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Pay and employee intrapreneurialism in Russia, 1994-2015: A longitudinal study

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Abstract

We examine whether a high wage-high employee intrapreneurial inputs model remains a significant feature of the Russian economy. We do so by estimating the evolution of employee ‘intrapreneurial’ contributions to companies in Russia, 1994-2015, using Akerlof’s theory of ‘partial gift exchange’. Akerlof (1982) suggests that employee discretionary contributions to organisational capacities rise when pay exceeds employee perceptions of ‘fair’ pay in comparable employment. Using the extensive Russian Longitudinal Monitoring Survey (RLMS), we find that overall employee intrapreneurial contributions significantly declined, 1994-2015, mirroring the declining Akerlof wage premium. Intrapreneurialism in highly-informalized sectors was associated with labour market pressures. We extend Akerlof’s theory to recognize intrapreneurial activity associated with coercive labour market pressures in the secondary labour market.

Key words: intrapreneurship, wage premium, implicit gift exchange, market pressure, Russia, remuneration systems

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* The data that support the findings of this study are available from RLMS-HSE. Restrictions apply to the availability of these data, which were used under license for this study. Data are available at <https://www.hse.ru/en/rlms/data> with the permission of RLMS-HSE.

Introduction

The recent invasion of Ukraine by Russia and its seismic global consequences have been estimated by a leading economic analyst to be a ‘disaster’ which originated in internal issues within the Russian economy and polity (Wolf, 2022). In this article, we show what may be considered one aspect of these failures, viz. the Twenty- First century decline of employees’ entrepreneurial inputs to organizational capacities. We link this decline to employer’s decreasing use of premium, above-market pay rates through Akerlof’s (1982) theory of ‘partial gift exchange’.

Referring to post-socialist economies, Antoncic and Hisrich (2003) clarify the ‘intrapreneurial’ concept. They define it as new business venturing or (at the individual and organizational levels) product/service innovation, self-renewal, risk taking, proactiveness and competitive aggressiveness (Antoncic and Hisrich, 2003:9 and *passim*). Intrapreneurial behaviours have been seen as fostering organizational success, profitability (Lumpkin and Dess, 1996; Thornberry, 2001), and strategic renewal (Zahra, 1996). ‘Entrepreneurial activity’ has only recently featured in Russian debates. Most literature still understands it as Schumpeterian free enterprise (criminalised 1926-1986) as opposed to ‘unfree’ waged employment (Pashko et al., 2018). Intrapreneurialism however, has long been understood by Russian practitioners as the independent exercise of their initiative aimed at optimising organisational outcomes, including product and process innovation and pro-activeness (Morrison, 2007:170). Soviet leaders and western analysts alike regarded it as a central feature of Soviet work regimes (Arnot, 1988).

The period we examine, 1994-2015, is one which demonstrated certain underlying continuities in Russian society and industry. This was the case in terms of the continuity in employment stability at macro level. Related continuities were also present in terms of employee weakness in relation to employers, and of a lack of effective institutionalised

employee voice. Nevertheless, certain distinct periods may also be discerned. Thus, 1994-5 marked the beginning of post-socialist stabilization. In this period, ‘social dialogue’ rhetoric remained but lacked substance in workplaces, Colton (2016:221) suggests. An Akerlof wage premium existed, associated with employee intrapreneurialism (Gerber and Hout, 1998). 2004-5 saw the beginning of a decline in Russian labour productivity which raised questions about the viability of a high-wage high productivity model (Wildnerova and Blöchlinger, 2019). In the subsequent period between 2005 and 2015, global shocks, and notably the 2008 Global Financial Crisis, hit the Russian economy. In these years, as we elaborate below, employers began to revise industrial wage systems in ways reminiscent of rigid Soviet arrangements, with the result that 2015 marked the Akerlof premium’s almost complete disappearance.

Post-Soviet Russian employers have moved away from positive motivation strategies likely to favour both the use of premium wages and intrapreneurialism (Bizyukov, 2018; Gurkov, 2013; Krzywdzinski, 2018). Early in ‘transition’, employers sought to compete in local labour markets through positive motivation measures including premium pay. Gurkov concludes that by the late 1990s, HR practices ‘led to a decline in employees’ motivation ‘as only negative stimuli remained’ (2013:24); firm responses to the 2008-2009 crisis centred on downward wage adjustments, negatively impacting employee morale (Gurkov, 2013; Rozhkova et al., 2018). Strongly hierarchical corporate cultures based on autocratic leadership styles and command and control systems reduced employees to input costs, making collaborative employment relations difficult to achieve (Andreeva et al., 2014; Dixon et al., 2014). These approaches rejected employee voice and stifled employee motivation and discretionary contributions (Bizyukov, 2018; Sippola, 2016).

Since the 1990s, Russia’s new industrial relations system has enjoyed formal ‘social dialogue’ and underpinned high union density among large legal businesses. Collective agreements detailing pay, terms and conditions of employment are negotiated at enterprise

level. But these arrangements are largely formal and lack solid foundations among employees. In enterprises, Soviet-era trade union branches are often populated by line managers leaving employers to draft collective agreements (Vinogradova et al., 2015:198-199). Genuine collective bargaining by independent unions has been stifled by legal barriers and repression of social activism. The decline of independent unions has left state authorities confronting frequent worker protests (Bizyukov, 2018; 2021). However, previous studies' almost exclusive focus on manufacturing has neglected the wider effects of growing informality and migrant labour in other sectors in weakening employees bargaining positions (Morrison and Bizyukov, 2017).

Our overall research question is therefore: does a high wage-high employee intrapreneurial inputs model remain significant within the Russian economy? The model's incidence was shown to be diminishing a decade ago (Croucher and Rizov, 2011). Our secondary research questions are: (i) Did the incidence of above-market remuneration to employees decrease, 2005-2015? (ii) If it decreased, was it associated with reduced employee intrapreneurialism? (iii) If premium pay-induced intrapreneurialism declined, did that entail the disappearance of intrapreneurialism? The issue is important to the large numbers of employees concerned, and also for the prospects of Russian industry when competing in international high value-added markets. It also bears on contributions in this journal concerning different methods of inducing 'intrapreneurial' behaviour in the Former Soviet Union and other countries (Kakabadse et al., 2018; Klimas et al, 2021). The concept of managerial leadership in entrepreneurial undertakings developed by women leaders in Kazakhstan as a no-cost 'co-developing activity' involving employees was analysed by Kakabadse et al. (2018:24 and *passim*). These researchers offer a cooperative model to stimulate employee intrapreneurship but do not focus on employee remuneration, a dimension we provide.

The Russian case is of wider interest. The Russian economy constitutes a distinctive yet potentially significant employment model for future developments in Europe (Croucher, 2016). Sustained high quality discretionary effort involving intrapreneurship is increasingly significant in building sustainable competitive advantage in high value-added markets internationally (ibid.). Since the acknowledged end of transition around 2015, Russia has become an under-studied national case, but it exhibits issues apparent in labour markets more generally (Clarke, 2002; Dohmen et al., 2014). These consist first in how firms react to strong macroeconomic shocks such as those of 2001 and 2008 onwards (Dohmen et al., 2014:504-5). Second, the other general issue, is the effectiveness of using monetary incentives to employees both to retain them and in order to extract high employee contributions such as intrapreneurship (Marsden and Belfield, 2010; Batt et al., 2010). This second issue has been debated by managers in Russia, a discussion reflected and deepened by Clarke (2002) and Dohmen et al., (2014). Our study therefore relates to the wider international theme of firms' wage policies and employee performance (Lumpkin and Dess, 1996; Marsden and Belfield, 2010). Some international evidence exists of wage premia, with significant inter-firm and cross-country variations (Batt et al., 2010; Marsden and Belfield, 2010). However, the research analysing the results of these premia is 'inconclusive' (Batt et al., 2010:400).

In what follows, we initially outline the Akerlof and similar incentive models, contrasting these with an alternative, more pressure-led model. Next, we outline developments in Russian labour markets and propose three hypotheses. We then introduce the Russian Longitudinal Monitoring Survey (RLMS) and our methods before conducting empirical analysis for 1994-2015. Finally, we draw conclusions and identify our empirical and theoretical contributions through extending Akerlof's theory.

Theory and hypotheses

Akerlof's theory of partial gift exchange

Akerlof's (1982) theory derives from social psychology. Thus, what is involved here is how 'psychological contracts' are linked to monetary reward. The theory was based on evidence from the USA. Previous studies on employee discretionary effort in Russia have adopted individual 'work passion' and locus of control perspectives (Astakhova and Porter, 2015; Semykina and Linz, 2010). Akerlof's theory is used here because it *directly* addresses and theorises the relationship between pay - and employers' willingness (or not) to pay above market rates - and employee self-perceived 'entrepreneurial' effort. No other theory does this. Unlike Herzberg's (1963) theory challenging Taylorist 'scientific management', Akerlof's is not a general theory of motivation but shows how pay may be used by some employers to evoke employee 'gifts'. Herzberg famously designated pay - our central concern - a *hygiene* factor, i.e., not one likely *per se* to evoke a positive employee response. In the Russian context, this contradicts the consensus among experts that employees regard discretionary inputs as requiring *monetary* recompense (Clarke, 2002; Krzywdzinski, 2018; Morrison, 2007; Morrison et al., 2020).

Akerlof's theory of partial gift exchange and other motivational models

Akerlof (1982:544) explicitly proposed an 'alternative micro-foundation for implicit contracts. The theory pivots on within-work-group norms which influence conceptions of a 'fair' wage-effort balance. Companies may consistently pay their workers above market clearing rates. In the case of the women routine clerical workers who provided the empirical basis for Akerlof's theory, they were paid above-market time rates provided they reached a management-specified production threshold. These workers 'acquired sentiment' both for their fellow workers and for the firm, and therefore tried consistently to increase their output above the threshold (Akerlof, 1982:543). Such discretionary employee inputs have been shown internationally to be

stimulated in organizational environments where high levels of inter-worker cooperation, shared decision-taking and trust between managers and workers exist (Chang, 2000).

A model exists for incentivizing non-managerial employee intrapreneurship which refers specifically to post-socialist contexts (Antoncic and Antoncic, 2011). It involves a ‘systematic and detailed approach to employee satisfaction’. Its key constituents are: general employee satisfaction, positive relationships between employees, ‘appropriate remuneration systems’, employee-supportive organizational cultures and employee loyalty to the enterprise. The empirical measure for these systems’ ‘appropriateness’ is that employment is ‘*relatively well-rewarded* (authors’ emphasis)’ (Antoncic and Antoncic, 2011:Table 1). This model therefore recognizes the effect of Akerlof-style above-market remuneration on intrapreneurship, explicitly nesting it in a wider collaborative organizational culture and referring to post-socialist economies.

Alternative models for eliciting employee intrapreneurship also exist. ‘Stick’ incentives may induce employees to undertake discretionary activities which they interpret as ‘entrepreneurial’. Wunderer (2002) suggests that managerial pressures can evoke ‘employee co-intrapreneurialism’ whereby workers are *pushed* to cooperate with managers in innovation. Hence, theories of the antecedents of employee intrapreneurialism are of two types: positively (carrot) and negatively (stick) motivational. It has been suggested in the Russian context that positive models are more effective in evoking employee discretionary inputs (Bizyukov, 2018; Gurkov, 2013). Nevertheless, as also suggested, the growth of vulnerable low skilled segments in Russia in the 21st Century have in reality meant that motivation within them is achieved by other, coercive ‘stick’ means.

Labour market developments in Russia, 1994-2015

Russian remuneration systems changed in the 21st Century to become more individualised, employer-controlled, and closely related to outputs. The 2002 Labour Code allowed enterprise-level alteration of previously centralized pay ‘tariffs’ specifying pay rates for different worker categories (Danilova et al., 2012; Vinogradova et al., 2015). After the 2008 crisis, Russian companies reduced salaries ‘by an average of 30%’ (Gurkov, 2013:25). Simultaneously, variable pay has become ‘up to 30% of overall remuneration’ (Rozhkova et al., 2018:4).

A longer-run continuity with Soviet practice also exists. Bonus systems introduced pre-1989 persisted in some companies as late as 2017 (Krzywdzinski, 2018:181). Recently introduced systems continue focusing on narrow task fulfilment (Andreeva et al., 2014). Individual performance-related pay (PRP) systems prevail in the private sector (Hollinshead, 2017:353). Such systems sustain managers’ control strategies within a ‘punishment culture’ (Morris and Hinz, 2017:3; Krzywdzinski, 2018:180-181). This culture extends to foreign-owned green-field establishments (Sippola, 2016). These developments are in strong tension with the positive motivating factors in Akerlof’s and Antoncic and Antoncic’s models.

Russian earnings data are unsystematic (World Bank, 2014). Official figures for real wages, limited to declared wages in large and medium-sized organizations (38% of the workforce), showed positive changes throughout 2000-2013 except for 2009 (World Bank, 2014:8). World Bank statistics showed a steady decline in the share of the Russian population which had per capita consumption of over 10 US\$ per day, at 2005 purchasing power parity, linking that to a rise in ‘employee vulnerability’ (World Bank, 2017:13). Hence, pay has become an increasingly salient issue for employees. Meanwhile, many Russian employers have developed individual PRP and bonus systems rewarding compliance with fixed output criteria. Pay incentives to employee intrapreneurship may therefore have declined since 1994. We therefore propose:

Hypothesis 1: *The wage premium and employee intrapreneurship declined across the Russian economy, 1994-2015.*

Nevertheless, some employers may choose high-road strategies. Croucher and Rizov (2011) showed that an Akerlof wage premium evoked intrapreneurial contributions in Russia, 1994-2004. We note that Akerlof proposes wage premia as a route to employer *differentiation* in the labour market; the question is therefore how common this was among employers. Major studies by Gurkov (2013:27) and Rozhkova et al. (2018:23) confirm that ‘high wage’ strategies were sometimes pursued by employers in Russia, but these did not automatically amount to an Akerlof premium. Nevertheless, it is possible that such a wage premium may have continued to operate in some firms. In this case we take the period 2005-15 since it encompasses the period in which major macro-economic shocks notably that of 2008 occurred, including the years before and those of its substantial aftermath. We hypothesize:

Hypothesis 2: *In aggregate, Akerlof’s wage premium continued to operate in Russia, and was associated with intrapreneurship, 2005-2015.*

‘Stick’ incentives for intrapreneurial activity

The increased employee ‘vulnerabilities’ referred to by the World Bank have been significant in Russia especially after 2008 and relate to three closely linked factors: individualization of employment relationships, contractual ‘informalization’, and migration-related labour market competition. Informality does not depend on an ‘informal economy’; nor does it refer to a complete lack of contracts. Rather, it is a widespread ‘lack of employment security, access to social benefits and social protection’ (Likic-Brboric et al., 2013:679). Morris and Hinz (2017) argue that precarization of labour in Russia goes beyond an ‘informal sector’, via the emergence of ‘semi-formal jobs’ (2017:3; see also Golenkova, 2015). In Russia, informality

contributes to labour demoralisation by fostering ultra-flexible working regimes and extra-legal state and employer coercion (Morrison and Bizyukov, 2017:559).

Individualization has grown. The most vulnerable workers lack even the minimal protection offered by Russian enterprise ‘collective agreements’ (Bizyukov, 2013). *Informal employment arrangements* are also increasingly significant. Gimpel’son and Kapeljushnikov (2014) suggests that Russians without formal contracts had grown to 25% of the total labour force by 2013, suffering a 15-20% wage gap relative to the formally employed.

Labour market pressures from migrant competition may push individuals to seek to consolidate their employment. Migrant labour has brought ‘informalisation via ethnic segmentation and migrant workers’ exploitation’ (Likic-Brboric et al., 2013:679). Migrants to Russia originate from both the Former Soviet Union (FSU) and provincial Russia (Morrison et al., 2020; Mukomel, 2014:82-98; Vorobyova and Topilin, 2014). They find urban employment in sectors such as services and construction. Mukomel (2014:85) estimated migrant employment at 33% in retail and repair, 26% in construction, and 17% in personal, social, and housing services. We categorise both non-construction industries as services and designate them *highly informalized* due to high levels of insecurity and precarity as defined above (Karabchuk and Zabirowa, 2018).

By 2015, Russian official statistics showed that the service sector employed 65% of the Russian workforce with women comprising two thirds of personnel (RossStat, 2016). Its main characteristics are the prevalence of informal employment ‘in market-based service activities like wholesale and retail trade (...) and household services’ (Karabchuk and Zabirowa, 2018:766) and high levels of gender segregation (Chernikova and Belokhvostova, 2014). The ‘feminised’ sector’s characteristics differentiate it from male-dominated ones (Walker, 2017:11). Employers’ preference for female employees is explained by beliefs that women possess greater capacity for emotional labour (Gibbs and Ashill, 2013) and are more

dependable employees (Chernikova and Belokhvostova, 2014). Women workers display higher levels of job satisfaction than their male counterparts except in relation to wages (RossStat, 2016). A gender pay gap averaging around 28% existed in 1996-2011 (Atencio and Posadas, 2015).

Russian managerial strategies towards service workers fall into two categories: authoritarian and paternalistic (Tartakovskaya and Vanke, 2019:109). In the latter model, managers deploy personalized concessions, presents and social events to motivate employees. Pay and conditions are only marginally above unemployment benefit levels (Tartakovskaya, 2017). Tartakovskaya and Vanke (2019) argue that these workers have developed a ‘neo-liberal subjectivity’ featuring internalized self-regulation and performance maximization (2019:110-112; see also Adamson and Salmenniemi, 2015). This contrasts with male industrial workers who resent these employer approaches (Morris and Hinz, 2017:257-58).

In sum, precarization is a widespread and growing phenomenon whose impact on intrapreneurship may vary by industry. Research among migrant construction workers in Russia (Morrison et al., 2020) finds resistance akin to the cultural rejection of managerial control in Russian manufacturing (Morris and Hinz, 2017). The service sector’s ‘gendered’ legacies of low wages, higher productivity, and tighter discipline (Morrison, 2007) appear less conducive to cultures of resistance. We therefore hypothesize:

Hypothesis 3: Intrapreneurial activity increased among workers in highly informalized industries (e.g., services and construction) in Russia, 2005-2015.

Empirical analysis

Data and methods

Our longitudinal analysis exploits the high-quality Russian Longitudinal Monitoring Survey (RLMS) dataset. The RLMS is a nationally representative survey, which sampled the same

households and individuals annually, on 20 occasions between 1994 and 2015. The survey is administered in face-to-face interviews by specially trained researchers. The data are claimed by Moscow Higher School of Economics (HSE) to be the best non-governmental panel data available on key household issues (<https://www.hse.ru/en/rlms/description>). Data include wide-ranging information concerning individual and household characteristics such as demographics, education, labour force participation, occupation, wages and other incomes. Importantly, they also include information about each individual's nature of employment, including the question about intrapreneurial activity drawn on here. Our full sample consists of all adult individuals of working age - 16 to 65 years - surveyed over 20-yearly waves and comprises 297,885 observations, i.e., about 15,000 per year. The sample also includes migrants and individuals engaged in informal employment. Information on the number of observations by year for the samples used is available from the authors.

We follow Croucher and Rizov's (2011) two-stage estimation strategy. While the focus of our analysis is on the association of the (fair) wage premium with intrapreneurial behaviour, in a first stage, we estimate the wage premium, using the full sample available, and then, in a second stage (sampling employees only), we estimate its and other factors' associations with intrapreneurship. The differential between the actual and the estimated (fair) wage for each individual in our sample is calculated by using wage estimates from a Heckman selection model (in the first stage) applied to a Mincerian wage equation (Heckman, 1974). Individuals choose whether to work, and thus, whether we can observe their wages in our data. If individuals made this decision randomly, we could ignore the fact that wages of not all individuals are observed and use ordinary least squares regression to fit a wage model. Such an assumption of random participation, however, is unlikely to be correct; individuals who anticipate relatively low wages would be unlikely to choose to work, and thus the sample of observed wages is biased upward.

We apply the Heckman selection model to control for selection into employment when estimating the wage rate, which is a function of individual characteristics such as age, education, gender, occupation (identified according to the ISCO08 classification), industry sector (identified according to the RLMS/Russian industry classification), and ethnicity (Russians vs. non-Russians). We include in the estimated sample (selection equation) both employed, under any type of arrangement, and unemployed individuals in the labour force. This approach reflects the theoretical assumption that the reference group for each individual comprises all other similar individuals. We include regional dummies in the specification, capturing differences in characteristics such as prices, unemployment, and inflation levels. We also include a set of time dummies reflecting our dataset's longitudinal nature. The estimated wage reflects the characteristics of all individuals in the reference set and the wages earned by them as well as the impact of regional rates of unemployment and, indirectly, the extent of unemployment benefits. The main identifying variables in the Heckman model's employment selection equation are the level of non-labour income and individual and household characteristics such as health, marital status, and numbers of children and adults in the household.

In the second analytic stage we focus on employee intrapreneurial contributions as the main dependent variable is self-reported on-the-job intrapreneurial activity. The RLMS question we use simply asks whether the respondent has made entrepreneurial contributions (*предпринимательская деятельность*) in his/her job while employed. Thus, we only use responses from employees. The RLMS adopts several techniques for ensuring the validity and reliability of responses. The 'anchoring' of questions is methodologically important (Gehlbach and Barge, 2012). In this case, the question is anchored at the end of a sequence of questions on entrepreneurial activity and appears in that context. Hence, the likely meaning of the broad term to respondents is clear in a general sense.

The ‘fair’ wage premium constitutes the main explanatory variable. The economic environment (and work norms) at any given point is exogenous to the firm and the individuals employed. Over time, during ‘transition’, the Russian economic environment and work norms have evolved. Similar to Croucher and Rizov (2011), we control for any explicit employee firm ownership stake, employee characteristics such as tenure, formality of employment contract, type of occupation, firm size, firm age, and type of firm ownership. Following our theoretical discussion, we note that some of the variables listed above could also be interpreted as capturing effects of labour market pressure due to increased labour market competition and associated managerial pressure; these are (low) ownership stake, (short) employment tenure, and (weak or absent) formality of contract. To capture changes associated with the advent of informal and precarious jobs we also introduce a set of industry (sector) dummies which we will interpret as indicators of differing labour market competitive pressures.

Table A1 in the Appendix presents definitions and summary statistics for the regression variables used in both analytic stages.

Our observed dependent variable Y is binary, taking the value one if the individual reported making intrapreneurial contributions, and zero otherwise. We specify a Probit model for individual i in period t as follows:

$$Y = \begin{cases} 1 & Y_{it}^* = X'_{it}\beta + \varepsilon_{it} > 0 \\ 0 & \text{Otherwise} \end{cases}, \quad (1)$$

where Y^* denotes the unobservable propensity of individual intrapreneurial contributions; X is a vector of time-varying and time-invariant exogenous variables (including the wage premium); β is the vector of coefficients associated with the vector X ; and ε is the unobservable error term. The specification assumes that all the inter-individual heterogeneity can be captured by the observed variables. However, unobserved, and possibly unobservable, variables may also influence individuals’ propensity to make intrapreneurial contributions. Assuming that the heterogeneity across individuals is time-invariant, we decompose the error term ε as follows:

$$\varepsilon_{it} = \alpha_i + u_{it}, \quad (2)$$

where α_i denotes the individual specific unobservable (random) effect and u_{it} is a random error.

Had we ignored the person-specific component of variation in the longitudinal behavioural process and modelled the data with a pooled Probit estimator, assuming repeated observations were independent, then we would have had to assume that deviations in the propensity towards intrapreneurial contributions from the overall group trend also vary randomly. This assumption illustrates that for the fixed-effects model, an individual's deviation from the overall group propensity to intrapreneurial contributions may be positive on one occasion and negative on another - an implausible view of the longitudinal behavioural process. Particularly for fixed-term studies, subjects are more likely to deviate systematically from the overall group level trend based on measured or unmeasured characteristics that increase or decrease the probability of intrapreneurial contributions. These characteristics exhibit random variability in the subject population and, to a lesser degree, within an individual over a fixed time. The model in equations (1) and (2) is known as 'random intercept' because person-specific deviations must be parallel to the average trend. The overall level of the propensity to make intrapreneurial contributions varies between individuals but deviations from the overall group trend are constant within an individual over time.

Descriptive analysis

In Figures 1a and 1b we present the evolution of the intrapreneurship rate for the full sample as well as by four main occupational categories – managers, professionals, skilled and technical, and service and low skilled manual workers. Figure 2 presents the intrapreneurship rate by gender and age group. The figures reveal heterogeneity in changes across occupations and gender. The higher rate of intrapreneurship among managers is apparent, while all other

occupation categories exhibit similar (lower) levels of intrapreneurship. Importantly, in aggregate, and by category, the downward trend for reported employee intrapreneurship is confirmed for the entire 1994-2015 period; it is especially strong in the first ten years, while during the last ten years the rate is relatively stable. The most significant decline is amongst professionals, skilled and low-skilled manual and services workers in the first decade. The decline of intrapreneurship among managers is less striking but is nevertheless substantial. Thus, the aggregate summary statistics of trends supports H1 although heterogeneous underlying developments are evident within subsamples.

- Figures 1a, 1b and 2 here –

Estimating the wage premium

Table 1 presents results from the first stage (wage) analysis using the Heckman selection model. In the selection equation we find that the standard (Mincerian) factors affect labour supply (probability to work). In the wage equation, the standard effects are also found: higher education and managerial and professional occupations command higher wages. Taken together, results from the Heckman model suggest that the wages of managerial, professional, and skilled and technical occupations are higher than of service and low-skilled manual workers as expected. We found no evidence of systematic wage differences across main industry sectors, except that public sector wages (the reference category) and agriculture and forestry wages are lower than in the rest of the economy.

- Table 1 here -

Next, we calculate the wage premium as the differential between the actual and the estimated ('fair') wage. The wage premium represents the individual pay differential from the prevailing market wage of similar individuals in terms of skills and local labour market conditions. To empirically verify the nature of the wage premium, we regress it on a set of

factors of individual productivity such as age, education, and tenure, and controls such as occupation, industry, and location variables. The estimation results (available on request) show no significant productivity factors but significant control variables suggesting that the wage premium is not systematically linked to individual productivity (as it would be in the case of efficiency wages).

Figure 3 illustrates that the wage premium has declined continuously throughout the period matching the decline in the intrapreneurship rate.

- Figure 3 here –

Estimating the antecedents of intrapreneurial contributions

In the second analytic stage the estimating specification is based on Akerlof's theory of the (fair) wage premium and the related implicit gift exchange relationship. The specification is further extended with variables capturing labour market pressures on employees. The results in Table 2 demonstrate that the wage premium has, on average, a positive and significant effect, lending support to H2. At the mean, a one percent increase in the wage premium would result in a two-percent increase in the propensity of intrapreneurial contributions. Furthermore, we find that several other variables, intended to capture the effects of the changing economic environment and associated work norms, impact intrapreneurial contributions. These are explicit (ownership) stake in the enterprise, length of tenure, formality of employment contract, and firm characteristics such as size and age. Length of tenure shows negative and, occasionally, a significant impact on intrapreneurship. Formality of contract is also a consistently significant and negative factor in evoking intrapreneurial contributions. Having a stake in the enterprise is a highly significant, positive factor.

The high significance of economic stake in the enterprise in stimulating intrapreneurial behaviour shows how that factor plays a role not explicitly considered in Akerlof's theory and

indeed demonstrates a limitation of that theory. Employees with an economic stake may consider themselves to be part-owners and therefore behaving as economically rational actors if they make intrapreneurial inputs rather than, as social equity theory would suggest, as making a reciprocal ‘gift.’ However, it must be noted that the proportion of employees with ownership stakes is tiny, at around 3%. The ownership stake in any case operates as an independent factor in our analysis rather than as a direct substitute for the Akerlof premium.

- Table 2 here –

Examination of different occupational subsamples shows interesting variations. For managers, with their much higher intrapreneurship rate, the wage premium plays a significant, positive role. But both length of tenure and formality of employment have significant negative effects. We can interpret these findings as evidence that labour market pressures are important for managerial occupations even in the primary labour market. Further evidence consistent with this argument is that the coefficient on the service sector dummy is significant positive (please, see previous discussion on the service sector specificities). In agriculture, managers appear to make significantly less intrapreneurial contributions than in other sectors, possibly because of the nature of agricultural business.

For professionals, low skilled manual, and service workers the marginal effects differ in important ways. The wage premium and economic stake in the enterprise do play an important positive role, but the magnitude of their effects appears three to five times smaller. However, if we consider the magnitude of the elasticities across the subsamples, we see that the importance of the effects is comparable across occupations. Length of tenure appears insignificant, but formality of employment remains a significant and negative factor. The service sector coefficient remains positive and statistically significant. These effects taken together suggest that in the professional and low-skill occupational segments, labour market insecurity is associated with increased intrapreneurial contributions, tending to support H3.

The results by gender are consistent with those for the full sample and by occupation. Few differences exist between genders, but women's length of tenure seems to have a negative effect on intrapreneurship while for men the effect is insignificant.

We also report, in Table 3, results for subsamples by two periods - until 2004 and from 2005 to 2015, and age cohort - *young*, up to 44 years of age and *old*, 45 years of age and older. We find that the wage premium has a significant positive effect on intrapreneurship in all subsamples, but the magnitude of the effect is twice as large in the first period (until 2004) – a result in support of H1 and H2. Length of tenure has a significant negative effect only in the first period (to 2004), while the negative effect of the formality of employment persists in all subsamples. These findings, considered together with the significant positive effects found for construction and service industries, are in support of our hypothesis (H3) that intrapreneurial contributions are induced in informalized environments.

- Table 3 here –

Discussion and conclusions

We set out to investigate whether a high wage-high intrapreneurial employee effort model remains a significant feature of the Russian economy. Our answer in brief is that by the end of our period, it had shrunk to become a model existing in only a tiny segment of the Russian economy.

Our first hypothesis was that “*The wage premium and employee intrapreneurship declined across the Russian economy during the period 1994-2015.*” In our second, we hypothesized that “*In aggregate, Akerlof's wage premium continued to operate in Russia and was associated with intrapreneurship, 2005-2015*”. The Akerlof premium was a significant antecedent of intrapreneurial activity. Both the wage premium and employee intrapreneurial activity persisted, albeit with reduced incidence, across our period. Akerlof-premium related

intrapreneurial activity declined most markedly in the first decade 1994-2004 and came close to disappearing in the latter period down to 2015. Thus, the linked trends already observed in Croucher and Rizov (2011) continued, and both hypotheses H1 and H2 are supported. Hence, the financial crisis of 2008 and subsequent smaller shocks simply gave more impetus to a pre-existing trend.

The premium had uneven impacts among worker groups. In 2015, the premium was most effective among managers, younger workers aged below 45 and women. The finding on women contrasts with Croucher and Rizov's (2011) earlier findings but chimes with Astakhova and Porter's (2015) finding that 'work passion' was linked to increased productivity among women. In Akerlof's terms, women straddle primary and secondary labour markets and in the former case, the wage premium operates by definition. The significant services dummy tends to suggest that in secondary services, labour market pressures are more relevant than wage premia. Our results may therefore provide some support for the argument that women in the secondary labour market have internalized entrepreneurial values.

Our third hypothesis was: "*Intrapreneurial activity increased among workers in highly informalized industries such as services and construction, especially in 2005-2015*". The results confirm the hypothesis for the frequently overlooked construction and service sectors. The increase in intrapreneurship is associated with recent push factors from labour market pressures. These factors appear to produce a much stronger positive intrapreneurial effect among service employees when compared with the weaker effects in construction, where a more antagonistic 'us and them' culture prevails. In services, employers deploy relatively low-cost strategies designed to build on a traditional 'work collective' climate. They meet the expectations of employees in a highly unstable and precarious labour market. Women's attraction to such contracts may be explained as the complex outcome of gendered legacies,

shaping their preferences for family-friendly, clean jobs, and segregation in working class or migrant circles where informalisation is normalised.

Our theoretical contribution is twofold. First, we have established in the Russian case that the Akerlof wage premium can be subject to longitudinal decline in a national economy, with potentially wider economic consequences than simply the in-company effects delineated by Akerlof. At a minimum, it implies a reduced national significance for the high wage-high employee intrapreneurialism model. Second, we propose an answer to a question that Akerlof specifically designated as one for future research, viz: how employee ‘gifts’ are evoked in ‘secondary’ labour markets. We introduce the notion of labour market-induced intrapreneurialism, which exists especially in secondary labour markets. In Russia, it is induced by means other than Akerlof’s premium. This possibility is not widely envisaged by the often normatively tinged literature on intrapreneurialism. We also discern marked differences between industries associated with the secondary labour market, which require further research.

Our findings have implications for management. The steady decline in the incidence of the Akerlof premium leaves managers with two options where employee intrapreneurial inputs are especially relevant. The first of these is to seek to persuade owners to use the premium, possibly in a selective way for key employee groups. The second is to examine the more relational approach to extracting employee entrepreneurial inputs identified by Kakabadse et al. (2018) which is consistent with the other collaborative approaches identified above. Market-pressure induced entrepreneurship should instead be recognised as associated with labour market segregation and gender discrimination.

Our theoretical contribution’s generalisability to other national contexts requires further empirical inquiry. The Russian secondary labour market context is an extreme example of employee precarity in a European perspective but, since it is far from exceptional in the developing world can hardly be regarded as unusual in global terms.

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FIGURE 1a

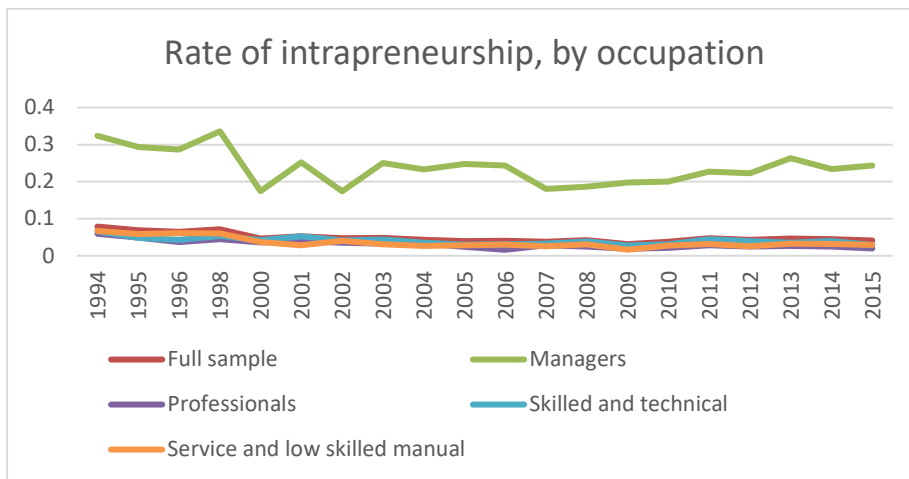
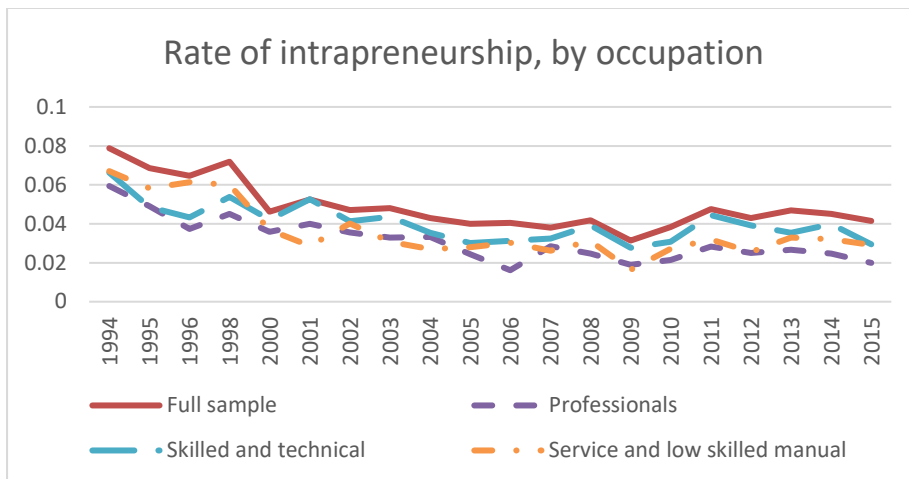


FIGURE 1b



Note: Same as Figure 1a but the Managers category is removed.

FIGURE 2

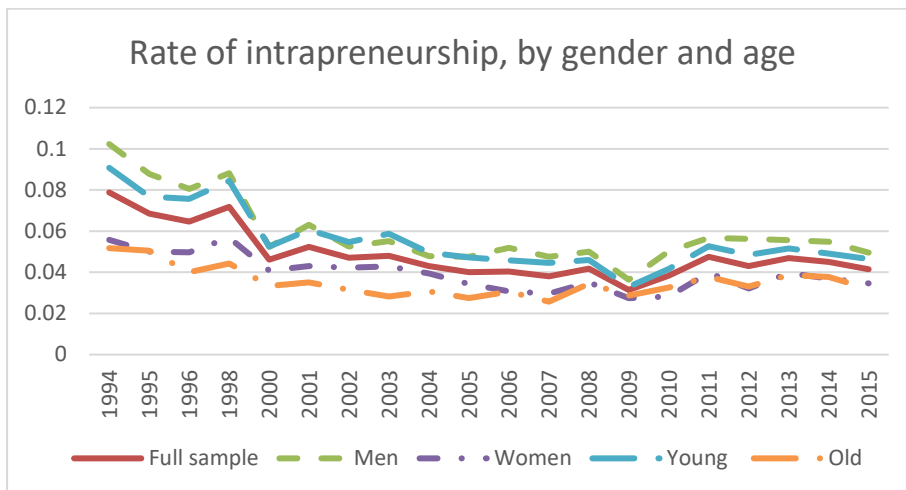


FIGURE 3

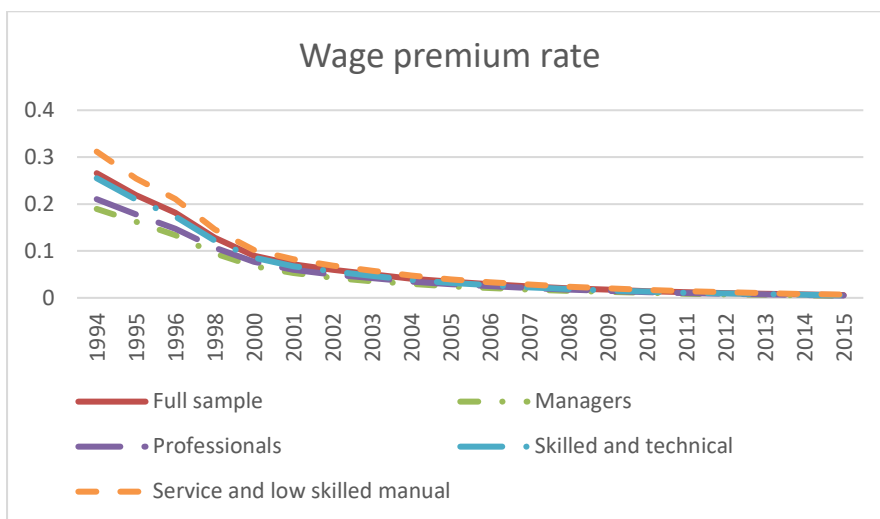


TABLE 1 *Wage equation*

Variable	Selection	Wage
(1)	(2)	(3)
Age	0.179 (0.010)	0.008 (0.002)
Age ² x10 ⁻²	-0.226 (0.012)	-0.013 (0.002)
HighSchool	0.279 (0.017)	0.101 (0.010)
University	0.616 (0.021)	0.319 (0.013)
Male	0.126 (0.013)	0.210 (0.008)
Russian	0.273 (0.019)	0.008 (0.010)
Manager		0.351 (0.016)
Professional		0.266 (0.011)
SkilledTech		0.154 (0.008)
AgriForest		-0.258 (0.019)
Construction		0.292 (0.013)
Manufacturing		0.232 (0.011)
Services		0.168 (0.009)
Transport		0.278 (0.013)
OilGas		0.396 (0.018)
Married	0.090 (0.014)	-
Children16	-0.044 (0.012)	-
HHSize	0.077 (0.013)	-
Healthy	0.578 (0.019)	
NLIncome	-0.016 (0.001)	-
North&NW	0.096 (0.030)	-0.234 (0.016)
Central	0.068 (0.023)	-0.516 (0.013)
Volga	-0.064 (0.024)	-0.720 (0.012)
NorthCaucasus	-0.294 (0.026)	-0.653 (0.014)
Ural	0.118 (0.025)	-0.610 (0.012)
WestSiberia	-0.216 (0.028)	-0.574 (0.016)
EastSiberia	-0.167 (0.026)	-0.466 (0.015)
Wald Chi2(23)		139286.19
Total observations		172240
Selected observations		97459
Rho		-0.27 (0.02)
Wald Rho=0		213.70

Note: Wage equation is estimated by two-stage Heckman model. **Selection** denotes selection equation; **Wage** denotes wage equation corrected for selection. Coefficients in **bold** are significant at the 5 percent level or better and represent marginal effects. Standard errors are reported in parentheses next to the coefficients. Time dummies are included in both equations. Reference education category is PrimSchool; reference occupation category is ServManual; reference industry category is PublicSector; reference region is Moscow&St.Petersburg. All regression variables are defined in the Appendix, Table A1.

TABLE 2 Intrapreneurship equation by occupation, gender and age cohort

Variable	Full	Managers	Others	Men	Women
(1)	(2)	(3)	(4)	(5)	(6)
WagePremium	0.007 (0.001)	0.020 (0.008)	0.007 (0.001)	0.004 (0.002)	0.009 (0.002)
OwnStake	0.085 (0.003)	0.256 (0.008)	0.058 (0.002)	0.101 (0.004)	0.069 (0.003)
Tenure	-0.003 (0.001)	-0.036 (0.010)	-0.001 (0.001)	-0.001 (0.002)	-0.004 (0.002)
FormalContr	-0.010 (0.002)	-0.044 (0.014)	-0.010 (0.002)	-0.015 (0.003)	-0.005 (0.002)
FirmSize	-0.025 (0.002)	-0.056 (0.010)	-0.020 (0.001)	-0.031 (0.002)	-0.019 (0.002)
FirmAge	-0.009 (0.002)	-0.030 (0.015)	-0.007 (0.002)	-0.011 (0.004)	-0.008 (0.003)
ForeignOwn	0.002 (0.003)	0.016 (0.024)	0.004 (0.003)	0.005 (0.005)	0.001 (0.004)
StateOwn	-0.052 (0.002)	-0.175 (0.013)	-0.042 (0.002)	-0.060 (0.003)	-0.044 (0.002)
AgriForest	-0.006 (0.005)	-0.070 (0.032)	-0.002 (0.004)	-0.009 (0.007)	-0.007 (0.007)
Construction	0.001 (0.003)	0.004 (0.020)	0.001 (0.003)	0.003 (0.004)	0.001 (0.007)
Manufacturing	-0.006 (0.003)	-0.020 (0.017)	-0.005 (0.002)	-0.009 (0.004)	-0.004 (0.004)
Services	0.013 (0.002)	0.034 (0.014)	0.013 (0.002)	0.014 (0.004)	0.013 (0.003)
Transport	0.004 (0.003)	0.034 (0.021)	0.002 (0.003)	0.002 (0.004)	0.002 (0.005)
OilGas	-0.012 (0.005)	-0.070 (0.033)	-0.008 (0.004)	-0.016 (0.007)	-0.008 (0.007)
Town	-0.002 (0.002)	-0.026 (0.013)	0.002 (0.002)	-0.008 (0.003)	0.004 (0.002)
PeripheralArea	-0.007 (0.004)	-0.024 (0.012)	-0.003 (0.004)	-0.010 (0.005)	-0.003 (0.005)
RuralArea	-0.016 (0.003)	-0.046 (0.017)	-0.010 (0.002)	-0.024 (0.004)	-0.009 (0.003)
Trend	-0.001 (0.000)	-0.005 (0.001)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)
Observations	86776	5074	81702	39383	47393
Wald Chi2(18)	2789.84	468.87	1823.73	1549.01	1226.72
	0.57	0.57	0.57	0.59	0.55
LR Rho=0	2374.26	199.00	1833.80	1245.31	1046.90

Note: Intrapreneurship equation is estimated by a probit (random effects) model. The coefficients reported represent marginal effects. Standard errors are reported in parentheses below the coefficients. Coefficients in **bold** are significant at the 5 percent level or better. Reference industry category is PublicSector; reference location category is RegionalCenter. All regression variables are defined in the Appendix, Table A1.

TABLE 3 Intrapreneurship equation by occupation, gender and age cohort

Variable	Full	Pre-2005	Post-2004	Young	Old
(1)	(2)	(5)	(6)	(7)	(8)
WagePremium	0.007 (0.001)	0.012 (0.002)	0.006 (0.001)	0.007 (0.002)	0.006 (0.002)
OwnStake	0.085 (0.003)	0.062 (0.004)	0.118 (0.004)	0.100 (0.003)	0.066 (0.003)
Tenure	-0.003 (0.001)	-0.037 (0.006)	-0.001 (0.001)	-0.001 (0.002)	-0.001 (0.002)
FormalContr	-0.010 (0.002)	-0.010 (0.003)	-0.008 (0.002)	-0.011 (0.002)	-0.006 (0.003)
FirmSize	-0.025 (0.002)	-0.029 (0.003)	-0.018 (0.002)	-0.026 (0.002)	-0.022 (0.002)
FirmAge	-0.009 (0.002)	-0.025 (0.008)	-0.011 (0.002)	-0.010 (0.004)	-0.009 (0.003)
ForeignOwn	0.002 (0.003)	-0.010 (0.007)	0.007 (0.003)	0.002 (0.004)	0.001 (0.005)
StateOwn	-0.052 (0.002)	-0.071 (0.003)	-0.034 (0.002)	-0.065 (0.003)	-0.029 (0.002)
AgriForest	-0.006 (0.005)	-0.019 (0.011)	-0.001 (0.005)	-0.010 (0.006)	-0.004 (0.006)
Construction	0.001 (0.003)	-0.007 (0.008)	0.006 (0.003)	0.003 (0.004)	0.001 (0.005)
Manufacturing	-0.006 (0.003)	-0.023 (0.006)	0.002 (0.003)	-0.014 (0.004)	-0.001 (0.004)
Services	0.013 (0.002)	0.019 (0.004)	0.016 (0.002)	0.006 (0.003)	0.020 (0.003)
Transport	0.004 (0.003)	-0.007 (0.008)	0.009 (0.003)	-0.002 (0.004)	0.007 (0.004)
OilGas	-0.012 (0.005)	-0.007 (0.012)	-0.019 (0.004)	-0.024 (0.007)	-0.001 (0.006)
Town	-0.002 (0.002)	-0.010 (0.006)	0.003 (0.002)	-0.004 (0.003)	0.001 (0.003)
RuralArea	-0.016 (0.003)	-0.030 (0.005)	-0.007 (0.003)	-0.020 (0.004)	-0.010 (0.003)
Trend	-0.001 (0.000)	-0.006 (0.001)	0.001 (0.000)	-0.002 (0.000)	-0.000 (0.001)
Observations	86776	26117	60659	55580	31196
Wald Chi2(18)	2789.84	992.42	1620.09	1957.88	738.76
Rho	0.57	0.55	0.61	0.56	0.63
LR Rho=0	2374.26	650.50	1371.75	1560.20	678.21

Note: Intrapreneurship equation is estimated by a probit (random effects) model. The coefficients reported represent marginal effects. Standard errors are reported in parentheses below the coefficients. Coefficients in **bold** are significant at the 5 percent level or better. Reference industry category is PublicSector; reference location category is RegionalCenter. All regression variables are defined in the Appendix, Table A1.

APPENDIX

TABLE A1 *Summary statistics*

Variable	Definitions	Mean (SD)
(1)	(2)	(3)
<i>Dependent variables</i>		
Wage	Log of hourly wage (real 2000 Roubles)	3.691 (1.260)
Intrapreneur	Dummy variable equal to 1 if the employee performs entrepreneurial activity and 0 otherwise	0.045 (0.202)
<i>Determinants of 'fair' wage</i>		
Age	Individual age (year)	39.546 (11.605)
PrimSchool	Dummy variable equal to 1 if the individual has only completed primary school and 0 otherwise	0.098 (0.297)
HighSchool	Dummy variable equal to 1 if the individual has completed high school and 0 otherwise	0.618 (0.486)
University	Dummy variable equal to 1 if the individual has completed higher education and 0 otherwise	0.284 (0.451)
Male	Dummy variable equal to 1 if the individual is a male and 0 otherwise	0.454 (0.498)
Russian	Dummy variable equal to 1 if the individual is of Russian nationality and 0 otherwise	0.864 (0.320)
Manager	Dummy variable equal to 1 if the individual is in a managerial occupation and 0 otherwise	0.058 (0.235)
Professional	Dummy variable equal to 1 if the individual is in a professional occupation and 0 otherwise	0.192 (0.394)
SkilledTech	Dummy variable equal to 1 if the individual is in a skilled or technical occupation and 0 otherwise	0.323 (0.468)
ServManual	Dummy variable equal to 1 if the individual is in a services or low skilled manual work occupation and 0 otherwise	0.426 (0.494)
Married	Dummy variable equal to 1 if the individual is married and 0 otherwise	0.691 (0.462)
Children16	Dummy variable equal to 1 if in the household there are children under the age of 16 years and 0 otherwise	0.298 (0.457)
HHSize	Log of number of adult household members	0.466 (0.482)
Healthy	Dummy variable equal to 1 if the individual is healthy and 0 otherwise	0.951 (0.216)
NLIncome	Log of monthly non-labour income per household member (real 2000 Rubbles)	4.046 (5.030)

TABLE A1 (continued)

(1)	(2)	(3)
<i>Determinants of employee intrapreneurship</i>		
WagePremium	Proportional 'fair' wage premium	0.045 (0.068)
OwnStake	Dummy variable equal to 1 if the employee formally owns up to 50% share in the firm and 0 otherwise	0.052 (0.223)
Tenure	Log of number of years working in the same firm	2.557 (0.741)
FormCtr	Dummy variable equal to 1 if the individual is employed with a formal contract and 0 otherwise	0.940 (0.236)
FirmSize	Dummy variable equal to 1 if the firm is larger than the median size firm and 0 otherwise	0.583 (0.493)
FirmAge	Dummy variable equal to 1 if the firm is old, established prior to 1992 and 0 otherwise	0.225 (0.417)
ForeignOwn	Dummy variable equal to 1 if the firm is owned by a foreign (private) entity and 0 otherwise	0.039 (0.193)
StateOwn	Dummy variable equal to 1 if the firm is owned by the local of central government and 0 otherwise	0.353 (0.497)
<i>Industry fixed effects</i>		
AgriForest	Dummy variable equal to 1 if the individual works in the agriculture or forestry sector and 0 otherwise	0.040 (0.197)
Construction	Dummy variable equal to 1 if the individual works in the construction sector and 0 otherwise	0.072 (0.258)
Manufacturing	Dummy variable equal to 1 if the individual works in the manufacturing sector and 0 otherwise	0.161 (0.368)
Services	Dummy variable equal to 1 if the individual works in the service sector and 0 otherwise	0.220 (0.414)
Transport	Dummy variable equal to 1 if the individual works in the transport sector and 0 otherwise	0.088 (0.284)
OilGas	Dummy variable equal to 1 if the individual works in the oil and gas sector and 0 otherwise	0.041 (0.199)
PublicSector	Dummy variable equal to 1 if the individual works in the public sector and 0 otherwise	0.377 (0.485)

TABLE A1 (continued)

	(1)	(2)	(3)
<i>Regional fixed effects</i>			
North&NW		Dummy variable equal to 1 if the individual resides in the North or North- western regions and 0 otherwise	0.069 (0.254)
Central		Dummy variable equal to 1 if the individual resides in the Central region and 0 otherwise	0.200 (0.400)
Volga		Dummy variable equal to 1 if the individual resides in the Volga region and 0 otherwise	0.169 (0.375)
NorthCaucasus		Dummy variable equal to 1 if the individual resides in the North Caucasus region and 0 otherwise	0.106 (0.308)
Ural		Dummy variable equal to 1 if the individual resides in the Ural region and 0 otherwise	0.162 (0.368)
WestSiberia		Dummy variable equal to 1 if the individual resides in the Western Siberia region and 0 otherwise	0.084 (0.277)
EastSiberia		Dummy variable equal to 1 if the individual resides in the Eastern Siberia region and 0 otherwise	0.086 (0.280)
Moscow&St.Petersburg		Dummy variable equal to 1 if the individual resides in Moscow or St. Peterburg metropolitan regions and 0 otherwise	0.123 (0.328)
Town		Dummy variable equal to 1 if the individual resides in a provincial town and 0 otherwise	0.341 (0.474)
RuralArea		Dummy variable equal to 1 if the individual resides in a rural area and 0 otherwise	0.198 (0.398)
RegionalCenter		Dummy variable equal to 1 if the individual resides in a regional centre or large city and 0 otherwise	0.461 (0.498)

Note: The summary statistics reported for each variable are mean and standard deviation (in parentheses). The number of observations is 86,776 from the second stage regression (intrapreneurship) equation.