every nation around the globe, traditional complete conflict between individual nations is getting faded gradually. More and more regional or global integration organizations are emerging in order to resolve international argument, while encouraging cooperation at the same time. Beyond pure economic reasons, China's OBOR can be viewed as a large scale of regional integration initiative across Eurasian continent with many missions to be achieved. In this session, we are going to look into our main theme, to explore the three major economies on this Continent and discuss how OBOR is going to affect their relations under its framework, whether they are participated members or not.

Effects on Russia-China: OBOR's primary purpose is to trigger the economic development of China's relatively poor inner regions through contracts assigned to Chinese enterprises in the projects of infrastructure, energy, or manufacturing sectors from foreign markets. However, OBOR's role in boosting Chinese-Russian relations should not be neglected,

[diplomatic-and-strategic-dimensions/](#), and accessed on December 24, 2016.

⁹ Ibid.

either.¹⁰

First of all, Russia's "turn to the East" policy in response to economic sanctions from western countries by issuing the Eurasian Economic Union (EEU) to include several former USSR member states¹¹ to deepen their relations or cooperation at economic development or political diplomatic perspectives, forming similarities and intertwining with the expansion of OBOR. For both initiators, Russia and China, their progress of extending influence among Central Asia through economic development and political alliance approach shall be as supplementary as they can be. Whether they are energy (such as gas) development agreement signed by Russian and Chinese leaders since 2014, or Russian high-speed railway construction project financed by China in 2016. All shall be put into consideration of the capacity of both nations to coverage and accomplish. The goal of EEU is to conduct the existing customs union between the members and proceed to the economic unification that partially forms the regional market which USSR once had.¹² Therefore, it would be crucial for Russia and China to be tied more densely when they seek expansion on this vast territory. Regular hotlines or annual meeting for the authorities may be held. Moreover, careful negotiation for both nations on various economic cooperative agreements considering Eurasian regions' diverse natural resources, cultures or human capitals shall be considered, too.

On the other hand, after the 2016 presidential election, the newly-elected American President Donald Trump, constantly condemns China as manipulating currency exchange rate against American interest, may take on possible hostile counter measurement (i.e. high tariff for Chinese goods exported to America, a typical product of protectionism) in response of Chinese business activities while convincing Russia to be an American ally to contain China from inland expansion. Because United States is not a member of OBOR and an external factor with high risk of undermining the foundation of such initiative, it would be Russia's opportunity

¹⁰ Diplomat (2016), "China's Road to Closer Ties with Russia," August 3, 2016. Website is available at <http://thedi diplomat.com/2016/08/chinas-road-to-closer-ties-with-russia/>, and accessed on December 27, 2016.

¹¹ Currently, the member states of EEU are: Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia.

¹² Times Herald (2012), "Clinton Fears Efforts to 'Re-Sovietize' in Europe," December 6, 2012. Website is available at <http://www.timesherald.com/article/JR/20121206/NEWS05/121209739>, and accessed on January 13, 2017.

to break through the western sanction as well as having more bargaining chips in the negotiation with China. For China, the U.S. factor is indeed a negative effect to its ambition for OBOR development progress. But also, it would be a political propaganda to the emerging countries who eager for vast free markets on how America attempts to repress the growth of other nations, turning American's allies against itself while decorating OBOR as a great market that welcome all participants around the globe.

Therefore, Russia and China could be more intact with each other under the OBOR framework. Their levels of completion of mutual development agreements would be tested due to how massive these constructions will be. The EEU and OBOR inevitably encounter overlapping of markets in Central Asian regions, but for the existing overall economic power, the OBOR may take the advantage while attracting more spotlight focus simultaneously.

Effects on Russia-Japan: Japan's role in OBOR framework is quite passive. Japan is not a member state, nor can Japan enjoy the spillover effects of infrastructure construction among those nations under such initiative. As a traditional ally of America after World War II, Japan almost always stands by U.S. side on most international affairs from containing and against communism to supporting anti-terror war. As mentioned above, President Donald Trump also recently criticized Japan as another country that manipulated her currency exchange rate at low level, as well as requesting Japan to burden more military expenditure of United States Forces in Japan (USFJ) since his presidential election campaign. We could view such announcement as America attempting to reduce the ties bounded herself and Japan, combining with what we discussed beforehand, that the relations between Russia and America may meet significant improvement in the future. It can be speculated that Japan would take steps to develop further interaction with Russia and putting their territorial dispute on Kuril Islands aside temporary. And due to her lack of natural mineral resources, further agreement on transportation of energy fuel from Russia to Japan would be desired, especially after Japan's 2011 Tōhoku Earthquake, and Russia has always wanted to develop energy cooperation with other nations after the post- economic crisis environment with other countries (Lindgren, 2015).

In fact, on December 16, 2016, Japan and Russia had signed a one billion USD fund

agreement to invest in joint energy and infrastructure projects over Kuril Islands in the next five years. With the construction of pipelines or refinery factories through the financing of the fund, Russia may expect the western sanctions getting less effective on its energy goods exportation, whereas Japan could be able to acquire more energy resource at lower prices from shorter distance, forming a supplementary demand- supply relationship for both nations. Also, Japan could further claim its contribution on the energy development on disputed Kuril Islands to Russian for more administration on these lands in return, potentially resolving such dispute at certain level.

In sum, Russia can find another large energy consuming market as Japan to export its energy goods besides China, and Japan can gain more self-control and independency on energy issues. The territorial dispute is no doubt one of the major negative impacts on the relationship of Russia and Japan. The approach of cooperative resource development can be applied as a stepping stone to neutralize such negativity. However, it would be further negotiation of interest distribution or historical settlement that get permanent resolve.

Effects on Japan-China: From long-lasting historical dispute to the recent Pacific island ownership controversy, the modern international relationship between Japan and China had undergone several conflict and interaction. Though China's economic structure still remains a certain level of supplement with the Japanese one, making the rapid mutual trade still underway between both (not mentioning intentional anti- Japanese sentiment issued by Chinese government), the political ideology prevents any further practical dialogue from governmental authorities from both countries. The map scope of OBOR not only reshapes the massive trading routes in the past, namely, displaying the great power of ancient Chinese dynasties, but also with less bounding of United States-Japan Alliance, the claims of the leading role of Asian affairs of China through the Chinese rise in 21st century is evident.

Japan may choose to participate into the market within the coverage of OBOR, not just directly signing agreements with the initiator, but with more flexible approaches such as cooperating with the OBOR's member countries as spare parts suppliers or technical consultant service providers for infrastructure construction projects. Moreover, joint venture corporations by Japan and OBOR member states or other third party states can be another feasible path to

dissolve into the OBOR framework. In addition, the China-led Asian Infrastructure Investment Bank (AIIB), officially opened for business on January 16, 2016. The bank is given a total capital amount of 100 billion USD, which is two third of the amount held by Asia Development Bank (ADB) led by Japan. As the financing engine of OBOR's infrastructure construction project, Japan may put some effort to promote joint collaboration of ADB and AIIB to increase the funding bases for the overall demand of construction among Eurasian regions.

It would be difficult to thoroughly discuss the effect exerted on Japan-China in the framework of OBOR due to their complex historical love-and-hate relationships and limits of literature related to OBOR issues. However, we would like to present some suggestions as mentioned above to seek for new developmental opportunity for Japan and China. Instead of competitive tendering such as Thailand's high-speed railway project^{13 14}, or economic aid to African countries that may result in some kind of a new form of colonization.¹⁵ A "win-win" situation is encouraged to be discovered due to not only the interest of China and Japan, but also the multilateral sustainability involved by various players in the world.

Conclusion

There is an imbalanced relation among China, Russia, and Japan under the OBOR Initiative. China is the founder of such initiative, only with uncertainties of other countries' expansion and the "obstacles" outside of the framework such as America's new global strategies are all

¹³ Digital Journal (2016), "Thailand Seeks to Adopt Japan's Bullet Train System," August 7, 2016. Website is available at <http://www.digitaljournal.com/life/lifestyle/thailand-seeks-to-adopt-japan-s-bullet-train-system/article/471957#ixzz4XouUon56>, and accessed on November 30, 2016.

¹⁴ Reuters (2016), "Thailand, China Agree on \$5 Billion Cost for Rail Project's First Phase," September 21, 2016. Website is available at <http://www.reuters.com/article/us-thailand-china-railway-idUSKCN11R0Q1>, and accessed on November 25, 2016.

¹⁵ The Brookings Institution (2016), "Rising Sino-Japanese Competition in Africa," August 31, 2016. Website is available at: <https://www.brookings.edu/blog/africa-in-focus/2016/08/31/rising-sino-japanese-competition-in-africa/>, and accessed on January 24, 2017.

awaited to be overcome. As a rising power around the globe and considering the massive geographical scale of OBOR, it would be the unavoidable task for China to encounter and tackle with increasing international economic affairs during the operation of OBOR in order to accumulate its international reputation, making China to harvest benefits in international politics as well as those of regional economic development.

Although Russia faces economic recession due to foreign sanctions and low international oil prices, the OBOR provides alternative opportunity to develop more pragmatic and deeper political economic cooperation with the 2nd and the 3rd largest economies in the world, if carefully managed. Additionally, Russia's plan to further expand the influences in EEU could be finally harvested, at least, to some extent by implementing infrastructural projects in the region. All these can make Russia to be likely the second most benefited player of the three countries under such initiative.

While seems unlikely to join into the markets covered by OBOR directly, Japan is not a member of OBOR initiative, but Japan's long-lasting territorial dispute with Russia and fear of energy shortage may be relieved due to the potential conflict and competition between China and United States. Even though Japan may show high interest of participating into OBOR, the attitude from United States is inevitable for the country to consider seriously. To sum up, all three countries can find their own mechanism of cooperation under the OBOR Initiative from inside out.

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Soviet peasant budget studies and demographic data in the long run and through periods of crisis.

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This paper describes some of the work that I am currently undertaking on long term changes in mortality and food consumption during the crisis periods through which the USSR was passing in the 1920s, 1930s and 1940s. This is a report on work in progress. It builds on my previous work on Soviet demographic and welfare statistics for the 1920s and early 30s, and extends their coverage with more detailed data from the Soviet archives from the early 1930s through the 1940s to link up with the sets of data that began to be published in the 1950s.

Because this work builds on the previous work that I have done in this area I will begin with a survey of this previous work and a brief description of what has already been done in this area. This paper also includes a couple of brief appendices related to a couple of ongoing debates. It includes an update on my debate with the Russian demographers Andreev, Darskii and Kharkovo (ADK) on the reliability of Soviet demographic data and it also includes a reply to a recent book by the Russian historian S.A. Nefedov¹ that is aimed at directly challenge to my work.

My differences with ADK are important for anyone interested in the reliability of Soviet statistical data. My detailed research on Soviet statistical data, partly carried out in the Soviet era archives has led me to conclude that the Soviet statistical data on mortality, natality and on budget studies for this period are remarkably reliable. This is quite surprising, given the crises that the society was experiencing at this time, and

¹ S.A. Nefedov, *Agrarniye I demograficheskiye itogi Stalinskoi kollektivizatsii*, Tambov, 2013

the political pressures on the statisticians. ADK believe that the basic demographic data are so unreliable that they require corrections of from 20 to 30% and that they cannot therefore be treated as meaningful indicators. Their views are in many ways similar to the Stalinist administration at the time who wanted to ignore the indicators of famine that their statisticians were providing. If the data were as unreliable as ADK now claim this would justify the decision of the Stalinist administrators to ignore the data, and not to take it seriously. There were tragic consequences arising out of the government failing to accept the basically correct indicators of famine that were produced by the statisticians at this time. Enormous political pressure was applied to the statisticians to provide distorted data that compliant with the wishes of the government and its plans. Many statisticians suffered for standing up for reality. In less troubled times it is surprising to see a similar neglect being applied, but for the opposite reason.

1) An account of my previous work on this topic

Prior to the late 1980s and the opening of the statistical archives the sources that were available were very restricted. Soviet censorship and the system of *konspiratsiya* ensured that most statistical data that could in any way be interpreted to provide a view of Soviet reality contrary to the view favoured by the authorities would be restricted and not published. The categories of restriction included: Secret; Completely secret; for official use only; not to be left accessible. But as western researchers in Soviet libraries discovered at this time any document which had not passed the censor and been cleared for publication and sale would be treated as though it was restricted. Even though a few such documents were contained in Soviet libraries and could be read there. There were restrictions that did not allow them to be photocopied.

All of this began to change in the late 1980s under glasnost' when the archives began to be opened. Then after 1991 all the statistical archives, including the spets section (RGAE fond 1562 opus 393ch) were opened up almost completely. There remained

the customary restrictions limiting access to materials for the most recent 30 years, ie. those deposited after 1960².

In the early 1970s I had been a stazhor in Moscow for two years on a British Council Exchange to the Moscow Institute of the National Economy- the Plekhanov Institute and had become acquainted with many of the great Soviet historians who were to become engaged in the work of opening up the archives in the future decades. These included Yu. A. Polyakov in the Institute of History of the Academy of Sciences, V.Z. Drobizhev of MGU and then the Historical Archive Institute, and above all V.P. Danilov of the Institute of History. These Soviet scholars were highly appreciative and supportive of my early attempts to understand the reliability of Soviet statistical data, and of the scale and nature of mortality caused by famine and repression in the 1930s³.

² At first it looked as though the policy would be to have a rolling level of restriction in which each year everything placed in the archives 31 years ago would become accessible, but in effect the 1960 limit remained in place.

³ My Discussion paper *Famine and factors affecting mortality in the USSR: The demographic crises of 1914-1922 and 1930-33*, Birmingham University Soviet Industrialisation Project Series, SIPS 20-21, 1981 (available at <http://www.melgrosh.unimelb.edu.au/demography.php>) had just appeared and to my surprise Academician Polyakov and Professor Drobizhev were insistent in the late 1970s that I should present my work formally to the Sector for Complex Problems of the History of the USSR in the Institute of History, which I did. They also ensured that copies of my paper were held by their Institute Library and by the Lenin Library. At the time my work in this area had led me into a series of disputes in the major Western journals of Soviet Studies and Slavic Review where Steven Rosefielde and Robert Conquest had claimed that there were more than 10 million people in the Soviet labour camps with mortality rates of over 10% per year, and where the famine had caused 7-10 million excess deaths. I repeatedly tried to show that even on the basis of the evidence currently available these figures were highly exaggerated with less than 6 million in the camps, and much lower levels of excess deaths. See articles in Soviet Studies /EAS vol 42 no 2, 1990, Vol 48, no 8, 1996, vol 51 no 2, 1999, vol 52 no 6, 2000 all available on line at www.melgrosh.unimelb.edu.au/repression/home.php The opening of the archives has shown that I was correct, although ADK are still offering some support for Conquest's evaluations, Conquest never fully admitted that he was wrong on the matter of scale.

I was invited by Professor Danilov to join his team to prepare a series of publications of archival materials describing the Tragedy of the Soviet Countryside from 1927-1939. He was insistent not only on my joining the editorial board, but on writing a couple of chapters on the statistics related to the main aspects of agricultural production and utilization, and to demographic data.⁴ At the same time I did a similar job on the commenting on the reliability of demographic data for a major Ukrainian archival publication related to the famine prepared by V.Vasiliev and Yu.Shapoval.⁵

As I was exploring the archives and being impressed with the unexpected detail and accuracy to the demographic data, and the tragic struggles that the demographers were having in getting their data accepted by the government, I became aware of another attempt to deny the accuracy of their work. I will describe this more in appendix 1 where I will describe my involvement with the demographers Andreyev, Darskii and Kharkova and the debates that have followed concerning the accuracy of the basic demographic statistical data.

In these early post Soviet years I was also involved with my previous supervisor R.W.Davies in a couple of projects: 1) *The Economic Transformation of the Soviet Union, 1913-1945*, and 2) *The Industrialization of the USSR, 1929-39*.

1) Together with a team of specialists in Birmingham we produced of a major quantitative economic history of the early formative years of Soviet power that came out in 1994. I was responsible for the chapters regarding demographic data, agriculture and the statistical system⁶. The chapter on demography reviewed the available data regarding the famine and repression, the disjuncture between the

⁴ TSD vol. 3, appendices 1 and 2 S.G.Wheatcroft, 'O zernovykh balansakh I otsenkakh urozhainosti v SSSR v 1931-1933gg.' In V.P. Danilov, et al, eds., TSD, vol. 3, pp. 842-865, Moscow 2001.

⁵ S.G.Wheatcroft, 'Modern views on the nature and level of mortality during the Ukrainian famine of 1931-3 in V. Vasiliev, Yu. Shapoval, eds *Komandiry bol'shogo Goloda: Poezdki Molotov i Kaganovich, 1932-33*, Kiiv, Geneza 2001

⁶ S.G.Wheatcroft & R.W.Davies, Chapters Demography, Chapter 6 'Agriculture', in R.W.Davies, Mark Harrison and S.G.Wheatcroft, eds. *The Economic Transformation of the Soviet Union, 1913-1945*, Cambridge University Press 1994, pp. 106-130

official (corrected) registration data on births and deaths and the censuses of 1937 and 1939 and expressed doubt about presumptions of large corrections implicit in the ADK time series.

2) R.W.Davies had previously collaborated with E.H.Carr in writing his 14 volumed history of *the Bolshevik Revolution, 1917-29*, where he was centrally involved in the volumes *The Foundation of a Planned Economy, 1926-29*. Professor Davies had begun working on a sequel multi-volumed work *The Industrialization of the USSR, 1929-39* and he invited me to collaborate on the volume concerning the famine, which eventually appeared as *The Years of Hunger*⁷.

The French demographer Alain Blum organized a conference in Paris in 1996 on the history of Soviet demographic statistics in which I contributed a survey of the available nutrition and mortality data for the period of the first two Soviet famines.⁸

In 1999 I became interested in the use of anthropometric data as indicators of welfare levels and I joined Professor Boris Mironov in a special issue of the journal *Slavic Review* devoted to this topic. In my article ‘The Great Leap Upwards’⁹ I was generally skeptical of the claims that had been made about anthropometric data in the Stalinist period, and although the treatment of them by Professor Mironov was much better I still had differences with him about how to interpret data on terminal heights. He like many specialists in the area assumed that average changes in terminal height were an indication of changes in the welfare level at the time of birth. But there were reasons to expect these changes to be more indicative of welfare levels during the period of growth, and especially growth in the ages following the last catch up stages and preceding the age at which terminal height was achieved. I.e. that it would reflect welfare conditions when the individuals were in their late teens.

⁷ R.W.Davies & S.G.Wheatcroft, *The Years of Hunger: Soviet Agricultural Crisis, 1931-1933*, Palgrave-Macmillan 2004

⁸ Stephen G. Wheatcroft, Soviet statistics of nutrition and mortality during times of famine, 1917-1922 and 1931-1933, *Cahiers du Monde russe*, vol 38 no. 4, 1997, pp. 1-34.

⁹ S.G.Wheatcroft, The Great Leap Upwards: Anthropometric data and indicators of crisis and secular change in Soviet Welfare levels, 1880-1960, *Slavic Review* 58, no 1, (1999): 27-60

When it came to charting longterm secular growth over a lengthy period which most scholars including Mironov were interested in, it probably did not make much difference. But if you wanted to see whether the data could be used to chart responses to shorter term crises like famines, then it does matter.

I concluded that article with a section entitled ‘Problems and Prospects: An agenda for Research’, in which I emphasized the need to recognize that Soviet living standards of the Stalin period experienced at the same time both great conjunctural crises as well as great secular growth, and I complained that political scientists and many historians were making grand value judgments without seriously analyzing the complexity of what was happening. I will return to this point later, because this was to be the point of departure in Professor Nefedov’s recent attack on my work see appendix note 2.

I revisited these questions in later years when I was invited by Rick Steckler to join a group organized by Keio University on Historical Standards of Living: Eurasian and American Countries for whom I prepared a survey paper reviewing the history of Russian living standards. My original paper including much epidemiological data was presented in Keio University in early 2006 and at the International Economic History Congress in Helsinki later that year.¹⁰ A much revised paper was eventually published in *Explorations in Economic History* in 2009.¹¹ This article again drew a distinction between secular growth and conjunctural crises and explained that over the period in which the USSR experienced 5 major famines accompanied by major mortality crises, it still managed to achieve a major secular decline in mortality. In fact a decline in secular mortality more rapid than in most countries. Mortality fell from about 28 per thousand per year in 1914 to under 10 per thousand per year in 1950. This is quite an extraordinary achievement that requires an explanation.

¹⁰ An electronic version of this paper “Russian and Soviet living standards: Secular growth and conjunctural crises” is available on the conference website

¹¹ S.G.Wheatcroft, The first 35 years of Soviet living standards: Secular growth and conjunctural crises in a time of famines, *EEH* 46 (2009), pp. 24-52

In that paper I reviewed the classic western works on Soviet per capita consumption in the USSR in this period by Bergson¹², Chapman¹³ and Gregory¹⁴ and the more recent work by Allen¹⁵ and Hessler¹⁶. I was somewhat critical of Allen's use of non-comparable grain production series that had led him to conclude that there had been a remarkably rapid growth in grain production in the late 1930s, which he presumed would have resulted in improved nutrition, which would have explained the secular decline in mortality. But this is not the case and the decline in secular mortality requires a different explanation.

Wheatcroft Davies and Cooper had previously noted the favourable welfare outcomes of structural change, as a higher proportion of the population moved into higher paid urban jobs¹⁷. But I now suggested that we should also consider the unfavourable welfare implications for the most vulnerable groups that experienced Soviet repression. I tried to include these groups in my analysis. I also carried out a detailed survey of available food consumption surveys at an aggregated level, but was concerned about the need to carry out a more comparable regional study, as the regional coverage changes so dramatically during the war and before the peasant budget studies series is restored to previously occupied areas in 1950.

More recently I have begun looking at the post WW2 period and in 2012 I wrote an article on the famine of 1946/7 which I analysed in terms of overall food supply, grain stocks, rationing and mortality and the impact of the weather.¹⁸ My main concern here was with the Western parts of the USSR and with Moldova SSR, where the famine

¹² A. Bergson, *The Real National Income of Soviet Russia since 1928*, Harvard 1961

¹³ J. Chapman, *Real Wages in Soviet Russia since 1928*, Harvard 1963

¹⁴ P. Gregory, *Russian National Income, 1885-1913*, Cambridge 1982

¹⁵ R.C.Allen, *Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution*, Princeton, 2003

¹⁶ J. Hessler, *A Social History of Soviet trade: Trade policy retail practices and consumption 1917-1953*, Princeton 2004

¹⁷ S.G.Wheatcroft, R.W.Davies & J.M.Cooper, 'Soviet industrialization reconsidered', *Economic History Review*, 1986, vol. 39

¹⁸ Stephen G. Wheatcroft, 'The Soviet Famine of 1946-1947, the Weather and Human Agency in Historical Perspective', *Europe-Asia Studies*, vol. 64, no. 6, 2012 pp. 987-1005.

was the most serious, but these were formerly occupied parts of the USSR where the food consumption surveys had been disrupted.

It is curious, that in the years before the archives were open when data was very sparse, there were large numbers of well funded research teams trying to make sense of the small amounts of data that were available. Now that the archives have revealed a wealth of unknown data there are very few people working on these materials. Recently Elizabeth Brainerd in America has begun using anthropometric data, including some from the Russian Longitudinal Monitoring Survey (RLMS) to consider Russian living standards in more detail in the post WW2 period.¹⁹ And as I will note in appendix 2 Professor Nefedov in the Urals is now interested.

The rest of the paper will be in two parts: the first part describes the statistical system regarding the collection of peasant budget studies and demographic data. The second part examines in more detail parts of these data for the later period of the 1930s through to the 1950s.

2) A brief History of the Soviet statistical system regarding population statistics and population data

The history of the Statistical system needs to be treated in two parts: the early work in the 1920s, before the forced merger of TsSU into Gosplan which led to the abandonment of censuses and surveys and to the replacement of statistics with socialist accounting; and the later period after the establishment of TsUNKhU and the decision to re-establish censuses and surveys.

a) The early years of TsSU

Rural food consumption studies in 1918-29

Pre-revolutionary Russian statisticians were pioneers in the development of peasant budget studies. Most of these statisticians worked for the different Zemstvo, local

¹⁹ E. Brainerd, 'Reassessing the Standard of Living in the Soviet Union: An Analysis Using Archival and Anthropometric Data', *Journal of Economic History*, Vol. 70, no.1, 2010

state administrative organizations which were set up after the abolition of Serfdom in 1861. Because of central government fears that the Zemstvo could work together to produce an alternative form of central government, the Ministry of the Interior was determined not to allow the various Zemstvo organizations to work together to co-ordinate their activities. Such co-ordination was limited to famine relief work in times of national disaster. During WW1 the Zemstvo statisticians were enlisted into central state work on various projects including the food requisitioning system. In order for food requisitions to be efficiently organised the state needed to know the levels of production and utilization of grain at local levels in a consistent and comparative way. The young Chayanov²⁰ was recruited to work out a comparable system of food consumption norms from the mass of zemstvo food consumption and budget studies. Popov, the Zemstvo statistical leader from Tula Gubernia was brought to the centre and employed in the Ministry of food where he was required to work with other local Zemstvo statistical leaders to carry out censuses of agricultural production in 1916 and in 1917²¹. Lossitskii and others were commissioned to produce a series of grain forage balances for the wartime period and 1917²².

The February Revolution of 1917 was marked by the collapse of many central government agencies associated with the Ministry of the Interior, and the increase in power of local government agencies (Zemstvo and Towns), it was not coincidental the Prince G.E. Lvov, the chairman of the All-Union Zemstvo organization became the first President of Republican Russia, and the influence of Zemstvo statisticians increased. After the October Revolution most of the Zemstvo statisticians continued to work for the new Soviet state under the Bolsheviks. A conference of Zemstvo statisticians meeting in April 1918 to work out the results of the 1917 agricultural census, took some time off to write a proposal to Lenin on how they thought that state statistics should be organized. Their proposals were delivered to Lenin by the convenor of the conference P.I. Popov, who had had some previous relationship with

²⁰ A.V. Chayanov ed. *Materialy po voprosam razrabotki obshchego plana prodovol'stviya naseleniya, Moscow 1916 vyp. 1 Normy prodovol'stviya sel. Naseleniya Rossii po dannym byudzheta. Issled.*

²¹ P.I. Popov in *O systeme i program razrabotki materialov Vserossiiskoi Sel Khoz Pozemel'noi Perepisi 1917g*, Petrograd 1917. The results of this census subsequently published in Trudy TsSU.

²² A.E. Lositskii, ed. *Urozhai khlebov v Rossii v 1917 godu*, Moscow 1918. While Popov and Lositskii went into the food and agricultural ministries. V.G. Groman head of the Zemstvo statistical office in Penza Gubernia, took charge of the food department in St. Petersburg Town, which he probably sabotaged to help produce the food crisis that brought down the Old Regime.

Lenin and especially Krupskaya in Ufa in the 1890s when they were all political exiles²³.

Lenin accepted most of their proposals and appointed Popov the foundation director of TsSU. The leading zemstvo statisticians were appointed to be the collegium and the zemstvo and city statistical offices were transferred to become local agencies of TsSU.²⁴ While there was much disruption in central government the statistical agencies flourished. A series of household budget investigations were initiated, to be carried out on a regular basis throughout the country, under the guidance of leading experts in newly created departments within TsUNKhU. Lositskii was in charge of food consumption surveys in rural and urban households, and Litoshenko was in charge of the fuller series of peasant budget studies that collected data on the balances of all peasant production consumption revenues and expenditures in physical quantities as well as in prices.

Both peasant studies and food consumption studies flourished in this period. The food consumption studies already began to provide detailed information of the situation in the urban famine of 1918-22, and also in the massive rural famine of 1921/2. These detailed food consumption studies were normally carried out for two periods of about two weeks twice as year, but in the rural famine of 1921/2 they were carried out three time in the worse affected regions. I presented the detailed results of these surveys in a number of publications many years ago²⁵.

This extra-ordinary work was very important in the early years of the famine. The following table shows the growing scale of investigated peasant households in these years and the scale of food consumption in Kcals per day per adult

²³ This will be discussed elsewhere in a paper I am presenting at SRC Hokkaido University.

²⁴ The two major changes that Lenin makes were in relationship to the name and the appointment of Director. While the Zemstva statisticians had kept the old name Central Statistical Committee, Lenin wanted more signs of a change and suggested Central Statistical Administration (upravleniya). While the Zemstvo statisticians wanted the director to be appointed by a Congress of statisticians (in a way similar to the structure of the Academy of Sciences), Lenin was insistent that the Director was appointed by him as chairman of the Council of People's Commissars. However he did appoint the people who the statistical congress would have proposed, with the exception of Groman, and ex Menshevik, who he thought to be dangerous.

²⁵ See S.G.Wheatcroft, ref in Oddy, also in Annales de demographie Historique

		Cons R	Prod R		Cons R	Prod R	
1919/20							
1919/20	Winter	2501	1,857		3365	3856	
1920/21	Autumn	5475	10,282		3330	3598	
	Winter	4818	9,401		3229	3320	
1921/2	Autumn	6291	14,226		3705	3,093	
	Winter	6581	15,157		3571	2,453	
1922/3	Autumn	4220	14,245		3949	3,844	
	Winter	6357	14,962		3797	3,757	
1923/4	Winter	6682	16,939		3906	4,016	
	Summer	6002	16,785		4053	4,134	
1924/5	Autumn	6504	17,461		4307	4,184	
	Winter	7424	19,244		4056	3,952	
	Summer	6646	16,741		4074	3,977	
1925/6	Autumn		16,342			4,079	
	Winter		18,391			4,093	
1926/7	Autumn		16,490			4,226	
	Winter		17,633			4,060	
1927/8	Autumn		17,056			4,171	

Sources: 1919-1926: *Itogi Desyatiletiya Sovetskoi Vlast v Tsifrakh, 1917-27*, M 1928, pp. 354, 360

1919-27: *Stat. Spravochnik SSSR 1928*, M. 1929, pp. 400-1

The next table indicates the results of the food consumption surveys in Kcals per person per day with greater regional breakdown. Note the importance of adjusting the results to be equivalent either to a male adult, or to an average family member. The latter is of course significantly lower. Calculations in the 1920s were mainly given per adult, while those in the 1930s per average person

Food Consumption survey data for 1920-23: The main regions and the worse affected regions in Kcals per person per day

	1920		1921			1922		1923
	Jan-Feb	Nov	Feb	Oct	Feb	June	Oct	Feb
USSR		3,190	3,286	3,294	2,811	1,903	3,875	3,780
RSFSR								
Cons R	3,365	3,025	3,229	3,705	3,571		3,949	3,797
Prod R	3,956	3,197	2,797	2,608	2,174	1,953	3,791	3,704
NCauc		4104	3757	3337	2278	1828	3812	3829
Siberia		4199	3704	3721	3250		3944	3539
KazASSR		4342		4027	1948	1722	3519	3775
UkSSR		4359	4344	3621	3013	1682	4073	4013
Worse famine suffering Regions								
Orenburg	3532	3697	3495	1712	909	2692	3898	3685
Samara	4479	3263	2670	1130	1420	1960	3577	3488
Kustanaisk					1277	1722	3902	3538
Ekaterinoslav		4069	4634	1825	1497	1682	4187	4516
Donskaya		3888	3594	2752	1540	2112	3973	4236
Stavropol		4131	4194	3100	1849	1543	3942	3539
Saratov	4474	3628	3196	2615	1762	1945	4242	3892

Source S.G. Wheatcroft, Soviet statistics of Nutrition and mortality during times of famine, 1917-1922 and 1931-33, *Cahiers du Monde russe*, 38 (4) 1997, pp. 1-34

The worse affected region according to food consumption studies was Orenburg in the first half of 1922, which was the end of the 1921/22 crop year. Orenburg had been

the capital of Kirgistan (later Kazakhstan) but was in the process of being separated from that Autonomous Republic. Samara in the Volgo recorded the second lowest level, in the first half of the 1921/22 crop year and it remained low throughout 1921/2 . The third lowest level was in Kustanai in the second half of the 1921/2 crop year, again in Kirgistan/Kazakhstan. The fourth and fifth lowest were in Ekaterinoslav in Ukraine and Donskaya in North Caucasus. Stavropol in North Caucasus came in sixth, and was unusually low at the beginning of the 1922/23 crop year. And Saratov in the Volga came in seventh

In later years the food consumption surveys played an important role in refining the grain forage balance and even grain production data. Somewhat questionable interpretations of what they showed were used to demonstrate that the uncorrected grain production data were far from complete and accurate. For a number of years in the mid 1920s the officially accepted grain production data was corrected by means of using consumption data and other utilization data to construct balances. However, by the late 1920s government interference to demonstrate excessively optimistic possibilities for grain exports and development prospects, led to the officially accepted figures far exceeding those that could be justified by the peasant budgets and food consumption data. In these circumstances that statisticians were repeatedly criticized by the government, and its control agencies (especially Yakovlev in NKRKI), and eventually at the end of 1929 when TsSU was abolished and its activities transferred into Gosplan the balances and surveys were discontinued. In the terminology of the time the advance into socialism meant that statistics could be replaced by socialist accounting and that there was no longer any need for these bourgeois statistics.

Population statistics 1917-29

The Zemstvo statisticians who created TsSU in 1918 had previously been engaged in carrying out an agricultural census in 1916. Popov was insistent that a regular series of census should be carried out every 10 years (in years ending with a zero) to provide the detailed data required for planning and to check that current population evaluations based on registration data remained on track. The first of these censuses

was carried out in 1920 in the middle of the Civil War. It is remarkable that at such a desperate time Lenin was prepared to support the statisticians in this project.

Rural registration of births and deaths were in disarray at this time. The Soviet government had immediately abandoned the Church metric system of collecting birth and death registrations and diverted the task to a Dept of ZAGS in the local Soviets, before such organizations had been set up. Within most major urban areas the transfer was less problematic as civil registration had largely been completed and there was much continuity in those agencies.

The detailed monthly urban mortality data for these early famine years in Moscow, St. Petersburg, Kiev and Saratov was reviews in my SIPS discussion paper and article in *Annales*²⁶ But nothing was available for the rural population where the registration system had collapsed and was only restored for most of European USSR between 1923 and 1926. The major signs of this restoration was the publication of the demographic handbook *Estestvennoe Dvizhenie Naseleniya SSSR*. This only came out twice: First in 1928 covering the years 1923-25 and then in 1929 covering the single year 1926.

By the mid 1920s Popov was insistent that a mid-term census needed to be taken in 1925 to provide the basic reliable statistical materials required for planning, but despite an initial agreement to do this the mid term census was repeatedly delayed and only carried out late in December 1926, after Popov had been sacked. Unrealistic population growth figures were included in the first five year plan, and the authorities were reluctant to acknowledge that there optimistic plans in this regard were not being fulfilled when mass abortion began to have major demographic consequences in reducing birth rates, especially in towns.

²⁶ *Famine and factors affecting mortality in the USSR: The demographic crises of 1914-1922 and 1930-33*, Birmingham University Soviet Industrialisation Project Series, SIPS 20-21, 1981 (available at <http://www.melgrosh.unimelb.edu.au/demography.php>) For Saratov see also S.G. Wheatcroft, 'Famine and Epidemic Crises in Russia, 1918-1922: The Case of Saratov', *Annales de Demographie Historique*, 1983, pp.329-253

Conflicts with the statisticians over a number of areas led to TsSU being merged into Gosplan at the end of 1929, and the decision being made to abandon the planned 1930 census.

b) Kolkhoz Budget statistics and demographic data under TsUNKhU,

Peasant budget studies after 1932

With the establishment of TsUNKhU and the statistical renaissance of 1932 an elaborate program of budget studies of kolkhoz peasants was begun. At first it only covered a small number of regions, but these included some of the worse affected parts of the USSR eg. Kiev Oblast in Ukraine. The system quickly grew to get back to the peak size in the 1920s by xxx, and then it grew to zzz in the late 1930s. But one major difference with the earlier system was that this system was based on a full year-round surveys, and not the periodic –twice a year system of the 1920s.²⁷ During the war the occupied areas in the West fell out of the system, and new areas were added in the East. This means that the aggregated All Union figures are very misleading. However the regional results are quite comparable and if we re-weight the areas covered this will provide us with something approaching comparable national figures.

Regrettably after the war the areas that had been occupied were not immediately re-incorporated into the national system, until a major reform in the budget statistical work in 1950. The coverage for non-occupied areas, is of course excellent and particularly for Urals, Siberia and Far East. From the Ukrainian archives I have been able to locate and copy the Ukrainian data for the 1950s, when the Ukrainian system was restored, but prior to the results being incorporated into the new national system.

Although these data provide extremely revealing indicators of the level of food consumption in different regions at different times, and although they were provided in a more timely fashion than in the 1920s, there are still few signs of how, if at all,

²⁷ In the 1920s most of the surveys were carried out twice a year. Only a very small number were carried out throughout the year, and it was presumed that all regions would follow the same annual patterns of fluctuation as those for the small number of households surveyed throughout the year.

they were used by the government. Despite the large amount of materials now available on how decisions were made on rural and agricultural questions²⁸ I have not been able to find any indicators of how these data were used by the government. With a few minor exceptions they do not appear to have been used by the political leadership of the time. The leadership seems to have always been very suspicious of these kinds of indicators and normally referred them to a control committee to see if they could be trusted, and as we will see below these data were often rejected.

Population data after 1932

The establishment of TsUNKhU in 1932 led to the decision to reinstate demographic censuses. An attempt was made to carry out a demographic census as quickly as possible to make up for the lost 1930 census. But decisions to carry out such a census were repeatedly delayed. The major problem was that the state had begun presenting a picture of a much more rapid growth in population than had been occurring in the late 1920s and early 1930s. This was the case even before the famine. Although in 1932 it might have been possible to adjust for this without too much trouble. The further population losses associated with the famine of 1933 (occurring between January and July 1933) made this prospect much more difficult.

As it turned out censuses were far more quickly restored for livestock numbers. This may well have been for military reasons. Marshal Budyoni had been made a member of the collegium of NKZem in order to discover why the Red Army was having difficulties in acquiring an adequate stock of good cavalry mounts and he quickly discovered the disastrous state of Soviet livestock. Military concerns over this matter may well have been one of the main reasons why there was the change in policy leading to the establishment of TsUNKhU and the restoration of censuses in livestock numbers.²⁹

Finally in 1937, after many delays a full census was carried out. This census measured a population was 8 million less than expected. Kvitkin the statistician

²⁸ Especially in the *Tragediya Sovetskoi Derevni* series

²⁹ This to some extent was reminiscent of the prewar situation in Tsarist Russia where the military carried out regular Military horse censuses, when there was no regular system of demographic censuses.

responsible for current population evaluations was called into Kraval's office to explain why the result was 8 million less than expected. Kurman provided the following explanation in millions³⁰

1. Emigration (especially Kazakhs)	2.0
2. Over estimate in 1926 census	1.5
3. Under-estimate in 1937 census	1.0
4. Unregistered deaths in 1933	1.0
5. Unregistered deaths in NKVD	1-1.5
6. Deaths not registered by ZAGs in other years	1-1.8
TOTAL Population loss	8.0

On the face of it, this was a strange explanation for Kurman to make. He must have been aware of the real reason for the discrepancy, which was the exaggerated population estimations, because he had done more than most people in TsUNKhU to attempt to fight against these exaggerations, at an earlier time, and had been forced to give way.

The reason why Kurman made these claims and failed to explain the real reason for the discrepancy was because he was making this report for Kraval' who had been responsible for enforcing this exaggeration, who was still in power and was still his superior to whom he had to report.

The whole affair was referred to the Central Control Commission to investigate and Yakovlev, who had previously been the agricultural chief in NKRKI who had hounded Popov out of office was placed in charge of the investigation. Curiously Popov was included in the investigation team and courageously showed his independence there by arguing correctly that the problem was not with the census or with the registration data as collected, but with the corrections that had been forced on the data to make them conform with the plan targets.

³⁰ See Davies, Harrison, Wheatcroft, *The Economic Transformation of the Soviet Union, 1913-1945*, Cambridge 1994, p. 75. Tsaplin gives other figures; ADK assume under-reporting in 1933 by well over 50%

In 1937 Popov's explanation was not accepted Yakovlev and the party were looking for enemies and wreckers and so they declared the census to have been wrecked and had Kraval, Kvitkin, and numerous other statisticians shot saboteurs.

Kurman was lucky to escape with his life, but he was still sent to the camps, which he survived and subsequently recorded his memoirs to the young Vishnevskii, when they were both working in Ukrainian TsSU after the war³¹.

A new census was ordered for 1939, and then a very strange thing happened. A couple of days before the census Popov wrote a letter to Stalin and Molotov advising them that the results would be similar to those of 1937, and repeating that the great difference between the census results and the expected level of population was not a consequence of a faulty or wrecked census, but of incorrect expectations. This time Stalin and Molotov did accept Popov's advice and ordered Voznesenskii (head of Gosplan who (as I will note in the next section was more responsible for these faulty projections than anyone) to work with Popov to correct the situation.

Although no censuses were carried out during the war there were a number of simultaneous registrations of the population, that were quite detailed and included data on age and employment, that were almost equivalent to censuses. So knowledge of the size of the population was quite good in these years even though another census was not carried out until 1959.

Data on registration of births and deaths and on population movement after 1932.

During the bad years of 1928-31 when the government was claiming that population growth was much larger than it really was statisticians and registrars found themselves under great pressure to conform to these expectations by reporting higher birth rates and lower death rates. They were in a very difficult situation. They were being accused of wrecking, because the results were too low, but they knew that if they gave in and provided higher figures they really would be wrecking, and if that

³¹ Vishnevskii interview in *Cahiers du Monde Russe*

was discovered when the census was carried out or when the records would be checked they would suffer the consequences. In these circumstances most seem to have provided accurate results.

The re-establishment of central statistical leadership in 1932, under the independent leadership of Osinskii who was determined to restore statistical credibility did much to restore morale throughout the whole statistical system and to remove some of the dubious corrections that had been introduced at the local level. However at the centre the pressure remained and intensified in the subsequent years as oversight of demographic and social statistics was transferred to Kraval, and especially when oversight of ZAGS became part of the charge of the new NKVD-USSR established in 1934 pressures to exaggerate population growth re-emerged and was combined with denial of the famine of 1933.

At the local level and within TsUNKhU RSFSR there continued to be resistance to these exaggerations. But at the central level of TsUNKhU under Kraval there was a greater inclination to apply politically convenient corrections. This already applied to the official population estimate for January 1, 1933 before the major losses of the famine, and it intensified after the famine, and especially when NKVD-USSR was established in 1934.

In 1934 the results of the 1933 registrations of death were being finalized. These showed a massive leap in the level of mortality by over 3 million. Osinskii sent a copy of these results to Kuibyshev, who was head of Gosplan. But instead of accepting them Kuibyshev sent them to the Central State Control Committee for verification. Here they were sent to a special committee under a very junior figure who was totally unknown at the time. Vosnesenskii had only recently completed his degree at Leningrad University, but he had ambition and knew what his superiors wanted to hear. Despite their total lack of expertise in the area Vosnesenskii's commission declared the data to be false and corrupted. They claimed that the statistical department and registration offices had been infiltrated by class enemies and wreckers

who had systematically under-reported births and double reported deaths to produce these disturbing, and in their eyes untrue indications³².

Despite the protestations of experts in the area, the findings of Comrade Voznesenskii's commission were accepted as the reason why these results could be ignored, and they served as the reason why ZAGS and TsUNKhU needed to be purged. Comrade Voznesenskii had begun his rise.

Throughout the 1930s TsUNKhU therefore worked with two sets of data. Those that were prepared in the localities and that were relatively reliable and those at the centre that were adjusted at the centre by Kraval and his assistants³³.

This then was the background to the situation in which the official figures for population growth began to approximate the Gosplan expected levels (based on plans that mortality would fall and birth rates rise), rather than reality.

The 1937 census results showed the extent to which the expected levels had distorted reality, but they were interpreted as confirmation that Voznesenskii was right and that statisticians were wrecking the census. The 1939 census results showed basically the same level of disjuncture. It is a remarkable sign of the integrity of the statistical system and the heroism of individual statisticians that they continued to produce reliable figures despite the threats that they were facing. It is also a sign of the complexity of the times that Popov, having just blown the whistle on Voznesenskii, was forced to work with Voznesenskii to correct the results. Both men were no doubt fearful for their lives. It would be Voznesenskii, who would be shot, but that will only come more than 10 years later, and the reasons for that execution are still not totally clear.

³² See SGW in Golod vol. 3

³³ In practice the RSFSR appear for a while to have sided with their local statisticians and to have opposed the central adjustments, and this is recorded in internal documents. The appointment of Azitkin to head TsUNKhU-UkSSR meant that UkSSR was far more compliant. Vallin et al totally misinterpret this situation and treat Azitkin as though he was a representative of the statisticians as oppose to a politician appointed to over-rule the statisticians. Ref.

During the war the registration system was destroyed in occupied areas and was placed under grain strain elsewhere, especially with large scale evacuations, but the in the non-occupied areas system continued to operate. After the war the registration system was quickly restored to all areas and continued to present reliable results in most area other than the most destroyed and isolated parts of the USSR.

The table below lists the number of surveyed kolkhoz households in the major macro-regions in these years.

	1)					Baltic+	
	USSR	NCR	2) SCR	3) SPR	4) CPR	5)EPR	
1933	5740	2450		1260	2030		
1934	8365	2695		1960	2030	1680	
1935	8365	2695		1960	2030	1680	
1936	9234	2882		2398	1697	2257	
1937	16026	4781	1865	3561	3554	2265	
1938	16722	4782	2577	3563	3570	2230	
1939	16854	3690	2586	3418	4707	2453	
1940	20228	4421	2554	4798	4538	3917	
1941	20909	4463	3123	4809	4553	3961	
1942	11970	1656	3119		3257	3938	
1943	11763	2072	3068		2682	3941	
1944	11096	2157	3106		2651	3182	
1945	11624	2652	2813		2851	3308	
1946	12341	2592	3049		2806	3894	
1947	12470	2592	3126		2807	3945	
1948	12474	2592	3127		2809	3946	
1949-52							
1952	24,718	5371	3182	6576	4116	3457	2016
1953	24,750	5402	3182	6577	4116	3457	2016
1954	24,728	5403	3182	6577	4116	3434	1016
1940c	19972	4454	3064	4811	4178	3465	

Sources:

1933-1948 from individual monthly reports in RGAE 1562

1952-1954 for regions of RSFSR from *Statisticheskii Spravochnik po budzhetam rabochikh i kolkhoznikov RSFSR*, M. 1955 RGAE 1562/33/2260

For Union Republics from *Budzhety Rabochikh, Kolkhoznikov, ITR i Sluzhashikh*, Moscow 1957,

Note the 1940c row refers to the 1940 figures provided in the postWW2 secret publications

3) What the archive data tells us about regional kolkhoz food consumption in the 1930s and 1940s and how it relates to mortality and natality data

The basic statistical data for the period 1930-1931 have been lost. TsUNKhU records are included in the general TsSU fond f. 1562 but their coverage for the years 1930-31 is very poor. More statistical data for 1930-1931 should have been located in the Gosplan fund when TsSU was transferred to be included in the Statistical Economic Sector of Gosplan, which was soon renamed the Administration for National Economic Accounting Gosplan-UNKhU, but they are not there at the Union level archives, and are only partially included at lower levels. However from 1932 the coverage of the data increases demonstrating that there really was a renaissance of statistical activities as regards peasant budget studies and food consumption surveys. However they were restricted to Kolkhoz peasants, who had in any case become the majority and soon were to be the overwhelming majority. The expansion of the scale of these Kolkhoz family budget studies is shown in the table above, but we should note that these were now continuous monthly surveys rather than the periodic (twice per year) surveys of the 1920s.

The data included in these surveys are quite large. For the food consumption surveys we have monthly data on at least 15 main types of food in up to 27 regions. This means about 5,000 indicators per year.

We could take some steps to rationalize this mass of data.

No aggregation of the food stuffs are provided in these materials, but we can convert them into their calorific value using the coefficients that TsSU had used in its 1920s evaluations³⁴. This would reduce the number of indicators to 324 per year. We could also examine to what extent taking just one main food stuff say grain would provide an accurate picture. But there are problems with this. When considering grain and grain products we need to ensure that all grain products are included, ie. separate grains, flour, groats, and other grain products. And we need to convert them to comparable measures either flour equivalent or grain equivalent. But we also need to be aware of great changes in diet that took place in periods of stress including the war, when the level of meat and dairy produce was reduced, and when the level of potato consumption was greatly increased. Grain as a single indicator will not capture these important structural changes.

The periods used could be extended from a month to a year. But annual summaries of consumption data are likely to lose a lot of their value, because the dynamics of consumption are greatly influenced by the size of the harvest which occurs in mid year. So each calendar year contain the final 6 months of one harvest year and the first six months of another crop year. Using conventional calendar annual data will greatly dampen the effects of any changes. It would be much better to use 6 monthly figures so that the full effect of different harvests can be more fully gauged,

Regions. The normal and most tempting procedure is to concentrate on the national averages, which would immediately reduce the problem by a factor of 27. However that is not possible for several of the war years when national averages are not given. And even when those averages are given they need to be treated with great caution to ensure that correct weightings are given. The change in the coverage of the kolkhoz budget surveys are enormous and the average of these different regions is not comparable. We can divide the country into a number of comparable regions and compare these regions. But the exclusion of Ukraine and Western part of Northern Consumer Region means that we are not dealing with indicators of the whole USSR.

³⁴ *Sostav pishchevykh veshchestv i ikh otsenka v kaloriakh, po raschet na 1 funt i na 1 kilo valovogo vesa*, Moscow: Statizdat, TsSU SSSR 1929

Below I will take several approaches concentrating on regional dynamics, changes in monthly dynamic and different foodstuffs at different times.

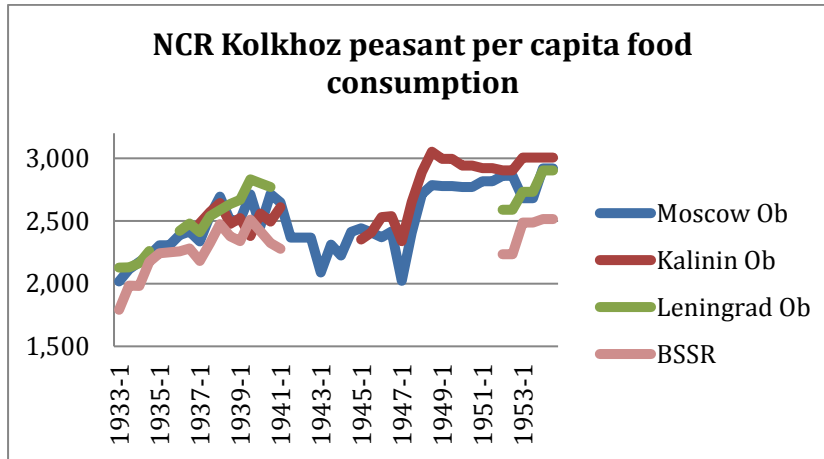
Below are a series of graphs of the per capita calorific value of the food consumption in kolkhoz families for six monthly periods from 1933 until 1948 with a link to the annual data available in more readily available printed, but still initially restricted statistical handbooks in the 1950s.³⁵

Starting in the most favoured region the Northern Consumer Region where the per capita food consumption in the favourable years of the mid 1950s would be as high as 2,900 Kcals per person per day, we can see that food consumption levels fell the most –to 2023 Kcals per person per day in the first half of 1947 in the post war famine of 1946/7. This was slightly lower than the lowest point recorded in Moscow Oblast during the war which was 2083 in the first half of 1943, but we need to be aware that surveys in Moscow Oblast were disrupted in the most desperate period of the German attack on Moscow from the 2nd half of 1941 to the second half of 1942. Levels in these desperate months may well have been lower.

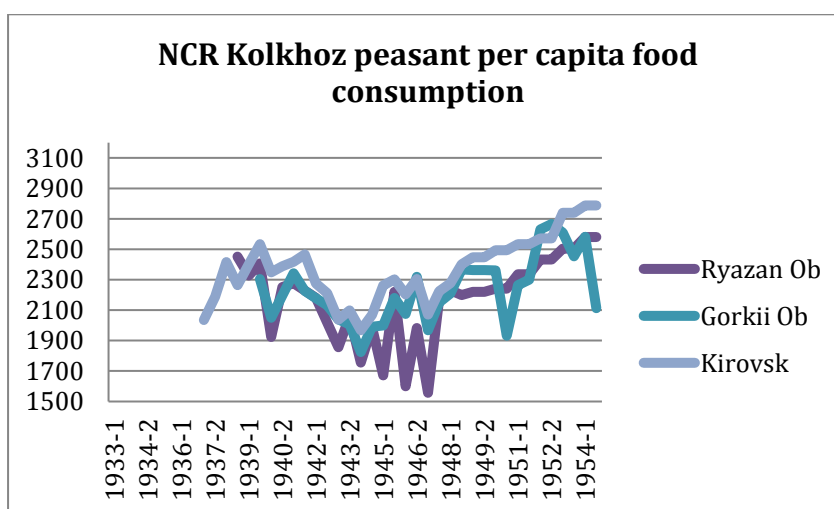
By contrast it should be pointed out that these levels were slightly lower than the levels of food consumption in Kolkhoz households at the worse stages of the famine in the first half of 1933. We should also note significant changes in the diet between the wartime crises and 1933. There was a major decrease in the consumption of grain and livestock produce in both periods, but during the war there was an extremely

³⁵ The current work is largely based on the copies of kolkhoz peasant budgets that I had collected for my previous work of analyzing famines in 1931-3, during the war and in 1946/7. I therefore did not collect archival data after 1948. Such data are available and detailed monthly series could easily be extended into the 1950s. For the moment I have simply used the most detailed semi-published data for the 1950s that I could find. Copies of these formerly secret budget data are available on the Russian website *istoricheskije materialy* see <http://istmat.info/statistics> and <http://istmat.info/node/36441>

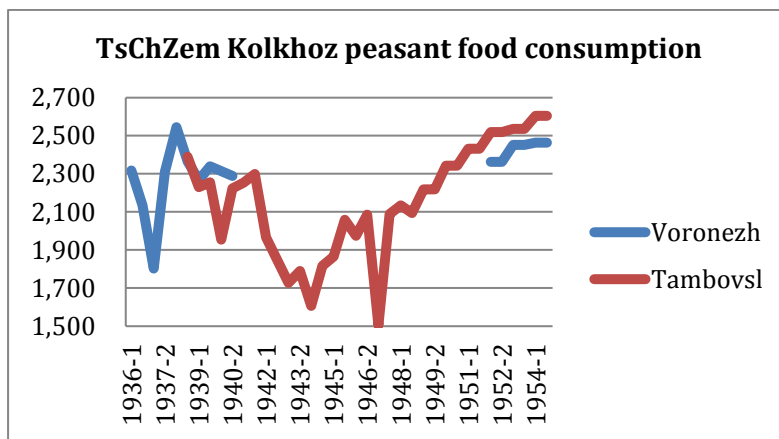
large increase in potato consumption. These would have been largely local potatoes produced on allotments and they greatly reduced the pressure on grain supplies from other regions.



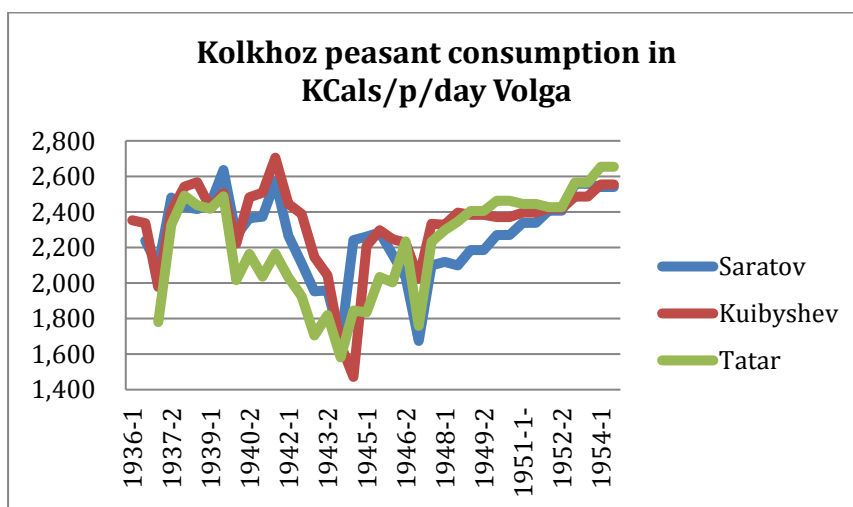
Other Kolkhoz peasants in other less privileged parts of NCR did not fare so well during the war. In Ryazan Oblast per capita food consumption which was about 2600 Kcals per person per day in favourable times in the mid 1950s fell to 1671 Kcals in the first half of 1945, 1600 Kcals in the first half of 1946 and 1557 Kcals in the famine of 1946/7 in the first half of 1947. Peasants in Gorky and Kirovsk Oblast were less badly affected.



If we move to the normal food surplus producing areas and consider the Central Producer Region and first the Central Black Earth Region. The crisis here seems to have struck earlier . Kolkhoz peasants in Tambov Oblast, which consumed 2,600 Kcals in the favourable years in the mid 1950s, had already reduced their consumption to 1,728 Kcals per person per day by the first half of 1943, and would reach a wartime low of 1605 Kcals in the first half of 1944, would then recover somewhat before plummeting to 1,504 Kcals per person per day in the first half of 1947 in the 1946/7 famine.

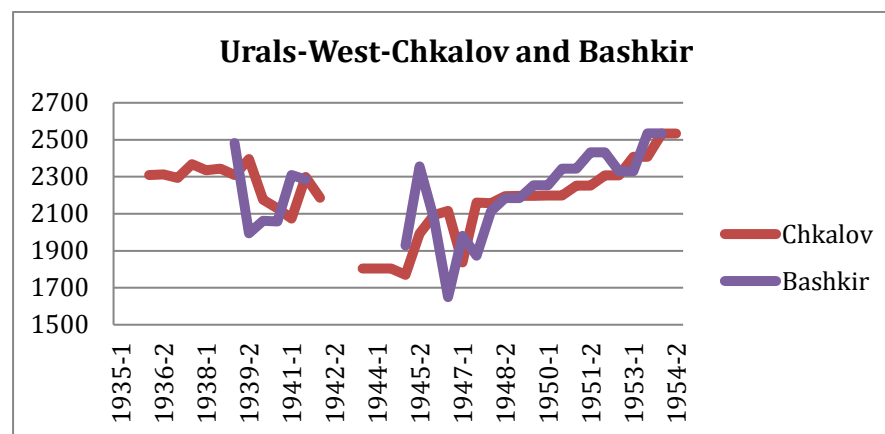


The situation in the Volga seems similar, but with the wartime decline more serious than the later 1947 famine decline. The situation for Kolkhoz peasants in Kuibyshev oblast deteriorated in the 2nd half of 1944 to a level of 1472 Kcals per person per day.

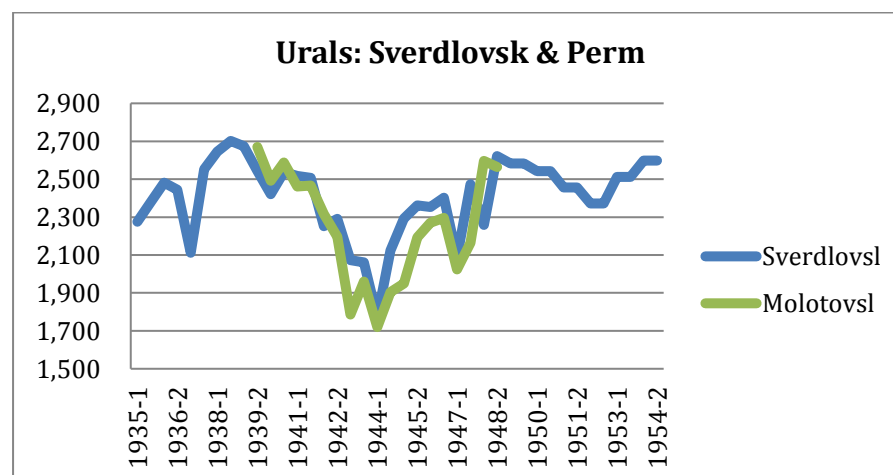


By contrast the situation in Kolkhozes in Urals and Siberia seems relatively less severe than in CPR with only one case food consumption falling below 1700 Kcals per person per day, and that was in BashkirASSR, which is arguably more Volga than Urals.

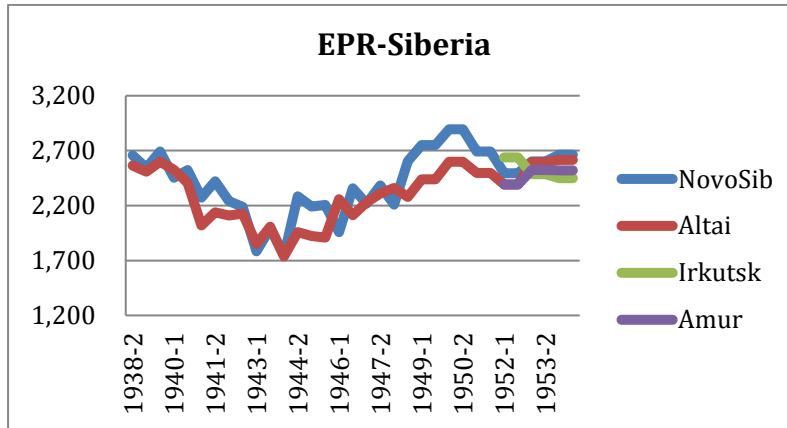
In the West Urals in Chkalov and Bashkir we have no data for the critical years of 1942 and 1943. Bashkir experiences its recorded low point below 1700 Kcals per person per day in the 2nd half of 1946, with the situation improving as the 1946/7 famine worsens.



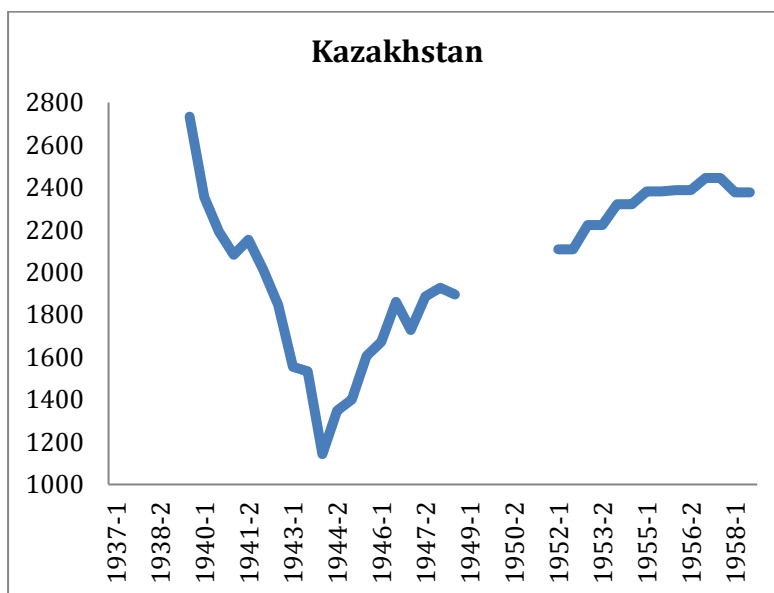
In Sverdlovsk and Perm Oblasts where fuller data sets are available declines in the war, with lows in the first half of 1944 at about 1720 Kcals, are much more serious than the declines from about 2,400 Kcals to 2,100 Kcals in 1947.



Further to the East in Siberia, food consumption in Kolkhozes in Novosibirsk and Altai fall to about 1,800 Kcals per person per day in the first half of 1943 and the first half of 1944. There are no signs of any fall in 1947 when consumption levels are over 2200 Kcals per person per day.

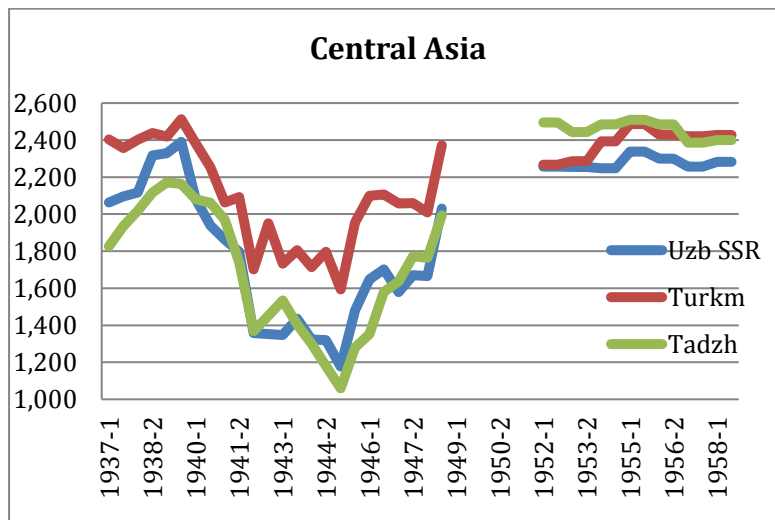


By contrast there are signs of a major collapse of food consumption in Kazakh kolkhoz families, reaching a low point recorded as 1,142 Kcals in the first half of 1944 . After this recovery is quite rapid, with no signs of any reversal in 1947.

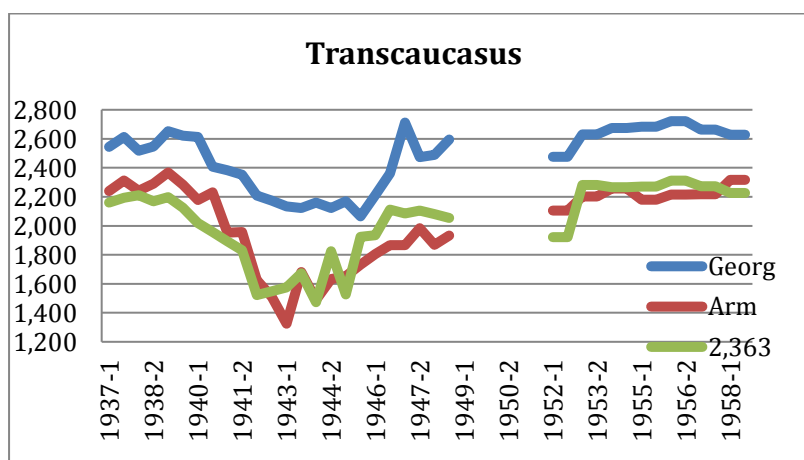


Within Central Asia Uzbekistan and Tadzhikistan record disastrously low levels of peasant consumption reaching a low point of around 1200 Kcals per person per day in

the first half of 1945. Turkmenistan SSR fared considerably better with its low point in January 1945 at just under 1600 Kcals per person.



Within Transcaucasus we can see that kolkhoz peasant in Georgia appear to have been in an even more favourable situation than those in Moscow oblast with food consumption levels never falling below 2,100 Kcals per person per day. By contrast the situation in Azerbaizhan and Armenia was much more serious with Armenian Kolkhoz peasant recorded as consuming only 1,325 Kcals per person per day in the first half of 1943, and with levels in Azerbaizhan falling below 1,600 Kcals per person per day in the first halves of 1942, 1944 and 1945. In all these regions food consumption levels in 1946/7 were much better.



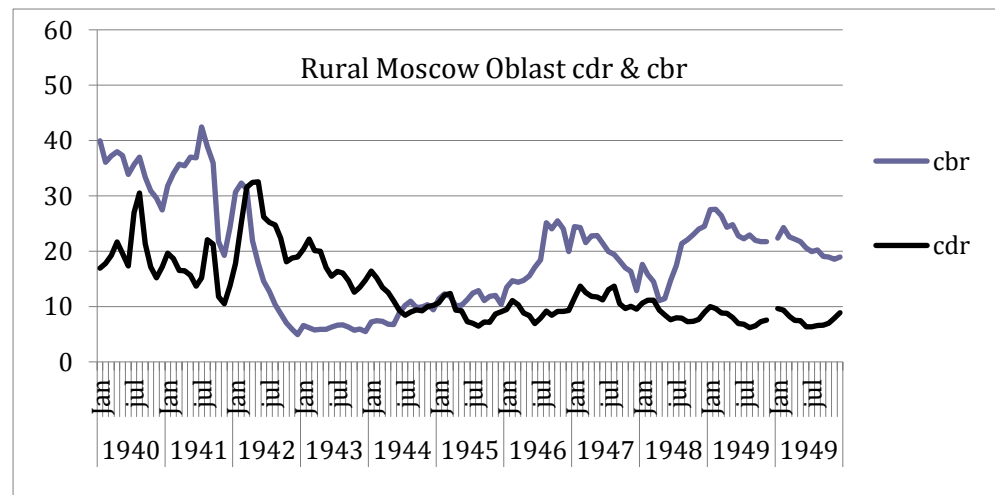
My first preliminary results simply looking at the food consumption data in the different regions of USSR excluding the South are rather surprising. I had expected the kolkhoz family households in Urals and Siberia to have been the worse affected in the war, but those in Kazakhstan, Uzbekistan and Tadzhikistan seem to have been far worse affected .

How do they changes in food consumption relate to mortality levels?

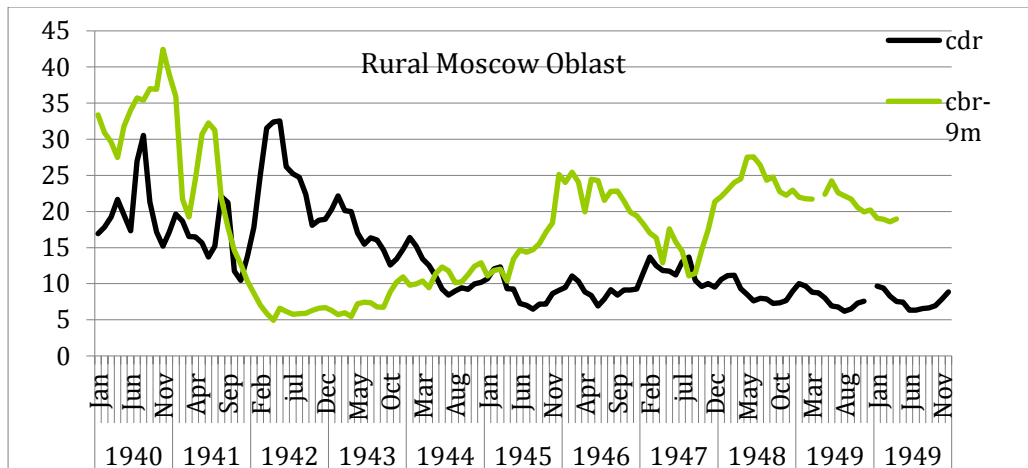
Here it is best for us to use monthly data for specific regions, where the differences become more clear. I first compute monthly regional mortality and natality data for a number of locations and then I compare six monthly changes in grain consumption with six monthly changes in all food consumption

To see whether the grain data alone are likely to be misleading. Then if necessary I add another food type, eg potatoes and check their comparability. When I have fairly compatible factors I compute their monthly values and compare them with the mortality and natality data.

I will start first with monthly mortality and natality in rural Moscow Oblast. See graph below.



When looking for responses to food shortages and the relationship between births and deaths, it is time of conception, rather than time of birth that appears to be most significant, consequently in the next graph I have deducted 9 months from the birth dates.



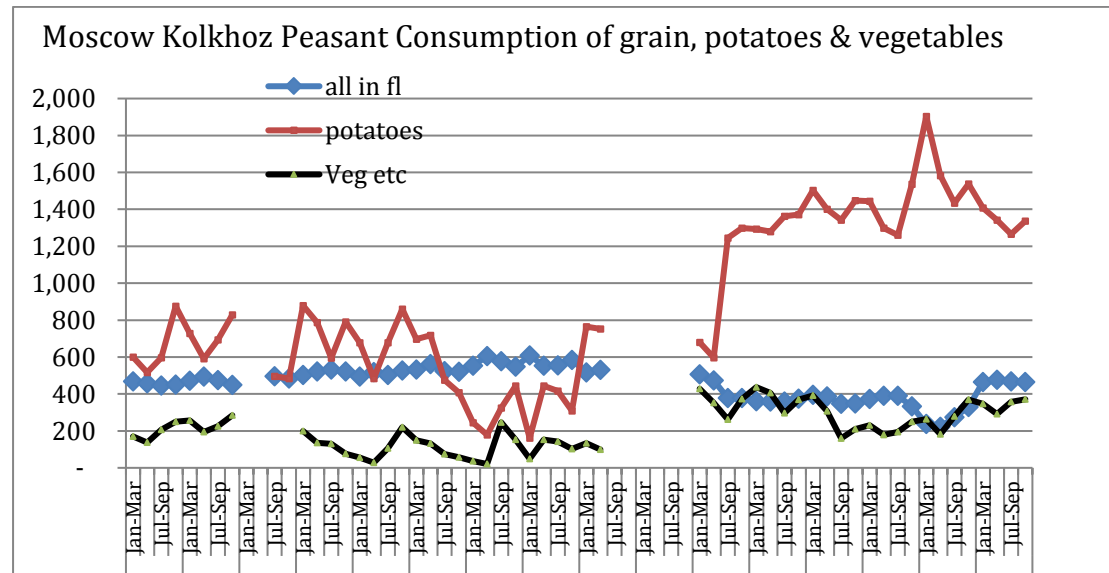
Now we get graphs of mortality and natality that are far more regular in terms of their counter synchrony. Elevations of mortality are coinciding far more with depressions in natality, which are precisely what we would expect in any crisis situation.

Note the high degree of counter synchrony between deaths and conceptions at the times of crisis. This should give us some faith in the reliability and completeness of the data. If the crisis was resulting in faulty and incomplete registration as ADK and other claim, then both sets of indicators both mortality and natality ought to have declined and moved in the same direction. The fact that they are moving in opposite directions indicate that they are recording something like a crisis which affects them in opposite ways , rather than that they are indicators of faulty recording in which case the errors should have been in the same direction.

The major occurrences of an elevation of mortality and a depression of conceptions are in the first half of 1941 and the first half of 1947. The budget studies were discontinued at the time of the first crisis, but they had been reinstated by the time of the 1946/7 famine.

The next graph based on quarterly data shows some of the structural changes that were going on in the diet as increased consumption of potatoes were compensating to some extent for the decline in grain consumption (in flour equivalent). The values below are given in physical quantities, but we should realize that 1 kilo of potatoes had the calorific equivalence of 5 kilos of grain .

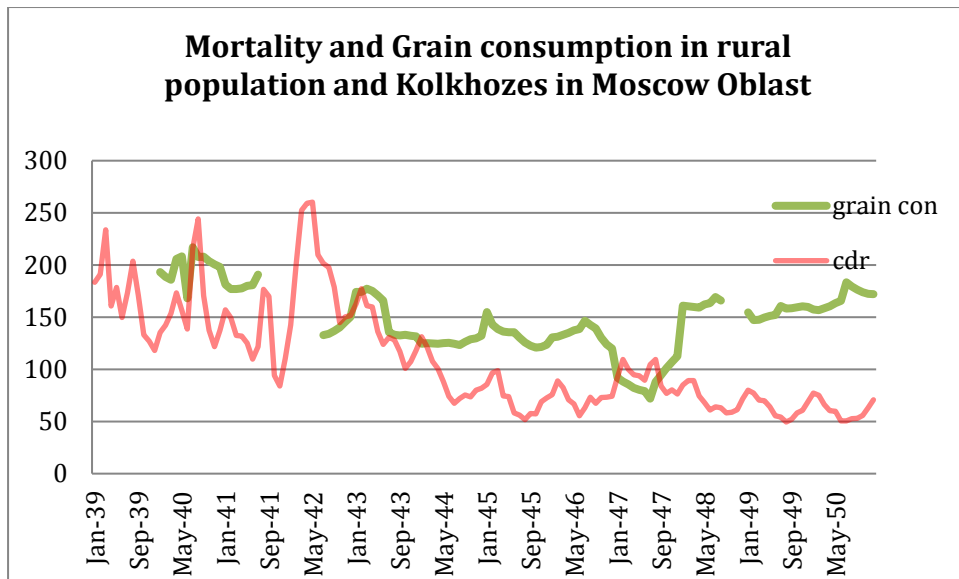
Quarterly dynamic of kolkhoz peasant food consumption of grain (in flour equivalent) in potatoes and in vegetables in Moscow Oblast, 1933-1948



We will now attempt to compare these indicators of food consumption with indicators of mortality and natality.

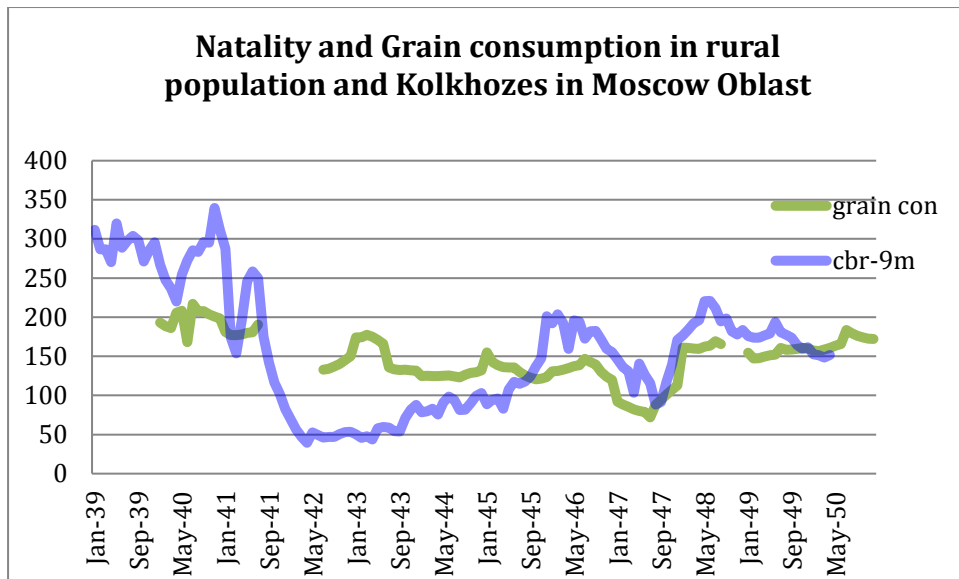
A simple comparison between monthly crude death rates in the rural areas of Moscow oblast and monthly grain consumption in the surveyed kolkhoz households in Moscow oblast shows the first major elevation in mortality between February and August 1942 occurred at the time of the disruption of the budget surveys and their re-establishment in August 1942. At this time July 1942 when mortality was still very high registered grain consumption was significantly (30%) lower than it had been in July 1941³⁶

³⁶ The monthly equivalent of 133 kilograms per person per year in July 1942 in comparison with a monthly equivalent of 191 kilograms per person per year in July 1941.



The second significant but smaller elevation in mortality occurred in the period of February to June 1947 which coincides with a fall in grain consumption from the equivalent of 147 kilograms per person per year in July 1936 down to the equivalent of 80 kilograms per year in May 1947.

For natality we see an even stronger positive relationship between falling natality and falling food consumption, as we would expect. At the time of the first great elevation of mortality in 1941-2, when there is a break in the Moscow oblast food consumption surveys, natality drops sharply. Of course this is largely caused by the enlistment of many young men in the army. But the war was over, large numbers of men had been demobilized in the summer of 1946 when the drought caused the famine and food consumption began to fall. And it is here, when mortality rates begin to rise that we see a very distinct decline in birth rates which continues through to August 1947, when the new harvest has appeared.



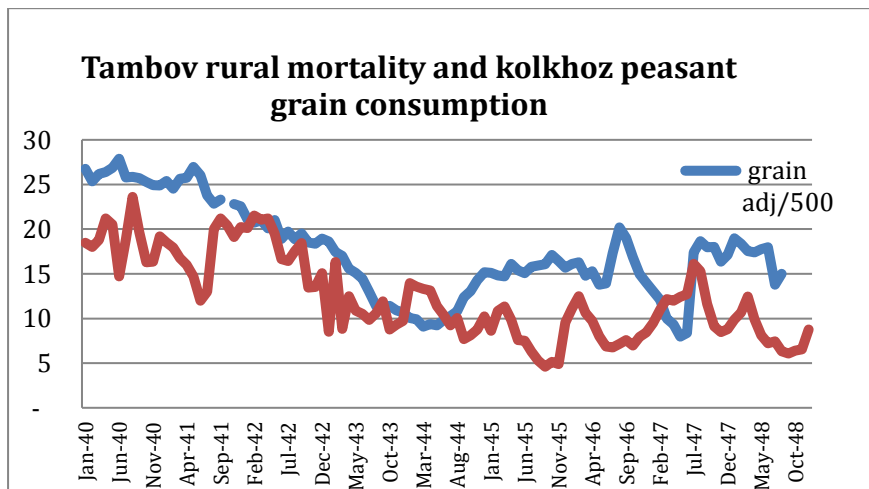
Other Regions to be studied and the results of which will be discussed at the conference in Yokohama.

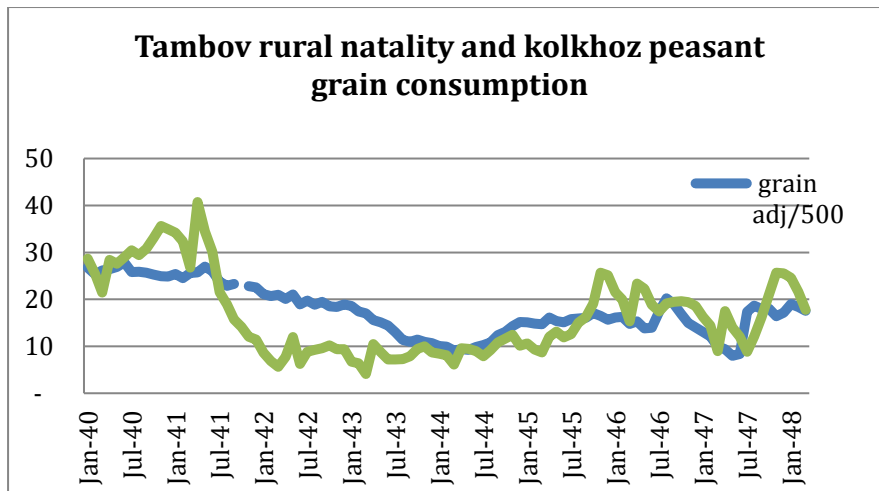
CPR: a)CChZ: Tambov Oblast; b)Volga: Kuibyshev Oblast

EPR: a)Urals: Sverdlovsk Oblast; b)Siberia: Novosibirsk Oblast; c)Kazakhstan

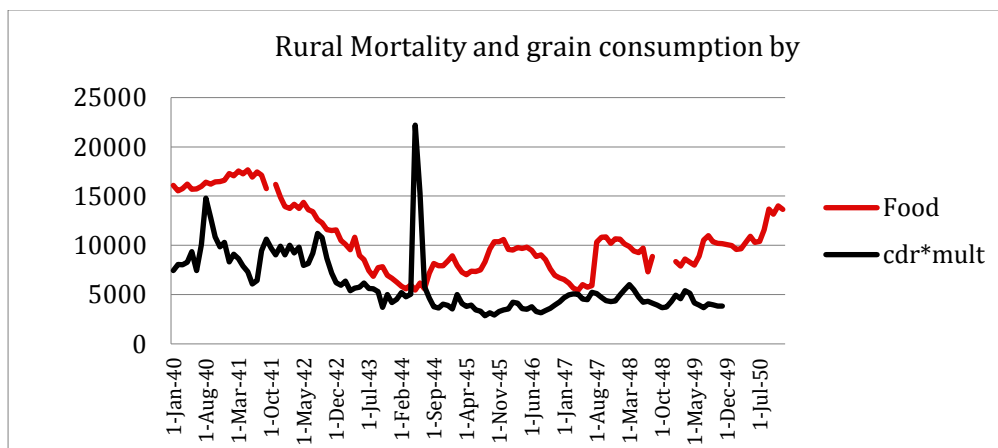
SCR: a)Central Asia Uzbekistan; b) ZSFSR: Georgia

CChZ: Tambov Oblast



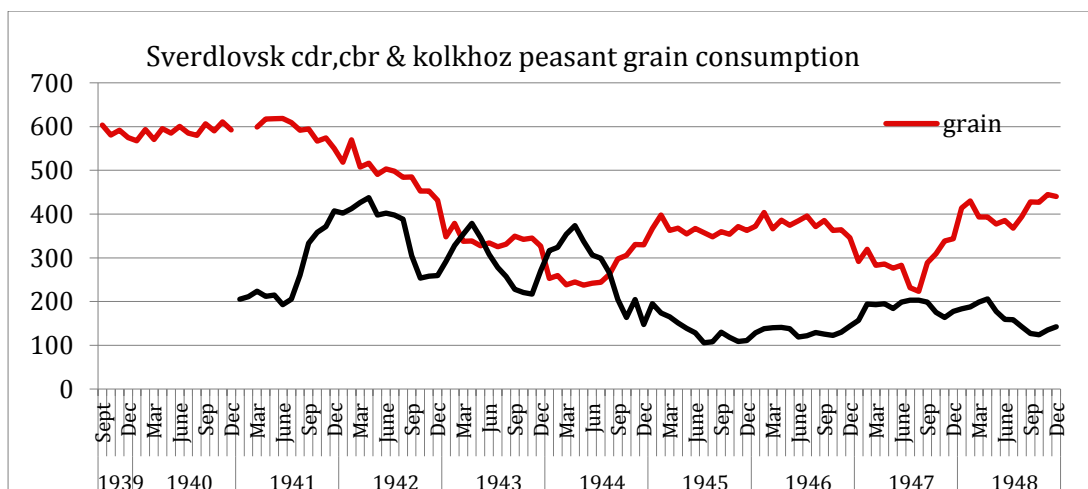


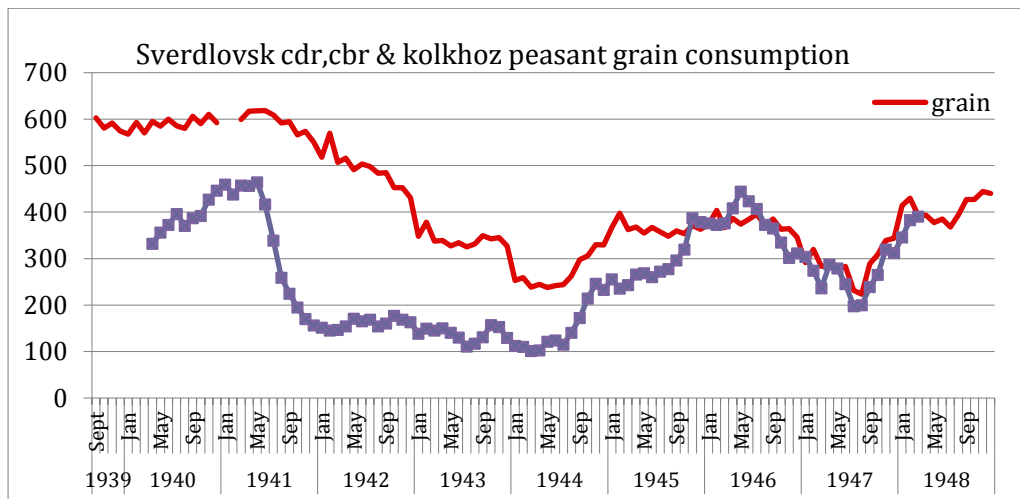
Volga: Kuibyshev Oblast



EPR: Urals , Siberia, Kazakhstan

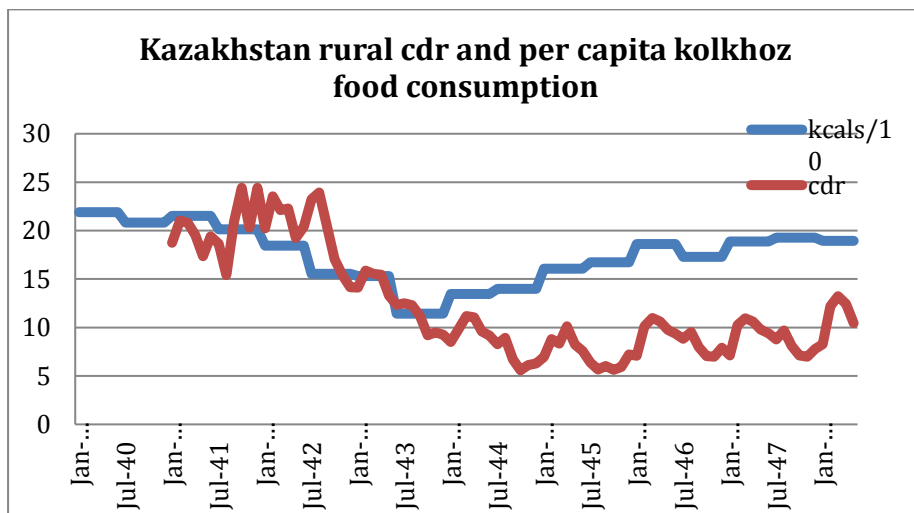
Urals: Sverdlovsk Oblast





Siberia: Novosibirsk Oblast

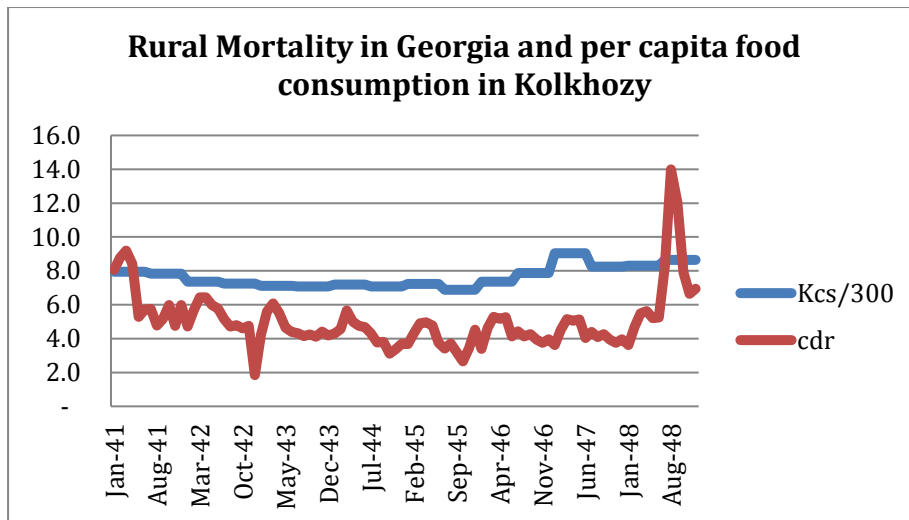
Kazakhstan



At the moment I only have only calculated 6 monthly food consumption data and still need to calculate the monthly data,

SCR: Cas & ZSFSR

Georgia



My preliminary conclusions on the relationships between statistics of food consumption in kolkhoz family budgets and rural mortality data are that Moscow and the Northern Consumer Regions were treated fairly favourably in the war. It was not just the urban population in these regions that were favoured but also the rural population. So we are not dealing with a simple case of saving the urban population by extracting more resources from the local rural population. It was more distant rural populations that suffered most in the war. But in the difficult years after the war when the Western parts of the USSR experienced a major famine, an increasing share of the burden was felt in the rural areas of the Northern Consumer Region, and more relief given to more distant areas.

Generally the rise in mortality in the 1946/7 famine period and the often more distinct decline in natality, at a time when we would expect it to rise, were far more sharply marked throughout the country than I had expected to see.

The food situation in the Kolkhozes in Kazakhstan and parts of Central Asia appear to have been extremely bad without indications of great increases in mortality. Of course the reduction in size of the most vulnerable part of the population resulting from a decline in births could be part of the explanation.

Within ZSFSR the extraordinarily favourable position of the Georgian peasantry is quite striking and this confirms previous anecdotal evidence.

Appendix 1) A note on ADK and VMAP (Andreyev, Darskii and Kharkova) and (Vallin, Mesle, Adamets & Pyrozhev)

In the final years of perestroika Goskomstat was requested by Secretary Aleksandr Yakovlev in the Secretariat of the Central Committee of the Communist Party of the Soviet Union to provide an indication of the scale of population changes and mortality over the period of the 1932-33 famine. Requests from the secretariat were often accompanied by indications of the results that were wanted, and Yakovlev appears to have told Goskomstat that he was expecting them to come up with figures similar to the 7 million excess deaths figures that was claimed by Conquest. I happened to have been introduced to the three Goskomstat demographers Andreyev, Darskii and Kharkova, by their boss Volkov, when he gave the first public lecture on the 1937 census in the Dom Uchenykh in Moscow in 1989, and I was surprised to hear them tell me, before they had begun their assignment, that their results would not conflict with those of Conquest³⁷

Their work when it appeared in 1990³⁸ came up, as expected with the figure of 7 million excess deaths in the famine, but in order to do this ADK had to apply very substantial corrections of up to 30% to the basic figures on mortality and natality³⁹. If this level of correction was needed to the basic mortality and natality data it would suggest that the value of these data in providing accurate indications of the scale, region and timing of the famine was minimal.

When I next met ADK at a demography conference in Toronto organized by Bob Johnston in January 1995 I challenged them over the level of corrections that they had made to the basic demographic data. In the next volume of their work in which they adjusted the boundaries to cover just the Russian Federation they mentioned this dispute with me in Toronto and attempted to defend their position⁴⁰.

³⁷ I wrote about this in my review of their work in 'Pokazately demograficheskogo krizisa v period goloda', in V.V. Kondrashin et al, eds. *Golod v SSSR 1929-1934* tom 3, Moscow 2013, p. 737fn 32 p. 770

³⁸ ADK in *Demograficheskaya istoriya SSSR, 1927-1959*, Moscow 1990

³⁹ Andreev, E.M., Darskii, L.E, Khar'kova, T.L, *Istoriya naseleniya SSSR, 1920-1959gg*. Moscow 1990

⁴⁰ ADK in *Demograficheskaya istoriya Rossii, 1927-1959*, Moscow 1998

In my chapter on demographic data for TSD I continued my criticism. I even attempted to enlist the support of some young Russian demographers, but they told me politely, that although they agreed with me they could not afford to alienate Andreyev, who was still at that time the lead demographer in Goskomstat.

In 2012 in a more detailed survey of demographic data for a new collection of Russian archival data on the famine I continued my criticism of ADK, and this time added the personal note about the assurances they had given me that their results would not conflict with those of Conquest, before they had begun their work.

Finally I would like to report that a major international team of demographers from France, Russia and Ukraine have finally begun to question and dispute the ADK claim.

Jacques Vallin, France Mesle, Sergei Adamets & Serhii Pyrozhev, (VMAP)⁴¹ have criticized the work of ADK along the lines that I had previously criticized them

‘ In order to reconstruct time series of births and deaths and to produce annual population estimates for the USSR between 1920 and 1959, its authors [ADK] adjusted the census results for 1926, 1937, 1939 and 1959 and corrected the series of registered births and deaths with the help of population models. However, the hypotheses inherent in the models that enabled them to adjust the data seem to overestimate fertility and mortality (Adamets and Shkolnikov 1995)⁴².

Later in their work VMAP returned to the question of the reliability of the Soviet censuses and stated quite baldly the almost all ‘specialists’ nowadays accept their reliability, and that nowadays ‘everyone views the statistical literature preserved in the archives, now accessible, as reliable.’⁴³ I wish that that were the case.

⁴¹ Jacques Vallin, France Mesle, Sergei Adamets & Serhii Pyrozhev, ch. 2 ‘The Crisis of the 1930s’ in F. Mesle & J. Vallin, *Mortality and Causes of Death in 20th Century Ukraine*, Springer 2012

⁴² Vallin et al, p. 14. The Adamets and Shkolnikov paper referred to was presented at the 1995 Toronto conference, although as far as I can remember it was not at that time taken to be a criticism of ADK. And ADK did not appear to view it as a criticism, in the way that they considered my statements to be so.

⁴³ ‘[Our] approach obviously relies, in the first instance, on the accuracy of the results of the two

Appendix 2) Nefedov and his criticisms

Professor Nefedov is well known for his conflict with Professor Mironov over evaluations of living standards on the eve of the revolution⁴⁴, but I had not been aware until recently that he had also attacked my work.⁴⁵

The general argument that I have been making is that the crisis events of famines should be treated as conjunctural crises, and that they are not necessarily related to the secular trends that can be identified over this period. The secular trend in mortality was for a remarkable decline from 27 per thousand before the Revolution to less than 10 per thousand in 1950. This was associated with a decline in birth rates from 45 per thousand to under 30 per thousand. Yet during the time of this dramatic transition Russia was experiencing the social crises of three major wars, revolution, and three or more famines.

How does Nefedov respond to this?

Nefedov begins his work with lengthy quotation from my 1999 work ‘On the Great Leap Upwards’:

‘Political scientists and historians have long debated the achievements of Soviet communism and how they should be weighed against the costs. Since the fall of communism the views of the avowed anticommunists have tended to predominate. They argue that the revolution was an unmitigated disaster, a complete tragedy, a failure that achieved nothing and that never stood any chance of achieving anything. Richard Pipes, in the final volume of his history of the revolution, argues that “failure was inevitable and imbedded in the very premises of the Communist regime.”(*Russia under the Bolshevik Regime*, (NY

censuses. In fact, this has hardly been challenged by specialists (Adamset al. 1994; Blum 1994, Blum and Darskii 1999). Although the Kremlin authorities tried on many occasions to manipulate the published results of the censuses, everyone views the statistical literature preserved in the archives, now accessible, as reliable’. Vallin et al, p. 18

⁴⁴ See S.A. Nefedov ‘Oblagosostoyanii naseleniya dorevolutsionnoi Rossii’ in Voprosii Istorii 2011, no. 5 and ‘Rokovaya oshibka: po povodu ispol’zovaniya B.N.Mironovym antropometricheskikh dannikh novobrantsev’ in Noveishaya istoriya Rossii, 2014 no. 3. See also http://www.socionauki.ru/journal/files/seh/2015_1/116-124.pdf

⁴⁵ I am grateful to Hokkaido University Library for holding his S.A. Nefedov, *Agrarniye I demograficheskiye itogi Stalinskoi Kollektivizatsii*, Tambov 2013.

1994)pp. 511-12). The political scientist Zbigniew Brzezinski... asserts “Clearly, it is no exaggeration to say that never before had so much human sacrifice been exacted for relatively so little social benefit”(*The Grand Failure: The Birth and Death of Communism in the Twentieth Century* (NY 1990) pp.30-1, 240)...

None of these accounts are based on any serious attempt to assess Soviet welfare levels, to place them in any form of historical perspective, or to consider whether there might have been any welfare or mortality improvements over this period.

In this paper I argue that welfare and mortality crises were not the totality of Soviet welfare and demographic experience under Stalin. Apart from the crises, there were remarkable changes and improvements in welfare, mortality , and height [stature]. There was a an extraordinarily rapid secular decline in mortality. There was an extremely swift transition from relatively short terminal stature to relatively tall terminal stature, and from late maturation to early maturation.

It is unfortunate that our academic debates are not used to confronting a complex situation in which secular improvements in welfare and mortality are accompanied by massive short-term crises in welfare and mortality. Instead of concentrating on the question Who is to blame?, we need to know more clearly What really happened? How large was the crisis? What factors were causing or moderating the secular trend?⁴⁶

In his book Federov covers much of the same data that I covered in my EEH article in 2009, which Federov fails to cite. His review of the western literature is almost identical to mine. But he totally fails to understand the distinction that I have repeatedly tried to make between conjunctural crises and secular trends.

At the end of his book Nefedov states on p. 249:

‘Returning to the question that we posed at the beginning of our investigation concerning the discussion between Pipes, Brezhinsky and the major western ‘sovietologist’ Stephen Wheatcroft. Speaking about the absence of serious

⁴⁶ Stephen G. Wheatcroft, ‘The Great Leap Upwards: Anthropometric Data and Indicators of Crisis and Secular Change in Soviet Welfare Levels, 1880-1960’, *Slavic Review*, vol 58, no. 1, 1999, pp. 59-60.

attempts to evaluate Soviet living standards, Wheatcroft wrote that in the Stalin epoch there was ‘remarkable progress in improving welfare, reducing mortality and increasing the height of people...’. Our investigation was concerned with asking whether real progress occurred and as a result we have to state that the living standard of the rural population had no progress, that food supply fell and that mortality did not decrease. The consumption of the urban population rose a little and the anthropometric data in reality shows an improvement in living standards- but these data are characteristic mainly of consumption of the young generation for whom Soviet power was taking special attention.

Nefedov misses the main point that I was making, ie. that this was a period that combined both secular improvements in mortality and welfare with conjunctural crises.

There is no controversy (with me at least) over the level of nutrition in the late 1930s being lower than in the early 1920s or for that matter the immediate pre-revolutionary period. There was definitely a deterioration. In my 2009 article I point out quite specifically that Professor Allen was wrong to make the claim of a growth in per capita consumption in this period.⁴⁷ And I followed that by contrasting the nutritional situation with what had happened with mortality levels.

‘On the other hand mortality data showed a continued sharp decline throughout this period in non-crisis years.’

It is impossible to agree with all of Professor Nefedov’s claim that ‘the living standard of the rural population had no progress, that food supply fell and that mortality did not decrease’. I repeat I am not disputing that food supply fell over this period, but there was most certainly a secular decline in mortality, and the only way that Nefedov could dispute this decline is by failing to separate the secular decline

⁴⁷ ‘Contrary to the recent claims of Professor Allen nutritional levels, measured in calorific consumption fell from the pre-revolutionary period to the late 1930s and only began to rise in the late 1950s.’ Stephen G. Wheatcroft, ‘The first 35 years of Soviet living standards: Secular growth and conjunctural crises in a time of famines’, *Explorations in Economic History*, vol. 46, 2009, pp. 24-52

from the crisis , and that was precisely the failure that I had been arguing against. It is clear that Nefedov has failed to make the distinction between crisis and trend.

What do we make of Nefedov's argument that anthropometric decline in heights only affects the younger generation? And that the younger generation should be treated as a separate group?

Of course the secular upward trend in terminal heights only affects the young who are still growing, ie under 20 year olds. But over time this will include all of the population. Since there had been a fairly steady upward trend in growth since the generation born in 1904, by the mid 1950s we are talking about all of the population aged under 50. This is no longer a young insignificant minority. It is about 70% of the population.

International Workshop on
***Economic Development of Eurasian Countries from
Wider Perspectives***

Date: 17 February, 2017.

Venue: Minato-Mirai Campus, Yokohama National University.
The Landmark Tower building, 18th Floor, Room 1809.

Contact: Yasushi Nakamura
Yoshisada Shida

Program

14:50–14:55 *Opening Address*

Speaker: Yasushi Nakamura (Yokohama National University)

Chair: Masaaki KUBONIWA

*Each speaker will have 30 minutes for presentation and 10 minutes for discussion.

14:55–15:35 ***Gender Inequality and Sex Ratios in China, India and Russia***

Speaker: Prabir C. Bhattacharya (Heriot-Watt University)

15:35–16:15 ***A Cooperative Strategy: The Economic Roles of China, Russia and
Japan under the One-Belt-One-Road Initiative***

Speaker: Wen-Jen Hsieh (National Cheng Kung University)

16:15–16:55 ***Accounting for Growth in Russia in 19612012***

Speaker: Ilya Voskoboynikov

(National Research University – Higher School of Economics)

16:55–17:35 *Soviet Peasant Budget Studies and Demographic Data in the Long Term and through Periods of Crisis*

Speaker: Stephen G. Wheatcroft (University of Melbourne)

17:35–18:15 *The Deficiency of Competitiveness: Did Socialism Fail to Foster It?*

Speaker: Byung-Yeon Kim (Seoul National University)

18:15–18:20 *Closing Remark*

Speaker: Yasushi Nakamura (Yokohama National University)

Workshop participants:

1. Bhattacharya, Prabir C. (Heriot-Watt U., Scotland)
2. Hsieh, Wen-jen (NCKU, Taiwan)
3. Kim, Byung-Yeon (Seoul National U., Korea)
3. Kuboniwa, Masaaki (NCU/Hitotsubashi U., Taiwan/Japan)
4. Kumo, Kazuhiro (Hitotsubashi U., Japan)
5. Suhara, Manabu (Nihon U., Japan)
6. Tabata, Shinichiro (Hokkaido U., Japan)
7. Tabata, Tomoko (Hokkaido U., Japan)
8. Uegaki, Akira (Seinan-Gakuin U., Japan)
9. Voskoboynikov, Ilya B. (HSE, Russia)
10. Wheatcroft, Stephen G. (U. of Melbourne, Australia)
- 11.* Nakamura, Yasushi (Yokohama National U., Japan)
- 12.* Shida, Yoshisada (Hitotsubashi U., Japan)

* Organizers