

# MORE SHOCK THAN THERAPY: Market Transition, Employment, and Income in Russia, 1991-1995<sup>1</sup>

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Everything the Communists told us about communism was a lie.  
Everything they told us about capitalism turns out to be true.  
—Popular Russian joke, c.1996

## Abstract

We assess 14 predictions from market transition theory using survey data on employment, earnings, and income in Russia, during the first five years of market reform. Although the private sector has grown, self-employment is still rare. Incomes are down, and unemployment is up. Some entrepreneurs and managers have achieved dramatic success, while most Russians have steadily lost ground to hyper-inflation. The upshot is a distended income distribution and unprecedented income inequality. Distinctive features of late Soviet-era stratification persist: low returns to education, a gender gap in earnings, and low earnings among professionals. The Russian market transition offers more opportunity in trade, consumer services, and speculation and fewer in manufacturing than do other emerging markets. This dynamic corresponds to the image of “merchant capitalism” and contradicts the predictions of market transition theory.

## INTRODUCTION

Most state socialist countries in Europe and Asia adopted sweeping market reforms during the 1980s and 1990s. Victor Nee took note of how these reforms usually seek to weaken the tie between the state and the economy and proposed a broad theory of how market transition alters social stratification (Nee 1989, 1991, 1996; Nee and Cao 1996; Nee and Matthews 1996). Generalizing from their research in China, Nee and his associates developed a general market transition theory that emphasizes the role of private firms and individuals in making markets within a (formerly) socialist redistributive system. The key dynamic in market transition theory occurs as the state withdraws and alternative paths to economic success open. Key propositions of the theory include: (1) Market opportunities enhance returns to both education and entrepreneurial initiative; (2) market transition diminishes the rent-like advantages political elites derive from their redistributive power. On balance, inequality due to rising returns to human capital and initiative is offset by decreased inequality on the basis of political capital.

Market transition theory is controversial. Some scholars see less individual opportunity in China. Communist Party members continue to earn more than others, as do managers who hold redistributive power (Bian and Logan 1996; Xie and Hannum 1996).<sup>2</sup> Persistent effects do not imply that the Chinese economic system is static. As Parish and Michelson (1996, p. 1056) conclude, “... in the Chinese

countryside there is both considerable market and politically induced flux, with many individuals seeking fame and fortune through nonadministrative channels and new types of administrators rising to the top; at the same time local administrators have considerable opportunity, particularly in more marketized and corporatized areas” [our emphasis]. These findings are consistent with Walder’s (1994) observation that reform can often provide incentives within the sphere of public ownership, at times more effectively than relying on privatization can.

Outside of China, market transitions have varied in their pace, strategy, results, and political context (see Brada 1996, Murrell 1996). Generalizing from China’s experience carries some intellectual risks. Rona-Tas (1994) concludes that the transition in Hungary offers few opportunities for individuals who lack organizational resources; he characterizes the changes as “power conversion” or “technocratic continuity.” Stark (1996) notes that public and privatized managers equally seek to manage risk, resulting in networks and organizational forms he calls “recombinant property forms.”

The course of economic change in Russia is, without doubt, relevant to these debates. Considering Russia’s vast size, economic and military power, and historical status as the birthplace of state socialism, general conclusions about the impact of market reforms on the magnitude and mechanisms of socioeconomic inequalities must take account of Russia. But, to date, discussions of market transition theory have not included systematic analysis of the Russian case.

When the federal government implemented radical economic reforms in January 1992, Mr. Yeltsin promised to raise Russians’ standard of living. Experts – both foreign and domestic – predicted that “shock therapy” would displace people for a short time but lead to growth before long (Sachs 1992). Press reports of declining living standards and the electoral success of a resurgent Communist Party in 1996 cast doubt on the success of market reforms. Thus, employment and income trends in Russia are basic social indicators valued as much as political harbingers as data for testing theory.

Using five surveys spanning from February 1991 to January 1996, we analyze trends in employment, earnings, and the mechanisms of income stratification over the course of the Russian market transition. Our results show that there has been more shock than therapy in post-Soviet Russia. Although the private sector has grown, self-employment is still rare. Incomes are down and unemployment is up. Some entrepreneurs and managers have achieved dramatic success, while most of their compatriots have steadily lost ground to hyper-inflation. The upshot is a distended income distribution and unprecedented income inequality.

Distinctive features of late Soviet-era stratification persist. Returns to education have diminished and professionals remain relatively disadvantaged, particularly in the private sector of the economy. Stratification by place of residence and by economic branch have increased. The gender gap in earnings remains greater in the private sector than in the public sector. The emerging pattern of stratification is consistent with the specific path taken by the Russian market transition: trade, consumer services, and short-term profit-making have been emphasized at the expense of production, public services, and long-term investment – a dynamic corresponding to the image of “merchant capitalism” (Burawoy and Krotov 1992). The impact of market transition on the stratification is path-dependent and cannot be deduced from market institutions: country-specific trajectories previous to and during the transition are decisive (Walder

1996). Market transition theory does not help us anticipate or explain these developments.

## HISTORICAL BACKGROUND: ECONOMIC REFORMS IN RUSSIA

In the latter years of the Soviet era, Gorbachev tried to reform the Soviet system from within. His economic reforms were half-hearted, inconsistent, and poorly implemented (Goldman 1994; Aslund 1995, Ch. 2). Perhaps the most significant steps were the May 1987 Law on Individual Labor Activity, which paved the way for individual and cooperative private enterprise, and the May 1988 Law on Cooperatives, which removed many restrictions on cooperatives contained in the first law. These measures quickly led to a burgeoning cooperative sector and a rise in individual contract work (Jones and Moskoff 1991). But regulations still prohibited coops from hiring labor or owning the productive assets they used. Additional legislation removed these in Russia during 1990, and the right to private property in productive assets was established by 1991 (Aslund 1995, pp.223-6).

The Soviet Union collapsed soon after the failed August 1991 coup. Yeltsin ended Communist Party control of the state and economy. The Soviet economic system had been built upon central administration, state ownership, and cradle-to-grave security. In January 1992 the Yeltsin government introduced a package of “shock therapy” reforms designed to abruptly replace the state socialist economy with market institutions and practices. Since that time, many rudiments of a market economic system – including free prices and trade, legalized ownership of productive assets, enterprise autonomy, and bankruptcy – have replaced pervasive controls, restrictions, and boundless state subsidies. The Russian economy of 1996 differs dramatically from the Russian economy of 1991, even if reforms have been fitfully implemented and some features of the Soviet economy persist.

The January 1992 reforms freed ninety percent of retail prices overnight; most remaining prices followed in the ensuing months. Directives and legislation rapidly liberalized trade and exchange rates, cut the state budget (reducing defense expenditures by 68 percent), curtailed subsidies, and established provisions for enterprise bankruptcy. The shock of price liberalization induced inflation. The Central Bank’s loose monetary policy spurred it on to hyper-inflation. A wage-price spiral ensued. Prices increased 1,100 percent during 1992. Wages kept pace with that inflation according to official statistics on mean monthly earnings (“Sotsial’no-ekonomicheskoe ...” 1993), although our data cast doubt on the official numbers. Cash shortages and the diminished real value of state subsidies led to the so-called “arrears crisis” of the summer of 1992, when some enterprises could not pay for goods delivered to them and suppliers could not meet their payrolls. Many enterprises found they could not pass the rising costs they were facing down the production chain. They had no alternative but to curtail output. The economy contracted. GDP declined by 18 percent in 1992, 12 percent in 1993, 15 percent in 1994, and 4 percent in 1995 (“Sotsial’no-ekonomicheskoe ...” 1993a, 1993b, 1994, 1996). By January 1996, the Russian economy was only three-fifths as large as it had been just four years earlier. Investments declined by almost half in 1992, by 12 percent in 1993, 23 percent in 1994, and 13 percent in 1995. Unemployment rose from almost zero at the end of 1991 to approximately 7 percent of the labor force by October 1995 (Aslund 1995, p. 278; “Sotsial’no-ekonomicheskoe...” 1996, p.76). Involuntary furloughs and delays in payments of wages and salaries also became endemic, and remain so today (Perova 1996).

Macro-economic stabilization still eludes Russia's grasp. Inflation remains at a rate that few Western states would tolerate (though below its 1992 rate). Liberalization remains official policy, but some government intervention has been unavoidable. The federal government grants emergency credits to large enterprises on the brink of failure. It attempted to control wages via "excess wage" taxes. Some local governments intervened to control prices. But the basic principles of liberalization remain intact. The state now considers intervention in the economy only when emergency circumstances warrant.

Some indicators are actually positive. The supply of consumer goods has increased, the private sector is expanding rapidly, and personal services are now available (Aslund 1995; OECD 1995). The military consumes fewer resources.

Privatization complements stiff monetary policy. The plan to transfer ownership and governance of economic enterprises from the state into private hands was designed in 1992 and mostly implemented by June 1994. By that time over 75 percent of small-scale enterprises were privatized through direct competitive bidding or lease buy-outs. Another 49,000 medium- and large-scale enterprises, forming 60 percent of industrial assets, had completed or were undergoing "mass" privatization (OECD 1995, p.77).<sup>3</sup>

Control changed less than ownership did. In most cases, managers gained control over the enterprises they ran during the Soviet era. Some management teams acquired full ownership. More often, where the work collective as a whole obtained the majority interest, managers retained de facto control (Webster 1994; Boycko et. al. 1995, ch.5; OECD 1995, ch.4). Managerial control has led to accusations of corruption and raised the potential for asset-stripping (Intriligator 1994; Rutland 1994). While these scandals have produced headlines, on the ground inertia has been more of a problem. Managers in privatized firms resist market-oriented behaviors (Kharkhordin and Gerber 1994; Webster 1994; Blasi, Kroumova, and Kruse 1997). Few consider dismissing workers to be a legitimate way of cutting costs; most accede to wage and other demands from workers. Their response to economic pressures is to bargain with suppliers and to secure payment from customers (Boycko et. al. 1995, ch.5).

Privatization has changed ownership. By the end of 1994, 65 percent of officially registered state and municipal enterprises were transferred to private ownership (Aslund 1995, p.273). Surprisingly few new private enterprises opened for business – probably due to barriers posed by criminals and corrupt officials (Aslund 1995, p.263). Nonetheless, the rapid creation of a large private sector represents a significant transformation of the Soviet economy.

## MARKET TRANSITION THEORY AND THE NEW RUSSIA

Under the Soviet system, central authorities prescribed wage ranges for all ranks of all occupations. Wage policies were decidedly egalitarian – especially from the late 1960s onward – in contrast to prevailing patterns in market economies (Connor 1979; Flakierski 1993). Such inequalities as there were tended to be based on economic branch or regional differences (Zaslavsky 1982). Employees of all ranks in defense and heavy industry, for example, received higher wages than their counterparts in light industry or services. Managers enjoyed higher wages than other categories of workers according to localized Soviet surveys of the 1970s (Yanowitch 1977; Connor 1979). Human capital mattered little; skill differentials

played a role in earlier periods, but by the late 1980s the average wages of manual and nonmanual employees were barely distinguishable (Connor 1992). Gorbachev used the absence of rewards for skills as a justification for perestroika.

Education accounted for only small differences in earnings: in the Russian Federation in 1989, those with a university (VUZ) degree earned on average only 17 percent more than those with a secondary school diploma, and only 42 percent more than those with no education at all (Flakierski 1993, p.39). Soviet women on average earned only slightly more than 70 percent of men's wages in 1984, 1989, and 1991 (Flakierski 1993, p.34; Gradolph 1994). In sum, the Soviet system of wage distribution was characterized by unusually low returns to education and human capital and unusually high returns to privileged economic branches and regions. Managerial compensation and gender differentials were comparable to those in the West.

Nee's market transition theory posits two principal outcomes of market reform: rewards to factors that enhance productivity, especially entrepreneurial initiative and education, are enhanced, while rewards to political position (redistributive power) are reduced (Nee 1989, 1991, 1996; Nee and Matthews 1996). Together, these offsetting developments should result in little change in the overall level of economic inequality, at least initially.

Much of the debate over market transition theory concentrates on the proposition regarding returns to redistributive power, operationalized as the hypothesis that the income advantages of cadres diminish as market penetration increases (Nee 1991; 1996; Rona-Tas 1994; Bian and Logan 1996; Parish and Michelson 1996; Walder 1996). This issue is less germane to post-Soviet Russia and the other "capitalist oriented economies" in Eastern Europe (Szelenyi and Kostello 1996). After the collapse of the administrative economic system, former cadres may well have special access to entrepreneurial opportunities due to their embeddedness in social networks (Rona-Tas 1994) or their technocratic qualifications (Szelenyi and Kostello 1996). But these advantages cannot be based on power positions within the redistributive system, since the redistributive system as such no longer exists. Thus, Nee's "declining-significance-of-redistributive-power" thesis might apply to developments during the Gorbachev era when the administrative system remained intact, but is irrelevant to developments in Russia since January 1992.<sup>4</sup>

Hypothesis 1: Market transition increases returns to education.

Nee's thesis regarding returns to education does apply to post-Soviet Russia. Nee reasons that in contrast to administrative systems, markets directly reward individual productivity by permitting producers to bargain over the price of their labor or product: "This is likely to be reflected in higher returns of education, which is among the best indicators of human productivity"(Nee 1989, p.666). This hypothesis implies three predictions regarding the returns to education in post-Soviet Russia:

H1A: The total effect of education on earnings in Russia increases from 1991 to 1995.

H1B: At any given time, the returns to education in the private sector of the economy exceed

the returns to education in the state sector.

H1C: The returns to education in the private sector in 1995 exceed the returns to education in the private sector in 1991.

“Market transition theory turns on the extent to which markets replace hierarchies in the allocation of resources”(Nee 1991, p.268). Returns to education should increase as product and labor markets become more firmly entrenched and privatization advances. Have they? The breakup of the Soviet state removed the backbone of the administrative system, but a fully-functioning market economy did not immediately arise to take its place. While exchange of products and labor became formally free, structural barriers remained. Moreover, privatization was implemented only gradually. So one of the initial conditions of market transition theory is not completely met in Russia. That noted, it is also important to recognize that Russia moved away from hierarchy and toward markets throughout the first five years of the post-Soviet era.

Like private firms, state enterprises are forced to operate in increasingly market-like conditions with the collapse of the administrative system. However, the fortunes of state enterprises may still depend on processes of political bargaining for state credits and subsidies rather than on profits and losses. Therefore, there is less incentive to link individual productivity to wages. The returns to education should be greater in private firms.

As discussed above, the privatization of an enterprise may not lead immediately to restructuring. But with time it may be expected that management in private enterprises must reorient decisions, including decisions regarding pay schedules, toward market criteria (Murrell 1996). If the time elapsed since privatization of state firms is positively associated with increased returns to education, the overall returns to education within the private sector should increase with time.

Hypothesis 2: Market transition decreases differences between men and women.

Market transition theory follows usual claims that markets reward individual productivity. From this general proposition (and their observations in China) Nee and Matthews (1996, p. 428-429) derive the proposition that the gap between men’s and women’s wages will narrow “the more extensive the shift to markets and the higher the rate of economic growth.” If the two conditions are additive, i.e., if market transition can affect the gender gap in wages in the absence of economic growth, then market transition theory implies a falling gender gap in Russia, too. It also implies that returns to productive assets, especially education, will become similar for men and women.

H2A: The total effect of gender on earnings in Russia is less in 1995 than it was in 1991.

H2B: At any given time, Russian women’s earnings are closer to Russian men’s in the private than in the state sector.

H2C: By 1995 women’s returns to education should approximate those of men in the private sector.

Hypothesis 3: Proprietors benefit from market transition.

The more widespread and firmly embedded market institutions become, the more secure and advantageous the opportunities they provide entrepreneurs.

H3A: Proprietors' absolute incomes rise from 1991 to 1995.

H3B: Proprietors' incomes rise in comparison to employees' wages from 1991 to 1995.

Hypothesis 4: Managers benefit from market transition.

Curiously, all sides in the market transition debate have ignored managers as a distinct group, despite their obvious importance in the political economy of both pre- and post-transition. The silence may stem from the ambiguity of managers' dual position in state socialism, which combined elements of both "cadre" and "entrepreneur."<sup>5</sup> While acknowledging the complexity of the issue – to which we cannot do justice here – we derive two predictions that parallel those for proprietors for heuristic purposes.

H4A: The absolute earnings of managers in the private sector rise from 1991 to 1995.

H4B: Private-sector managers' earnings rise in comparison to the earnings of public-sector managers from 1991 to 1995.

Our reading of market transition theory predicts a shakeout of managers who owed their position and high earnings mainly to their political capital (cadre status) under the old system. The dissolution of the redistributive apparatus should remove the principal positional basis for the high earnings of such managers. On the other hand, many managers developed proto-entrepreneurial skills in the Soviet system – bargaining, brokering, administering operations, etc. Market transition should enhance the rewards accruing to managers who deploy these skills – not to mention their education and social capital (contacts) – to raise their firm's productivity. Thus, some managers should experience decreased earnings and others increased earnings, with the likely net result being little aggregate change in managerial earnings in the state sector. However, in the private sector, market transition theory predicts a more rapid incarnation of a managerial labor market, leading to faster bidding up of managerial salaries than in the state sector.

Hypothesis 5: Professionals benefit from market transition.

As in China (Walder 1995), professionals were the most disadvantaged occupational group in the Soviet Union relative to their Western counterparts. For this reason, many thought they were the social group most likely to oppose the Soviet system (Parkin 1971), and by most accounts they provided the largest pro-reform constituency during the Gorbachev era (see Gerber 1995, ch.2). Markets should reward their expertise. Professionals' gains in income should exceed those of other highly-educated persons who do find employment that is not as closely associated with their credentials.

H5A: The gap between professionals' earnings and those of unskilled workers increases from 1991 to 1995.

H5B: By 1995, professionals' earnings advantage over unskilled workers in the private exceeds that than in the state sector;

H5C: Professionals' earnings increase faster in the private sector than in the state sector.

Hypothesis 6: Market transition increases returns to manual skill.

Manual skill is another form of human capital that enhances productivity. Therefore, the same logic should apply to manual skill that applies to returns to education: more skill should lead to higher earnings.

H6A: The gap between the earnings of skilled manual workers and unskilled workers increases from 1991 to 1995.

H6B: Skilled workers' earnings advantage in the private exceeds their earnings advantage in the state sector.

H6C: Skilled workers' earnings advantage in the private sector increases from 1991 to 1995.

An important caveat to this kind of application of Nee's theory is its reliance on inference instead of observation. The theory is powerful because it predicts individual-level patterns. But without direct observation of firms in context, we can neither be sure that marketization is fully in force in Russia nor that the proposed mechanisms are the actual causes (Guthrie 1997).

## INCOME INEQUALITY IN RUSSIA: PREVIOUS RESEARCH

Highly aggregated official Russian data show falling real wages (as nominal pay hikes fail to keep pace with inflation), increasing proportions of the population living below the official poverty line, and surging income inequality (see, e.g. Samodorov 1992; "Sotsial'no-ekonomicheskoe..." 1994, p.62; Osipov, Levashov and Lokosov 1995, pp.32-33). But these aggregate data hint at more than they reveal about how wealth and poverty are allocated.

The few existing analyses of post-Soviet stratification have produced inconclusive or contradictory results. One study finds that "intellectuals, managers of various ranks, highly skilled specialists...businessmen, entrepreneurs, or, more broadly, the self-employed population" enjoy the highest earnings in the new environment, while unskilled workers, pensioners, the unemployed, agricultural workers, and, lately, skilled workers face drastically lower incomes (Khakhulina and Tucek ([1995] 1996, pp.28-39). Yet others claim that many groups of professionals, particularly scientific-technical workers and academics, are among the biggest losers (Anurin 1995) or that the "mass intelligentsia" share the poverty of unskilled agricultural and manual workers (Zaslavskaja ([1994] 1995). Yet elsewhere in the same article Zaslavskaja ([1994] 1995, p.34) states: "A typical representative of the affluent stratum of Russian society is a male, 30-40 years old, who has completed a higher education, has



high professional qualifications, and is involved in intense professional activity.” Most studies are merely descriptive. Researchers have described the composition of the poorest (Samodorov 1992, Mroz and Popkin 1994) and wealthiest (Kryshtanovskaia [1994] 1995) groups.

The absence of multivariate analysis frustrates any attempt to draw inferences. We cannot tell whether Zaslavskaja’s “typical representative of the affluent stratum” owes his affluence to his maleness, his youth, his education, his occupation, or his employment in the private sector because her summary refers to a series of bivariate comparisons. Furthermore, these studies tend to focus on data gathered at one moment in time.<sup>6</sup> In the volatile setting of the transition economy, multiple data points must be considered to distinguish steady patterns from transient developments. Moreover, to assess whether reforms have altered employment and income patterns, we must compare post-Soviet results with a pre-reform baseline.

## DATA AND METHODS

We analyze data from five surveys, conducted in February 1991, February 1992, March 1993, July 1994, and January 1996. These data permit us to track developments in employment patterns, income levels, and income differentials over the reform period from January 1991 to December 1995 and to evaluate the hypotheses implied by market transition theory. The 1991 data were gathered as part of a collaborative effort of (then) Soviet and American researchers in connection with the Comparative Class Structure and Consciousness Project (“class project” for short). The Institute of Sociology in Moscow supervised data collection.<sup>7</sup> The 1992 data were collected by the Moscow-based All-Russian Center for the Study of Public Opinion, widely known by its Russian acronym, VTsIOM, as part of the 1992 International Social Survey Programme (ISSP). The remaining data sets were also collected by VTsIOM as part of a continuing series of monthly “omnibus” economic surveys initiated in March 1993.<sup>8</sup>

Each survey drew a multi-stage stratified cluster sample of a target population. The 1991 class project study limited the target population to European Russia. The remaining surveys sampled most of the Russian Federation; they excluded only war zones and the most remote settlements.<sup>9</sup> Some of the contrasts between the Soviet and post-Soviet periods found in our data may be artifacts of differences between the European Russian population and the population of the entire Russian Federation. However, we doubt that these differences are great enough to distort our comparisons, and we address the major source of potential distortion by weighting the data sets by demographic variables. The VTsIOM data sets came with weights to correct for discrepancies between sample distributions and the most reliable official statistics on education, gender, age, and type of residence. We devised similar weights for the class project sample. We use the weights in all of our calculations reported here so that we can rule out random fluctuations in demographic composition across samples as the source of the changes we observe.

The variables in our analysis include respondents’ demographic characteristics (education, gender, age, type of residence), employment variables (current employment status, employment in the state or private sector, branch of the economy in which currently employed), occupational class (based on primary occupation), and earnings from primary occupation in the month preceding the survey. Because

the surveys were not designed to be comparable, we had to standardize several of our measures across disparate coding schemes (especially occupation, economic branch, and region; see Appendix).

Demographic variables exhibit only minor variations across samples, as shown in Table 1. This reflects the influence of our weights. Trends in workforce status capture the growth of unemployment and nonemployment following the onset of market reforms (Mikhalev 1996).<sup>10</sup> Our data document the steady growth of the private sector during the course of the reform period, as well as the growth of services, the most dynamic branch in the new Russian economy (OECD 1995, p.5).

[Table 1 about here]

The educational summary measure “years of schooling completed” fails to capture the complex credentialing and vocational preparation that constitutes secondary and higher education in Russia. We use a set of discrete categories to capture the most important types of educational outcome in the Soviet educational system (see Gerber and Hout 1995): a degree from an institution of higher education (or “VUZ” – the Russian acronym for “higher educational institution”); complete secondary (combining “general” secondary and “special” secondary, the latter having a more technical component); vocational (“PTU” and “FZO,” both designed to impart manual skills); and less than secondary (none of the above).

To classify occupations we modified the widely-used Erikson-Goldthorpe (1992) schema to our purposes. Because of our interest in the role of managers in Soviet and post-Soviet Russia, we separate managers into their own class (we had to combine upper and lower managers due to lack of data on size of enterprise) and treat all proprietors as a separate class. After preliminary analyses showed no income differences between the upper and lower professional occupations, we eliminated the distinction.

The class distributions are fairly stable across the five data sets. The 1991 data contain a larger proportion of managers and agricultural workers and a smaller proportion of skilled manual workers than most of the remaining samples. Reforms may well have depleted managerial ranks, although coding inconsistencies (see Appendix) and the 1991 focus on European Russia may also be factors.

The most revealing occupational data in Table 1 are the numbers for proprietors. The self-employed remain a trivial segment of the Russian labor force – less than two percent of the currently employed sample – throughout the early 1990s. Apparently, privatization has created far more collective and institutional owners in the Russian economy than individual owners. New private enterprises remain a rather insignificant economic element. Aslund (1995) corroborates the sluggish development of new private enterprises in Russia, particularly striking in comparison to Eastern Europe. He attributes the slow pace to obstacles imposed by criminals and corrupt officials (Aslund 1995, p.263). That might be part of it, but legal obstacles including license requirements and tight credit should not be ruled out (Burawoy and Krotov 1992).

Our hypotheses suggest that the effects of education, class, gender, residence type, and branch on earnings covary with the accomplished level of market transition. We operationalize the “accomplished level of market transition” as the amount of time elapsed since February 1991, measured in years. This measure is less than perfect because it imposes linearity on a multidimensional and somewhat sporadic process. Nonetheless, approximating the growth of market institutions in Russia from early 1991 through

the end of 1995 by using a simple straight line is intuitively satisfactory, particularly given the timing of the subsequent data points. January 1992 saw the introduction of the Russian government's stabilization program, in effect compressing an entire year's worth of reforms into the month preceding the collection of our second data set (in February 1992). Then the privatization program was initiated and began to show results by March 1993. Privatization continued apace through our July 1994 data point and through January 1996. Although the pace of privatization decelerated during 1994 and 1995 (see "Sotsial'no-ekonomicheskoe..." 1996, p.80), by this time previously privatized enterprises would be getting market cues regarding how well they were doing.<sup>11</sup>

[Table 2 about here]

The composition of each class by gender, education level, and economic branch changed little in five years (Table 2). Professions, the upper and lower routine non-manual occupations, and the ranks of technicians and foremen have a higher proportion female than does the labor force as a whole. Men are over-represented among managers, proprietors, and skilled and unskilled manual workers. This pattern of gender segregation is familiar (Charles 1992). University degrees are not as widespread in Russia as they are in the United States and some other developed countries; compare the 15 and 16 percent estimates in our data with the 30 percent in the United States (Mare 1995). The professions and management have many VUZ-degree holders. Very few service and blue-collar workers have VUZ degrees. Professionals are highly concentrated in the "cognitive" branches of the economy (education, health, science, culture). The few proprietors are concentrated in the "service" branches (trade, services, and insurance). These activities require little capital compared to the prerequisites of starting up a manufacturing enterprise. Consequently, they have produced more visible results than manufacturing has during the first five years of reform.

Our analysis consists of two steps. First, we present and discuss trends in employment and earnings found in our data. In addition to the aggregate trends, we examine the group-specific marginals to see how different groups have fared in the transition process. The trends in our data provide an important empirical baseline, since descriptive results in this form have not been presented elsewhere. We then turn to multivariate regression analyses in order to test our hypotheses regarding the determinants of earnings more directly.

## TRENDS IN EMPLOYMENT

Since the emergence of coops in the late Gorbachev era, the private sector has promised the greatest opportunities for Russians to improve their economic position. Our data show that independence from the state sector has worked to some peoples' advantage. At the same time, the appearance of significant unemployment means that other Russians have lost out in the transition process. The old system insisted on full employment and the new system has yet to provide realistic unemployment benefits (Mikhalev 1996).

[Table 3 about here]

## Private Sector Employment

Proprietors all work in the private sector by definition. But they are a surprisingly small fraction of the labor force (less than 2 percent). Managers and routine nonmanual employees moved into private sector employment most rapidly (or held their jobs at enterprises that became privately held). Though managers' private sector employment rate did not grow quite as rapidly as the overall rate, it stood 50 percent higher than the overall rate by January 1996. Professionals, in contrast, still tend disproportionately to work in the shrinking state sector, as do technicians and unskilled workers. Skilled workers remain close to the overall rate of private sector employment in each period. These patterns suggest that ownership change is a more important source of change than individual mobility from state-run firms to privately held ones.

We have some evidence of private firm formation. Younger cohorts of workers have been more likely than their elders to work in the private sector, and the gap between younger and older workers increased over time. The two "capital" cities (Moscow and St. Petersburg) have consistently offered more private sector opportunities than other places, and private sector employment has remained lowest in rural areas. Finally, private sector growth has been most rapid by far in the services: by July 1994 over half the service employees were in converted and new private firms or organizations. This helps explain the increasing private sector employment of the upper routine nonmanual occupations, which include agents and representatives in various commercial and service industries. In contrast, the "cognitive branch" (education, science, health, and culture) and "state financial branch" (public/private organizations; finance) have remained under state ownership, resulting in a low level of private sector employment among professionals.

## Unemployment

We use the U.S. definition of unemployment; the unemployed have no job at present and are looking for work (Table 4). Unemployment afflicts the least educated Russians and youth. By the beginning of 1996, unemployment ranged from 20 percent among those with less than a secondary school diploma to 5 percent for college graduates and from 22 percent of 18-25 year-olds to 9 percent of those over 55 years old. Note though that involuntary retirement probably masks some unemployment among out-of-work 55 to 64 year-olds; unfortunately, our data do not distinguish between voluntary and involuntary retirements.

[Table 4 about here]

At the outset of the reform period, women were much less likely to be unemployed than men. One possible explanation is that jobless women were quick to simply withdraw from the labor force. As incomes have fallen, staying at home has become a luxury many cannot afford, and women's unemployment has caught up with men's in recent years. Unemployment in rural areas, initially only a fraction of that in the capital cities, quickly caught up with and overtook urban unemployment by mid-1994.

## FALLING EARNINGS / GROWING INEQUALITY

Official data show how inflation has eroded Russians' earnings since prices were liberalized in January 1992 (Table 5). According to our inflation index, calculated as the cumulative changes since January 1991 in the Aggregate Consumer Price Index (Svodnyi Indeks Potrebitel'skikh Tsen) reported by the State Statistical Committee (Goskomstat), prices increased by a factor of 4,363 from January 1991 through December 1995.<sup>12</sup> During the same period, the officially reported mean nominal wage increased by a factor of 1,628, indicating a severe decline in real wages as prices rose four times faster than the average wage. The most dramatic decline in real wages occurred immediately following the price liberalization of January 1992. Following the initial shock, real incomes declined more slowly in 1993 (the February 1993 mean represents a temporary rebound) and in fact grew somewhat during the course of 1994, only to decline once again in 1995, according to Goskomstat sources (OECD 1995; Goskomstat 1996).

[Table 5 about here]

Throughout our study, we report wages in January 1991 rubles (nominal wages deflated by the inflation index).<sup>13</sup> Our sample income statistics show patterns similar to the official aggregate data. The 559 percent increase in mean nominal wages between our February 1991 and February 1992 samples masks a decline in mean real wages to 65 percent of their February 1991 levels. By February 1993 real wages had recovered somewhat, consistent with official data, but our July 1994 sample shows a renewed decline, followed by a sharper decline through December 1995. According to our data, then, the average earnings of Russians decreased by approximately 49 percent from January 1991 to December 1995. If anything, our data understate the overall decrease (63 percent according to the official data reported in Table 4).<sup>14</sup>

Most Russians experienced a substantial decline in their real wages during the market transition. The decline was not limited to the initial period of price liberalization; it continued through the end of 1995. For a sense of what the loss in real income entailed for consumption, consider the burgeoning percent below 150 rubles/month, which Mroz and Popkin (1995, p.7) cite as a reasonable average subsistence income for one person in 1991. In 1991, 18 percent of Russians earned less than this standard of subsistence income; in January 1996, 73 percent had insufficient earnings from their job to meet it. More goods were available in 1996, but falling wages and falling subsidies kept them out of reach for most Russians.

Our data also indicate that earnings declined most steeply at the bottom end of the wage and salary distribution. From January 1991 through June 1994 the median fell by 50 percent compared to a 37 percent drop in the mean; the standard deviation increased, as did the positive skewness. Most tellingly, while the 90th percentile fell by 23 percent during this period, the earnings of the 10th percentile lost 62 percent of its purchasing power. Accordingly, the ratio of 90th to 10th percentiles – a good measure of the overall level of wage inequality – doubled.<sup>15</sup> All these statistics point to growing inequality as some groups bore the brunt of falling real wages.

However, the most recent data point on income – from the January 1996 data set – clouds the picture somewhat. The 24 percent drop in the mean outstripped the 18 percent drop in the median, bringing the skewness down to its pre-reform level, and the standard deviation of the mean dipped below

its pre-reform level. Histograms<sup>16</sup> suggest that a floor effect stopped the collapse of the lowest end of real incomes. Enterprises probably cannot employ workers at wages below one-third of the poverty line (50 real rubles). Inflation continues to drag the incomes of those in the middle and upper ranges toward the floor, as indicated by higher kurtosis that replaces skew in the descriptive statistics. In June 1994, 3 percent of the currently employed sample earned 25 rubles or less, while 50 percent of the sample earned between 25 and 125 rubles. The corresponding figures for December 1996 are 4 percent and 62 percent.<sup>17</sup>

[Figure 1 about here]

Trends in respondents' income from their primary occupation suggest a precipitous decline in Russians' living standards since the collapse of the Soviet state. However, many Russians have more than one job; 11 percent of the currently employed March 1993 respondents reported jobs in addition to their main job, rising to 15 percent in July 1994 and 18 percent in January 1996. Also, non-wage income comprises a substantial component of overall household incomes: from 21 percent to 23 percent for the currently employed respondents in the three most recent data sets. Finally, other household members may bring in income, too, a point on which our data are sketchy. Our data almost certainly overstate the decline of household income but do a much better job of monitoring the changes in personal income – the key indicator of well-being.

Economic reform has dramatically increased Russian social stratification. In 1991 it was a sleepy, low stakes game typified by the popular joke, “We pretend to work and they pretend to pay us.” By 1996 the Russian stratification system was far more demanding and the stakes were perhaps the highest among large economies (Smeeding and Gottschalk 1996). A high stakes game may or may not be fair, depending on the rules that determine the outcome. We turn to those rules for Russia by comparing the determinants of earnings across our six surveys.

## DETERMINANTS OF INCOME

Russians' incomes vary by class, sector, economic branch, and demographic variables (see Table A1 appended). To sort out the net effects of these variables, we enter them in a (by now) standard earnings model along with selected interaction effects. We test for cross-time variation in the effects of education, class, sector, and other variables, by pooling our five data sets and estimating a series of OLS regression models of the form:

$$\begin{aligned}
 y_h = & \mathbf{b}_0 + \mathbf{S}_t \mathbf{b}_{1t} T_{th} + \mathbf{S}_j \mathbf{S}_k \mathbf{b}_{2jk} X_{jkh} + \mathbf{S}_j \mathbf{S}_k \mathbf{b}_{3jk} X_{jkh} t_h \\
 & + \mathbf{S}_l \mathbf{S}_m \mathbf{b}_{4lm} Z_{lmh} + \mathbf{S}_l \mathbf{S}_m \mathbf{b}_{5lm} Z_{lmh} t_h \\
 & + \mathbf{b}_6 (Age_h - 18) + \mathbf{b}_7 (Age_h - 18)^2 \\
 & + \mathbf{b}_8 (Age_h - 18) t_h + \mathbf{b}_9 (Age_h - 18)^2 t_h + \mathbf{e}_h
 \end{aligned} \tag{1}$$

where  $y_h$  is the natural logarithm of respondent  $h$ 's earnings during the previous month (in January 1991 rubles);  $\mathbf{b}_0$  is the intercept; the other  $\mathbf{b}$ s are regression coefficients;  $T_{th}$  [ $t = 1, \dots, 4$ ] is a vector of four

dummy variables capturing the main effects of period;  $X_{jk}$  is a vector of dummy variables corresponding to  $J$  independent variables, each with  $K+1$  categories;  $t_h$  is a scalar equal to the years elapsed since January 1991;<sup>18</sup>  $Z_{lmh}$  is a vector of dummy variables corresponding to  $L$  interactions among selected  $X_{jkh}$ , each with  $(K_1+1)(K_2+1) = M+2$  joint categories for any  $j=1,2$ ; the remaining terms are continuous, polynomial specifications of the age effect, centered on 18 years of age, with both terms multiplied by  $t$ , and  $e_h$  is a normally distributed error (with a constant variance  $\sigma$ ).<sup>19</sup>

The hypotheses we derive from market transition theory correspond to predictions about the combinations of parameters in equation (1). Change in effects over time indicates the impact of market transition on the Russian work force. Our analysis evaluates these changes in terms of their combined effects on the incomes of different groups of Russians.

We estimated three sets of models (details appended in Table A2).<sup>20</sup> First, to assess trends in the total effects of education and demographic variables, we consider a reduced form model of the effects of gender, age, residence, education, and education-by-gender (Models 1 and 2). Then, we incorporate the mediating factor of sector, as a main effect and in interaction with education and gender (Models 3 and 4). Finally, we estimate a full model including the effects of class and branch, as well as the class-by-sector interactions implied by our hypotheses 4, 5b, and 6b (Models 5 and 6). In each case, we began with the complete model including all regressor variables (Models 1, 3, and 5), then we removed non-significant effects iteratively to arrive at a “preferred” model (Models 2, 4, and 6).<sup>21</sup>

The numerous interaction effects among regressors, between regressors and time, and between the interactions among regressors and time make the coefficients in Table A2 difficult to interpret, and the logged dependent variable further complicates the picture. To simplify analysis, we convert the coefficients in Models 4 and 6 into expected period-specific partial income multipliers (Tables 7 and 8).<sup>22</sup>

In Table 7, the “Baseline” gives the expected earnings for each period (in January 1991 rubles) of 18-year-old males living in Moscow or St. Petersburg who have a complete secondary education and are employed in the state sector.<sup>23</sup> The entries corresponding to each variable represent the partial income multiplier (according to Model 4) associated with membership in the relevant category for the period in question. Thus, in January 1991 a woman was expected to earn 68 percent of a male with the same age, residence type, education, and sector of employment; in January 1992 she was expected to earn 66 percent, and so on.<sup>24</sup> The education effects incorporate the main effect of the relevant dummy variable, its change over time, its interactions with gender and sector, and their change over time. Bear in mind that the education effects capture only the partial effect of being in a particular education category, though the magnitude of these effects can vary by the sector and gender of the respondent. The continuous age effect is evaluated at 40 years of age.

[Table 7 about here]

Table 7 offers scant support for hypothesis 1 (market transition increases returns to education). Among men, the increased returns to education materialized only for those with complete secondary schooling, and only in comparison to those with vocational training and those with no schooling employed in the state sector. In the private sector, men with secondary schooling lost ground relative to

men with no schooling. Women did experience increased returns to higher education, consistent with hypothesis 1; however, women with complete secondary lost ground to women with vocational or less than secondary education. The only differences in returns to education within the state and private sectors pertain to least educated group. The only sense in which H1B is confirmed is that the negative return to having little or no education was greater in the private sector. But even this pattern evaporated over time, since the negative returns to “less than secondary” diminished for all but state sector men. Contrary to H1C, men and women in the private sector with less than secondary education gained on those with complete secondary over time. With few exceptions – the most important being for women with higher education – market transition has not increased the returns to education in Russia.

Contrary to H2A, the total gender gap has increased over time.<sup>25</sup> Contrary to H2B the gender gap has been greater in the private sector, since men’s returns to private employment have exceeded women’s. The gender gap has narrowed in the private sector over time: women’s earnings rose from 43 percent of men’s in January 1991 to 53 percent in December 1995, yet it remains greater than in the state sector.<sup>26</sup> Finally, there is little evidence for H2C that women’s and men’s returns to education are converging in the private sector – if anything, they diverge increasingly over time in both sectors. Contrary to the optimistic scenario of market transition theory, women fare no better in the Russian market than they did under the state socialist system, and in many cases they fare worse.

[Table 8 about here]

Proprietors gain relative to unskilled workers and other classes as market transition advances, confirming hypothesis 3. In fact, proprietors are the only class whose expected earnings net of other variables grew during the reform period. Clearly, market institutions benefit entrepreneurs, as market transition theory predicts. The surprise is how few Russians have taken up self-employment.

The remaining hypotheses concerning patterns in class stratification are all contradicted by the data. Managers gain relative to workers, but their earnings in the private sector are no greater or less than in the state sector. Managers profit from their new-found freedom from ministerial control without having to pay consequences for poor enterprise performance: the breakdown of the administrative system permitted state managers to consolidate their positions within their organizations, while in the private sector ownership is too diffuse to serve as an effective check on managerial authority.

Professionals in the state sector have made some gains relative to unskilled workers – by December 1995 their expected earnings, net of other variables, are 40 percent higher than they had been. This finding supports H5A. But the modest gain relative to unskilled workers is dwarfed by professionals’ loss of ground to proprietors and managers. Moreover, within the private sector, where professionals should be best placed to accrue greater returns on their human capital, they are no better paid than unskilled workers, even as market transition advances. H5B and H5C are contradicted.

Skilled manual workers fare no better. The ones in the state sector do not gain on unskilled manual workers, and skilled manual workers in the private sector actually lose ground over time. H6A-H6B are disconfirmed.

In short, market transition in Russia has rewarded entrepreneurship and managerial authority, but



it has not enhanced the returns to human capital. If anything, human capital has diminished in importance as a source of income advantages. Market transition theory predicts otherwise. The theory puts heavy emphasis on productivity gains driven by unleashed human capital potential.

The decrease in returns to human capital associated with market transition in Russia is even more evident from the partial returns to education when class and branch are controlled. Within each class category, the returns to higher education (relative to secondary) diminish over time for all but women employed in the state sector. The decline is most rapid in the private sector. Furthermore, in the private sector, the educational advantages of complete secondary education evaporate over time. Although initially the returns to education at these levels were indeed greater in the private sector, by December 1995 returns in the state and non-sectors are indistinguishable and modest, even negative. Market transition theory hypothesizes greater and increasing income differentiation by educational criteria in the private sector. The opposite pattern holds in Russia.<sup>27</sup>

Turning briefly to other effects in Table 8, we see that the addition of class and branch variables lowers the gender earnings gap somewhat (compare the main effect of “woman” in Tables 7 and 8), but not nearly enough to eliminate it. One source of the earnings disadvantage faced by Russian women is their concentration in the professional and lower routine non-manual classes and under-representation among managers and proprietors (see Table 2). However, a substantial residual gap remains once these compositional differences are controlled.<sup>28</sup>

Younger Russians lucky enough to find employment – remember that between a quarter and a third of them are unemployed – have gained so much on their elders during the transition that the experience effect is overtaken by the cohort replacement effect. Age remained a highly significant net determinant of earnings, although not as a marker for experience, as it usually is in Western-style economies. The trend monotonically favored younger workers. Even in the late Soviet period, Russian workers experienced “age turnaround” while they were relatively young – 43 years of age by our estimate (net of everything else in the model). The age turnaround has come ever earlier in recent years, falling to 33 years in 1996.<sup>29</sup> In most industrial societies, this turning point is reached around age 55 when the dominant experience effect is overtaken by reduced hours and the onset of retirement.

Income stratification based on economic branch and geography are often considered peculiar traits of the Soviet era (Zaslavsky 1982; Flakierski 1993). Market transition theory has not addressed them directly, so we do not list any predictions about branch and place. Nonetheless, as peculiarities of Soviet central planning, it seems reasonable to expect them to disappear after a period of reform. On the contrary, branch and geography grew in importance during the market transition period in Russia. Services have gained on industry, the administrative arms of government kept pace, but the cognitive branches – education, health, science, and the arts – and agriculture lost considerable ground. Market forces are magnifying the peculiar geography of privilege in Russia (Zaslavsky 1982). Controlling for the other variables in Model 6, only residents of rural areas earned less than Moscow and St. Petersburg residents. By the end of 1995, inhabitants of Russia’s capital cities enjoyed a considerable advantages over all others, including 50 percent greater earnings than rural dwellers.

[Figures 2 and 3 about here]

Figures 2 and 3 summarize the differences in earnings by education, occupation, sector, gender, and time period. Men and women still earn sharply different wages even after many other factors are controlled. The returns to education barely rise. The gaps among occupational classes widen, but not in the way anticipated by market transition theory. The proprietors and managers reap big returns. But proprietors are a tiny sliver of the Russian labor force. Managers exploit their organizational positions to get rich at the expense of their workers. The other classes have lost in real terms.

## DISCUSSION

Inflation has eaten away at Russians' earnings throughout the first half of the 1990s – beginning with the initial “shock therapy” in January 1992 and continuing through the first months of 1996. The real earnings of all but the top 10 percent of Russians have failed to keep up with hyperinflation. Only Russians in the upper decile of the income distribution have prospered (some greatly, some modestly). Measures of earnings inequality have risen as a result. By early 1995 the earnings of the lowest-paid Russian workers had hit bottom; their earnings were well below what pre-reform observers considered to be the subsistence level and could fall no farther. As the incomes of workers in the second earnings quintile fell, commonly used measures of inequality reversed and showed a slight egalitarian turn between 1995 and 1996. Unemployment and private sector employment have both grown sharply since the demise of the Soviet Union. To our surprise, the ranks of proprietors have not expanded.

Broadly speaking, only proprietors have been immune to falling real wages. Managers and upper nonmanual workers failed to keep pace with inflation but gained in relative terms as they came closer to matching the inflation rate than other classes did. The service branches and the youngest workers fared better than workers in manufacturing and those over 40 years old. Russians in other classes, particularly professionals in the cognitive and agricultural branches, lost relative earnings position. Radical market reforms have rewarded those classes already at the top of the earnings hierarchy, and those in the new trade and service industries. Reforms have proven particularly devastating to the countryside.

Thus far, market transition in Russia rewards old fashioned productive capital and managerial authority – not human capital. Contrary to expectation, the market reforms have not increased returns to human capital or “skill assets” (Wright 1985) relative to “organization assets” or productive capital. Professionals, along with skilled and unskilled manual workers, routine nonmanual, and technicians, must be counted among the losers rather than the winners of the market transition in Russia. Nor have women experienced any improvements relative to men.

Many formerly state socialist societies have gone through shock therapy. Could we have expected these disruptive outcomes? The leading theory of marketization – Nee's market transition theory – boldly claims that the emergence and consolidation of market institutions in a state socialist system will reform the stratification system. Ownership, education, expertise, and manual skill will increase efficiency and productivity. People with those assets will reap rewards. Party membership, bureaucratic positioning, and gender will lose their influence. Our findings show that only one of these consequences – enhanced incomes for proprietors – has occurred in the first five years of Russia's transition toward the

market. Nee unequivocally predicts enhanced returns to education, but these have not materialized in Russia, where professionals must be counted among the losers rather than the winners of the market transition. Nor has marketization bridged the gender gap in earnings. Managers have reaped important rewards, which may be interpreted as supporting or countering the logic of market transition theory. In sum, we derived 16 predictions from market transition theory. The data contradict 14 of them. Russia's market reforms confound the expectations based on Nee's theory.

Why is the theory so wrong for Russia? Like any theory, market transition theory makes assumptions. Those assumptions may be wrong in the Russian case. A key assumption is that the lessons of China apply to Russia. But the Russian path to the onset of market transition differs from the Chinese path in many ways. China eased into a market transition. Each increment to GDP was rewarded with more economic liberalization. Most observers agree that each wave of liberalization further added to the already robust economic performance. Even in China, though, the precise mechanisms might be more “market-like” than pure (Guthrie 1997). That is the state’s decisions to support some firms and “cut loose” others produce outcomes that are indistinguishable from what one would expect from market processes without any market actually being involved. All the while China enforced political stability by suppressing popular political movements, religion, and civil society.

Russia experienced less economic growth and more political change. The Russian economy lagged through the late 1970s and 1980s. This bred political instability and ultimately the collapse of the Soviet political system. Only then did market reform begin. What followed was economic shock therapy. The immediate outcome was steep contraction, rather than economic growth. While China is selling manufactured goods to the United States and Japan, Russian industry is producing less than it did fifteen years ago. Russia’s imports increased, and trade and consumer services have proffered opportunities to some and incentives to many more. But the centralized Soviet system left in its wake a tattered distribution system, endemic regional and local imbalances, a bloated and inefficient industrial sector, and a legal system most would-be investors find unreliable.

Compounding these problems, Russia has yet to achieve political stability. Far more democratic than China, Russia is nonetheless (or consequently) politically unpredictable.

These economic, legal, and political uncertainties discourage investment in productive enterprise and encourage the pursuit of short-term windfall profits in trade and consumer services. Manufacturers continue to bargain with suppliers, customers, and the state. In short, Russian capitalism is “merchant capitalism” (Burawoy and Krotov 1992; Burawoy 1997), characterized not by efficiency-oriented production that would reward human capital for its productivity but by a chaotic (if resourceful) scramble to capitalize immediately on what one has to sell. “The mass of the population falls back into a primitive, intensified domestic economy of dachas and subsistence plots and trading and buying their wares in the thriving bazaar” (Burawoy 1997, p. 1442). Supply and barter networks, access to locally scarce goods, connections with customs officials and local politicians, skill in the military and pleasure-providing arts – these, not education, are the most important forms of capital in the new Russian market. Numerous anecdotes regarding research scientists turning to prostitution or doctors engaging in smuggling (e.g., McDaniel 1996) provide graphic testimony that accords with our statistical findings. Market transition in

Russia thus far has failed to reward education.

Our research shows that market transition is not a generic process. Predictions spawned in one case study do not travel well to another venue. Within China, “the conditions of marketization and the governance of firms in the new markets are ... contingent on the state institutional structure and a firm’s position in the hierarchy of the former command economy” (Guthrie 1997, p. 1298). So, too, with whole societies. The impact of market transition on stratification cannot be deduced from abstract, ideal-typical conceptions of the nature of market institutions. Rather, the precise institutional forms and opportunity structures that emerge with market transition matter – in a given firm or in a given country. The impact of market transition on stratification depends on sequence and timing of events – on the path taken (Walder 1996). In particular it depends on the preexisting class structure and how classes respond to reform. The persistence of managerial privilege despite reform in Russia stems from managers’ strategic position in the transfer of ownership.

Russia differs from China in both the path into market transition and in the form marketization took once it was under way. We might speculate that Russia’s experiences reflect a “shock therapy in response to decline” model. Stark’s (1996) work on “recombinant property” and Szelenyi and Kostello’s (1996) emphasis on how upper management “converts public property into its own private wealth” (p. 1094) show how patterns we observe in Russia occur in Europe, too. Comparative work focussed there might yield new general theory. Or it might further reinforce the conclusion that history matters.

If the links between markets and stratification in formerly state socialist countries depend on the path taken out of state socialism and into capitalism, then taken-for-granted aspects of long-established market systems need a second look, too. Not only do functionalism and human capital theory have no answer for Russian professionals who wonder with dismay why the market has failed to provide them with the same rewards enjoyed by their counterparts in advanced capitalist economies. They also have difficulty accounting for anomalies in Western Europe and North America. The rate of return on higher education fell in the United States in the early 1970s; its rebound contributes to the growth in income inequality over the past twenty years (Danziger and Gottschalk 1996). Fluctuations in fundamental parameters of the stratification process reflect the interaction of markets and politics that give societies their “design” (Fischer et al. 1996). To be predictive, theory must account for the political processes that ultimately determine the extent and character of socioeconomic stratification (Esping-Andersen 1994; Fligstein 1996).

## APPENDIX

In constructing our variables, we aimed for consistency across instruments. Here we provide not an exhaustive account, but brief outline, with some attention to ambiguities. Our Education variable is a four-category recoding of responses corresponding to stages in the Russian educational system. Our “Less Than Secondary” category includes respondents without complete secondary and no vocational education. We place respondents whose highest level of education was received in a vocational school (professional'no-tekhnicheskoe uchilishche, or “PTU”) into the “vocational” category whether or not they received a secondary diploma from their PTU. PTU graduates with secondary diplomas most likely have more in common with diplomaless PTU graduates than with students who have “general” secondary diplomas (see Connor 1991). General secondary, specialized secondary (tekhnikum), and some college are all recoded as secondary diploma. Our Sex and Age variables are straightforward recodes, in some cases requiring a transformation of year born. The aggregated cohorts in Table 1 refer to age at the time of the survey.

Residence Type necessitated combining variables on place of residence to identify Moscow and St. Petersburg residents and rural dwellers as well as population size of residence to distinguish among the three remaining categories based on city size. The CCSCP contained only the name of the current place of residence, coded in a scheme which distinguished rural settlements from urban. This allowed us to identify the first and fifth of our categories. The remaining cities were classified based on a listing of all Russian cities with populations over 100,000 and their population sizes (Narodnoe Khoziaistvo Rossiiskoi Federatsii, 1992, pp.87-91). The other data sets contained sufficient information to construct our categories by combination.

Workforce Status in the CCSCP combined response categories to the question: “What were you doing last week?” We treated “at work” and “with a job but not at work” as “employed;” “looking for work” as unemployed; “keeping house,” “going to school,” “unable to work” and “other” as “not in labor force;” and “on pension” as “pensioner.” The ISSP categories pertained to “current employment status” and distinguished among full-time work, part-time work, and “temporary, casual jobs” – all of which we treated as “employed.” Otherwise, the categories were the same. The Omnibus categories contained five “employed” categories: “work at a regular job;” “work on contracts or work agreements;” “engaged in private business;” “individual work activity;” and “military service.” They did not include an “unable to work” category.

In the CCSCP respondents were coded as employed in the state sector if they said their current place of employment was in the state sector of a collective farm (kokhoz), private if they indicated the private sector. Russian ISSP respondents were asked: “Is your company, organization a public or a private one?” Their answers were coded as “state sector” or “public firm” – both recoded as “state” – or “private firm” – recoded accordingly. The Omnibus datasets classified respondents’ firms/organizations of employment into 10 categories, not all of which are unambiguously in the state or private sector. We opted to treat these categories as the “state” sector: “state-owned, state joint-stock company, collective farm, consumer cooperative, public organization (foundation, political party, movement).” These were coded as the “private” sector: “individual labor activity, rented company, worker-owned company, private

joint-stock company, private company, partly foreign-owned company.” We coded the small number of “other” responses as missing.

Economic Branch (also known as “industry”) categories were imposed by the ISSP and Omnibus data. Here are the original categories from the ISSP:

1. Industry, construction, transport, communication
2. Agriculture, forestry, hunting
3. Trade, catering, buildings maintenance, service sector
4. Kindergartens, school system, institutions of culture, arts, science, mass media, health care, system of higher education, sports
5. Voluntary non-profit organizations
6. Public administration, financial, insurance bodies, public organizations
7. Other branch

The Omnibus categories 1 through 4 and 7 were the same. However, the Omnibus category 5 was “public administration, social organizations (parties, trade unions, funds, etc.), credit-finance sphere, insurance” and category 6 was “army, militia, Ministry of the Interior, Ministry of State Security.” We were therefore compelled to combine categories 5 and 6, since they appeared to be different splits of essentially the same categories. The CCSCP data included three-digit ILO industry codes, which we recoded into the six-category classification based on the ISSP and Omnibus categories.

We operationalized our Class schema based on respondent’s occupation plus additional information to distinguish proprietors, who were not specifically identified in occupational classifications. The CCSCP employed three-digit ILO occupation codes, the remaining data sets used the four-digit 1988 ISCO classification. We mapped the respective classifications onto our class schema (precise mapping for class and branch codes available from the authors upon request). We then identified proprietors. In the CCSCP we treat as proprietors only those who said their firm was in the private sector and said was a cooperative (kooperativ). Proprietors in the ISSP are those who say they are self-employed and meet one of these additional criteria: 1988 ISCO code of main occupation is 1210 or response to a secondary question about main occupation (translated in the codebook as “what is your position?”) of “businessman” or “senior manager”. The Omnibus data sets allowed for what is probably our most reliable operationalization. Respondents were asked directly: “For your principle type of [work] activity, are you the owner or co-owner of a private business or enterprise – or do you work individually, by individual orders – or are you the hired employee of a state or private enterprise?” Respondents who indicated they were “owners or co-owners” and who described their firm of employment as a “privately-owned firm” were coded as proprietors.

We treat those who are not currently employed as “missing” on the class, sector, and branch variables. The somewhat unusual branch categories are imposed by the VTsIOM branch classification scheme. Due to an inconsistency between the ISSP and subsequent classifications, we had to combine two

categories into “State Organs, Voluntary Organizations, and Finance.” We coded the CCSCP data, initially in 2-digit ILO Industry codes, into the resulting schema.

Sampling weights. It appears from discrepancies in bivariate distributions of education and gender across VTsIOM samples that VTsIOM did not fit the multivariate distributions of the four demographic variables in deriving the weights. Ideally, weights should insure that each cell of the 4-way cross classification of demographic variables in each sample is proportionate to the corresponding cell for population. Instead, it appears that marginals were used to adjust the distribution of each variable separately, then multiplied. That the sample fluctuations in weighted marginals are nonetheless relatively minor suggests that the sampling variations in bivariate and higher-order interactions of the demographic variables are not severe. To derive weights for the CCSCP data, we fit the four-way education by gender by cohort by rural/urban proportions from the ISSP data set, and adjusted the residence type distinctions not captured by the dummy variable by multiplying through the residence marginal weights.

### Dependent Variable Specification and Model Estimation

We focus on primary employment earnings from primary occupation since we have data on these measures in each survey; therefore, we can test hypotheses about changes over time. However, we also have data on secondary employment and earnings from second jobs for the March 1993, July 1994, and January 1996 data sets. We looked at these variables to determine whether incorporating secondary incomes might affect our results – in particular, whether professionals have greater opportunities to enhance income through second jobs. We found that in each survey (i.e., at each point in time) professionals were more likely than average to have a second job. In January 1996, for example, 28 percent of professionals versus 21 percent of all employed persons reported a second job. Surprisingly, professionals earned less than average in their second jobs in March 1993 and July 1994, mitigating the effect of enhanced participation in secondary employment.

We also replicated the results we report in Table A2 replacing primary-job earnings with total earnings (in log form) as the dependent variable (which is equivalent to primary-job earnings for all those who were interviewed in the first two surveys and all those who reported no second-job earnings in the third, fourth, and fifth surveys). Adding in these second-job earnings alters only one significant finding: the negative interaction effect of VUZ\*Private\*Time which is significant when only primary-job earnings are the dependent variable becomes insignificant in the analysis of total earnings. This revision does not affect our substantive conclusions since the two-way interaction of VUZ\*Private remains significantly less than zero and market transition theory implies that both the two-way and three-way interaction effects ought to be positive. We also note that the coefficient for being a resident of Moscow is bigger in the analysis of total earnings; we read this outcome as an indication that Moscow offers more opportunities than other locales. We do not include these results in the paper, but they are available from the first author upon request. We prefer to report the analysis of primary-job earnings because the definition of this variable does not change over time.

Our efforts to detect heteroskedasticity (prompted by comments from one of the anonymous

reviewers) revealed two sources of differential error variance. The standard deviation of the errors under model 6 varies significantly with time: .433, .577, .705, .680, and .615 for each survey (in chronological order). This pattern tracks the trend in the standard deviation of observed log-earnings, suggesting that unmeasured factors are key components of the trends in inequality. We also observe that the standard error of the residuals is greater in the private sector than in the state sector: .820 and .588, respectively. We replicated the results of models 2, 4, and 6 in Table A2 using WLS instead of OLS (with weights varying by sector). The WLS results differ only slightly from the OLS results. A few t-ratios are smaller in the WLS results than in the OLS results, but WLS and OLS both agree on which variables are significant and which are not. We present the OLS results in this paper because they are more familiar and not misleading in any way. The WLS results are available from the first author upon request.



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## NOTES

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1. Some of the results in this paper were presented at meetings of the Research Committee on Social Stratification (RC28) of the International Sociological Association, Ann Arbor, August 1996, the American Sociological Association, New York City, August 1996, and RC28, Tel Aviv, May 1997. The authors would like to thank Nancy Tuma, Yu Xie, Yinon Cohen, and Jane Zavisca for helpful criticisms on an earlier draft, Ludmila Khakhulina and Larisa Kosova of the All-Russian Center for the Study of Public Opinion for assistance with the data and discussions of the issues presented in this paper, and Eduard Akhmetshin for research assistance. This paper was written while Hout was a visiting scholar at the Russell Sage Foundation; we thank RSF for financial assistance and its myriad other benefits.

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2. As Walder (1996, p. 1068) points out, Nee's data also show the persistence of cadres' income advantage.

3. Mass privatization consisted of four phases: corporatization, closed subscription, voucher

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privatization, and cash privatization. Enterprises could choose their own mix of closed subscription, voucher purchasers, and outside cash purchasers. For more detailed description on the design and implementation of the privatization plan, see Rutland (1994); Boycko, Shleifer, and Vishny (1995); Blasi, Kroumova, and Kruse (1997); and OECD (1995, ch.4).

4. As Nee correctly notes, the finding that in Hungary former cadres were more likely to become entrepreneurs and more successful as entrepreneurs (Rona-Tas 1994) does not refute market transition theory, which claims only that cadres as such (i.e., not as entrepreneurs) lose out in the transition to a market-based system (Nee 1996, p.915, n.3; see also Szelenyi and Kostello 1996).

5. Their duties included administering, coordinating, and monitoring activities within their firms. Yet they were joined at the hip to the redistributive bureaucracy: beholden to it for their positions – not to mention suppliers, distributors, and investment capital – they were also advocates within it for their organizations (Burawoy and Lukacs 1992). The dissolution of the state ministries comprising the Soviet redistributive apparatus freed state sector managers from both the burdens and the blessings associated with this tie. The balance of burden and blessing most likely varied considerably across managers, depending on their individual capacities, their positions within their firm, and their firm's characteristics.

6. An exception is Mroz and Popkin 1994, but their focus is explicitly on poverty.

7. For details on sampling and data collection for the CCSCP survey in Russia, see (Hout, Wright, and Sanchez-Jankowski 1992).

8. VTsIOM has been conducting large-N surveys using modern sampling techniques since 1989 and has earned a reputation as the pre-eminent survey research operation in Russia. Its data are widely cited by scholars (e.g. Aslund 1995) and international organizations (e.g.. OECD 1995) as authoritative, and VTsIOM proved singularly accurate in forecasting the outcome of both rounds of the recent Russian presidential elections. The VTsIOM data we have at hand are the most reliable available.

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9. The Northern Caucasus was excluded due to political and military conditions there and some northern territories were excluded due to inaccessibility. The sampling procedure for the VTsIOM surveys is as follows. Apart from the excluded areas, all settlements--defined as either "urban population points" or "rural administrative areas"--are divided into approximately 65 strata according to region, a proxy for ethnic composition, size, and administrative status. Target sample volume is then distributed across strata proportionately to size of adult population (based on official statistics from the 1989 Census). The number of Primary Sampling Units (PSUs) required within each stratum to attain its target sample size without exceeding 45 respondents per PSU is determined. PSUs are selected from within strata using systematic selection with probabilities proportionate to size. Secondary Sampling Units are electoral districts (in urban PSUs) or "villages" (in rural PSUs), chosen using systematic selection. Dwellings are sampled randomly within electoral districts using a random walk algorithm and respondents within dwellings using the Kish method.

10. Women remained out of the labor force in greater proportion than men. In February 1991, 18.4 percent of male respondents were pensioners or were otherwise not in the labor force (i.e. keeping house, attending school, unable to work, or "other"), growing to 24.7 percent in January 1996. The corresponding figures for women respondents are 31.5 percent and 41.2 percent.

11. More complex, composite measures of "degree of marketization" might be developed based on standardized measures of different aspects of marketization (percent employed in the private sector, proportion of enterprises in private hands, relative contribution to GDP of state and private sectors, etc.) These measures may be less precise than they at first appear, based as they would be on unreliable official data. We doubt that they would seriously depart from temporal linearity across our data points; certainly they would show a monotonic increase in level of marketization over the time period covered by our data.

12. The Goskomstat price data on which our inflation index is based are reported in the following sources: Sotsial'no-ekonomicheskoe... (1993a, p.93); Sotsial'no-ekonomicheskoe... (1993b, p.61);



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“Sotsial’no-ekonomicheskoe...” (1994, p.53); “Sotsial’no-ekonomicheskii ...” (1995, p.55); “Sotsial’no-ekonomicheskoe...” 1996, p.44.

13. For each data set, we use the month preceding data collection as the basis for computing the pertinent inflation index, since the questions on income specifically pertain to the previous month. Monthly income rather than annual income is the customary measure for Russians, an especially useful unit in conditions of massive inflation when annual incomes are meaningless.

14. The discrepancy may result from oversampling of higher status occupations within education groups, for which weighting did not adjust, or from the possible omission of proprietors’ incomes in computations of the official mean wage (on which, see OECD 1995).

15. As a point of reference, the March 1995 Current Population Survey indicates that the ratio of the 90th to the 10th percentile in the United States was 5.59 in 1994 (Hout 1996) – very close to our Russian figures for all but 1994. Smeeding and Gottschalk (1996) estimate that the United States and Russia have more inequality than any other industrial nations.

16. To facilitate illustration, in Figure 1 incomes are grouped into 50-ruble categories centered around multiples of 50 and 100, and truncated at 1000 rubles.

17. The observed decrease in inequality may also be an artifact of differential non-reporting rates. In the first three samples over 97 percent of respondents answered the question regarding their income from their primary occupation. This figure dropped to 94 percent in July 1994 and 90 percent in January 1996. If non-reporters are more likely to be at the upper end of the distribution, our estimates of the means, standard deviations, and 90th percentiles at these points may be downwardly biased relative to the estimates for the first three data sets. To assess the possible impact of differential non-reporting on our results, we simulated the income distributions for the two most recent data sets under the assumption that

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excess non-reporters (those beyond the 3 percent who presumably do not report due to a random predisposition not to) had high incomes. For the incomes of non-reporters we substituted a value randomly drawn from  $Nor(y,\sigma)$ , where  $y$  equals the observed 90th percentile income and  $\sigma$  equals the observed standard deviation of the 85th through 95th percentiles for the appropriate sample. We reassigned “missing” values to the appropriate proportion of these randomly selected cases so that the resulting valid percent would resemble the 97 percent observed in the first three data sets. The simulation allayed our concern that the leveling effect we observed is an artifact of differential non-reporting. For the July 1994 dataset, the simulated mean income (valid  $N=1654$ , 96.9 percent) came to 182, the simulated standard deviation to 379. For the January 1996 dataset, the simulated mean (valid  $N=1310$ , 98.3 percent) equaled 142, the standard deviation 133. The impact of differential non-reporting was negligible within the bounds of our assumptions. More generally, under-reporting may be more serious at the higher end of the income distribution across the board, but this should result in a fairly uniform downward bias on the skewness and cannot account for the clustering of respondents over time at the floor interval we observe in Figure 1.

18. The values for  $t$  are as follows: January 1991=0; January 1992=1.00; February 1993=2.08; June 1994=3.33; and December 1995=4.83.

19. We determined that the polynomial specification of the curvilinear age effect is appropriate by examining the standardized residuals from a model including only a linear effect of age. We also used weighted least squares (WLS) to correct for minor heteroskedasticity associated with the private-sector dummy variable. The WLS results closely replicate the OLS results; see the Appendix for details.

20. All results are based on weighted data. Post-stratification weights to correct for over- and under-samples may seriously affect regression results if cases with exceptionally large weights have unusually strong influence on the regression outcomes. We were able to rule out this possibility. First, we examined the correlations (using the unweighted sample) between case weights and three measures incorporating

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influence saved from our Model 6 regression using the weighted sample: Cook’s distance, the absolute value of the studentized “deleted” residuals, and the absolute value of the standardized df-fit statistic. The correlations were small and negative, ranging from -.025 to -.058. This implies that, if anything, cases with higher weights have somewhat smaller influence on the weighted regression results. Seven cases had weights greater than 8.00 (ranging from 8.16 to 17.46; only 0.7 percent of respondents had weights over 5.00). We deleted these cases and ran Model 6 again. Despite the loss of 42 weighted cases, the pattern of significance among the coefficients was unchanged.

21. We removed nonsignificant effects to improve the efficiency of our estimates and to facilitate computation of partial expected income multipliers. In particular, high correlations between the  $X_{jk}$  and  $X_{jk} t$ , and between the  $Z_{lm}$  and  $Z_{lm} t$  inflate the corresponding standard errors. Thus, for jointly non-significant pairs of these variables – for example, “Private x Ib/Ib” and “Private x Ib/Ib x T” in Model 5 – we first removed the simple effect, provisionally keeping the time-interaction variable in the model. We also removed variables whose coefficients were significant according to one-tailed criterion of  $p < .05$  when the sign of the coefficient did not correspond to the appropriate tail (for example, “Woman x VUZ Degree” in Model 5). We present only the initial and final models to save space.

22. We found that the first set of reduced form models (1 and 2 in Table A2) produced nearly identical results to the second set, which include the main and interaction effects of private sector employment. To avoid redundancy and save space, we bypass discussion of the first set, since more hypotheses are tested in the second set. Our observations regarding the effects of education, gender, and their interaction apply equally to both.

23. For each period  $t$ , the baseline is obtained as  $\exp(\mathbf{b}_0 + \mathbf{b}_{1t})$ .

24. The relevant entries were calculated according to the formula  $\exp[\beta_{\text{woman}} + (\beta_{\text{woman} \times T} * t)]$ .

25. The multipliers associated with “woman” pertain only to women with complete secondary

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employed in the state sector, due to the woman-by-sector and woman-by-education interactions. The “woman” multiplier derived from Model 2, which omits the woman-by-sector interaction, is a somewhat better indicator of the overall trend; it declines from .65 in January 1991 to .54 in December 1995.

26. These figures apply to men and women with complete secondary education. They are obtained by combining the appropriate main and interaction effect multipliers from Table 8. When evaluating the gender-by-education interactions, the main effects must be taken into account. Thus, the gender earnings gap remained fairly stable among VUZ-educated Russians during the period under consideration: women’s increased returns to higher education were almost wholly offset by the growing main effect of gender.

27. One of the anonymous reviewers suggested that opportunities to enhance income through second and third jobs may be greater for Russians with higher levels of education. If this were true, our results would understate the returns to education. We tested this possibility as best we could with the data at hand and found no evidence that taking secondary employment into account alters our findings (see Appendix for details).

28. This result would indicate that Russian employers discriminate against their female workers if we knew that men and women worked equal numbers of hours. But we cannot be sure that the premise is true, so we cannot be sure that discrimination is the cause of this disparity.

29. The peak is the age at which the partial effect of age becomes zero. That value is the age at which the partial derivative of log-earnings with respect to age ( $dy / da$ ) becomes zero. Because  $dy/da = \mathbf{b}_8 + 2\mathbf{b}_9 a$ , the value is equal to  $\frac{1}{2}(\mathbf{b}_8 / \mathbf{b}_9)$ , where  $\mathbf{b}_8$  is the regression coefficient for age and  $\mathbf{b}_9$  is the coefficient for age-squared.