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# Economic Crises and Wellbeing: Social Norms and Home Production

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## Abstract

Why does work appear more important to the life satisfaction of some population groups than others? Household data from Russia in 1992 allows plausible identification of the causal impact of being workless on time spent in home production and life satisfaction. We present a model of home production in which men face stigma in some non-market activities, so that their ability to substitute into work at home is circumscribed. Consistent with our model, we find that worklessness causes men's time in productive activities to decrease much more than women's. Impacts of worklessness on life satisfaction are much larger for men.

JEL codes: H4, J1

Keywords: social norms, stigma, home production, life satisfaction, subjective wellbeing, economic rank, worklessness, Russia, economic crisis

# 1 Introduction

Perceptions of identity and social stigma are now widely recognized as being important to the work decisions of individuals (see, for example, Akerlof and Kranton (2000), Akerlof and Kranton (2005) and Akerlof and Kranton (2008)). Real business cycle models have long considered the importance of home production to the US economy, and the countercyclicality of home production levels (see, for example, Benhabib, Rogerson, and Wright (1991) and Greenwood, Rogerson, and Wright (1997)). This paper investigates the hypothesis that social norms about home production moderate the impact of economic crises on wellbeing. We employ Russian data collected immediately following price and labour market liberalisation in 1992 to examine how stigma facing men in home production might arbitrate the wellbeing impact of worklessness and economic crises. If men face stigma in home production, a given deterioration in labour market conditions may have greater negative consequences for men's wellbeing. We identify differences between men and women in the causal effect of job loss on time spent in home production, subjective wellbeing, and perceptions of economic security. We show both theoretically and empirically the role played by social norms on the wellbeing effects of worklessness.

Our paper contributes to a literature that seeks to understand behaviour resulting from non-pecuniary motives and the pursuit of wellbeing. Becoming workless will affect wellbeing not only because of reduced incomes but also because this work status change may put an individual in conflict with a social norm. There is strong empirical evidence that employment status is an important determinant of individual wellbeing. Gerlach and Stephan (1996), Korpi (1997), Winkelmann and Winkelmann (1998), Latif (2010) and Knabe and Raetzl (2011) estimate significant negative non-pecuniary effects of unemployment on reported life satisfaction measures. Wadsworth, Montgomery, and Bartley (1999) and Clark, Georgellis, and Sanfey (2001) show that unemployment in early life is associated with persistent psychological effects on individual wellbeing. Clark (2003) and Eggers, Gaddy, and Graham (2006) find that when 'other' individuals are also unemployed the negative effects of unemployment are mitigated.<sup>1</sup> To our knowledge the present study is the first to demonstrate the differential impact of worklessness on the wellbeing of men and women and to relate these observed differences to stigma in home production activities.

The basic labour supply model (Gronau (1977)) shows how individuals might optimally choose between home production, market work and leisure. Women might more readily substitute into home production when they become workless because of a lack of social stigma facing females in non-remunerated activities. This might occur even if their preferences regarding labour and leisure, and their productivity at home, are identical to those of men. If men face stigma in some non-remunerated activities, a given rise in worklessness would then have a more severe impact on men's wellbeing than on women's.

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<sup>1</sup>Clark, Knabe, and Raetzl (2010) looks at the effects of others' unemployment and estimate that its impact on the wellbeing of men depends on their labour market prospects and opportunities, whether currently employed or unemployed.

The literature generally concurs in suggesting that income losses are associated with reduced life satisfaction. For example, Frijters, Haisken-DeNew, and Shields (2004) find that following the reunification of Germany in 1989, increases in household income and employment accounted for much of the positive changes in the life satisfaction of East Germans in the following decade. Analyzing panel data from 12 European countries and the US, MacCulloch, DiTella, and Oswald (2001) show that individuals are more satisfied in times of low inflation and unemployment, while DiTella, MacCulloch, and Oswald (2003) find that income and wellbeing are positively correlated. Using the same data, Wolfers (2003) shows that income volatility also has negative effects on wellbeing.

The potential econometric problems of employing subjective wellbeing data, discussed in Bertrand and Mullainthan (2001) and Hamermesh (2004), suggest why economists have not widely used these variables to investigate differential responses of population groups to economic crises. There is generally no plausible method of identifying the causal impact of worklessness on wellbeing. However, data collected in Russia in September 1992, the start of the most severe economic crisis in recent history, provides an opportunity to overcome these identification problems. Participation rates of urban females had been nearly universal in the late Soviet era. Those searching for jobs in mid-1992 had been sent *en masse* on long-term unpaid leaves from enterprises hit hard by the January 1992 price liberalisation and the sudden collapse of the communist (CMEA) trade area. These newly workless individuals could not have foreseen the success or failure of their workplaces when making previous employment decisions. Moreover, they were not chosen individually by managers for these indefinite unpaid leaves. Worklessness in Russia in September 1992 is thus plausibly unrelated to unobservable characteristics of individuals, and so also to systematic differences between the sexes in these unobservables. When testing our hypothesis, potential differences between men and women in productivity and in local labour market conditions can be taken into account.

The remainder of the paper proceeds as follows. In Section 2 we present a simple model, based on Gronau (1977), to demonstrate how stigma facing men in home production might lead to larger life satisfaction impacts of job loss on men than on women. Section 3 introduces the Russian Longitudinal Monitoring Survey (RLMS-HES) data, and discusses summary statistics and our identification strategy. In Section 4 we use multivariate analysis to test our model in ways which control for potential sex differences in labour market opportunities and in the economic impact of job loss on family income. We show that men do not substitute into female household tasks when workless, but women do substitute into male tasks. Consistent with our model, the life satisfaction impact of job loss is found to be much more severe for men than for women. Section 5 concludes.

## 2 Model

To fix ideas, we first show how social stigma in home production might not impact men who are employed, but have substantial impacts when they lose their jobs. We illustrate the case in which men and women earn the same wage, to emphasise that norms regarding home production activities can generate differential wellbeing impacts even in the absence of gender wage differentials.

We modify the Gronau model of time allocation in home production to include a social 'stigma' for men associated with working at home. Formally, let both men and women have identical preferences given by the utility function  $U(X, t_L)$ -where  $X$  denotes a composite consumption good that can be produced at home ( $X_H$ ) or purchased in the market ( $X_M$ ), while  $t_L$  denotes leisure time. The utility function satisfies  $U' > 0$  and  $U'' < 0$ .

Market produced goods and home produced goods are assumed to be perfect substitutes in consumption so:  $X = X_M + X_H$ . For women, the technology for producing goods at home is given by:  $X_H^w = f(t_H)$ , where  $t_H$  denotes time spent in home production with  $f' > 0$ ,  $f'' < 0$ .

Men experience a social stigma denoted with  $\tau(f(t_H))$  which we assume increases progressively with time spent working at home. In any given home activity men are equally productive to women and face the same production function and diminishing marginal returns. Men however respond to the social stigma by turning away from specific activities considered primarily as women's jobs. Exclusion from some home production activities makes the total marginal product of men in home production decrease faster than the total marginal product of women even though in a given activity they are just as productive. The greater the number of activities in which men face stigma, the greater is  $\tau(f(t_H))$ . In the Russian context, it is possible that the massive shortage of young men following World War II facilitated a sexual division of labour in the home in which men's potential productive activities were limited.<sup>2</sup> Therefore home production for men is given by  $X_H^m = [1 - \tau(f(t_H))] f(t_H)$ . We also assume that  $\tau'(f(t_H)) f(t_H) > 0$ .

Time at work  $t_N$  is paid at rate  $w$  and income from labour is used to purchase market goods:  $X_M = wt_N$ . Individuals are also faced with a time constraint:  $T = t_L + t_H + t_N$  where  $T$  denotes total available time. To remove unemployment effects that arise due to gender differences in income and focus on effects arising from the social stigma men experience in home production, we assume that men and women earnings from work  $w$  are equal.

The female and male consumer budget constraints, depicted in Figure 1, are given by:  $X = w(T - t_H - t_L) + f(t_H)$  and  $X = w(T - t_H - t_L) + [1 - \tau(f(t_H))] f(t_H)$ , respectively. The home production function is  $WT$  for women and  $MT$  for men. A female consumer is indifferent between working in the market and working at home at point  $A_w$  where  $w = f'(t_H)$ . For men

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<sup>2</sup>In the Soviet Union between June 22, 1941 and December 31, 1945 it is estimated that 26 to 27 million people died due to the war, with men comprising the majority of casualties, estimated at 20 million. This created a great imbalance in sex ratios, for example in 1945 the number of women between ages 20 to 29 was 50 percent higher than the number of men in the same age bracket (Ellman and Maksudov (1994)).

this point is  $A_m$  with  $w = f'(t_H) [1 - \tau'(f(t_H)) f(t_H) - \tau(f(t_H))]$ .<sup>3</sup>

Depending on the preference structure we can distinguish between two optimization points (along with points  $A_w$  and  $A_m$ ),  $E_w^1$  and  $E_w^2$  for women and  $E_m^1$  and  $E_m^2$  for men.

At points  $E_w^1$  and  $E_m^1$  consumers exhibit good intensive preferences and the marginal rate of substitution between goods and leisure equals the market wage rate ( $\frac{\partial U/\partial t_L}{\partial U/\partial X} = w$ ). Note that point  $E_m^1$  is found to the left of point  $E_w^1$ , while point  $A_m$  to the right of point  $A_w$  indicating that given identical preferences and the market wage rate, men would work longer hours in paid work to compensate for inefficiencies in their home production technology.

At these optimal points ( $E_w^1$  and  $E_m^1$ ), women spend  $OB$  time in leisure (men  $OB'$ ),  $BC$  time working (men  $B'C'$ ), and  $CT$  in home production (men  $C'T$ ). At points  $E_w^2$  and  $E_m^2$  ( $\frac{\partial U/\partial t_L}{\partial U/\partial X} = f'(t_h)$  for women and  $\frac{\partial U/\partial t_L}{\partial U/\partial X} = f'(t_H) [1 - \tau'(f(t_H)) f(t_H) - \tau(f(t_H))]$  for men) consumers value leisure relatively more to other consumption goods, and thus produce only at home. Becoming unemployed does not affect these consumers since they choose not to work at the going wage rate (although an increase in the wage rate might induce them to choose spending time in paid work).

What happens in terms of time allocation when individuals who originally optimize at points  $E_w^1$  and  $E_m^1$  become unemployed? While consumption of other goods declines, the effect on leisure is ambiguous and depends on the individual preference structure and size of the wage rate. Specifically, there will be a positive substitution effect since now leisure is cheaper (the price of leisure is  $w$  when agents work and  $f'(t_H)$  when they produce at home-note that  $f'(t_H) < w$  between  $A_w$  and  $W$ ) and there will be a negative income effect (assuming that leisure is a normal good) since overall work income has declined.

If the substitution effect dominates, in the model with progressive stigma in home production for men, women will increase time spend in home production by more than their men counterparts. This result stems from the fact that for men the marginal product of working at home decreases sharply with additional hours of home production.

Our model shows that stigma in home production can result in ‘poor’ leisure when men lose their jobs. Market and home production activities reduce leisure time, and individuals incur disutility of effort. However, if home production activities involve social contracts, or provide utility both through goods production and contributing to an individual’s sense of identity, stigma in home production will augment the pure financial effects of not working. We now examine the hypothesis that social norms for men and women working in home production activities influence the degree to which economic crises impact their wellbeing.

### 3 Data and Summary Statistics

The data comprise the first round of the 1992-1994 RLMS-HSE panel, undertaken from July through November of 1992. A majority of interviews took place in September. These data in-

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<sup>3</sup>We assume that  $1 > \tau'(f(t_H)) f(t_H) + \tau(f(t_H))$ .

clude more than six thousand households and ten thousand individuals, living in urban areas of Russia. Questions about labour market activities and subjective wellbeing were posed to all adult respondents. The RLMS-HSE data have been widely used to examine the socioeconomic impact of Russian economic transition, but analyses of subjective wellbeing data have generally employed a second RLMS sample, which began in 1994 and is ongoing.<sup>4</sup> Although the first RLMS-HSE sample did not sample rural areas, and so can be only considered representative of urban Russia, it provides a historical record of the reaction of the population to the initial shock of transition. We employ only the first round of the four wave 1992-1994 survey, because it represents a time before the emergence of private enterprise, unemployment benefits, a housing market, and geographical mobility. All non-working individuals were asked about their employment status in January 1992 and on the survey date, so that we can eliminate Soviet era non-workers from the sample.

The sample is constructed so as to exploit the price and labour market liberalisation in January 1992 as an exogenous shock to employment. Women aged 20 through 54 and men aged 20 through 59 are included.<sup>5</sup> Excluded are women on maternity leaves, men and women with a child under 1 in the household, those who receive a disability pension, and those who report severe health restrictions in the detailed health questionnaire posed to all respondents. A detailed list of exclusion restrictions is contained in the Data Appendix A. When estimation is undertaken at the household level, the sample is restricted to households containing at least one person from the sample of individuals.

### 3.1 Identification

Our model predicts that, even after accounting for the differences in potential labour market earnings of men and women, the wellbeing impact of being workless will be relatively great for men: The more men are stigmatized in home production, the less they substitute into non-remunerated productive activities when they lose their jobs. They do not substitute into home production activities normally done by women. Still, workless women might substitute into home production work normally performed by men, if they do not face such stigma. Worklessness may mean more leisure for men than for women, but relatively poor quality leisure since they produce so little at home.

In an ideal experiment, all working individuals would receive one wage, and a random selection of women and men would be dismissed from their positions. When dismissed they would obtain no payments, and the present discounted value of being without work would be

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<sup>4</sup>For example, Senik (2004) examines the relationship between subjective life satisfaction and the income distribution in Russia, using the 1994-2000 waves of the RLMS, and Lokshin and Ravallion (2005) investigate the relationship between an individual's subjective economic ranking and power ranking. Ravallion and Lokshin (2002) compare subjective economic rankings of individuals with income-based measures of household wellbeing.

<sup>5</sup>We focus here only on working age adults. This is partly because children are not generally labour market participants in Russia, and partly because no wellbeing data is collected for children in the RLMS survey.



the same for both sexes.<sup>6</sup> Our model explaining gender differential impacts of a shock could then be tested by comparing the time spent in home production of newly workless men and women. The hypothesis that economic shocks impact the wellbeing of men relatively severely could then be examined by comparing responses to subjective wellbeing questions posed to the newly workless men and women. The *ex ante* equality of wages, the random nature of dismissal, and equality across the sexes in the present discounted value of worklessness would all be important to the validity of such an experiment.

This ideal experiment could not credibly be undertaken in a laboratory, and the real world provides few historical instances which would mimic this situation naturally.<sup>7</sup> In any population, the observable and unobservable characteristics of the workless can be expected to differ substantially from those of the employed. As a result, potential wages, the expected duration of worklessness, and so the present discounted value of worklessness will also differ. This means that, even after conditioning on the observable characteristics of workers, and on local labour market conditions, a comparison of the home production and wellbeing of the employed and the workless is far from a natural experiment.

The collapse of the Soviet Union and the sudden liberalisation of wages and prices in Russia in January 1992 provide a historical exception in which the potential for job loss was arguable unforeseeable by workers and not related to their unobservable characteristics. The value of being workless was arguably very difficult to assess in this context, since the newly workless could not have known how their skills might be remunerated in the future market economy. The widespread use of unpaid, indefinite leaves in Russia in 1992 provides a source of variation in *de facto* worklessness which is plausibly unrelated to unobservable individual characteristics.<sup>8</sup> Furthermore, workers were not individually chosen to be placed on indefinite unpaid leaves. In fact, at the beginning of transition productivity differences among workers were largely unobservable. As Gimpelson and Lippoldt (2001) state in their book about the transition and turmoil of the Russian labour market: “The *quasi* labour market that existed prior to the transition operated with many distortions and was shaped and managed institutionally in a completely different way from a capitalist labour market. Employment targets and wage rates were set centrally and imposed on enterprises from above. Wages had nothing to do with the marginal productivity of labour”. Given the nature of the labour market in Russia prior to the transitional period, it may be reasonable to assume that the sudden *de facto* unemployment at the beginning of transition had little to do with differences in the productivity of workers.

Clearly, the impact of being workless on home production and wellbeing may differ sub-

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<sup>6</sup>If men and women had very different expectations about the duration of worklessness, this value would not be the same even if there was only one wage offered on the market and no unemployment benefits.

<sup>7</sup>In a laboratory setting, it would be impossible to know how workers value worklessness, since they always have employment options outside of the experiment. We would not be able to examine their changes in home production.

<sup>8</sup>See Commander, Liberman, Ugaz, and Yemtsov (1993) and Gimpelson and Lippoldt (2001) for a detailed discussion on the use of unpaid leaves in Russia.

stantially across the sexes simply because male earnings from work are systematically greater than are female. In theory, women in the Soviet Union enjoyed equal rights and equal pay, however in practice wage differences were prevalent.<sup>9</sup> However, differences across the sexes in local labour demand can be accounted for in multivariate analyses using interaction terms between sex and local fixed effects. A triple interaction between these two and educational attainment can control for differences in labour market prospects within educational groups and sex in a location. These controls for local labour market conditions allow us to plausibly isolate gender differences in reaction to the same economic shock.

Labour force participation of women was almost universal in urban Russia in the late 1990s, and worklessness did not officially exist. Some unemployment undoubtedly did exist, but within a general situation of labour hoarding by firms. Maternity leaves, extended leaves of up to 3 years for the care of small children, and a system of enterprise-based daycares, helped promote female labour force participation.<sup>10</sup> As well, salaries were low, so women needed to work outside the home to provide income. As a result, there were few housewives in urban Russia. In the 1992 RLMS, about 6% of women and about less than 1% of men reported that they were not working in January 1992. We eliminate from our sample individuals who were not working in January 1992, so ensuring that we compare the impact of being without work only amongst men and women with similarly strong attachment to the labour market. There was very little part-time work in the Soviet era, so we can be sure that these men and women were working similar hours prior to the liberalisation of the labour market.<sup>11</sup> Mean hours worked in the month prior to the interview were, 140 for working women, versus 172 for working men.

After January 1992 many enterprises put their workers on forced, indefinite unpaid leaves, rather than dismissing them. For this reason, the official unemployment rate in January 1992 remained low, but many more workers were not working at the time of the RLMS interview.<sup>12</sup> We consider an individual to be workless if they report that they are not working at the time of the RLMS interview.<sup>13</sup> This likely includes a majority of workers who are still officially employed (their Soviet-era Labour Book (*Trudovaya kniga*) is still at their former enterprise), but it captures the fact that they are not currently reporting for work at their official enterprise. In mid-1992 there were no unemployment benefits, and very few of the non-working received any compensation. As well, about 18% of women and 16% of men in our sample reported that

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<sup>9</sup>For example, using household level survey data collected in 1989, Katz (2001) calculates female/male wage-ratios of 66% for monthly and 73% for hourly wages.

<sup>10</sup>Grogan and Koka (2010) show that in Russia in 1992, there was no association between the probability of a woman being a labour force participant and her having a child under age 3. However, by 2004, having children under age 3 had become associated with significantly reduced participation and employment probabilities.

<sup>11</sup>Part-time employment was sparse in the Soviet Union with less than 1% of all workers doing part time work (see Moskoff (1982)).

<sup>12</sup>In Russia in 1992, subsidies to state-owned firms accounted for 28.7% of GDP (World Bank, 1992), and enterprises retained some access to credit. Price liberalisation did not immediately impose a hard budget constraint on Russian firms, but the collapse of trade in the 'CMEA' area did have an immediate effect on product demand. Job cuts did not match the severe drop in output, so that output per worker fell substantially.

<sup>13</sup>This is the first question in the individual-level survey and requires a yes or no response.

they had worked reduced hours in the month prior to the interview: This will tend to make the differences in home production time between the working and non-working smaller, and so to make us less likely to find impacts of worklessness using our binary comparison.

Our identification strategy assumes that there were no differences in potential wages between the workless and the employed, and between men and women, after accounting for observable characteristics and sex and education-specific local labour demand. This would usually be an implausible assumption, but for the specific conditions faced in Russia in 1992. Inflation over the year was 2609%, with a price rise in January 1992 alone of 245% (see Cochrane and Ickes (1995), Eliseeva (2006)). Wages were not indexed to inflation, Soviet era savings had been eliminated overnight, and there was still almost no private enterprise. This means that the present discounted value of worklessness would have been very difficult for a worker to ascertain, and that the real wages from work were very low.<sup>14</sup> It seems reasonable to assume that individuals did not yet know which attributes would be valuable in the market economy, or feel that they could accurately predict which firms would fail. Amid a chaotic general economic situation, both men and women were either working at their Soviet era jobs or not. Amongst those in our sample who were working at the date of interview, less than 1% described their principal occupation as either ‘entrepreneur’, or ‘engaged in individual economic activity’.

After selecting only able-bodied working-age individuals who had been employed in January 1992, we compare those who were working to those who were non-working in mid-1992. About 6% of men and 9% of women in our sample were workless according to this definition, consistent with Russian literature documenting the fact that women were more likely to be sent on unpaid leaves or have maternity leaves extended (see Desai and Idson (2001)).

As shown in Table 1, the workless had similar observable characteristics to the working. Women workless were slightly younger and less well-educated, had more children under 6 and from 6-18, but were equally likely to be married as the working. On average, the workless and working women were of the same height, had similar ability to use their arms, to walk, to hear, and to speak, and were slightly less likely to wear glasses.<sup>15</sup> As with the women, workless men were slightly younger (2 years) than working men, and relatively unlikely to have completed higher education. Workless and working men were equally likely to reside with children under 6 or aged 6-18, although they were substantially less likely to be married. As with women, health status was very similar across workless and working men. They had, on average, equal height, equal use of their arms, ability to walk, hear, and speak. As with the women, workless men were slightly less likely than working men to use glasses.

Since there existed no housing market, and no private telephone companies in mid-1992,

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<sup>14</sup>A simple Mincer earnings regression explaining log wages as a function of observable characteristics, location, and a full set of *female\*characteristics* interactions reveals an  $R^2$  of 0.07 in January 1992. A majority of covariates including educational dummies and education\*female interactions are not statistically significant at the 10% level in this regression. This specification is not presented here but is available on request from the authors.

<sup>15</sup>Workless women may be less likely than working women to wear glasses because, on average, they were 4 years younger.

we can use housing information to reflect the pre-liberalisation wealth of households. Whether working or not, women and men were both equally likely to be living in communal apartments, part of a house, or in a room of a house. About 13% of women and 16% of men lived in such accommodation, which typically contained shared kitchen and bathing facilities, but in which families resided in one room as a separate household. At the time of interview, working and non-working women had lived, at the mean, for the same amount of time in their current residence, and were equally likely to possess a telephone.<sup>16</sup> Amongst working and non-working men, mean times in residence and access to telephones were also the same.

Despite the slight observed differences in socioeconomic characteristics by work status, Soviet-era household wealth, and observed health characteristics of individuals do not appear to be related to the probability of being workless in mid-1992. We first show that, with very few controls for observables, there is no longer a statistically significant difference in the ‘female’ dummy in simple probit regressions explaining the probability of a sample member being workless at the time of the mid-1992 interview. This is important because, although we have carefully constructed the sample, our summary statistics table suggests that there were some differences in observable characteristics of working versus non-working men and women. This raises the concern that there may also be remaining unobservable differences between working and non-working sample members. If so, this would make the proposed identification strategy invalid.

To investigate the potential importance of sex-specific differences in unobservables in our data, we explain the probability of being workless first as a function only of the female dummy variable, and then as a function of this variable plus observable characteristics: age, education, marital status, household composition, interview date, with a full set of female interaction dummies.<sup>17</sup> The results are presented in Table 2. Specification (1) shows that, amongst our sample of people who were employed in January 1992, women are slightly more likely than men to be workless at the time of the interview. However, as shown in column (2), the addition of age group and marital status dummies removes the statistical significance of the female dummy. Conditional on age and marital status, there is no remaining sex difference in the probability of being workless. In column (2) we can also see that the coefficient on the marital status dummy is strongly negative and the *female\*marital* status dummy interaction is strongly positive. This is consistent with anecdotal evidence that, during the initial shock of transition, employers rationed jobs to keep married men at work and to put women with children on leave. However, this observation does not invalidate our identification strategy: Our strategy relies on the average unobservables for men and women not being different which, after accounting for age and marital status, they are not.

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<sup>16</sup>In the Soviet era, a telephone was an important indicator of the status of a household (see Geishecker and Haisken-DeNew (2004)).

<sup>17</sup>Using the second wave of RLMS between 1994 and 1996, Grogan and Van den Berg (2001) shows that in fact women had shorter unemployment duration spells than men, while unmarried men and lower educated individuals had longer unemployment durations.

The same holds when we include the educational dummies and their interactions with the female dummy (column (3)). When we include all of these plus controls for children and interview date, and the female interaction dummy, as in column (4), the female dummy is also not statistically significant. This suggests that unobservable differences in the characteristics of men and women are not driving differences in their worklessness propensities.

### **3.2 Home production and hours of work**

The RLMS-HSE data contain information on time devoted to home production tasks by each household member. Interviewers asked respondents how much time (in hours and minutes) they spent during the past 7 days in each of the following: working, commuting to and from work, studying, buying food, buying non-food items, obtaining household services, cooking and washing dishes, cleaning and repairing household items, laundering and ironing, caring for children under 7, caring for children 7-14 years old, helping relatives and friends, sleeping, at meals and appointments (ie. doctor's), gardening, and in leisure. Combined activities were also included, meaning, for example that two hours spent cooking and childminding would be registered as two hours spent cooking and two hours childminding. We consider home production to include: buying food, buying non-food items, obtaining household services, cooking and washing dishes, cleaning and repairing household items, laundering and ironing, caring for children under 7, caring for children 7-14 years old, helping relatives and friends, and gardening. Gardening is considered to be a home production activity because gardens were generally employed to grow vegetables and fruit which could be preserved for winter. While this input-based measure of home production does not provide insight into the productivity of individuals in these tasks, it corresponds directly to our model of time use.

Households in communist countries could purchase few consumer goods or services, and a relatively large amount of time was spent in home production. In our sample, working women spent an average of 83 hours per week in home production tasks, versus 75 hours per week when working. Given that there are 168 hours in a week, and the rarity of part-time work in the Soviet era, these amounts suggest that working women had very little leisure. In contrast, men spent 39 hours per week in home production, on average, when not working, and 33 hours per week when working. Either working or not, men had much more leisure time than did women. However, it is also possible that women combined home production activities with leisure to a greater extent than did men.

Despite the lack of part-time work in the Soviet Union, at the time of the survey women's hours were substantially less than those of men, and they were more likely to be working atypical hours at the time of the survey. The 18% of women who reported reduced hours in the previous month worked an average of 63 hours, versus 159 hours for those on regular hours. For the 16% of men on reduced hours, average working hours were much higher, at 122 versus 182 for those on regular hours. Given that hours reductions were a major strategy of managers for avoiding firings in 1992, these observed hours reductions may be considered exogenous to individuals.

This is important, given that working hours cause direct disutility in the labour supply model, and that women who are working in 1992 work significantly less than do men. The difference in an average woman's time allocation, and perhaps also her subjective wellbeing, between working and not working, will then be smaller than that for men. To rule this out, we control for hours of work when estimating the effect of not working on subjective wellbeing, setting hours of work to zero for individuals who were not working at the time of the interview.

### 3.3 Subjective Wellbeing

The 1992 RLMS includes four subjective wellbeing questions, posed to all adult respondents. These are:

*(i.) To what extent are you satisfied with your life at the present time?*

Respondents could choose one of the following responses: Fully satisfied (4), Rather satisfied (3), Less than satisfied (2), or Not at all satisfied (1).

*(ii.) And now, imagine please a nine-step ladder, where on the bottom, the first step, stand the poorest people, and on the highest step, the ninth, stand the richest people. On what step are you?*

Respondents chose a number in the range 1-9, inclusive.

*(iii.) Do you think that 12 months from now your family will better than today, or worse?*

Respondents chose from responses: Will live much better (5), will live somewhat better (4), nothing will change (3), will live somewhat worse (2), will live much worse (1).

*(iv.) To what extent are you concerned about your family's ability to procure basic necessities in the next twelve months?*

Respondents chose from responses: Very concerned (1), a little concerned (2), not very concerned (3), not concerned at all (4).

Men in our sample are more negative in their responses to the life satisfaction and economic security questions ((iii.) and (iv.)) than are women, even though they consider their economic rank to be higher. Whereas 90% of women reported that they were either 'fully satisfied' or 'rather satisfied' with life, only 85% of men did so. However, the fraction of men ranking themselves '5' or more on the economic ranking was 29% versus 25% for women. Men were less likely to report that they would live 'much better' or 'somewhat better' in the next 12 months than women, with 51% of men versus 56% of women so optimistic. Women were less concerned about procuring basic necessities than were men: 83% of women reported that they were 'not

very concerned' or 'unconcerned' about obtaining these necessities, versus 77% of men.<sup>18</sup>

A comparison of the subjective wellbeing responses by work status within sex does not clearly show that worklessness has stronger wellbeing impacts on men. About 90% of working women reported that they were 'fully satisfied' or 'rather satisfied' with life, versus 86% of non-working women. For men the difference is not statistically significant at the 10% level, but 84% of men report that they are 'fully satisfied' or 'rather satisfied' with life, versus 88% of nonworking men. Neither women nor men had significant differences in the probability of reporting an economic rank of '5' or higher by work status. In contrast, not working is associated with a reduced probability of expecting to live 'much better' or 'somewhat better' amongst both women and men.<sup>19</sup> In contrast, worklessness was not associated with any significant reduction in the probability that a woman or man was 'unconcerned' or 'not very concerned' about obtaining basic necessities for the family.

Clearly, the observed home production and subjective wellbeing means confound other differences between the working and nonworking with the causal impact of worklessness on the outcomes. To test our model, we next turn to multivariate analyses which allow us to control for differences in the labour demand conditions facing individuals, and in their observable characteristics.

## 4 Estimation

We next identify differences across the sexes in the causal impact of the 1992 economic shock on time spent in home production, time in non-leisure activities and the four subjective wellbeing outcomes.

At the household level, we can use our identification strategy to examine the impact of a household male or female becoming workless on the total time spent by household females and males in home production and in all productive activities. Amongst households containing one member of our individual level sample, the probability that an individual is workless can be considered exogenous, conditional on his or her presence in the household.

$$\begin{aligned} HHTIME_h = & \beta_0 + \beta_1 * HHNONWKFEM + \beta_2 * HHABLEFEM + \\ & \beta_3 * HHNONWKMAN + \beta_4 * HHABLEMAN + \\ & \delta * HHCHAR + \mu + \psi_t + \epsilon_h \end{aligned}$$

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<sup>18</sup>In all cases, these differences are statistically significant at the 1% level.

<sup>19</sup>About 57% of working women, and 42% of nonworking women expected to live 'much better' or 'somewhat better' in the next twelve months, a difference which is statistically significant at the 1% level. For men, 51% of those working and 41% of those non-working were expecting to live better according to this definition, a difference which is statistically significant at the 5% level.

We examine the causal impact of worklessness in household  $h$  on four outcomes:  $HHTIME \in \{\text{total time spent by all household females in home production, total time spent by all household males in home production, total time busy amongst all household females, and total time busy amongst all household males}\}$ . The variable  $HHNONWKFEM$  refers to the number of non-working female members of the individual sample, while  $HHABLEFEM$  refers to the total number of female members of the individual sample. Thus  $\beta_1$  can be interpreted as the causal impact of the worklessness of an able-bodied working-age woman on each of the four outcomes considered. Similarly, for men,  $HHNONWKMAN$  refers to the number of non-working but able-bodied working age men from the individual sample, and  $HHABLEMAN$  refers to the number of household men from our individual sample. The coefficient  $\beta_3$  is interpreted as the causal impact of a male not working on each of the four household level outcomes. The household characteristics that we control for,  $HHCHAR$ , include: household size, the number of household females aged 55 and older, the number of household men age 60 and older, the number of children under 6, and the number of children age 6 to 18. The variable  $\mu$  represents primary sampling unit fixed effects. These local fixed effects refer to the 21 urban sites visited across Russia in the 1992 survey. We also control for the month of interview,  $\psi_t$ , with a female interaction term. The error term,  $\epsilon_h$ , necessarily includes all unobservable characteristics and these are potentially correlated with our variables of interests  $HHNONWKFEM$  and  $HHNONWKMAN$ . However, as shown in table 2, we can be relatively confident that the unobservable differences between workless men and women are minor.

The results suggest that women substitute into male home production activities when workless but that men do not substitute significantly into female activities. Table 3 illustrates. When a woman becomes workless, total time spent by household women in home production does not change (column (1)), but household males spend about 4 hours less in home production (column (2)). However, when a sample man becomes workless, women do not spend less time in total in home production (column (1)). Household males spend about 8 hours more per week, in total, in home production, when a household man from our individual sample becomes workless.

Household females are no less busy when one sample member becomes workless, and having a workless male also does not reduce the mean time household females are busy (column (3)). However, when a household male becomes workless, total busy hours of household males is reduced by nearly 37, which roughly corresponds to the hours that individual might previously have spent at work. Hours of home production may expand to fill the time available for women, but not for men. In fact, household men might be working outside the home slightly more when a female becomes workless: This would explain why total hours spent by males worked in home production are reduced but total hours men are busy are not reduced because of a woman not working (column (4)).

We next examine how not working impacts the time use of individuals and their subjective wellbeing. At the individual level, all equations take the following form:



$$\begin{aligned}
OUTCOME_i = & \beta_0 + \beta_1 * FEMALE + \beta_2 * NONWK + \beta_3 * HRSWK + \\
& \beta_4 * NONWK * FEMALE + \gamma * INDCHAR + \\
& \delta * HHCHAR + \omega * LOCALFIXED + \psi_t + \epsilon_i
\end{aligned}$$

The key coefficient of interest is the *NONWK* dummy indicating that an individual is not working at the time of the interview, and the interaction term *NONWK \* FEMALE*. All individual (*INDCHAR*), household (*HHCHAR*), and local fixed effect (*LOCALFIXED*) variables include interactions with a female dummy. The individual characteristics controlled for include: marital status, completed higher education, completed vocational education, and 5 year age groups. Household level controls include: number of children 5 and under, number of children aged 6-18. Standard errors are robust. We also include a linear term for date of interview,  $\psi_t$ , interacted with the female dummy.

We next investigate the sex differentials in the impact of worklessness on individual time spent in home production. The dependent variable is the total time, in hours spent in home production in the week prior to the RLMS-HSE interview. Table 4 shows that the workless increase their home production by about 8 hours per day, but that there is no difference across the sexes in this increase. These findings show that men, who do much less home production than do women when working, still spend relatively little of their time in home production when workless. Women increase their home production time when workless as little as do men, consistent with marginal returns to home production being small for them at this high level.

If men increase their home production to the same extent as do women when workless, they should have much more leisure when they lose their jobs. We next consider how the economic shock impacted total time occupied with either home production, work, or commuting to work, which we call busy time. As shown in column (2) of Table 4, worklessness causes people to be less busy, but there are very different impacts across the sexes. While not working reduces time busy by about 45 hours for men, it reduces this time by only 28 hours for women. Not working increases leisure time for both sexes, but for men much more than it does for women. In columns (3), (4), and (5), we examine the impact of not working on three of the most time-consuming home production activities: shopping, cooking and cleaning, and caring for others. Here we find that men do not increase time shopping when they become workless, but women increase their already large number of hours spent shopping, about 15, by 2 hours per week. This finding suggests that men might face stigma in some types of home activities. Although working men do spend an average of 5 hours per week shopping, being workless does not increase this amount. In contrast with the results for shopping, we find that men do significantly increase time spent cooking and cleaning and caring for others as a result of becoming workless. Although women still do the overwhelming majority of cooking and cleaning, men do increase time spent on this by about 5 hours when they lose their jobs (column (4)). Still, women increase time spent

cooking and cleaning when workless by even more than do men, by nearly 12 hours total. In contrast, men and women increase time spent caring for others both by about 3 hours, on average, as a result of not working. The finding that men increase home production which takes place within the walls of the home more than home production which takes place outside is consistent with men facing stigma in at least some home production activities.<sup>20</sup>

Note that the apparent differences in the results of estimation at the individual and household levels are consistent with home production time extending to fill time available. In Table 3 we saw that worklessness of a household man increased total hours of home production done by household males by 8, on average, and that it did not change total hours of home production done by household females. We found that workless men do increase time spent in both cooking and cleaning and caring for others, which are predominately household activities done by women. The extra home production done by workless men in these two activities appears not to have decreased the amount of time females in the same household devoted to them.

We find that not working has a much greater impact on the life satisfaction of men than of women, but that the same effect is not present with economic wellbeing measures. Panel A of Table 5 presents our preferred results, which include triple interaction terms between female, the local fixed effects and educational attainment dummies, to account for the local labour demand situation facing an individual. In addition to the controls included in equation (2), we now control for hours of work done by an individual in the month prior to the interview. Hours worked in the previous month are those reported by working individuals, and set to 0 for individuals who were not working. We use ordered probit estimation. Since the coefficients of ordered probit estimation cannot be readily interpreted, we focus on comparing the relative magnitude, statistical significance and signs of the coefficients for *not working* and the *female\*(not working)* interaction term.

In column (1) of table 5, it is shown that the female workless experience none of the reduction in life satisfaction that males do. However, columns (2), (3) and (4) of Panel A show that, with the same specification as for life satisfaction, there are no differences across workless men and women in the subjective economic rank, in the perceived probability that their families will be better or worse off in the coming twelve months, or in concerns about obtaining basic necessities. Both workless men and women expect to live better in the future, as indicated by the positive and significant coefficient on 'will live better or worse' measure across specifications. In addition, the female dummy variable is statistically insignificant at the 5 percent level in all specifications.

The other self-reported subjective economic questions suggest that our life satisfaction results do not reflect differences in the potential earnings of men and women that are not accounted for by our fixed effects within sex and education groups in a primary sampling unit. Men have relatively large negative impacts of not working on life satisfaction because being

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<sup>20</sup>Our findings are consistent with studies that explore the roles of identity in household work, for example see Bittman, England, Folbre, and Matheson (2003).

‘at work’ is relatively important to their lives. These results are robust to the exclusion of the hours of work controls in the four subjective response specifications (Panel B), and to the inclusion of a control for income earned by other household members (Panel C). At the same time we observe that the sum of the coefficient for *not working* and *female\*(not working)* is not statistically different from zero.<sup>21</sup> This suggests that women are not happier when workless than working.

We show in section 3.1 that the observed differences in the working and workless are unlikely to be driving our results. When we estimate a simple probit regression explaining worklessness as a function of sex plus age group and marital status controls, the female dummy becomes insignificant. We also test the robustness of the major time use and subjective wellbeing results to the exclusion of all control variables in the regressions. In table 6 we report the results for busy time and time spent in home production for the household. It is shown that the substitution effects in the household when a female or male member becomes unemployed are robust across specifications. Table 7 shows that adding controls at the individual level, in the regressions looking at time spent in home production, busy time and cooking and cleaning, the coefficients of *not working* and *female\*(not working)* remain significant. The impact of *female\*(not working)* interaction term on time spent buying becomes significant when additional control variables are included. Finally, in table 8 it is shown that once we include controls for education, marital status and local fixed effects as well as interaction terms with the female dummy, no gender differences are found to predict any of the four wellbeing measures. The interaction between being a female and not working is only significant in the regressions where life satisfaction is a dependent variable and this result is also robust in the absence of additional controls.

In general, the inclusion or exclusion of these observables does not change the magnitude or significance of the key parameters of interest. If unobservables, and particularly unobservable differences in the characteristics of workless men and women, had been driving the results, we would expect large differences with and without controls for observable characteristics. Many observable socioeconomic and labour market characteristics we control for are at least somewhat correlated with factors that remain unobservable in our preferred specifications. The fact that coefficients remain the same even without these controls is reassuring.

Finally, in the Appendix B, we examine the relationship between worklessness and self-harming behaviour. To summarize, we find that worklessness is not associated with greater increases in alcohol and tobacco use for men than for women.

## 5 Conclusions

This paper suggests that the impact of economic crises on wellbeing outcomes is arbitrated by the ability of individuals to substitute home for market production. Russia’s 1992 price and

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<sup>21</sup>A Wald test fails to reject the hypothesis that coefficients on *not working* and *female\*(not working)* add up to zero.

labour market liberalisation was used as a natural experiment to examine differences across the sexes in crisis responses. Prior to this crisis, firms had hoarded labour, unemployment had been negligible, and the labour force participation rate of urban females was near universal. Still, after selecting a sample of workers who were working in January 1992, and accounting for differences in wage earning potential between the sexes, we found the impact of not working on life satisfaction of men to be far greater than that for women. Men continued to do relatively little home production when workless, and to have much more leisure than women. While women who became jobless substituted partly into home production activities previously done by men, the reverse was not true. Workless women expanded hours of home production to help fill the time available, but men did not.

A social norm which results in more leisure time for men during good economic times may amplify wellbeing effects of an economic crisis. If individuals derive identity from time spent in productive activities, a common increase in worklessness will then decrease life satisfaction more for men than for women. This may help explain why male suicide rates have risen much more than have female in Europe since the 2008 Financial Crisis began, why the gender gap in life expectancy grew substantially in Eastern Europe and the Former Soviet Union following the collapse of communism.

The identities valued by a person may derive partly from social norms amongst one's peers. In the Soviet era, the workplace arranged virtually all leisure activities of men, so that male social networks were built around work. While women had these same workplace networks, they also had social networks outside of work because of their responsibilities for children's activities and grocery shopping. Home production activities done by women may have combined more easily with social networking than for men. In the context of Russia in 1992, a social norm which stigmatized home production amongst males may have led to far greater losses of life satisfaction because being workless reduced social networks more for men.

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Table 1: Mean characteristics of the sample by work status and sex

	Women			Men		
	Working	Not working	P-value	Working	Not working	P-value
<b>Socioeconomic characteristics</b>						
age	38.4563 (0.162)	34.1008 (0.556)	0.0000	39.7790 (0.180)	37.1017 (0.719)	0.0002
higher ed.	0.2037 (0.007)	0.1554 (0.021)	0.0472	0.1831 (0.007)	0.1262 (0.023)	0.0357
vocational ed.	0.2626 (0.008)	0.3784 (0.028)	0.0000	0.4588 (0.009)	0.5000 (0.034)	0.2424
hh.kids under 6	0.1731 (0.007)	0.3818 (0.031)	0.0000	0.2131 (0.008)	0.2290 (0.032)	0.6179
hh. kids 6-18	1.0474 (0.017)	1.2804 (0.064)	0.0000	1.0322 (0.018)	0.9393 (0.070)	0.1893
married	0.6723 (0.009)	0.6622 (0.028)	0.7241	0.8059 (0.007)	0.5888 (0.034)	0.0000
<b>Health characteristics</b>						
height (cm)	161.5542 (0.136)	162.1459 (0.378)	0.1835	172.7298 (0.167)	172.2263 (0.539)	0.4493
arm, full use	0.9296 (0.005)	0.9493 (0.013)	0.1999	0.9462 (0.004)	0.9579 (0.014)	0.4571
walking ability, full	0.9010 (0.005)	0.9155 (0.016)	0.42	0.9311 (0.004)	0.9579 (0.014)	0.1295
vision, no glasses needed	0.6910 (0.008)	0.7635 (0.025)	0.0095	0.7865 (0.007)	0.8364 (0.025)	0.0829
hears well, both ears	0.9882 (0.002)	0.9966 (0.003)	0.1844	0.9837 (0.002)	0.9907 (0.007)	0.4320
speaks without difficulty	0.9947 (0.001)	0.9966 (0.003)	0.6636	0.9890 (0.002)	0.9907 (0.007)	0.8260
<b>Soviet Era Wealth</b>						
lives communally	.1306 (0.006)	.1250 (0.019)	0.7833	0.1261 (0.006)	0.1559 (0.025)	0.1665
years living in place	11.7224 (0.183)	11.3322 (0.563)	0.5280	12.0573 (0.204)	13.2039 (0.804)	0.1619
has telephone	0.4053 (0.009)	0.3878 (0.028)	0.5584	0.3662 (0.033)	0.3780 (0.009)	0.7310

Source: Russia 1992 RLMS-HSE survey, which was partly funded by the World Bank. The columns containing P-values, (3), and (6), are the results of a test of the equality of coefficients across the preceding two columns. Households are considered to live communally if they reside in a communal apartment ('*communalka*'), part of a house, or in one room.

Table 2: The probability of not working in mid-1992

<b>Probit Regressions: Marginal effects reported</b>				
Specification:	(1)	(2)	(3)	(4)
Female	0.1834** (0.046)	-0.1509 (0.124)	-0.2117 (0.136)	-0.3219 (0.553)
Married		-0.5047** (0.083)	-0.5018** (0.083)	-0.5251** (0.086)
Female*married		0.5918** (0.108)	0.5802** (0.109)	0.5336** (0.112)
Age 20-24		-0.0345 (0.135)	-0.0573 (0.135)	-0.0649 (0.134)
Female*age 20-24		0.3887** (0.172)	0.3928** (0.173)	0.3829** (0.177)
Age 25-29		-0.0054 (0.122)	-0.0132 (0.121)	-0.0290 (0.124)
Female*age 25-29		0.0759 (0.157)	0.0661 (0.157)	0.0341 (0.162)
Age 35-39		-0.0340 (0.109)	-0.0433 (0.109)	-0.0449 (0.111)
Female*age 35-39		-0.3570** (0.148)	-0.3631** (0.148)	-0.3681** (0.151)
Age 40-45		-0.2235* (0.119)	-0.2275* (0.119)	-0.2108* (0.121)
Female*age 40-45		-0.3191** (0.161)	-0.3054* (0.162)	-0.2367 (0.163)
Age 45-49		0.0715 (0.136)	0.0739 (0.136)	0.0955 (0.138)
Female*age 45-49		-0.4963** (0.188)	-0.4778** (0.189)	-0.3819** (0.194)
Age 50-54		-0.3747** (0.171)	-0.3774** (0.171)	-0.3655** (0.173)
Female*age 50-54		0.0689 (0.211)	0.1020 (0.212)	0.2166 (0.219)
Age 55-59		-0.0693 (0.142)	-0.0633 (0.142)	-0.0351 (0.145)
High ed.			-0.1390 (0.105)	-0.1437 (0.105)
Female*high ed.			0.1003 (0.136)	0.1118 (0.136)
Vocational ed.			0.0434 (0.073)	0.0396 (0.073)
Female*vocational ed.			0.1845* (0.100)	0.1842* (0.101)
No. of kids<5				0.0443 (0.087)
Female*no. of kids<5				0.2244* (0.115)
No. of kids 6-18				0.0188 (0.040)
Female*no. of kids 6-18				0.0705 (0.058)
Date of interview				-0.0983** (0.041)
Female*date of interview				-0.0027 (0.058)
Pseudo-R <sup>2</sup>	0.00	0.04	0.05	0.06
$\chi^2$	16.24	158.14	177.23	216.02
No. obs.	6744	6744	6744	6739

Source: Russia 1992 RLMS-HSE survey (also funded by World Bank). Higher education is defined as the completion of institute, university or graduate school, vocational education is defined as vocational high-school or college after high-school ('PTU/FZU'), and the reference group is general high-school or less.

Table 3: Substitution into home production activities amongst men and women

<b>OLS regressions. Total hhld hours per week</b>				
	<b>Home production</b>		<b>Busy</b>	
	hhld women	hhld men	hhld women	hhld men
Specification:	(1)	(2)	(3)	(4)
Non-working able female	-0.8602 (3.991)	-4.3734* (2.270)	-4.7415 (4.462)	-3.1896 (3.378)
No. able females in hhld	14.0041** (2.236)	-9.1134** (1.630)	25.3961** (2.958)	-12.6421** (2.367)
Non-working able male	-4.8238 (3.738)	8.3241** (3.575)	0.5839 (4.796)	-36.6837** (4.536)
No. able men in hhld	-14.9033** (2.209)	15.6376** (1.803)	-38.8957** (3.241)	59.0948** (2.560)
Constant	15.0732** (5.208)	13.6463** (4.016)	11.8546* (6.536)	-0.8911 (5.877)
Pseudo-R <sup>2</sup>	0.22	0.17	0.22	0.37
F-stat	31.42	23.92	37.39	84.19
No. obs.	4135	4135	4135	4135

Source: Russia 1992 RLMS-HSE survey. The 1992 RLMS was partly funded by the World Bank. Sample includes all households with at least one able-bodied male or female of working age (20-54 for women, 20-59 for men). All estimates control for primary sampling unit fixed effects, the number of women aged 55 and older, the number of men aged 60 and older, total household size, the number of children under 6, and the number of children 6 to 18. We show that all of these results hold with the exclusion of all other control variables. This is important because it suggests that our estimates are very insensitive to unobservables. Standard errors are robust. \*\*significant at 5% level, \*significant at 10% level.

Table 4: Gender differential impacts of worklessness on individual time use

<b>OLS regressions. Hours per week spent:</b>					
	<b>Home production</b>	<b>Busy</b>	<b>Buying</b>	<b>Cooking and cleaning</b>	<b>Caring for others</b>
Specification:	(1)	(2)	(3)	(4)	(5)
Female	30.3399** (2.761)	19.8834** (3.594)	7.2108** (1.125)	26.1925** (1.715)	0.8350 (1.503)
Not working	7.9199** (2.726)	-44.7571** (3.286)	1.2150 (0.862)	4.8202** (1.571)	3.1728** (1.501)
Female*not working	1.3755 (3.791)	17.1007** (4.261)	2.1750* (1.312)	6.6182** (2.473)	-2.5430 (2.270)
Married	-0.5989 (1.552)	5.1773** (2.271)	-0.9987* (0.543)	-2.8132** (0.862)	0.5130 (0.594)
Female*married	16.7420** (2.141)	0.9802 (2.812)	2.8704** (0.798)	14.2004** (1.331)	0.8009 (0.975)
No. of kids under 5	2.3094 (1.505)	-2.7110 (2.028)	0.6606 (0.482)	-0.4524 (0.663)	3.7888** (1.011)
Female*no. of kids<5	4.0842 (2.544)	0.4566 (3.051)	0.8577 (0.854)	5.2106** (1.524)	4.8652** (1.872)
No. of kids 6-18	3.6668** (0.742)	2.8256** (0.967)	-0.1831 (0.226)	-0.2549 (0.351)	5.1278** (0.454)
Female*no. of kids 6-18	2.5420** (1.170)	-0.0541 (1.443)	0.5878 (0.419)	3.2661** (0.705)	3.4933** (0.750)
Constant	38.7310** (2.775)	120.5573** (3.503)	6.9594** (0.981)	15.8683** (1.598)	1.1440 (1.396)
Adjusted-R <sup>2</sup>	0.33	0.15	0.17	0.48	0.19
<i>F</i> – <i>stat</i>	77.58	23.40	36.40	147.17	17.29
No. obs.	6438	5334	6743	6728	6683

Source: Russia 1992 RLMS-HSE survey (also funded by World Bank). Local fixed effects are included, as are dummies for the completion of higher and vocational education, and their interaction with the female dummy. Higher education is defined as the completion of institute, university or graduate school, vocational education is defined as vocational high-school or college after high-school ('PTU/FZU'), and the reference group is general high-school or less. We show that all of these results hold with the exclusion of all other control variables. This is important because it suggests that our estimates are very insensitive to unobservables. Standard errors are robust.

Table 5: Gender differential effects of not working on subjective wellbeing and concerns for the future

<b>Ordered Probit Regressions</b>				
	<b>Life Satisfaction</b>	<b>Economic Rank</b>	<b>Will live better/worse</b>	<b>Concern basic necessities</b>
Specification:	(1)	(2)	(3)	(4)
<b>PANEL A: Preferred specification</b>				
Female	0.2316 (0.464)	-0.2427 (0.433)	-0.1080 (0.459)	0.5012 (0.463)
Not working	-0.2226** (0.103)	-0.0930 (0.094)	0.1946* (0.111)	0.1271 (0.105)
Female*not working	0.2664** (0.135)	0.1063 (0.123)	0.0872 (0.141)	-0.1631 (0.139)
Married	0.3389** (0.061)	0.1093* (0.058)	-0.0128 (0.064)	0.0142 (0.060)
Female*married	-0.1338* (0.077)	0.1132 (0.071)	0.0635 (0.079)	-0.2131** (0.077)
Hours worked last month	-0.0004 (0.000)	0.0001 (0.000)	-0.0001 (0.000)	-0.0003 (0.000)
Female*hours worked	0.0004 (0.000)	0.0003 (0.000)	-0.0000 (0.000)	-0.0005 (0.000)
Pseudo-R <sup>2</sup>	0.03	0.02	0.03	0.03
$\chi^2$	520.52	360.10	503.25	495.38
No. obs.	6345	6337	5705	6349
<b>PANEL B: without controls for hours worked by those working</b>				
Female	0.6545 (0.445)	-0.6123 (0.404)	0.0862 (0.442)	0.4153 (0.436)
Not working	-0.1583* (0.091)	-0.1113 (0.082)	0.2143** (0.099)	0.1658* (0.093)
Female*not working	0.1997* (0.118)	0.0729 (0.107)	0.0873 (0.125)	-0.1137 (0.122)
Married	0.3123** (0.059)	0.1198** (0.055)	-0.0128 (0.060)	0.0321 (0.058)
Female*married	-0.1041 (0.074)	0.0819 (0.069)	0.0628 (0.075)	-0.2250** (0.075)
Pseudo-R <sup>2</sup>	0.03	0.01	0.03	0.03
$\chi^2$	514.83	356.54	515.95	515.62
No. obs.	6683	6668	6004	6690
<b>PANEL C: with controls for income earned by other household members and hours worked</b>				
Female	0.2957 (0.464)	-0.2004 (0.433)	-0.0957 (0.459)	0.4429 (0.462)
Not working	-0.2207** (0.103)	-0.0896 (0.094)	0.1990* (0.111)	0.1250 (0.105)
Female*not working	0.2461* (0.135)	0.0860 (0.123)	0.0793 (0.141)	-0.1425 (0.139)
Married	0.3388** (0.062)	0.1083* (0.058)	-0.0128 (0.064)	0.0152 (0.060)
Female*married	-0.1619** (0.077)	0.0869 (0.072)	0.0579 (0.079)	-0.1893** (0.078)
Other income (hh member)	0.0066** (0.002)	0.0099** (0.003)	0.0097** (0.003)	-0.0043* (0.002)
Female*other income	0.0040 (0.003)	0.0002 (0.004)	-0.0076* (0.004)	-0.0049 (0.004)
Pseudo-R <sup>2</sup>	0.03	0.02	0.03	0.04
$\chi^2$	610.01	396.76	513.52	509.68
No. obs.	6345	6337	5705	6349

Source: Russia 1992 RLMS-HSE survey, which was partly funded by the World Bank. All estimates control for the triple interaction between primary sampling unit, sex, and educational attainment. Higher education is defined as the completion of institute, university or graduate school, vocational education is defined as vocational high-school or college after high-school ('PTU/FZU'), and the reference group is general high-school or less. A dummy for month of interview is included in all specifications, and interacted with the female dummy. Controls for the number of children under 6, and the number of children 6-18 in the household are interacted with the female dummy. Standard errors are robust. We show that all of these results hold with the exclusion of all other control variables. This is important because it suggests that our estimates are very insensitive to unobservables. \*\*significant at 5% level, \*significant at 10% level.

Table 6: Robustness check: Substitution in home production activities amongst men and women

<b>OLS regressions. Total hhld hours per week</b>				
	<b>Home production</b>		<b>Busy</b>	
	hhld women	hhld men	hhld women	hhld men
Specification:	(1)	(2)	(3)	(4)
Non-working able female	1.5329 (4.324)	-3.7837* (2.352)	-2.4956 (5.346)	-4.5543 (3.373)
No. able females in hhld	24.4834** (2.069)	-1.1150 (1.432)	40.4123** (2.839)	3.2161 (2.014)
Non-working able male	-5.4864 (3.924)	8.0116** (3.655)	1.8620 (5.201)	-37.1120** (4.504)
No. able men in hhld	8.8251** (1.902)	22.4414** (1.435)	-7.7774** (2.700)	76.1528** (1.951)
Constant	63.2134** (2.657)	18.9255** (1.854)	73.4901** (3.682)	22.0382** (2.594)
Pseudo-R <sup>2</sup>	0.04	0.08	0.07	0.31
F-stat	36.86	76.30	67.27	420.36
No. obs.	4135	4135	4135	4135
<b>(Preferred Specification) OLS regressions. Total hhld hours per week</b>				
	<b>Home production</b>		<b>Busy</b>	
	hhld women	hhld men	hhld women	hhld men
Specification:	(1)	(2)	(3)	(4)
Non-working able female	-0.8602 (3.991)	-4.3734* (2.270)	-4.7415 (4.462)	-3.1896 (3.378)
No. able females in hhld	14.0041** (2.236)	-9.1134** (1.630)	25.3961** (2.958)	-12.6421** (2.367)
Non-working able male	-4.8238 (3.738)	8.3241** (3.575)	0.5839 (4.796)	-36.6837** (4.536)
No. able men in hhld	-14.9033** (2.209)	15.6376** (1.803)	-38.8957** (3.241)	59.0948** (2.560)
Constant	15.0732** (5.208)	13.6463** (4.016)	11.8546* (6.536)	-0.8911 (5.877)
Pseudo-R <sup>2</sup>	0.22	0.17	0.22	0.37
F-stat	31.42	23.92	37.39	84.19
No. obs.	4135	4135	4135	4135

Source: Russia 1992 RLMS-HSE survey. The 1992 RLMS was partly funded by the World Bank. Sample includes all households with at least one able-bodied male or female of working age (20-54 for women, 20-59 for men). Note that the above panel contains no control variables. The estimates in the lower panel, which reproduce those of Table 3 in the main text, control for primary sampling unit fixed effects, the number of women aged 55 and older, the number of men aged 60 and older, total household size, the number of children under 6, and the number of children 6 to 18. Standard errors are robust. \*\*significant at 5% level, \*significant at 10% level.

Table 7: Gender differential impacts of worklessness on individual time use

<b>Robustness check: OLS regressions. Hours per week spent:</b>					
	<b>Home production</b>	<b>Busy</b>	<b>Buying</b>	<b>Cooking and cleaning</b>	<b>Caring for others</b>
Specification:	(1)	(2)	(3)	(4)	(5)
Female	42.8369** (0.910)	19.3432** (1.151)	10.0791** (0.327)	38.9235** (0.557)	3.1650** (0.541)
Not working	6.3940** (2.747)	-46.5935** (3.348)	1.9099** (0.863)	5.2603** (1.569)	2.4720 (1.595)
Female*not working	0.7350 (3.870)	15.8483** (4.343)	1.1886 (1.314)	6.5094** (2.527)	1.8802 (2.499)
Constant	32.5408** (0.562)	98.5370** (0.793)	5.5668** (0.188)	9.9457** (0.276)	5.3565** (0.299)
Adjusted-R <sup>2</sup>	0.27	0.11	0.14	0.44	0.01
<i>F</i> – <i>stat</i>	797.50	205.53	352.95	1782.22	15.68
No. obs.	6438	5334	6743	6728	6683
<b>Preferred specification: OLS regressions. Hours per week spent:</b>					
	<b>Home production</b>	<b>Busy</b>	<b>Buying</b>	<b>Cooking and cleaning</b>	<b>Caring for others</b>
Specification:	(1)	(2)	(3)	(4)	(5)
Female	30.3399** (2.761)	19.8834** (3.594)	7.2108** (1.125)	26.1925** (1.715)	0.8350 (1.503)
Not working	7.9199** (2.726)	-44.7571** (3.286)	1.2150 (0.862)	4.8202** (1.571)	3.1728** (1.501)
Female*not working	1.3755 (3.791)	17.1007** (4.261)	2.1750* (1.312)	6.6182** (2.473)	-2.5430 (2.270)
Married	-0.5989 (1.552)	5.1773** (2.271)	-0.9987* (0.543)	-2.8132** (0.862)	0.5130 (0.594)
Female*married	16.7420** (2.141)	0.9802 (2.812)	2.8704** (0.798)	14.2004** (1.331)	0.8009 (0.975)
No. of kids<5	2.3094 (1.505)	-2.7110 (2.028)	0.6606 (0.482)	-0.4524 (0.663)	3.7888** (1.011)
Female*no. of kids<5	4.0842 (2.544)	0.4566 (3.051)	0.8577 (0.854)	5.2106** (1.524)	4.8652** (1.872)
No. of kids 6-18	3.6668** (0.742)	2.8256** (0.967)	-0.1831 (0.226)	-0.2549 (0.351)	5.1278** (0.454)
Female*no. of kids 6-18	2.5420** (1.170)	-0.0541 (1.443)	0.5878 (0.419)	3.2661** (0.705)	3.4933** (0.750)
Constant	38.7310** (2.775)	120.5573** (3.503)	6.9594** (0.981)	15.8683** (1.598)	1.1440 (1.396)
Adjusted-R <sup>2</sup>	0.33	0.15	0.17	0.48	0.19
<i>F</i> – <i>stat</i>	77.58	23.40	36.40	147.17	17.29
No. obs.	6438	5334	6743	6728	6683

Source: Russia 1992 RLMS-HSE survey (also funded by World Bank). The above panel contains no control variables. The estimates of the lower panel, which reproduce those of Table 4 in the main text, control for the triple interaction between primary sampling unit, sex, and educational attainment. Higher education is defined as the completion of institute, university or graduate school, vocational education is defined as vocational high-school or college after high-school ('PTU/FZU'), and the reference group is general high-school or less.

Table 8: Gender differential effects of worklessness on subjective wellbeing and concerns for the future

<b>Ordered Probit Regressions</b>				
	<b>Life Satisfaction</b>	<b>Economic Rank</b>	<b>Will live better/worse</b>	<b>Concern basic necessities</b>
Specification:	(1)	(2)	(3)	(4)
Female	-0.1772** (0.028)	-0.1126** (0.026)	-0.1429** (0.028)	0.2526** (0.029)
Not working	-0.2266** (0.089)	-0.0937 (0.081)	0.2588** (0.098)	0.1778** (0.089)
Female*not working	0.2371** (0.116)	0.0838 (0.104)	0.0957 (0.122)	-0.0591 (0.116)
Pseudo-R <sup>2</sup>	0.00	0.00	0.00	0.01
$\chi^2$	42.41	19.86	51.26	88.81
No. obs.	6688	6673	6009	6695
<b>Preferred Specification: Ordered Probit Regressions</b>				
	<b>Life Satisfaction</b>	<b>Economic Rank</b>	<b>Will live better/worse</b>	<b>Concern basic necessities</b>
Specification:	(1)	(2)	(3)	(4)
Female	0.2316 (0.464)	-0.2427 (0.433)	-0.1080 (0.459)	0.5012 (0.463)
Not working	-0.2226** (0.103)	-0.0930 (0.094)	0.1946* (0.111)	0.1271 (0.105)
Female*not working	0.2664** (0.135)	0.1063 (0.123)	0.0872 (0.141)	-0.1631 (0.139)
Married	0.3389** (0.061)	0.1093* (0.058)	-0.0128 (0.064)	0.0142 (0.060)
Female*married	-0.1338* (0.077)	0.1132 (0.071)	0.0635 (0.079)	-0.2131** (0.077)
Hours worked last month	-0.0004 (0.000)	0.0001 (0.000)	-0.0001 (0.000)	-0.0003 (0.000)
Female*hours worked	0.0004 (0.000)	0.0003 (0.000)	-0.0000 (0.000)	-0.0005 (0.000)
Pseudo-R <sup>2</sup>	0.03	0.02	0.03	0.03
$\chi^2$	520.52	360.10	503.25	495.38
No. obs.	6345	6337	5705	6349

Source: Russia 1992 RLMS-HSE survey (also funded by World Bank). The estimates of the upper panel contain no control variables. The estimates of the lower panel, which reproduce those of Panel A, Table 5 in the main text, control for the triple interaction between primary sampling unit, sex, and educational attainment. Higher education is defined as the completion of institute, university or graduate school, vocational education is defined as vocational high-school or college after high-school ('PTU/FZU'), and the reference group is general high-school or less.



## Data Appendix A: Sample Restrictions

The sample was restricted to individuals between age 20 and pension age (55 for women, 60 for men), who were not in full time study, on maternity leave, having a child under 1 in the household, or on a disability pension. The detailed health questionnaire posed to all adults was used to further restrict the sample to members without severe physical or mental disabilities.

Interviewers posed open-ended questions about health status to all respondents, without reading out their code list. The most general of these was, *“How do you feel? How is your heart, your breathing, your stomach and other internal organs? Indicate please, how does your health affect your work and other daily activities?”*

Interviewers used the responses to this question to code the person’s general health situation in one of four ways:

1. Everything is normal
2. It sometimes affects my ability to work and carry out everyday activities.
3. It often affects my ability to work and carry out everyday activities.
4. Not able to work and carry out everyday activities.

Individuals whose responses to this question had been coded as ‘3.’ or ‘4.’ were excluded from the sample.

Next, interviewers posed the question:

How well can you use your arms? Can you use them for all usual activities?

Interviewers coded the aural responses into one of four categories:

1. Normal (full range of motion).
2. Has some problems, but doesn’t need help with work or other everyday activities.
3. Needs some help.
4. Needs constant help.

Individuals whose responses to this question were coded as ‘3.’ or ‘4.’ were excluded from the sample.

Next individuals were posed the question “How well can you use your legs, or do you have any restrictions in walking?”

Interviewers coded the responses to this question as follows:

1. Normal (full range of motion).

2. Has some problems, but can still walk independently.
3. Needs help when walking.
4. Must stay in bed or in a wheelchair.

Those for whom the interviewer coded the responses as '3.' or '4.' were excluded from the sample.

Similar questions were posed regarding, vision, hearing, speech, and mental health, and the interviewer coded the aural responses. Individuals who received the following codings were excluded from the sample:

- Sees very badly, glasses don't help much, or practically blind in one eye.
- Completely blind.
- A hearing aid doesn't help much, hears very badly, or deaf in one ear.
- Completely deaf.
- Considerable speech problems with severe stammer
- Practically dumb.
- Often interrupt social activities and work due to psychological or psychiatric problems.
- Hospitalized or under a psychiatrist's care for psychological or psychiatric problems.

A summary of the total number of observations excluded after each restriction is given in table 9.

Table 9: Sample Restrictions

	No. of observations
Total Sample	17147
Sample size after restrictions	6744
	No. of observations after each restriction
<i>Restrictions</i>	
Non-working age men and women	8340
Students (university, college or high-school), women on maternity leave	7979
Pregnant women or women with a child under age 1	7760
Individuals with one or more health restrictions	7140
Never worked before	7070
Worked before but left job before the beginning of 1992	6744

## Appendix B: Self-harming behaviour

While workless men are relatively dissatisfied with their lives, this dissatisfaction is not obviously associated with more self-harming behaviours. Alcohol consumption, measured in units per week, is more for men than for women, with men in our sample consuming an average of 16 and women in our sample consuming an average of 15 units in the week prior interview. However, Table 10 shows that not working does not cause either women or men to increase their alcohol consumption. Differences across the sexes in the effects of not working are also not statistically significant at the 10% level. Smoking was also a predominantly male activity, with men smoking a mean of 10 cigarettes per week, and women 0.8. Whereas 90% of women were nonsmokers, only 10% of men were. The right panel of Table 10 confirms that women smoke much less than men do, *ceteris paribus*. Importantly, though, there is also no effect of not working on cigarettes consumed, or difference across the sexes in this effect.

Aside from alcohol and cigarette consumption, there are several other ways in which reduced life satisfaction could increase mortality. The model of suicide developed in Hamermesh and Soss (1974) suggests that individuals will end their lives when the present discounted value of their future lives becomes negative. However, aside from suicide, incentives to invest in health-preserving behaviour may be impacted by changes in life satisfaction. The RLMS data do not contain information about potentially relevant behaviour such as driving while intoxicated, or quantities of alcohol consumed at a single sitting. Even though death rates were very high during the 1992-1994 span of the survey, relatively few RLMS respondents died.<sup>22</sup> For this reason it is impossible to link not working in 1992 to subsequent death of an individual in our sample. However, our results do suggest that being not working reduced the incentives of men to invest in health-preserving behaviour in a way that it did not for women, and that the increased leisure men gained from not working was of relatively poor quality.

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<sup>22</sup>Denisova (2009) documents average crude deaths in the RLMS twice lower than the national average. The difference is even higher for working age individuals, among these death rates are almost three times lower than the national average.

Table 10: Worklessness and consumption of alcohol and tobacco in week prior to interview

	<b>Alcohol units/week</b>	<b>Cigarettes/week</b>
Specification:	(1)	(2)
Female	-47.4962** (6.230)	-11.0517** (0.615)
Not working	9.7006 (7.901)	0.1532 (0.682)
Female*not working	-6.8090 (8.483)	0.7855 (0.724)
No. of kids<5	5.1739 (4.489)	-0.3737 (0.411)
No. of kids 6-18	-3.6520* (2.182)	-0.2886 (0.212)
Constant	48.9093** (7.738)	11.5787** (0.716)
Adjusted-R <sup>2</sup>	0.14	0.33
<i>F</i> – <i>stat</i>	23.03	79.51
No. obs.	6605	6744

Source: Russia 1992 RLMS-HSE survey (also funded by World Bank). All estimates control for educational attainment, interview date, and female interaction terms, and for primary sample unit fixed effects. Higher education is defined as the completion of institute, university or graduate school, vocational education is defined as vocational highschool or college after highschool ('PTU/FZU'), and the reference group is general highschool or less. Standard errors are robust. \*\*significant at 5% level, \*significant at 10% level.

Figure 1

