The Regional Concentration of Industry in Imperial Russia 1854-1917

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Many social critics have charged that early capitalist industrialization makes a few places richer while leaving the poor behind. And, indeed, studies surveyed by Jeffrey Williamson,[1] Stuart Holland,[2] and others have verified that the relative interregional gap in average incomes in the main Western countries grew wider during the several decades after the onset of modern economic growth. Eventually, though, informed mobility in a national market for factors and goods tends to equalize incomes.

Theorists of diverse origin and intent have not found it difficult to account for the enhanced disparity between rising rich and stagnant poor over nationwide space. Gunnar Myrdal, for example, attributes the predominance of "backwash effects," which aggravate regional inequality, to cumulative external and internal economies of the manufacturing and commercial activities in the richer area. The process brings disadvantage to competing

[1] J.G. Williamson, "Regional Inequality and the Process of National Development: A Description of the Patterns," *Economic Development and Cultural Change*, Vol. 13 (1965), pp. 3-45.

[2] Stuart Holland, *Capital versus the Regions* (London: Macmillan, 1976), Chapter 3.

handicrafts and traders in the poorer districts,[3] Banks will favour investing the greater savings of the prosperous near their source. As Holland has revealed, money will even flow outwards to the advanced area, up the capital-intensity gradient, because the developed area deploys better technique, as well as plant-level economies of scale and agglomeration externalities. With less risk of all kinds and with quality inputs in abundance, net returns are more promising there.[4]

The best and the brightest, at least among the young men, will emigrate to the prospering areas in hope that " something will turn up." This may relieve agrarian overcrowding but deprives the donor area of complementary and enterprising factors, not to mention rentpayers and husbands. Consequently, the initial communal reaction there is to bewail the whole process.

Economists like Myrdal have usually recognized contrary " spread effects," when backwater is transformed to hinterland through the diffusion of technique and wage-price competition. The observers in the profession differ markedly, though, as to how long and how far the backwash might go on. When will the social inertia, ignorance, and market power which fundamentally explain regional inequality be overcome? To date we have only the unconvincing analogy of friction, advanced by the social physics school,[5] to account for the timing of the turnabout.

Orthodox Marxists have always been concerned with who benefits and who loses from international commerce. Up to the 1930s the prevailing view was that the spreading of capitalist market relations, at the expense of feudal exploitation, would benefit the men and areas drawn in by socializing labour and

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[3] GUNNAR MYRDAL, *Economic Theory and Under-developed Regions* (London: Duckwroth, 1957).

[4] Holland, Chapter 2, with much credit to Marx and A. Weber.

[5] For an agnostic, cleverly omnibus formulation see Erling Olsen, *International Trade Theory and Regional Income Differences* (Amsterdam: North Holland, 1971J. " Spread " is permitted in inverse proportion to distance, following notions in physics.

raising productivity, even though at the temporary expense of native handicrafts. V. I. Lenin's *The Development of Capitalism in Russia* (1898) stressed the spread of factories, market opportunities, prosperity, and literacy to backward Russian provinces; he devoted hardly any space to the backwash effect.[6] Tula province's gun production could not resist modern assembly methods. Traditional costumes were sewn no more in the Caucasus as fashion turned Western.[7] But that is all. M. I. Tugan-Baranovsky, Lenin's guide, had given a similar appraisal, with the interesting elaboration that factory capitalism increased the share of cottage industry, working in conditions of extreme self-exploitation, and of sub-contractors but destroyed small-scale workshops (*masterki*).[8] Not all *kustar'* specialties declined, and some new ones — like cigarette wrapping — arose. All this, of course, befits the Russian Marxist polemic against populist (*narodnik*) writers who disparaged the role of industrial capitalism in Russian conditions. Only when imperialist capitalism could no longer profit from colonies, according to Lenin's view, would revolution prevail at home.

The populist blues were given a replay, without attribution, in the Stalinist era. Negative consequences of Western capital-

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[6] V.I. LENIN, *The Development of Capitalism in Russia* (Moscow: Progress, 1974). In Chapter VIII (p. 583) Lenin refers to a Yaroslavl study to prove that provinces and districts sending migrants to the cities are better off, less patriarchal, and more literate. We are told that returning youth (*petrovniki*) who had attained the polish of St. Petersburg attracted the girls back at home. In Leninist writing, of course, latifundia agriculture was recognized as a major extension of capitalism in Russia.

[7] *Ibid.*, Chapter VIII, pt. v.

[8] M.I. TUGAN-BARANOVSKY, *The Russian Factory in the XIXth Century*, 3rd ed., trans. by Arthur Levin and Claora S. Levin, under the supervision of Gregory Grossman (Homewood: Irwin, 1970), Chapter 12. Localized specialties, like Chernigov shoes, were sometimes replaced by far-away production (e.g., Warsaw). Tugan-Baranovsky notes that among provincial districts the frequency of passports for temporary emigration to work correlated with the literacy of local recruits (pp. 410-12). No comprehensive data on small-scale industry exist for the period before 1913, hence no trends can be shown incisively. ADAM KAUFMAN, *Small Scale Industry in the Soviet Union* (New York: National Bureau of Economic Research, 1962).

ism for the colonial and semi-colonial oppressed, within and without the Empire, are thematic. P. I. Liashchenko's indispensable treatise sounds the motif, particularly in his summarizing remarks and in late chapters dealing with the "imperialist" phase of Russian capitalism.

> "Even during the capitalist period a rational distribution of industry was blocked by the policy of monopoly control (petroleum among others), by the Tsarist national policy of discriminating against the development of the non-Russian areas, by the lack of knowledge concerning the natural wealth of various regions, which to a certain extent was also part of a deliberate policy in the interests of monopoly capital." [9]

Liashchenko mutes the rapid industrialization of Poland, the Baltic, and even the Caucasus, and accents certain unsupported charges that these non-Russian areas were deliberately victimized and their natural resources ignored.[10] Often foreign interests are implicated in hindering the progress of border people like the Georgians.[11]

Russian land grabs in Siberia and Central Asia are notorious enough, but repression of non-Russian commercial or manufacturing possibilities is another matter. By 1908 the Caucasian provinces showed 70,000 workers, mostly in petroleum, metallurgy, copper, and textiles, not to speak of 20,000 railway workers.

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[9] P.I. LIASHCHENKO, *History of the National Economy of Russia to the 1917 Revolution*, trans. by Leon M. Herman (New York: Macmillan, 1949), p. 539.

[10] *Ibid.*, p. 596, Chapter XXXI.

[11] *Ibid.*, Chapter XXX: "Tsarist governments and Russian capitalism discouraged the development of local (Chiaturi manganese) production in order to prevent competition by the Chiaturi deposits against Donets manganese." (pp. 627-28) The deposits near Ekaterinoslav yield a faster growing output, but Caucasian manganese was still predominant in 1907, despite higher transportation costs. The year-by-year figures do not suggest such restriction. *Sbornik statitecheskikh svedenii o gornozavodskoi promyshlennosti Rossii v 1908 godu*, part 1 (Petrograd, 1917), pp. 245-57.

These and other facts, given by Liashchenko himself, blur — perhaps deliberately — the general impression his book was supposed to impart.

In view of the positions taken by Lenin and Stalin — and, as I believe, their opposition on this point — we may understand why no Soviet economic historian has ventured an overall appraisal of the consequences of growth for the constituent parts of the former Tsarist realm.[12]

This essay seeks to provide that appraisal. Its motivation follows from one further line of thought. One does not have to be Georgian to be sensitive to Great Russian chauvinism. Observers residing in the West have long exposed Russian administrative, linguistic, religious, and military subjection of non-Russians within the former Imperial borders.[13] But to what extent did the Tsar's ministers, not famous for effective and consistent execution of their far-reaching concepts, also depress the economic development of the predominantly Russian homelands? [14]

After surveying the available evidence, we shall conclude that (1) on balance the Tsarist authorities did not intend or devotedly try to discriminate against border areas' industrialization; (2) central industrial areas, chiefly St. Petersburg and Moscow provinces, grew less fast than traditionally less industrialized

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[12] R.S. Livshits, *Razmeshchenie promyshlennosti v dorevoliutsionoi Rossii* (Moscow, 1955), is factually informative but non-committal on overall issues. One of the rare articles published after Stalin's death in the USSR gingerly returned to the Leninist emphasis. A.V. Piaskovskii, "K voprosu o progressivnom znachenii prisoedineniia Srednei Asii k Rossii," *Voprosy Istorii*, No. 8 (1959), pp. 21-45.

[13] Violet Connolly, "The 'Nationalities Question' in the Last Phase of Tsardom," and Marc Raeff, "Patterns of Russian Imperial Policy toward the Nationalities," in Edward Allworth (ed.), *Soviet Nationality Problems* (New York: Columbia, 1971), pp. 22-42.

[14] It should be mentioned that economic development made such centers as Khar'kov, Odessa, and Alma-Ata cities with Russian majorities. Promoting Russian national areas is not identical with promoting Russian nationals, the more so if local elites are Russified.

and newly opened areas until the World War, when (3), regional concentration reasserted itself with fateful consequences. (4) Thus, it seems likely that incomes became more equal after 1861 *within* industry, as market-technical forces overcame bureaucratic and historical ones in the determination of where Russian industrial growth would occur. This may, however, be consistent with large and even growing inequality in the *overall* regional distribution of incomes, once the agricultural sector has been accounted for.

I. *Concentration Trends*

Tsarist authorities produced surveys of "large-scale" manufacturing by province in a number of years between 1854 and 1915. While these surveys vary in coverage [15] and in no case include the artisan sector, they do bear on the concerns expressed above. If government policy was effective at all in directing development, factory-scale units would show it. Along with capitalist commercial farming, the factories represented the modern side of Russian dualistic development.[16] Not only their growth, but also their wages, were superior to the small-scale sector.[17] Manufacturing industry was much more productive than the agricultural and service sectors generally. According to Raymond Goldsmith, the five per cent of the labour force engaged in manufacturing produced 20 per cent of the 1913

[15] The factory inspectorates subordinated to the Department (later Ministry) of Industry and Commerce reported on establishments with fifteen or more employees or mechanized power.

[16] Labour productivity in manufacturing rose in 1880-1913 and was higher there than in agriculture by 1913. Agricultural productivity per worker rose only feebly (0.3 per cent per year) in 1880-1910. PAUL GREGORY, "Economic Growth and Structural Change in Tsarist Russia: A Case of Modern Economic Growth?" *Soviet Studies* (January, 1972), p. 418, citing R. GOLDSMITH, "The Economic Growth of Tsarist Russia, 1860-1913," *Economic Development and Cultural Change* (April, 1961).

[17] In 1913, according to the best estimate for interwar USSR territory, the 4.85 millions engaged in small-scale industry (51 per cent of full-time equivalents) produced by 34 per cent of industrial output. Kaufman, Chapter 3. Output per worker, unadjusted, was about twice as high in large-scale as in small-scale industry.

national income.[18] Therefore, although industrial concentration might in some circumstances be consistent with equalization among regions, in Russian conditions one may say that where large-scale industry and agriculture went, there, too, average wage incomes would rise.

From time to time various ministries collected data by province (*gubernii*a), a unit of about one to three million residents in 1897 and typical area of 30–70,000 square kilometers.[19] Mostly, only areas of European Russia were surveyed. The Asian parts of the Empire were incompletely assimilated by the administration until the late XIXth century, while Poland and Finalnd always had special status. Consequently we often lack data for them. Post World War I figures reflect the loss of these and certain Baltic and Western areas. Such annexations and losses prevent our computing a single, full comparable series for the *shares* of central areas which remained throughout within the Imperial borders. For the most part, however, once Poland and the Baltic are explicitly taken into account, the remaining additions or deletions would be negligible in an industrial manufacturing enumeration.

Both the Livshits and Varzer compilations, which have been adapted for use here, employ these surveys. They differ somewhat in how they group provinces into regions, and the latter gave a product total for the European Empire of 32 per cent less in 1900, the common year of the two surveys. The apparent difference in coverage in the underlying series (not published) was greater for the outlying districts. On this ground the Livshits data are more authoritative. Lacking certain of the underlying district and provincial data, we could make an approximate reconciliation only for 1908. Thus in Panel A of Table 1 the

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[18] GOLDSMITH, *loc. cit.*

[19] Many of the outlying *gubernii*a were substantially larger. J. WILLIAM LEASURE and ROBERT A. LEWIS, *Population Changes in Russia and the USSR: A Set of Comparable Territorial Units* (San Diego: San Diego State College Press, 1966), Table 1.

aggregation is according to Livshits' units but employs Varzer's *provincial* data.

Grouping the provinces conventionally into homogenous and interacting regions, we can observe several trends from benchmark year to year in Table 1 (pages 8 and 9 below). The Central Industrial Region of Moscow, Vladimir, and seven other neighboring provinces [20] — which dominated the textile trades along with other consumer articles — show a secular decline in share, probably from the middle of the century.[21] The temporary recovery of 1908-1912 is probably the result of the rural prosperity of those years, which gave rise to a boom in textile and consumer manufactures of every kind.

The South,[22] which supplied metal and coal for the railroads, increased continually in importance by value of output, most dramatically during the surge of "heavy" industrialization in 1887-1900. In those few years the Ukraine went from producing one-fourth of the Urals' volume to an output one and one-half times larger.

More surprisingly, the St. Petersburg area of the Northwest (including also Novgorod, Pskov, and Olonets provinces) — see lines 2, 3, 10 and 23 — declined in relative importance by value of manufacturing production up to the World War, despite its leading role in quality machinery and textiles.

When Lenin enumerated industrial centres according to trade information, he likewise found that from 1879 to 1890 the South had risen from 6.7 to 13.7 per cent of European Russia's manufactures (not including Poland or the Caucasus), while the Northwest already had fallen from 35.8 per cent to 29.5 per cent.[23]

The sharp reversal seen in the first years of the War (line 35)

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[20] Kaluga, Kostroma, Riazan, Nizhni-Novgorod, Tula, Tver, and Iaroslavl.

[21] Cf. ROGER PORTAL, "The Industrialization of Russia," *Cambridge Economic History of Europe*, Vol. VI, Part 2 (Cambridge, 1965), pp. 852-854.

[22] Donbass, Crimean, and five Ukrainian provinces in the figures for 1854-1900.

[23] Lenin, Appendix III.

undoubtedly owes to the military production of the giant Putilov and other plants of Petrograd. From the 1850s until 1914, a relative weakening of the capital's industrial base, together with its higher than average growth in population,[24] suggests an increase of tertiary employment, like trade, banking, and general government, in which the capital had an advantage.[25] Such a pattern put great pressure on the capital when food, fuel, and raw materials were choked off by disrupted transport. One might interpret the data as suggesting that capitalist market forces were already in the nineteenth century signalling a move away from Petersburg (and Moscow). Despite their bureaucratic advantages, skilled Russian labour and entrepreneurs were more willing to locate elsewhere and central financial institutions dominated the allocation of sayings and investment to a lesser degree.[26]

Food had always been dear in the capitals. According to one source, St. Petersburg and its vicinity, which grew little food, had a grain deficit of 30.1 million poods in 1888, while Moscow lacked 38.3 million.[27] These deficits amounted to some

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[24] In 1856 the city of St. Petersburg had 490,808 inhabitants; by 1900, 1½ million, and in 1917, about 2½, despite only 0.12 per cent rate of natural increase there. The Northwest region as a whole had 1.7 million urban residents (about one in 11 of them a worker in manufacturing) in 1897, or 14 per cent of all Imperial subjects in centres of over 15,000. Allowing for some variance in definitions, this is considerably more than this region's share in industrial output at that time. The central region supported an urban population of 1.8 million. Aside from the South, the Northwest was the Empire's most urbanized major region. Leasure and Lewis, Tables 4 and 5.

[25] Unskilled and service workers as a category increased faster in 1860-1913 than industrial workers. GASTON RIMLINGER, "The Expansion of the Labour Market in Capitalist Russia, 1861-1917," *Journal of Economic History*, XXI: 2 (June, 1961). In 1910 St. Petersburg region had 350,000 workers in manufacturing and 154,000 in trade and transport. *Bol'shaia Sovetskaia Entsiklopediia*, second edition, Vol. 24, p. 520. According to this source the proletariat comprised 44 per cent of the city population.

[26] JOHN MCKAY, *Pioneers for Profit, Foreign Entrepreneurship and Russian Industrialization 1885-1913* (Chicago: University of Chicago, 1970), Chapters 5 and 13; OLGA CRISP, "Banking in the Industrialization of Tsarist Russia, 1860-1914," in RONDO CAMERON, *Banking in the Early Stages of Industrialization* (New York: Oxford, 1967), pp. 216-18 on the weakness of banks outside the capitals; ALEXANDER GERSCHENKRON, *Economic Backwardness in Historical Perspective* (Cambridge: Harvard, 1962), pp. 136-37.

[27] COLIN WHITE, "The Impact of Russian Railway Construction on the Market

TABLE 1

CONCENTRATION OF MANUFACTURING PRODUCTION BY REGIONS IN TSARIST RUSSIA, 1854–1915

		1854	1887	1900	1908	1912	1915
A.	*European Empire* *						
1	Central Industrial (Moscow area)	51.9%	45.4%	33.6%	32.9%	...	...
2	Northwest-Baltic	23.1	22.2	20.6	18.9	...	...
3	of which, St. Petersburg province only	20.0	...	...	11.7	...	...
4	Urals	3.7	3.5	5.2	5.3	...	...
5	Central Agricultural	6.5	4.1	3.8	4.7	...	...
6	South-Ukraine	9.4	13.8	21.0	22.0	...	...
7	Others	5.4	11.2	15.8	16.2	...	...
8	Total value (millions current rubles)	148.2	939.4	2488.3	3840.1	...	...
B.	*Russian Empire* (excluding Finland)						
9	Central Industrial (14.1[p])	38.2%	38.1%	28.8%	27.6%	...	...
10	Northwest-Baltic (7.7)	17.0	18.6	17.7	15.8	...	...
11	Poland-Lithuania (13.7)	26.3[e]	14.7	13.0	12.6	...	...
12	South-Ukraine (16.7)	7.1	11.5	18.0	18.4	...	...
13	Sub-total of four above	88.6	82.9	77.5	74.4	...	...
14	Urals (10.6)	2.7	3.0	4.4	4.4	...	...
15	West (6.8)	0.7	1.5	1.1	1.3	...	...
16	Transcaucasia (5.1)	0.1	2.0	4.1	5.3	...	...
17	Volga (9.8)	2.5	4.6	4.5	4.8	...	...
18	Central Agricultural (11.0)	4.8	3.4	3.3	3.9	...	...
19	Turkestan (5.3)	nil	0.3	0.5	1.0	...	...
20	Other **	0.6	2.6	5.2	5.9	...	...
21	Total value (millions current rubles)	201.2	1120.2	2902.1	4578.2	...	...

Notes:

... Not available or not applicable.

* Does not include Poland-Lithuania, Finland, Turkestan, West or East Siberia but does include Transcaucasia.

** North, Siberia, North Caucasus and Bessarabia.

p 1897 census population in millions, according to J. William Leasure and Robert Lewis, *Population Changes in Russia and the USSR: a Set of Comparable Territorial Units* (San Diego: San Diego State College Press, 1966), Table 1.

e Estimate from 1877 figure shown for Poland extrapolated backwards at rate of growth shown for Grodno province, 1854-1879.

Following: CONCENTRATION OF MANUFACTURING PRODUCTION BY REGIONS IN TSARIST RUSSIA, 1854–1915

	1854	1887	1900	1908	1912	1915
C. *European Empire** (plus Poland-Lithuania)						
22 Central Industrial	...	...	37.6%	29.0%	32.2%	...
23 Northwest	...	...	13.2	11.0	10.4	...
24 Baltic	...	...	6.5	5.8	6.0	...
25 Urals	...	...	2.3	4.7	3.5	...
26 Ukraine	...	...	9.2	16.8	15.5	...
27 Poland-Lithuania	...	...	16.2	13.2	14.3	...
28 North Caucasus	...	...	2.6	4.2	4.5	...
29 Central Black Earth	...	...	2.8	3.9	3.0	...
30 Volga	...	...	5.7	5.2	4.5	...
31 West	...	...	1.7	2.8	1.8	...
32 Other	...	...	2.2	3.4	4.3	...
33 Total (millions current rubles)	...	...	2005.0	4228.1	4989.9	...
D. *European USSR* (interwar borders)						
34 Central Industrial	...	...	48.7%	35.9%	40.8%	35.9%
35 Northwest	...	...	17.1	13.7	13.2	16.9
36 Urals	...	...	3.0	5.9	4.4	4.7
37 Ukraine	...	...	11.9	20.8	19.6	19.3
38 Volga	...	...	7.4	6.4	5.6	7.1
39 North Caucasus	...	...	3.4	5.3	5.7	4.8
40 Central Black Earth	...	...	3.6	4.9	3.8	5.5
41 Transcaucasian	...	...	1.6	3.8	3.7	3.8
42 Other	...	...	3.3	3.3	3.4	2.0
43 Total value (million rubles)	...	...	1546.9	3409.7	3942.1	5646.8

Sources:

1854–1900: R.S. Livshits, *Razmeshchenie promyshlennosti v dorevoliutsionnoi Rossii* (Moscov, 1955), pp. 131 ff, 150; *Svod dannykh of fabrichno-zavodskoi promyshlennosti v Rossii za 1885–1887 gg.* (St. Petersburg, 1889).

1900–1915: V.E. Varzer and L.B. Kafengauz, *Dinamika rossiiskoi i sovetskoi promyshlennosti v sviazi s razvitiem narodnogo khoziaistvo za sorok let (1887–1927 gg.)*, (Moscow, 1929), vol. 1, part 1, pp. 98-9; and part 2, pp. 14-15, 102-3. Gross output before excise tax. Excludes arsenals and shipyards, banknote production. 1908 figures exclude railway workshops; 1912 figures include special orders.

Panels A and B follow the Livshits regionalization with negligible adjustments; panels C and D follow the Varzer regional definitions. Where these differ significantly, the regional name has been modified.

four per cent of the grain harvest and 13 per cent of marketed grain. St. Petersburg grain was drawn from as far away as West Siberia. A rough calculation indicates that minimal food consumption could cost the worker family more than one ruble a month in railway charges alone, at a time when an average cotton textile operator earned 25 rubles in St. Petersburg and 16 to 17 in Moscow. Obviously this and higher housing costs in the two metropolises would discourage the location of new labour-intensive industry there once equal quality inputs could be obtained elsewhere. If, in addition, the market or specific inputs reinforced a tendency to deconcentration — agricultural machinery and railroad cars (but not locomotives) would be examples — production could shift drastically from the Centre to the South.[29] The Moscow area's experienced and permanent labour force, its position relative to markets as well as cotton and wool probably helped it retain and enhance its dominance in most all branches of textiles.[30]

Up to this point it has been demonstrated that certain new centres, such as the Ukraine, arose to complement existing industrial areas, whose relative 'decline' may be partially accounted for statistically by the newer ones' rise (but not wholly — see line 13, Table 1). That the Empire encompassed several growth poles owes to its enormous size and diversity and may not directly conflict with the Myrdal thesis about the dominance of backwash

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for Grain in the 1860's and 1870's," In LESLIE SYMONS and COLIN WHITE, *Russian Transport* (London: Bell, 1975), pp. 1-45. A pood equals 16.38 kilograms.

[28] Livshitz, p. 230, quoting from Ministry of Trade and Industry, *Staticheskii svedeniia po obrabatuiuschhei fabrichno-zavodskoi promyshlennosti Rossiiskoi imperii za 1908* (St. Petersburg, 1912), pp. 41-2. Average grain consumption in the city was about ten poods per person per year.

[29] L.B. KAFENGAUZ, *Razvitie russkogo sel'skokhoziaistvennogo mashinostroeniia* (Khar'kov, 1910), p. 29, shows the Centre declining in absolute production after 1888, when its share was 39 per cent of Russian output, to 12 per cent by 190. By 1912 the South produced 52.5 per cent of all agricultural machinery, though the peak share was achieved around 1894. Livshits, p. 177. Such production was criticized as "irrational" then and apparently was inferior in quality.

[30] PORTAL, "Industrialization of Russia," pp. 801-72.

over spread effects. What about the fate of the comparatively vast territories in between the poles — the Central Agricultural Area, the Belorussian West, the Volga provinces?

All these areas had little factory industry in proportion to their populations (see lines 15, 17, 18 of Table 1). It may well be that the Great Russian agricultural belt (line 5) fell further behind the surrounding growth poles from 1854 until the end of the century. Substantial outmigration, reduced grain sowings, lower grain prices after 1873, and relative deprivation undoubtedly also contributed to the widespread sense of depression in this area. But some recovery is evident by 1908 (lines 5, 18, 29, 40), and to this one should add the probable prosperity of artisan industry in these black earth districts.

The Volga and Western areas may have shown a relative rise in manufacturing industrialization up to 1908 (lines 15, 17), but after that one may discern a slight recession in share (lines 31 and 32).

The gross dispersion of Imperial manufacturing indicated in Table 1 to new and subsidiary growth poles could have occurred because of the extraordinary *prior* concentration of modern economic activity in the Empire, dating from the eighteenth century. The prior concentration had political as well as economic causes. Both worked to favour the Baltic ports, preordinately St. Petersburg, because machinebuilding for military, textile, and transportation uses was first set up and long operated by foreign workers with imported materials in this area. Until the 1860s ocean transport was so much cheaper than domestic alternatives that English coal and iron and American cotton abetted the development of the Baltic towns of Riga, Narva, and St. Petersburg. Moscow's ancient place owes much to its proximity to both southeast- and northwest-running rivers. Reinforcing the capital's advantage were the first railroads, arranged radially for military reasons and serving the export of grain first among economic missions. Coincidentally, the period from 1850 until

1867 may be characterized as the only era of tariff liberality, and this likewise favoured St. Petersburg and other entry cities.

Early Russian industrial growth was hardly autochthonous and was to be even less so by the boom of 1888-1900. Government orders were salient for most industries. Capitalization required bureaucratic approval, and excise taxation was complicated and heavy. All this made it helpful to be close to be bureaucrats who had their hands on (and often in) the fisc. Petersburg banks were dominant and very likely favoured local clients: despite the name, the Russo-Asiatic Bank preferred the local Putilov works.

More fateful than the bureaucratic connection was the legacy of serfdom, which had fixed the labour force to the village community. Collective tax responsibility endured until 1905. As is generally recognized, *obrok* (quitrent-paying) serfdom predominated in the poor forest soils from south of Moscow northwards and westwards. *Obrok*-payers often engaged in industrial and handicraft occupations to the mutual benefit of lord and serf, but the distance a man could go was controlled by the internal passport system. Otherwise negotiation and collection of the quitrent would be impractically expensive for the serfowner. With emancipation, little changed for the *obrok*-prayer in this regard. His community needed his excess earnings to pay redemption dues and (until 1885) poll tax. Army recruitment was another shared obligation. These dues rather often exceeded the rent on a man's allotment land, and as a result paying one's way to freedom was unusual. Of course, some did run off to Siberia, even in the nineteenth century. But the usual compromise was to approve a passport for off-season work within a relatively small compass of distance. In exchange for "tribute" to the *mir*, a man retained a fall-back and residence for dependents and old age.[31] Passports doubled in 1884-97.

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[31] GASTON RIMLINGER, "The Expansion of the Labor Market in Capitalist Russia: 1861-1917," *Journal of Economic History*, Vol. XXI, No. 2 (June, 1961), pp. 208-15;

There were, it seems, plenty of landless workers and artisans for the jobs in industry. Does such evidence remove labour immobility from our usual list of factors which impeded Russian industrialization? We should, I think, not overlook the extent to which industrial labour was mobile over short distances — a few days' travel — but much more constrained in long-range moves.[32] In the short Russian growing season, particularly, harvest labour was always greatly in demand. So long as transportation was poor and capital scarce, the months of idle winter labour time were readily applied to linen, cotton, and other textile materials, as well as numerous *kustar'* (artisan) crafts. When grain began to reach the centre from further south, many dropped marginal lands and apparently devoted themselves more exclusively to industry and commerce.[33] Later, great numbers of land-poor agriculturists of the central black earth area migrated permanently to the steppe, which the railroads were now reaching.[34]

Railroad building favoured the development of an entirely new industrial area, the South, because at large scales cheap materials overbalanced the cheaper labour of the existing Urals area, where the many small ovens mostly employed charcoal smelting and water power.[35] When the railways linked Krivoi Rog iron to Donbass coal in 1885, the advantage was compounded. Urals' production did rise some two and one-half-fold between 1887 and 1913,[36] but meanwhile Ukrainian pig-iron was

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THEODORE VON LAUE, "Russian Peasants in the Factory, 1892-1904," *Journal of Economic History*, Vol. XXI, No. 1 (March, 1961), pp. 61-80.

[32] J. WILLIAM LEASURE and ROBERT LEWIS, "Internal Migration in Russia in the Late Nineteenth Century," *Slavic Review*, XXVII (September, 1968), pp. 375 ff. Only intraprovincial industrial migration rates, not interprovincial ones, are found to be rank correlated with degree of industrialization and literacy for 89 gubernias in 1897.

[33] C. WHITE, "The Impact," *loc. cit.*, Table 5, p. 16, for the central industrial provinces.

[34] *Ibid.*, p. 20.

[35] LEON MOSES, "Location and the Theory of Production," *Quarterly Journal of Economics*, Vol. 72: 2 (May, 1958), pp. 259 ff.

jumping from 12 to 63 per cent of the Imperial total (57 per cent for iron and steel). Large-scale metallurgical technology required full-time workers, continuous supplies of ore, and experts to adjust to unusual impurity levels in the ore. In these matters, the new South had it over the Urals once large rail and car orders were placed.

We have been instructed that during the nineteenth century weight-losing industries needed to be near fuel and ore.[37] Even with railroads, transportation was costly; fuel efficiency was as yet low. In 1904 pig-iron cost 18 kopeks per pood — nearly half its f.o.b. cost — to deliver in St. Petersburg, while English coal cost only 6 kopeks per pood to get there. The Centre lacked mineral fuel.[38] There would be an obvious cost advantage to fabricating rails, sheets, and hardware in the South. Foreign capitalists, knowing the Belgian and French pattern, saw it this way, and careful siting calculations have been discovered.[39] Their Russian agents and imported metallurgists had no deep roots, and for commercial personnel these foreign firms did not recoil from using Jews from the nearby Pale of Settlement.[40] Foreign entrepreneurs — with two notable exceptions — in fact selected the low-cost site and were able to overcome the legal and labour

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[36] KHROMOV, P.A., *Ekonomika Rossii perioda promyshlennogo kapitalizma* (Moscow, 1963). By 1909 Urals' blast furnaces were producing but 453,000 poods (7420 metric tons) per year, up from 342,000 in 1900 (5602 metric tons). Yet in the earlier year Southern furnaces averaged 2,035,000 poods (33 thousand metric tons). In 1909 Southern metallurgical workers had 3.93 horsepower at their disposal on average versus only 0.33 in the Urals. Liashchenko, p. 673). The figures given by Portal, p. 830, are obviously incorrect.) However, by 1913 the modernized Nadezhinsk plant — largest and best in the Urals — got set up, and it could produce pig at some seven kopeks the pood below the Iuzov works in the South (46.85 kopeks, according to Zhigalko). Livshits, p. 254.

[37] WALTER ISARD, "Some Location Factors in the Iron and Steel Industry since the Early Nineteenth Century," *Journal of Political Economy*, Vol. LVI (June, 1948), pp. 203-17.

[38] JÜRGEN NÖTZOLD, *Wirtschaftspolitische Alternativen der Entwicklung Russland in der Ära Witte und Stolypin* (Berlin, 1966), p. 116.

[39] McKay, p. 253.

[40] *Ibid.*, Chapter V.

recruitment problems attendant there. Of 2.03 billion rubles of foreign investment, including debt, invested in Russia by 1900, 43.7 per cent was situated in the South (overwhelmingly in the ferrous metallurgy branch). Poland received 11.6 per cent, much of it from France; 12.5 per cent was placed in the Caucasus (English oil); 9.9 per cent in the North and Baltic; 10.1 per cent in Moscow; 7.9 per cent in the Urals; and 4.3 per cent elsewhere.[41] The relatively small amount of foreign investment put down in the traditional centres went to the new electrical equipment, chemical, rubber, and street-railway businesses. Here the superior skill and honesty of Baltic workers was a telling consideration. In St. Petersburg, as mentioned before, metal fabrication had prospered,[42] based on rapidly falling metal prices from 1900 on. Moscow machines were likely to be of the cheaper sort. Among provincial metallurgists, the Mal'tsev plant near Bryansk and several Siberian ones failed onces transportation became cheaply available.

Better transport also permitted a higher degree of localization in the cotton textile industry. In 1900 the Moscow central industrial area had 60 per cent of the spindles and 74 per cent of the looms; by 1912 it accounted for three-quarters of the output.[43] Pressed by competition in calicoes, Lodz specialized more and more in fustians.

Newer agricultural areas developed specialities exploiting the local raw material. Nearly all the industry of the fertile southwest had to do with food. Most notable were the sugar refineries

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[41] Recomputed from Table 9, in *ibid.*, p. 32, based on the figures of French consul Verstrate, "Les capitaux etrangères." Foreigners did invest in successful metallurgical plants in Tula and on the Kama (Urals). Cf. Portal, p. 854.

[42] Metals contributed 42 per cent of the turnover there in 1903 versus only 9 per cent in 1862. Food processing nearly stood still. P. Stolianskii, *Zhizn i byt peterburgskoi fabriki* (Leningrad, 1925), pp. 114-15, cited in Livshits, Table 29. But St Petersburg's share of machine-building was falling by 1912. *Ibid.*, Table 40, and Portal, p. 833.

[43] *Ibid.*, p. 833.

there, which had developed since the early nineteenth century despite serfdom and despite excises. Cotton ginning was already well developed by World War I in Turkestan, where the cotton acreage was apparently limited only by the capacity of the railways to bring in food. Russians owned 30 per cent of the processing factories — on average the more mechanized and electrified ones.[44] As we shall be arguing, in Turkestan, too, regional specialization benefited both center and periphery.

II. *Regional Equality*

As seen in spatial perspective, the two historical peculiarities behind regional trends in Russian conditions were that, in the first place, industrialization was accompanied by localization of several key new industries in previously backward areas and, in the second, that agrarian migration carried along by the railroads occurred within the Imperial boundaries. These peculiar expressions of common nineteenth century processes, along with a uniquely centralized past, lead us to inquire whether the usual phase of aggravated regional inequality was also modified or effaced.

Ideally one would like a partition of total inequality (relative variance) into its intra-regional and interregional components over time, when due account is taken of the shifting populations among the regions. While interregional equality is our concern here, one should recognize that over time movements in the components may offset one another. More concretely, moves from poorer peasant and handicraft areas to commercialized agricultural and industrialized districts — a possible equalizing force — might not be enough to reduce the *average* gap among

[44] Liashchenko, p. 615. By 1914 there were 852 factories, employing 21,000 workers, in Turkestan, though none had existed before the Russians' coming. V.V. Zaorskaia and K.A. Aleksandr, *Promyshlennye zavedniia Turkestanskogo kraia* (Petrograd, 1915), cited in Piaskovskii, *loc. cit.*, p. 37.

regions because even if the rich ones do not get more prosperous, they at least get more numerous. And within regions the difference among sectors may wax greater.

To illustrate the issues, let us divide the provinces of Russia into two areas. The first represents the new and older districts of large-scale industrialization and commercial farming; the other, the provinces of *obshchina*-dominated agriculture and artisan manufacturing as the characteristic activities (e.g., in the Central Agricultural Area, the West, Volga provinces).

Y^1 and Y^2	are the average incomes in the commercial and traditional areas, respectively
σ_1^2 and σ_2^2	are the income variances in the two areas
σ^2	is the overall variance
w^1 and w^2	are the population weights of the two areas, such that $w^1 + w^2 = 1$

and $Y = w^1Y^1 + w^2Y^2$ is the nationwide mean income.

Then $\sigma^2 = w^1 \sigma_1^2 + w^2 \sigma_2^2 + w^1 (Y^1 - Y)^2 + w^2 (Y^2 - Y)^2$ (1)

If Y^1, Y^2, σ^1, and σ^2 were stable and the only historical process was mobility from traditional to commercial provinces, then we might expect an inverted U-shape to overall inequality with the peak occurring when $w^1 = \frac{\sigma_1^2 - \sigma_2^2}{2(Y_1 - Y_2)^2} + \frac{1}{2}$. If we could assume that $\sigma_2^2 > \sigma_1^2$, on the basis of very wide differences in arable land and draught animals owned, then interregional mobility would make the turning point (maximal inequality) come fairly early in the industrialization. Alternatively, if the commercial-traditional gap $(Y^1 - Y^2)$ rose and then fell, we would also obtain the curvilinear result.[45]

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[45] For this discussion I am indebted to SHERMAN ROBINSON, "A Note on the U-Hypothesis Relating Income Inequality and Economic Development," *American Economic Review*, Vol. LXVI, No. 3 (June, 1976), pp. 447-50.

Within this framework, what data can we marshal to assay the interregional component of Russian inequality? Unfortunately we cannot advance any firm conclusions since we are far from having the requisite data. The Imperial bureaucracy never collected comprehensive income statistics by region for all the important classes of earners. Agricultural and large-scale factory wages, deflated by local staples prices, have not yet been pieced together from provincial council (*zemstvo*) and other records.[46] If we had such data, what would we expect to find, based on general considerations and the material which we do have at hand?

We know that during the period between Emancipation and the October Revolution, the industrialized regions of Russia did not grow significantly faster in population than did the backward regions discussed above (see Table 2).[47] Despite considerable

TABLE 2

POPULATION GROWTH OF SELECTED RUSSIAN REGIONS 1851-1926

	Multiple		
	1897/1851	1926/1897	1926/1851
Northwest	1.79	1.29	2.3
Central Industrial	1.43	1.38	2.0
South (including Donets-Dnepr)	2.04	1.43	2.9
Chernozem (black earth)	1.51	1.33	2.0
West-Belorussia	1.90	1.09	2.1
Volga	1.83	1.28	2.3
Urals	1.92	1.30	2.5

Note: Based on Soviet regional definition of 1961. 1851 figure based on male souls recorded, as adjusted by 1897 sex-ratios.

Source: Adapted from Leasure and Lewis, *Population Changes*, Table 3.

[46] ARCADIUS KAHAN, "Quantitative Data for the Study of Russian History," in VAL R. LORWIN and JACOB M. PRICE, eds., *The Dimensions of the Past* (New Haven, Connecticut: Yale, 1972), pp. 372-73.

[47] It is, of course, possible that the distruptions of the wars after 1916 have influenced the 1926 census-derived figures disproportionately. Although destruction from the Civil War was rather widespread, a substantial de-urbanization occurred between 1917 amd 1922.

immigration to areas of opportunity, natural rates of increase were much higher in traditional rural areas than in the industrializing ones. We are probably on safe ground in surmising, therefore, that shifts in the w^1 and w^2 weights of formula (1) above did *not* contribute much to any change which may have occurred in overall inequality,[48] With respect to interregional income differences, we know that substantial gross differences existed among industries and among regions. In 1881-91 the industrial provinces of St. Petersburg, Moscow, and Vladimir had reported average wages of 135-144 rubles per year,[49] but metalworkers and those employed in chemicals made much more. In 1900 the Northwest reported an average wage of 295 rubles (see Table 3) although prices there were almost unchanged; metal workers separately earned some 342 rubles.[50] This implies a 31 per cent difference in favor of the metalworkers as a group, based on 1903 labour force composition of St. Petersburg. Interregional differences could be marked. Southern metalworkers in 1900-1904 reportedly earned close to 400 rubles per year, while their Urals counterparts earned but half this.

If we examine data for 1900-1908, admittedly a short period, we do observe some tendency for the relative inequality among manufacturing workers to close. Table 3 demonstrates that the weighted absolute difference falls somewhat during this period. The cause for this greater equality may be either market integration across space or lower skill differentials. An exception to the trend is the Northwest region, where the nominal wage advantage grew on average. Conceivably the rising relative average wage may be owing to the growing specialization of the

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[48] Despite rapid growth, the weight of the "frontier" provinces was still minor.

[49] Lenin, pp. 592 ff., based on reports by S.A. Korolenko for the Department of Agricultural and Rural Industries, published in 1892.

[50] Liashchenko, p. 231; PAUL GREGORY and JOEL SAILORS, "Russian Monetary Policy and Industrialization, 1861-1913," *Journal of Economic History*, Vol. XXXVI, No. 4 (December, 1976), Figure 2, p. 841.

TABLE 3

YEARLY WAGES OF FACTORY WORKERS BY REGION OF RUSSIAN EMPIRE

	1900			1908		
	Aver. wage (rubles)	% of aver.	No. of workers (000) *	Aver. wage (rubles)	% of aver.	No. of workers (000)
Northwest	295	138	144.0	359	151	189.5
Baltic	280	131	70.4	306	129	97.9
Poland	259	122	182.3	296	109	270.2
No. Caucasus	252	118	19.9	344	145	45.8
Ukraine	246	115	98.7	207	87	295.5
Transcaucasus	244	115	13.7	292	123	27.0
All Russian Empire (including Poland-Lithuania)	213	100	1274.0	238	100	2094.2
Lithuania	203	95	23.5	236	99	29.9
North	184	86	13.4	214	90	21.4
Bessarabia	180	85	2.0	174	73	3.6
Central Industrial	177	83	557.7	208	87	745.4
Volga	172	81	53.6	181	76	80.8
Urals	162	76	28.6	207	87	158.0
West	146	69	30.2	188	79	58.0
Central Black Earth	110	52	36.0	119	50	71.1
Weighted absolute difference **		21.9%			19.8%	

Source: Adapted from Varzer and Kafengauz, see Table 1.

* Main and auxiliary workers of all ages.

** $\sum_i z_i \mid P_i - 100 \mid$ where z_i = (workers in region i) / total for year
Pi = (average wage in region i) / overall average

northern capital in high-skill industries. The eight-year period in question was a highly disturbed one, with prices rising faster than wages on the whole, and it would be desirable to have information on the prior and subsequent booms. However, we do see that manufacturing wages in the backward agricultural areas continue to lag badly (especially the Central Black Earth).

This reflects, we may presume, a stagnant agricultural productivity which overhung the labour market in those areas. Direct accounts confirm that such dualism had been the norm since the middle of the nineteenth century. In light of the data for the central agricultural, Volga, West, and Bessarabian areas in Table 3, therefore, it is quite likely that *overall* inequality *rose* owing to the increased manufacturing-agricultural wage differential up to 1908. Despite the somewhat greater interregional equality in manufacturing wages alone, the interregional difference between areas dominated by *obshchina*-agriculture and those with rising shares of factory labour would have risen. Were we to add in the disproportionate prosperity among agriculturists in frontier lands of the far South and far East — based on greater acreage per man — the likelihood becomes still greater.[51] Here, then, is the connection between manufacturing concentration and equality trends: the newer industrializing areas do better largely because of their greater participation in the high-wage sector. The older industrial areas, despite their lower manufacturing share, experience some upgrading in the skill-mix of their manufacturing (and perhaps other) workers. The stagnant agricultural areas do not attract much new industry and, as yet, do not lose population.

Had the Stolypin Reforms of 1906 and 1910 led to lower agrarian birthrates and more outmigration, another factor causing regional disparity would have come into play. Rural prosperity and stability, had they been achieved, might have offset that disparity in time. But the radically different agrarian structure after 1917 and especially 1929 precludes our checking the ultimate outcome. Russia ceases to be a case, if a peculiar one, of capitalist development.

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[51] White, Table 5; DANIEL R. KAZMER, "Agricultural Development on the Frontier: The Case of Siberia under Nicholas II," paper presented to the American Economic Association, September, 1976.

III. *Regional Policy*

The Soviet Union has attempted to move its strategic factories and population eastwards or to compensate specialists for moves to less attractive localities. The Tsarist Empire had no coordinated regional policy in this sense. But economic policy in the mid-nineteenth century and since always had regional implications — wanted, unwanted, or unperceived. Though quantitative appraisal remains beyond our reach, a qualitative analysis does not suggest any consistent slant to the favour or disfavour of particular areas.[52] Within general economic policy, three elements — railroads, colonization, and tariff — affected regional industrialization. Direct government investment in new plant diminished in import by the years preceding World War I, although military arsenal tended to be built in or near the capitals.

Railroads need have no clear bias to regional concentration or deconcentration. They should erode local monopolies and favour specialization and trade between previously isolated areas, like West Siberia. Cheaper transport could facilitate economies of scale and *urban* agglomeration, but one should remember certain factors of the Russian setting, which were conducive to deconcentration. The first lines were built for strategic purposes in the first place and secondarily for the sake of grain exports through Baltic and Black Sea ports. Their effect on market integration for grains and oil products has been demonstrated by Metzer and by Kelly.[53] Railroad density at the periphery was,

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[52] Portal states that railroad and tariff policy — at the behest of Moscow interests — worked to disfavour the periphery though "The border areas could not then provide a foundation on which industries could be built up, without authoritarian measures that overrode regional conditions." *Loc. cit.*, p. 863.

[53] Jacob Metzer, "Railroad Development and Market Integration: The Case of Tsarist Russia," *Journal of Economic History*, Vol. XXXIV, No. 3 (September, 1974), pp. 529–49; William J. Kelly, "Railroad Development and Market Integration in Tsarist Russia: Evidence on Oil Products and Grain," *Journal of Economic History*, Vol. XXXVI, No. 4 (December, 1976), pp. 908–17.

if anything, beyond the traffic potential, if one may judge by necessary subsidies. Already by 1874, the agricultural centre and west could show a line density not too inferior to that of St. Petersburg and Moscow.[54] The need to extend lines into Central Asia, the Far East, the Caucasus, and to Murmansk, even well ahead of demand, was readily accepted.[55] Again, the impetus was Imperial defense vis-à-vis competing powers establishing themselves in neighbouring countries (Turkey, Afghanistan, Persia, and Manchuria).

Moscow textile interests encouraged the extension of lines into the Fergana Valley as a way to obtain domestic cotton supply; later they participated in the forward-linking installations there which gave Turkestan its first modern industry.[56]

Railroad rates were fixed centrally by the Imperial bureaucracy from the late 1880s on — with little attention to costs. Reduced rates were set for long distances, and this undoubtedly helped Moscow industry obtain cotton and coal as well as extend its market. Longer routes have, of course, lower average ton-kilometre costs, and hence we are not entitled to conclude that this was discriminatory treatment. There were, however, instances of higher freight tariffs intended to protect certain regions. The famous " Cheliabinsk break " imposed a high rate on Siberian grain passing that southern Ural rail junction in order to protect central grain-producing areas. Polish goods suffered from high charges for Caucasian and Central Asian destinations, according to one source. Whether these arrangements were unjustified economically has not, to my knowledge, been conclusively shown.

Long-distance rail rates were considered a kind of protection

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[54] WHITE, " Impact of Russian Railroad Construction," Table 5, based on I.S. BLIOKH, *Vliianie zheleznyk dorog na ekonomicheskoe sostoianie Rossii* (St. Petersburg, 1878), Vol. I, Table XIX, p. 99. The Urals were poorly served, though.

[55] D. SPRING, " Railways and Economic Development in Turkestan Before 1917," in SYMONS AND WHITE, *Russian Transport*, pp. 46–74.

[56] PORTAL, *loc. cit.*, p. 835.

for domestic industry employing Russian Empire materials. Import tariffs were another, more powerful if less enduring, instrument used for that end. But here again the regional purpose was subordinate to others. When duties jumped during the 1880s — culminating in the rigorous Mendeleev tariff of 1891 — the chief aim was to raise revenue. Imported raw materials were liable to high rates, just as most fabricated goods.[57] Polish metallurgy, which had enjoyed a low rate on pig-iron from Silesia for some time, now found itself disadvantaged. Similarly, higher scheduled rates on *overland* cotton imports from 1887 hurt Polish textiles, considered "foreign" among Moscow competitors, just then suffering from weak demand.

Such evidence has prompted Portal to conclude: "So the protectionist policy was harmful to some, and in general to the manufacturing industries of the peripheral districts."[58] Among the "peripheral" districts, St. Petersburg suffered, too, just as it had benefited from the liberal import of raw materials and machinery from 1850 until the 1880s. Moreover, while protection was maintained, its egregious anti-German elements abated by 1894. Quickening orders meant that Polish industry constituted a threat no longer; so for the rest of our period we hear little complaint of the regional consequences of protection. Administrative orders favored domestic supply of rails, yes, but all producing regions seemed to share in the assistance. In fact, the tariff may eventually have helped Sosnovic coal and metal producers to compete with Silesian imports and have braced Warsaw machine-building to hold off foreign competition.

Russian chauvinism exhibited itself also in the Empire's colonization policy. Despoiling the Siberian steppes and other Asian areas by tribute, tax, plunder, land seizure — that is denied

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[57] Arcadius Kahan, "Government Policies and the Industrialization of Russia," *Journal of Economic History*, Vol. XXVII, No. 4 (December, 1967), pp. 460-77; Liashchenko, p. 558.

[58] Portal, pp. 816-17.

by no one. Yet here, too, policy turned in unexpected directions. In Turkestan one governor-general, Samsonov, refused to permit new cotton plants, which could compete with Moscow's higher-paid workers. Eventually, though, the Russian overlords realized that such plants could undersell Great Britain in the Persian and Afghanistani markets and hence serve the *Imperial* interest. Not without reward had Kirgiz and Kazakh commercial classes welcomed Russian penetration.[59] German artisans had been induced to settle in Poland so as to offset Polish nationalism, but in the course of time they helped Warsaw and Lodz textile industries.

Natural resources are situated where Allah wishes; they are found when men choose. Needing revenues and resources, the Russian authorities had to give concessions for Baku (Azerbaijani) oil and Ukrainian coal. When these finds were on Russian landlords' holdings, it was all the easier. Established proprietors might and often did object to opening new areas, but exploratory work went forward. Despite Soviet denials, the Kuzbass coal resources were surveyed in 1913-17 with an eye to replacing dwindling Moscow area seams.

So while Moscow interests were vociferously invoked, Imperial interests often predominated at the last. This was possible in part because private regional interest groups, like the trusts (really sales organizations), never could extend their dominion over competitors in other regions. If Moscow's cotton syndicate made claims, St. Petersburg or Lodz had counter-claims. The Imperial bureaucracy, or forces of competition, decided. When its values were at stake, the Imperial bureaucracy could block or delay certain initiatives. Turkestan cotton plants and certain rail lines were examples. From the earliest period, the Tsar's ministers had feared urban concentration, the social basis for 1789 and 1848, as they believed. To all appearances, however, the Tsarist bureaucracy had no positive regional policy. Count

[59] Liashchenko, Chapter XXVI.

Witte did not.[60] It is doubtful whether lesser officialdom had the concepts or steadfastness for that. Industrial subsidies were expensive, detested by the bourgeoisie, and quite likely unnecessary, since market forces were pushing towards industrial deconcentration in any event. Undoubtedly more could have been done sooner, as Liashchenko says, but that would have required a Bolshevik-like order.

IV. *Concluding Remarks*

Tsarist Russia is an important instance of early capitalist industrialization in which some — but not all — of the themes sounded by economists and social observers of regional development elsewhere have echoed. Contrary to Myrdal, Holland, and Portal, we did not find Russia during 1854 to 1914 to be characterized by cumulative concentration of preexisting growth centers, but rather a relative deconcentration to new, secondary growth areas. Among the Marxist writers, Lenin seems most accurate on this matter. Such a finding does not mean, however, that Russia by 1914 was on the descending leg of the inequality wicket, despite some apparent equalization in the manufacturing sector. Market integration may have contributed to these results. True, bureaucratic centralization reasserted itself during the World War and aggravated a regional layout which encumbered the war effort and Tsarist rule in the capital cities with inadequate transportation.[61] Early and late the bureaucracy had served what

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[60] THEODORE VON LAUE, *Sergei Witte and the Industrialization of Russia* (New York: Atheneum, 1963). Witte's support for extending a rail line to and for settling Siberia was incidental to political-strategic considerations and was not related to an overall regional scheme.

[61] Lengthening bread queues in Petrograd, with rapidly rising prices there, were an "important contributing factor" in the February revolution. E.H. CARR, *The Bolshevik Revolution 1917-23*, Vol. II (Baltimore: Penguin), p. 55; Liashchenko, pp. 773-75.

may be termed Imperial interests in building railroads, imposing tariffs, and settling colonies. That sometimes required ignoring the cries of the established bourgeoisie. Ironically, and perhaps fatefully, the state's servitors did not take into open account the Imperial interest in regional integration and defensability — not, that is, until the Bolsheviks inherited the diminished patrimony.